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Report

**Stage 1 and 2 Contamination Assessment
Proposed New Amity College Campus
Lot 1 DP 525996 No 85 Byron Road and
Lot 2 DP 525996 No 63 Ingleburn Road
Leppington NSW**

Prepared for
Amity College
C/- Gran Associates Pty Ltd
Level 1, 597 Darling Street
ROZELLE NSW 2039

Ref: JC18322A-r1(rev2)
May 2019



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30th May 2019

Our Ref: JC18322A-r1(rev2)

Amity College
C/- Gran Associates Pty Ltd
Level 1, 597 Darling Street
ROZELLE NSW 2039

Attention: Mr Peter Reed

Dear Sir

**Re Stage 1 and 2 Contamination Assessment
 Proposed New Amity College Campus
 Lot 1 DP 525996 No 85 Byron Road and
 Lot 2 DP 525996 No 63 Ingleburn Road, Leppington**

We are pleased to submit our Stage 1 and 2 Contamination Assessment report for the proposed new Amity College Campus to be located at the above address.

This report should be read in conjunction with our Geotechnical and Salinity report (ref JC18322A-r2(rev2) dated May 2019) and attached Important Information about your Environmental Site Assessment Report.

Should you have any queries, please contact the undersigned.

Yours faithfully

GeoEnviro Consultancy Pty Ltd

Solern Liew CPEng NER
Director

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Executive Summary

This report presents the results of a Stage 1 and 2 Contamination Assessment for the site identified as Lot 1 DP 525996 No 85 Byron Road and Lot 2 DP 525996 No 63 Ingleburn Road, Leppington, as shown on Drawing No 1.

We understand that the site occupies an area of about 3.3 hectares and the major southern and middle portion of the site is Zoned SP2 (Education Establishment) with the front portion of the site Zoned R3 (Residential). The proposed New Amity College Campus will occupy the portion of site Zoned SP2 and based on the masterplan drawings provided, the proposed school buildings will be up to 4 to 5 storeys high and will include a basement level. The objective of this study was to assess if the site is suitable, or may be made suitable for the proposed school development in accordance with SEPP55 Remediation of Land (DUAP, 1998) and applicable guidelines approved by the NSW EPA.

At the time of the site investigation, the site was mainly used for residential with the southern rear portion of the site consisting of medium dense trees. The site has a number of buildings and sheds (Site Features C and E) used for general storage associated with agricultural activities including nursery and machinery maintenance works. Some minor hydrocarbon staining was visible on the surface in the area between the dwelling and the shed (Site Feature C).

In the middle of the site, historical review indicates numerous buildings and sheds (Site Feature F) to have once existed and the rear portion of the site near the western boundary appeared to be originally part of a drainage depression (ie Site Feature G) which has been backfilled.

Soil sampling for initial screening was carried out on the 23rd and 24th April 2018 and involved drilling of forty boreholes (BH 1 to BH 40). An additional detailed investigation was subsequently carried out on the 8th January 2019 to assess the extent of contamination more accurately and this involved excavation and sampling of an additional thirty-eight (TP 1 to TP 38).

Fill ranging from 0.3m to greater than 2.3 thick was encountered in BH 17, 18, 28 and TP 3 to 8, 10, 27 to 29 and 31 comprising of Clayey Silt/Silty Clay, Clayey Silt/Gravelly Silt, Gravelly Silt, Silty Clay and Silty Gravel Silt.

BH 17, 18, 20, 23 and TP 22, 27 and 29 were excavated in the access driveway (Site Feature D) and some (>5%) crushed rock and trace (<5%) of brick fragments were encountered in the fill in BH 17. Some asphalt lumps and crushed rock were encountered in the topsoil/fill in BH 23 in the driveway (Site Feature D).

Rubbish including concrete, brick, plastic metal and glass was encountered within the fill in BH 28, TP 4, 6 to 8 and 10 and this fill appeared to have been placed in the previous depression area (ie Site Feature G). Some asbestos fragments were encountered in the fill in BH 28, TP 6 to 8 and 10.

A trace of plastic was encountered in the topsoil/fill in TP 21 which was excavated in the previous building/shed locations (Site Feature F). A disused asbestos pipe originally connected to the building (Site Feature C) was encountered in TP 31.

The remainder of the site was generally found to be underlain by topsoil and topsoil/fill overlying natural to medium plasticity Silty Clay.

Selected soil samples were analysed for a range of potential contaminants consisting of Heavy metals (As, Cd, Cr, Cu, Hg, Pb, Ni and Zn), Organochlorine pesticides, Polychlorinated Biphenyls, Total Recoverable Hydrocarbons, Benzene, Toluene, Ethyl Benzene and Xylene, Polycyclic Aromatic Hydrocarbons and asbestos. The results were interpreted by comparison with guideline Criteria recommended by the NSW EPA.

Slightly elevated Zinc concentrations of 550mg/kg and 800mg/kg were encountered in the fill in BH 28 and TP 4 respectively and in TP 8, the concentration of Zinc was found to be 2000mg/kg above the EIL Criteria of 432mg/kg, noting that these samples were taken from the rubbish and asbestos (ie BH 28, TP 6, TP 8 and TP 10) impacted fill in the backfilled depression (Site Feature G).

A slightly elevated concentration of Zinc of 500mg/kg was found in the topsoil sample from TP 1 located in the treed area at the south eastern corner of the site. This concentration was found to be less than 2.5 times the EIL and taking into consideration the background concentration of Zinc within the site, an Upper 95% Confidence Limit of 169mg/kg was calculated and therefore within the EIL, hence acceptable.

The laboratory test results indicate all other samples to have concentrations of contaminants of concern to be within the Site Criteria or with negligible concentrations

Within the context of the scope of work carried out, we consider the site to have a low risk of gross chemical contaminations, however the site was found to be impacted by buried rubbish/asbestos fill and elevated concentrations of Zinc in the backfilled depression area (Site Feature G) shown as Area 4 in Drawing No 8 with depth of fill ranging from 0.2m to greater than 2.3m.

For the proposed school development, site remediation is required to clean up Area 4. We recommend a remediation action plan (RAP) be prepared outlining a remediation strategy to clean up the site to a suitable level for the proposed school development. In addition the areas of hydrocarbon stained soil encountered between the dwelling and sheds (Area 1 - Site Feature C) should be remediated.

Subject to successful remediation works and implementation of the RAP and validation works, the site would be suitable for the proposed school development and comply with SEPP55 Remediation of Land (DUAP, 1998).

1. INTRODUCTION

This report presents the results of a Stage 1 and 2 Contamination Assessment for the site identified as Lot 1 DP 525996 No 85 Byron Road and Lot 2 DP 525996 No 63 Ingleburn Road, Leppington, as shown on Drawing No 1.

The investigation was commissioned by Mr Peter Reed of Gran Associates acting on behalf of Amity College. The scope of this assessment was initially carried out in general accordance with our fee proposal referenced PC18424B dated 9th April 2018 and a more detailed scope was carried out based on our proposal referenced JC18322A-L2 dated 19th December 2018. This assessment was undertaken in conjunction with our Geotechnical and Salinity investigation report referenced in our report JC18322A-r2(rev2) dated May 2019.

We understand that the site occupies an area of about 3.3 hectares and the major southern and middle portions of the site is Zoned SP2 (Education Establishment) with the front portion of the site Zoned R3 (Residential). The proposed New Amity College Campus will occupy the portion of site Zoned SP2 and based on the masterplan drawings provided, the proposed school buildings will be up to 4 to 5 storeys high and will include a basement level. Refer for Drawing No 2 for zoning plan and Drawing No 3 for proposed development plan.

The objective of this study was to assess if the site is suitable, or may be made suitable for the proposed school development in accordance with SEPP55 Remediation of Land (DUAP, 1998) and applicable guidelines approved by the NSW EPA.

This study also includes the front portion of the site Zoned R3.

2. SCOPE OF WORK

The contamination work undertaken is in conformity with the provisions of *State Environmental Planning Policy No 55-Remediation of Land* (SEPP 55).

Clause 7 of SEPP 55 provides requirements for land that may be contaminated when considering a development application, including applications for schools (sub clause (4)(c). SEPP 55 makes reference to the contaminated planning guidelines. Clause 7 states:

“7 Contamination and remediation to be considered in determining development application

(1) A consent authority must not consent to the carrying out of any development on land unless:

- (a) it has considered whether the land is contaminated, and*
 - (b) if the land is contaminated, it is satisfied that the land is suitable in its contaminated state (or will be suitable, after remediation) for the purpose for which the development is proposed to be carried out, and*
 - (c) if the land requires remediation to be made suitable for the purpose for which the development is proposed to be carried out, it is satisfied that the land will be remediated before the land is used for that purpose.*
- (2) Before determining an application for consent to carry out development that would involve a change of use on any of the land specified in subclause (4), the consent authority must consider a report specifying the findings of a preliminary investigation of the land concerned carried out in accordance with the contaminated land planning guidelines.*
- (3) The applicant for development consent must carry out the investigation required by subclause (2) and must provide a report on it to the consent authority. The consent authority may require the applicant to carry out, and provide a report on, a detailed investigation (as referred to in the contaminated land planning guidelines) if it considers that the findings of the preliminary investigation warrant such an investigation.*
- (4) **The land concerned is:***
- (a) land that is within an investigation area,*
 - (b) land on which development for a purpose referred to in Table 2 to the contaminated land planning guidelines is being, or is known to have been, carried out,*
 - (c) **to the extent to which it is proposed to carry out development on it for residential, educational, recreational or child care purposes, or for the purposes of a hospital—**land:*
 - (i) in relation to which there is no knowledge (or incomplete knowledge) as to whether development for a purpose referred to in Table 2 to the contaminated land planning guidelines has been carried out, and*

(ii) on which it would have been lawful to carry out such development during any period in respect of which there is no knowledge (or incomplete knowledge).” (our emphasis)

The development application involves a change of the use of the land from a rural activity to a proposed school development. It is a change of use identified by cl 7(4) and the contaminated land planning guidelines, therefore cl 7(2) of SEPP 55 is engaged.

The “contaminated land planning guidelines” referred to above are defined in clause 4(1) of SEPP 55 to mean guidelines under s 145C of the *Environmental Planning & Assessment Act 1979* (EP&A Act). The current planning guidelines under s 145C of the EPA Act are *Managing Land Contamination Planning Guidelines SEPP 55-Remediation of Land 1998* (contaminated land planning guidelines).

Table 2 to the Contaminated Land Guidelines lists different activities that may cause contamination of land, including "agricultural/horticultural activities".

This contamination assessment was performed in general conformance with SEPP55. It contains a Stage 1 and Stage 2 contamination assessment required by SEPP55.

The contaminated land planning guidelines address the process of contamination investigation of any site at Section 3.4 as follows:

“If contamination is, or may be, present the proponent must investigate the site and provide the planning authority with the information it needs to carry out its planning functions. The appropriate level of investigation will depend on the circumstances and may involve one or more of the stages described below in the site investigation process.

3.4.1 A Summary of the Site Investigation Process

Stage 1—Preliminary Investigation.

The main objectives of a preliminary investigation are to identify any past or present potentially contaminating activities, provide a preliminary assessment of any site contamination and, if required, provide a basis for a more detailed investigation. A preliminary investigation is not necessary where contamination is not an issue.

Stage 2—Detailed Investigation.

A detailed investigation is only necessary when a preliminary investigation indicates that the land is contaminated or that it is, or was, formally used for an activity listed in Table 2 and a land use change is proposed that has the potential to increase the risk of exposure to contamination. A detailed investigation will also need to be conducted as part of a remediation proposal. The objectives of a detailed investigation are to define the nature, extent and degree of contamination; to assess potential risk posed by contaminants to health and the environment; and to obtain sufficient information to develop a remedial action plan (RAP), if required.

At 3.5.2 of the contaminated land planning guidelines it provides additional detail in relation to the extent of investigation required at the preliminary stage. Importantly it states in part:

“Where contaminating activities are suspected to have had an impact on the land, sampling and analysis will be required to confirm and support any conclusion reached from the site history appraisal. Through the assessment of sampling results, an assessment of contamination can be established.”

This report contains both Stage 1 and Stage 2 contamination studies of the proposed school site based on a Tier 1 (or screening level) assessment involving comparison of representative site data with generic investigation levels and/or screening levels for protection of human health from chronic exposure to contaminants and the environment.

It provides sufficient certainty to confirm the extent of the historic use of the site; to locate the presence of contamination within the site; and supports a conclusion as to the extent of site contamination remaining. A Remediation Action Plan (RAP) is prepared in response to the investigation, provided under separate cover

In accordance with the contaminated land planning guidelines the scope of work conducted consisted of;

- A review of available soil landscape and geological maps
- A review of available information on the site history from aerial photographs and historical titles search from NSW Land and Property Information (LPI),
- A search of records on previous notices issued by NSW EPA.
- A search of information on Groundwater Boreholes in the area from the NSW Natural Resource Atlas (NRA)
- A review of Camden Council's Section 10.7 (2) Zoning Certificates
- An inspection of the site to identify apparent or suspected areas of contamination,
- A review of published information on the subsurface conditions in the general area,
- A sampling and laboratory analysis program to detect the presence or otherwise of the contaminants of concern,

3. SITE INFORMATION

3.1 Site Location

The site is located at the south western corner of Ingleburn Road and Byron Road in Leppington and is approximately trapezoidal in shape measuring about 100m along Ingleburn Road and 290m along Bryon Road. The site widens to 125m at the rear. Refer to Drawing No 1 for site locality.

The site is within the jurisdiction of Camden Council, Parish of Cook and County of Cumberland.

Surrounding properties consist mainly of semi-rural residential allotments.

3.2 Site Topography and Ground Cover

The site is situated in a region typically characterised as gently undulating with relatively uniform ground surface generally falling to the north and north west towards Bonds Creek and Kemps Creek at angles typically ranging from 2 to 6 degrees.

Within the site, the northern portion of the site is approximately level with a slight dip to the north at angles of less than 2 degrees. Ground surface on the southern portion generally slopes towards a depression along western boundary at angles of between 3 and 4 degrees. Based on the survey drawing (Drawing No 1), the south eastern corner of the site is at Reduced Level (RL) 102.5m Australian Height Datum (AHD) and the north western corner of the site is at RL 93m AHD.

The site ground cover consists predominantly of open ground with thick grass cover with tree canopies on the southern portion. The site appeared well drained with no visible signs of permanent water-logged areas, groundwater or “springs” and this is confirmed by survey drawing and the uniformly hard and dry natural clay which exists across the entire site.

3.3 Soil Landscape and Geological Setting

The 1:100,000 Soil Landscape of Penrith Series 9030 (Reference 2) prepared by the Soil Conservation Services of NSW indicates the site to be underlain by Residual soil belonging to the Blacktown landscape group. Typically, soil consists of highly plastic and moderately reactive subsoils with low permeability. Refer to Drawing No 4 for site locality with reference to the soil landscape map.

The 1:100,000 Geological Map of Penrith Series 9030 (Reference 3) indicates the underlying bedrock to consist of Bringelly shale of the Wianamatta Group consisting of shale, carbonaceous claystone, claystone, laminite, fine to medium grained lithic sandstone, rare coal and tuff. Refer to Drawing No 5 for site locality with respect to the geological setting.

3.4 Climatic, Hydrology and Hydrogeology

The site is situated in an area with moderate rainfalls averaging 836mm per year, with the driest month in July of 37mm/month and the wettest month in January of 97mm/month. The following is average temperature and precipitation/rainfall data.

	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Avg. Temp(°C)	22.3	22.2	20.8	17.5	14.2	11.5	10.3	11.8	14.3	17.1	19	21.5
Min. Temp(°C)	16.8	17	15.4	11.8	8.5	5.8	4	5.3	7.7	11	13	15.5
Max. Temp(°C)	27.9	27.4	26.2	23.3	19.9	17.2	16.7	18.3	20.9	23.2	25.1	27.5
Precipitation / Rainfall (mm)	97	91	104	76	61	73	37	49	39	68	82	59

Topography, surface cover and geology control the hydrogeology of the site. It is anticipated that the majority of rainfall runoff will flow to Scalibrini Creek which leads to Bonds Creek and then into Kemps Creek to the north west.

Based on Martens & Associates Pty Ltd report (2019), a flood assessment report *Upper South Creek Flood Study (2011)* was undertaken by WMA Water on behalf of Camden Council and the following is a summary of modelled flood behaviour of the existing site condition;

- The primary source of site flooding is overland flow from the local catchment, which is approximately 4.7 ha.
- The 1% annual exceedance probability (AEP) flood extents slightly encroaches the site along the north western boundary.
- The 1% AEP flood level is approximately 94.5m AHD based on the WMA mapping and available LIDAR data (LPI 2011)
- The increased rainfall intensity associated with climate change will likely raise 1% AEP levels by 100-200mm, to a level of 94.6 to 94.7m AHD.
- The probable maximum flood (PMF) level is approximately 95.5m AHD.

Groundwater is also expected to flow in a general direction towards the west to Scalibrini Creek. Due to the relatively impervious nature of the underlying residual clayey soil and bedrock, rainfall runoff infiltrating through the subsurface soil and expected bedrock profiles is expected to be minimal.

Based on our local knowledge and previous investigation of the general surrounding area, we expect permanent groundwater table to be at a significant depth below the proposed basement excavation level (ie 6m depth). The results of this investigation confirmed the subsurface profile to be dry with no subsurface groundwater seepage, aquifers or “springs”.

Our search of the NSW Department of Primary Industries groundwater database for the region indicates five groundwater bores within 1km from the site as summarised below;

Bore ID	Depth (m)	SWL (m)	Northing (mAMG)	Easting (mAMG)	Recorded Use	Water Bearing Zones (m)
GW110356	6.00	2.50	6238969.0	297896.0	Monitoring	2.50-6.00
GW110359	6.00	2.90	6238973.0	297920.0	Monitoring	2.90-6.00
GW110358	7.00	4.90	6238993.0	297917.0	Monitoring	4.90-7.00
GW112660	-	-	6239181.0	296770.0	Monitoring	-

The above monitoring boreholes were located within an existing service station site along Camden Valley Way, approximately 600m to the west and the groundwater encountered is likely to be trapped groundwater around and within the underground tank farm and this is typical of service station sites.

Groundwater is not considered to be a significant resource for the general area. Refer to Appendix F for Groundwater works summary.

3.5 Soil Salinity Map

Based on soil salinity risk map (Reference 16) prepared by the Western Sydney Regional Organisation of Councils Ltd, the site is situated in area with moderate salinity potential. Refer to Drawing No 6 for soil salinity map.

3.6 Acid Sulphate Soil Map

The acid sulphate soil risk map prepared by the Department of Land and Water Conservation (Reference 15) indicates the site to be situated in an area with “No Known Occurrence” of acid sulphate soil. Refer to Drawing No 7 for an extract of the map prepared by the Department of Land and Water Conservation.

3.7 Site Inspection and Description

A site visit was carried out on the 23rd to 30th April 2018 and 8th January 2019 by an environmental scientist to observe existing site features and identify obvious or suspected areas of potential contamination. Reference should be made to Drawing No 2 for site features and Appendix A for site photographs.

At the time of the site investigation, the site was mainly used for residential with the southern portion of the site consisting of medium dense trees. The following is a summary of site features noted;

Site Feature	Description
A	Driveway constructed of crushed rock.
B	Single-storey brick, weatherboard and tile dwelling with a metal garage to the rear.
C	Single-storey fibro/metal dwelling with a number of small metal, timber and fibro sheds to the west. Sheds used for storage of miscellaneous items. Some minor hydrocarbon staining visible on surface
D	Driveway constructed of crushed rock, sandstone and traces of building debris (eg bricks and asphalt lumps)
E	Metal, timber and fibro shed with building extensions.
F	Area of previous numerous small buildings and sheds. Previous market garden area (1950s)
G	Backfilled depression with rubbish fill consisting of concrete boulders, bricks, glass and asbestos fragments
H	Recent Market Garden beds
I	Previous market garden/agricultural area

4. STAGE 1 CONTAMINATION ASSESSMENT – HISTORICAL/DESKTOP REVIEW

A desktop study of site history involving a review of Council's Section 10.7 certificates, NSW EPA search, groundwater search and aerial photographs was carried out in order to establish previous land use and to assess site contamination.

The following is a summary of the historical and data searches;

4.1 Aerial Photographs

A review of aerial photographs taken in 1947 to 2005 was carried out. The aerial photographs are attached in Appendix D of this report. The following is a summary of the observations made from the review;

Year	Description
1947	The site was part of a larger parcel of land used for agricultural activities. The single storey fibro and metal dwelling (Site Feature C) situated near the middle of the site was constructed and there were a few small buildings located in the vicinity of the current metal, timber and fibro shed (Site Feature E). A few trees scattered at the southern portion of the site. The immediate surrounding properties to the west and south consisted of agricultural properties. The dam on the adjoining western property was evident. The site was situated in a semi-rural region with agricultural properties throughout.
1956	The middle (Site Feature F) and northern portions (Site Feature I) of the site was used for market gardening. A number of items and possibly small sheds/buildings were noted in the vicinity of the current shed (Site Feature E). The southern portion of the site was revegetated with trees. There was an increase in market garden activities on neighbouring properties.
1965	The site was still being used for market gardening purposes (Site Feature I) with numerous small building or sheds to the south (Site Feature F) of the existing dwelling (Site Feature C) in the middle of the site. There was no significant change in the immediate surrounding properties with the region appearing to have an increase in agricultural properties such as market gardening and poultry farming.

Year	Description
1978	The single storey brick house (Site Feature B) was constructed and there was another shed building constructed to the south of the existing fibro/metal dwelling (Site Feature C). Details of land use on the remaining portion of the site could not be identified due to the poor quality of the photograph. Surrounding landuse appeared similar to that observed in the 1965 aerial photograph.
1986	Market gardening within the site appeared to have decreased or ceased with heavy tree coverage over the southern portion of the site. The previous buildings or shed (Site Feature F) in the middle of the site were removed with some small sheds constructed immediately adjacent the existing building (Site Feature C) in the middle of the site. Agricultural activities on the adjacent properties also appeared to have decreased although agricultural activities within the region continued. There was a significant increase in the number of residential dwellings within the region.
1994	The site appeared similar to its current state with all existing buildings and dwelling present within the site. There were minor market gardening activities present at the northern portion of the site (Site Feature H) although the site appeared to have been mainly used for residential purposes. Market gardening was present on the immediate western property with the southern property being used mainly for residential purposes and possibly grazing. Agricultural activities were still present within the region, although, there was an increase in residential dwellings.
2005	The site appeared in similar conditions to its current state and used mainly for residential purposes The western and southern properties were also used for residential purposes with the majority of agricultural activities within the properties ceasing. The region was still predominantly semi-rural with properties being used for agricultural activities and residential purposes.

4.2 Historical Land Titles

Description of historical information on the previous owners of the site was obtained from NSW Land & Property Information (LPI). The information can often be linked to possible land uses and provides an indication of potential contamination on the site. The following is a summary of information obtained of current and previous proprietors. Refer to Appendix E for the search records.

As regards Lot 1 D.P. 525996

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
06.03.1922 (1922 to 1935)	John Reginald Francis (Labourer)	Vol 3289 Fol 56
13.07.1935 (1935 to 1948)	William John Smith (Farmer)	Vol 3289 Fol 56
16.03.1948 (1948 to 1953)	Elsie Florence Smith (Widow) (Transmission Application not investigated)	Vol 3289 Fol 56
24.11.1953 (1953 to 2005)	Granville Charles Berkley Walters (Market Gardener) (Transmission Application not investigated)	Vol 3289 Fol 56 Now 1/525996
30.05.2005 (2005 to 2018)	Jean Ann Walters	1/525996
28.02.2013 (2013 to 2018)	Norman Charles Walters (Executor of the estate of Jean Ann Walters)	1/525996
22.01.2018 (2018 to 2018)	Pinoi Investments Pty Ltd	1/525996
22.01.2018 (2018 to date)	# Galaxy Foundation Limited	1/525996

As regards Lot 2 D.P. 525996

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
06.03.1922 (1922 to 1935)	John Reginald Francis (Labourer)	Vol 3289 Fol 56
13.07.1935 (1935 to 1948)	William John Smith (Farmer)	Vol 3289 Fol 56
16.03.1948 (1948 to 1953)	Elsie Florence Smith (Widow) (Transmission Application not investigated)	Vol 3289 Fol 56
24.11.1953 (1953 to 1969)	Granville Charles Berkley Walters (Market Gardener) (Transmission Application not investigated)	Vol 3289 Fol 56 Now Vol 10670 Fol 25
29.05.1969 (1969 to 1984)	Isidoro Bianchi (Box Manufacturer) Gino Carra (Box Manufacturer)	Vol 10670 Fol 25
03.07.1984 (1984 to 2018)	Isidoro Bianchi Vince Monteleone Flavia Monteleone	Vol 10670 Fol 25 Now 2/525996
07.03.2018 (2018 to date)	# Galaxy Foundation Limited	2/525996

4.3 NSW EPA Records

A search of NSW EPA contaminated land register and licensing register indicate the site to have no records kept under the Contaminated Land Management Act 1997 and Environmentally Hazardous Chemical Act 1985. Refer to Appendix F for details of the NSW EPA search.

4.4 Interview with Tenants and Owners

The property is occupied by short-term tenants who have no knowledge of the site history. Contact details for the property owners are not available and therefore an interview with the property owners was not possible.

4.5 Council's Record

A search through Camden Council's record for previous development and building approvals (DA/BA) was undertaken and for details, refer to Appendix G for the records. The following is a summary of our search;

- The site was originally referred to as Lot 1 DP 525292 Ingleburn Road and a subdivision Development Application was lodged to subdivide the site into 2 lots (Council's letter dated 13th October 1983).
- A Building Application (No 276/80) was lodged to Council for building additions and this was approved on 29th April 1980.

There was no other DA/BA provided by Council and the available records do not indicate any proposed site activities with high risks of site contamination.

4.6 Council Section 10.7 (2) Zoning Certificate

A copy of the Section 149 (2) certificates were obtained from Camden Council to determine conditions applicable to the site in relation to the Contaminated Land Management Act 1997 and Contaminated Land Management Amendment Act 2009. Reference may be made to the certificate attached in Appendix C.

The certificate indicates the site is **not applicable** to the following matters under Section 59 (2) of the Contaminated Land Management Act 1997;

- That the land to which the certificate relates is significantly contaminated land within the meaning of that Act – if the land (or part of the land) is significantly contaminated land at the date when the certificate is issued.
- That the land to which the certificate relates is subject to a management order within the meaning of that Act – if the land (or part of the land) is significantly contaminated land at the date when the certificate is issued.
- That the land to which the certificate relates is the subject of an approved voluntary management proposal within the meaning of that Act – if the land (or part of the land) is significantly contaminated land at the date when the certificate is issued
- That the land to which the certificate relates is subject to an ongoing maintenance order within the meaning of that Act – if the land (or part of the land) is significantly contaminated land at the date when the certificate is issued.
- That the land to which the certificate relates is the subject of a site audit statement within the meaning of that Act – if a copy of such a statement has been provided at any time to the local authority issuing the certificate.

4.7 Stage 1 Contamination Assessment

4.7.1 Potential for Contamination

4.7.1.1 On-Site Source

Agricultural Activities

The site history records based on land titles and aerial photographs indicate the site to have been used for agricultural purposes since the 1940s and market garden activities were evident in the 1950's through the 1960's and possibly into the 1970's. Minor agricultural/market garden activities may have occurred in the 1980's through 2000's and at the time of the site investigation, the site was used predominantly for residential purposes with a small area (Site Feature H) used for market gardening, likely to be for domestic consumption.

Common chemicals that are used in agricultural activities are Organochlorine Pesticides (OCP), Organophosphorus Pesticides (OPP), herbicides and fungicides. OCP is the most persistent of these chemicals, with residues lasting in the environment up to 20 years, whilst OPP, herbicides and fungicides are less persistent in the environment and therefore not considered significant. Fertilisers used in market gardens can also contain heavy metals which are more persistent in the environment.

As land cultivation on a commercial scale has not been present on the site for at least 20 years, the likelihood of contamination is low and, if exists, is likely to be limited to the upper soil profiles.

Existing Sheds and Structures

The site has a number of buildings and sheds (Site Features C and E) used for general storage associated with agricultural activities including machinery maintenance works. In the middle of the site, historical review indicates numerous buildings and sheds (Site Feature F) to have once existed

It is possible for some of the sheds to have been used for storage of agricultural chemicals and mechanical fluids at some stages in the past. There is also a possibility of leakage or accidental spillage of mechanical fluids in the workshops from machinery maintenance works. Common contaminants include Lead, Total Recoverable Hydrocarbons (TRH), Benzene, Toluene, Ethyl Benzene and Xylene (BTEX) and Polycyclic Aromatic Hydrocarbons (PAH).

On this basis, there is a risk for these areas to have some contamination associated with leakage of chemicals/fuel or accidental spillage of chemicals/fuel from maintenance of machinery. If contamination exists, it is likely to be confined to the immediate vicinity of the sheds and buildings and within the upper subsurface profiles.

Buried Rubbish Fill including Asbestos

Based on historical aerial photographs and the site topography, the rear portion of the site near the western boundary appeared to be originally part of a depression (ie Site Feature G) which has been backfilled. Some fill consisting of clayey silt and silty clay with some rubbish and asbestos was encountered in BH 28, TP 4 to 8 and 10 and the thickness of fill was found to range from 0.3m to greater than 2.3m.

In addition, the access driveway (ie Site Feature D) appeared to have been constructed using gravel fill and topsoil/fill containing traces of asphalt lumps, bricks and small foreign inclusion. Though asbestos was not encountered in the access driveway, it is possible for asbestos fragments to be present in the fill as this material was commonly used as building material in the past.

As the fill is from an unknown source, it is possible for the fill to be contaminated with chemicals such as Heavy Metals, Total Recoverable Hydrocarbons (TRH), Benzene, Toluene, Ethyl Benzene and Xylene (BTEX) and Polycyclic Aromatic Hydrocarbons (PAH).

On this basis, there is a risk of the site being impacted by buried rubbish fill containing asbestos.

4.7.1.2 Off-Site Source

The adjoining surrounding properties to the west and south consist of a semi-rural residential property. These properties have been used for agricultural activities in the past, however as agricultural activities have ceased for at least 20 years, migration of residue pesticides through surface runoff is considered low.

In addition, as the site is situated on gently undulating terrain and is about the same level as surrounding properties, the risk of off-site migration of contaminants into the subject site from runoff from the adjoining neighbouring properties is considered low

4.7.2 Potential Contaminated Areas

Our review of the site has identified several potential areas for contamination and these are summarised in the following table and identified in Drawing No 8.

Area	Current Land Use	Approximate Area Affected	Potential Contaminants
Area 1	Fibro and Metal Dwelling	700m ²	Heavy Metals, OCP, PCB TPH, BTEX/PAH, Asbestos (ACM/ AF/FA)
Area 2	Metal, Timber and Fibro asbestos Shed	300m ²	Heavy Metals, OCP, PCB TPH, BTEX/PAH, Asbestos (ACM/ AF/FA)
Area 3	Access driveway	450m ²	Uncontrolled fill or rubbish fill, TPH, BTEX/PAH and Asbestos (ACM/ AF/FA)
Area 4	Rubbish Backfilled Depression	1500m ²	Uncontrolled fill or rubbish fill, TPH, BTEX/PAH and Asbestos (ACM/ AF/FA)
Area 5	Previous Building/shed Area and agricultural area	2000m ²	Heavy Metals, OCP, Asbestos
Area 6	Previous agricultural/market garden area	9400m ²	Heavy Metals, OCP

5. STAGE 2 CONTAMINATION ASSESSMENT – SAMPLING AND ANALYSIS

5.1 Objectives

The object of the Stage 2 Contamination Assessment was to undertake intrusive investigation, soil sampling and laboratory analysis to determine if the areas of potential contamination identified in our Stage 1 Contamination Assessment have resulted in soil contamination to a level that presents or potentially presents a risk of harm to human health and/or the environment. The sampling strategy for contamination assessment is based on the minimum sampling protocol recommended by the NSW EPA 1995 guidelines (Reference 10).

5.2 Conceptual Site Model

A conceptual site model (CSM) is a representation of site-related information regarding contamination sources and exposure pathways between those sources and receptors. The model provides the framework for identifying how the site became contaminated and how potential receptors may be exposed to contamination either in the present or the future and it enables an assessment of the potential pathways.

5.2.1 Areas of Uncertainty & Data Gap Investigation

During preliminary and detailed site investigation, a number of areas were in-accessible at the site due to the ongoing residential use, the presence of existing structures/belongings preventing investigation (ie. Dwellings, sheds, vehicles etc.). It was not considered practical/permissible to investigate these at the time. The area where data uncertainty has been identified are listed as follows;

- The residential areas including; building footprints, paved surfaces and domestic gardens;
- Areas identified as location of on-site underground services;
- Beneath concrete hard-stand areas (locations were positioned down-gradient where possible);
- Selected areas surrounding dwellings due to occupancy during site works;
- Beneath or immediately surrounding parked vehicles and belongings;
- Heavily vegetated area.

The following table summarises the primary areas of uncertainty, description, approximate areas and the contaminants of potential concern (CoPCs) of these areas;

Description of Area of Uncertainty	Approximate Area (m ²)	Contaminants of Potential Concern
Beneath all structures (ie dwellings and sheds)	1000m ²	Heavy Metals, OCP, PCB TPH/BTEX/PAH, asbestos (ACM, AF/FA) or rubbish fill.

The above areas of uncertainty identified should be further investigation after demolition and site clearing to further assess the potential for contamination of these areas. A Remediation Action Plan (RAP) outlining a strategy to undertake sampling and validation of these areas will be prepared to ensure suitability of these areas for the proposed school development.

Data gap exists in the historical aerial photographs whereby site conditions are captured at approximately 10 years intervals. However as the site was mainly used for agricultural in the past, the aerial photographs were considered adequate in assessing historical site activities.

5.2.2 Contaminants of Concern - Mobilisation Pathways

The risk of contamination concentrations in the ground only pose a risk of harm to a sensitive receptor where a pathway for exposure exists between the source and receptor. There must be an instrument of travel creating this pathway, such instruments specific to the subject site include:

Instrument/Pathways	Contaminant Type
Leachability of contaminant	Heavy Metals, OCP, PCB TPH/BTEX/PAH
Friability of contaminant	Asbestos (ACM and AF/FA)
Volatility of contaminant	TPH and BTEX

Following removal of all existing structures at the site the following media considered for contamination to be present are:

- Heavy Metals, OCP, PCB TPH/BTEX/PAH
- Rubbish fill including asbestos (ACM and AF/FA)
- Uncontrolled fill soils.

The contaminant then needs a method of transport or displacement within the environment. Such modes include release to:

Instrument	Contaminant Type
Atmosphere	Asbestos (ACM and AF/FA)
Ground	Heavy Metals, OCP, PCB TPH/BTEX/PAH, Asbestos (AF/FA)
Plant and absorption	Heavy Metals, OCP, PCB
Liquid dispersion and Runoffs	Heavy Metals, OCP, PCB TPH/BTEX/PAH and Asbestos (AF/FA)

5.2.3 Sensitive Receptors & Exposure Pathways

To create the risk of harm, the contaminant needs to be to be exposed to the vulnerable receptor. Based on the contaminants identified at the site we have identified the sensitive receptors and potential exposure pathways:

Sensitive Receptors

- Construction and maintenance workers during construction site redevelopment.
- Future site users following development of the site with the most sensitive receptor being a child.
- Land users in adjacent areas.

Exposure Pathways

Potential Pathway	Potential Contamination
Inhalation	Dust including asbestos (AF/FA)
Dermal	OCP, PCB TPH/BTEX/PAH
Consumption	Heavy Metals, OCP, PCB TPH/BTEX/PAH
Water movement	Heavy Metals, OCP, PCB TPH/BTEX/PAH, Asbestos (AF/FA)

5.3 Sampling, Analytical and Quality Plan

5.3.1 Overview

The sampling analytical and quality plan has been developed in order to ensure that the data collected for this investigation is representative for the site assessment decisions. The plan has been completed in general accordance with the NSW EPA guidelines (Reference 9 and 10) and includes;

- Data quality objectives
- Sampling methodologies and procedures
- Field screening methods
- Sample handling, preservation and storage procedures
- Analytical QA/QC

5.3.2 Data Quality Objectives

The purpose of establishing Data Quality Objectives (DQO) is to ensure that the field investigations and subsequent analyses are undertaken in a way that enables the collection and reporting of reliable data on which to base the assessment.

A process for establishing DQOs for a site has been defined by the US EPA. That process has been adopted within the Australian Standard: AS 4482.1-2005 and referenced by the *National Environment Protection (Assessment of Site Contamination) Measure* (NEPC, 1999) and the *Guidelines for the NSW Site Auditor Scheme, 2nd ed* (NSW DEC, 2006).

The DQO process, involves the following seven steps:

Step 1 State the problem;

The detailed site investigation is being undertaken in order to ascertain the current contamination status of the sites whether contamination present at the site may pose an unacceptable health and/or environmental risk under the current land use and whether the sites are suitable for the proposed development.

Step 2 Identify the decision;

The site investigations are to identify areas of environmental concerns which may be the source of potential contamination. To assess the suitability of the site for the proposed landuse, decisions are to be made based on the following questions

- Is contamination present in soil at concentrations above the applicable approved guidelines?
- Where contamination has occurred, does it have the potential to adversely impact on human health and/or environmental receptors?
- Does the site appear suitable (from a contamination perspective) for the current and future proposed land use?

Step 3 Identify inputs to the decision;

Data to be inputted to the decision making process will include:

- Information gained from a review of existing information;
- Soil sampling at nominated locations (where access is available) across the site.
- Laboratory analytical results for relevant to the area of environmental concerns.
- Appropriate screening-level criteria (investigation thresholds) for soil
- Quantitative data gained via intrusive sampling and analytical works
- Assessment of the suitability of the data obtained from sampling and analyses as measured against data quality indicators (DQIs).
- Assessment of analytical results against site suitable human health criteria.

Step 4 Define the study boundaries;

The lateral boundaries of the study area are the site boundaries, as depicted on the drawings.

The vertical boundary with respect to soil shall be the depth of the deepest soil borehole

Step 5 Develop a decision rule;

Project analytical data will be compared to appropriate NSW EPA prepared or endorsed guidelines for various land use. If the concentration of contaminants in the soils exceeds the adopted assessment criteria; an assessment of the need to further investigate, remediate and or manage the onsite impacts in relation to the proposed development will be undertaken.

On the basis of this initial comparison, plus an assessment of potential contaminant exposure pathways, a decision will be made as to whether or not the contamination may pose a potential risk, warranting management and/or remediation.

Step 6 Specify limits on decision errors; and

Guidance found in ASC NEPM (1999 amended 2013) Schedule B2 regarding 95% upper confidence limit (UCL) states that the 95% UCL of the arithmetic mean provides a 95% confidence level that the true population mean will be less than or equal to this value. Therefore a decision can be made based on a probability that 95% of the data collected will satisfy the site acceptance criteria. A limit on decision error will be 5% that a conclusive statement may be incorrect.

Step 7 Optimise the design for obtaining data.

The sampling program was designed with reference to the desktop works completed for the sites and the known layout of site infrastructure. The sampling program was designed to target, those areas of the site where potential contamination was identified as being most likely

5.3.3 Data Quality Indicators

To minimise the potential for decision errors, Data Quality Indicators (DQIs) have been determined, for completeness, comparability, representativeness, precision and accuracy as detailed below;

The DQIs for sampling techniques and laboratory analysis of collected samples defines the acceptable level of error required for this investigation. The data quality objectives will be assessed by reference to data quality indicators as follows:

- **Completeness** - defined as the percentage of measurements made which are judged to be valid measurements. To ensure data set completeness, the following is required:
 - Confirmation that all sampling methodology was completed in general accordance with GeoEnviro sampling quality assurance plan.
 - Chain of Custody and receipt forms.
 - Results from all Laboratory QA/QC samples (Lab blanks, matrix spikes, lab duplicates).
 - NATA accreditation stamp on all laboratory reports
- **Comparability** - is the confidence that data may be considered to be equivalent for each sampling and analytical event. It provides a qualitative parameter expressing the confidence with which one data set can be compared with another. This is achieved through maintaining a level of consistency in techniques used to collect samples and ensuring analysing laboratories use consistent analysis techniques and reporting methods.

Data comparability is maintained by ensuring that:

- All site sampling events are undertaken following methodologies outlined in GeoEnviro Sampling Quality Assurance Plan and published guidelines.
- NATA accredited laboratory methodologies shall be followed on all laboratory testing.
- **Representativeness** - expresses the degree which sample data accurately and precisely represents a characteristic of a population or an environmental condition. Representativeness is achieved by collecting samples in an appropriate pattern across the site, and by using an adequate number of sample locations to characterise the site. Consistent and repeatable sampling techniques and methods are utilised throughout the sampling.

It should be noted that the soil sampling program for the current study has been limited, and does not comply with the “*minimum sampling points required for site characterisation based on detecting circular contaminant hotspots by using a systematic sampling pattern*” (Table A, NSW EPA Sampling Design Guidelines).

- **Precision** - measures the reproducibility of measurements under a given set of conditions. The precision of the data is assessed by calculating the Relative Percent Difference (RPD) between duplicate sample pairs.

$$RPD(\%) = [|C_0 - C_d| / C_0 + C_d] \times 200$$

Where Co = Analyte concentration of the original sample
Cd = Analyte concentration of the duplicate sample

GeoEnviro adopts nominal acceptance criteria of 30% RPD for field duplicates and splits for inorganics and nominal acceptance criteria of 50% RPD for field duplicates and splits for organics, however it is noted that this will not always be achieved, particularly in heterogenous soil or fill materials, or at low analyte concentrations

- **Accuracy** - measures the bias in a measurement system or a quantitative measure of the closeness of reported data to the true value. Accuracy can be undermined by such factors as field contamination of samples, poor preservation of samples, poor sample preparation techniques and poor selection of analysis techniques by the analysing laboratory. Accuracy is assessed by reference to the analytical results of laboratory control samples, laboratory spikes, laboratory blanks and analyses against reference standards. The nominal “acceptance limits” on laboratory control samples are defined as follows:

- Laboratory spikes – 70-130% for metals / inorganics 60-140% for organics.
- Laboratory duplicates – <30% for metals / inorganics, <50% for organics.
- Laboratory blanks – <practical quantitation limit.

Accuracy of field works is assessed by examining the level of contamination detected in field and equipment blanks. Blanks should return concentrations of all organic analytes as being less than the practical quantitation limit of the testing laboratory

5.4 Investigation and Analysis Methodology

5.4.1 Field Investigation

Field investigation for initial screening of contamination was carried out on the 23rd and 24th April 2018 and involved drilling of forty boreholes (BH 1 to BH 40) across the site as shown on Drawing No 9. The boreholes were drilled using a truck mounted B80 drill rig equipped for site investigation. The boreholes were initially drilled using spiral augers attached to a Tungsten Carbide (TC) bit drilling into shale to depths of about 0.9m to 4.0m below existing ground surface.

A detailed investigation was carried out on the 8th January 2019 involving excavation of an additional thirty-eight (TP 1 to TP 38) using a 5-tonne excavator to more accurately assess the extent of contamination encountered from the initial investigation. The test pits were taken a maximum depth of about 2.3m below existing ground surface. The test pits locations are shown on the Drawing No 10.

Environmental soil samples were collected in duplicate from surface and at lower depths. Disturbed samples were taken from the site to our laboratory for analysis. GeoEnviro Consultancy's standard procedures were used for sampling and more information on the procedures adopted is provided in Appendix C.

The test locations were located by offset measurements relative to site boundaries and static site features. The subsurface profiles from the boreholes are detailed on Borehole Logs in Appendix B and the test pit profiles are detailed on Table 1.

5.4.2 Laboratory Analysis

Selected soil samples were submitted to the nominated contracted laboratory for analysis of contaminants of potential concern consisting of the following;

- Heavy metals - Arsenic (As), Cadmium (Cd), Chromium (Cr), Copper (Cu), Mercury (Hg), Lead (Pb), Nickel (Ni) and Zinc (Zn)
- Organochlorine Pesticides (OCP).
- Polychlorinated Biphenyls (PCB)
- Total Recoverable Hydrocarbons (TRH)
- Benzene, Toluene, Ethyl Benzene and Xylene (BTEX) and Naphthalene
- Polycyclic Aromatic Hydrocarbon (PAH)
- Asbestos
- pH

Discrete and composite samples were carried out as part of the initial screening of contamination in the preliminary site investigation of 23rd and 24th September 2018 and this included;

Area of Concern	Analytes	No of Samples	Samples
Driveway - Site Feature B	Heavy Metals, OCP, PCB TRH/BTEX/PAH and asbestos	1 Discrete Samples	BH 5 (0.0-0.1)
Dwelling – Area 1	Heavy Metals, OCP, PCB TRH/BTEX/PAH and asbestos	1 Discrete Samples	BH 19 (0.0-0.1)
Shed – Area 2	Heavy Metals, OCP, PCB TRH/BTEX/PAH and asbestos	1 Discrete Samples	BH 23 (0.0-0.1)
Driveway – Area 3	Heavy Metals, OCP, PCB TRH/BTEX/PAH and asbestos	1 Discrete Samples	BH 17 (0.0-0.1)
Backfilled Depression – Area 4	Heavy Metals, OCP, PCB TRH/BTEX/PAH and asbestos	1 Discrete Samples	BH 28 (0.0-0.1)
	Asbestos	1 Material Sample	BH 28-Fibro

Area of Concern	Analytes	No of Samples	Samples
Open Areas and Previous Agricultural/Building Area – Areas 5 and 6	Heavy Metals, OCP, PCB	7 Composite Samples	C1 BH 2 (0.0-0.1); BH 3 (0.0-0.1); BH 4 (0.0-0.1) C2 BH 9 (0.0-0.1); BH 10 (0.0-0.1); BH 11 (0.0-0.1) C3 BH 12 (0.0-0.1); BH 13 (0.0-0.1); BH 14 (0.0-0.1) C4 BH 21 (0.0-0.1); BH 25 (0.0-0.1); BH 26 (0.0-0.1) C5 BH 24 (0.0-0.1); BH 27 (0.0-0.1); BH 38 (0.0-0.1) C6 BH 31 (0.0-0.1); BH 32 (0.0-0.1); BH 33 (0.0-0.1) C7 BH 35 (0.0-0.1); BH 36 (0.0-0.1); BH 37 (0.0-0.1)
Open Area	Heavy Metals, OCP, PCB TRH/BTEX/PAH and asbestos	1 Discrete Samples	BH 34 (0.0-0.1)

An additional detailed sampling involving discrete samples and analysis carried out on 8th January 2019 included;

Areas of Concern	Analytes	No of Samples	Samples
Dwelling – Area 1 (Include Curtilage)	Heavy Metals, OCP, PCB TRH/BTEX/PAH and asbestos	6 Discrete Sample	TP 30 (0.0-0.1), TP 31 (0.0-0.1), TP 32 (0.0-0.1), TP 33 (0.0-0.1), TP 34 (0.0-0.1), TP 35 (0.0-0.1),
Shed – Area 2 (Include Curtilage)	Heavy Metals, OCP, PCB TRH/BTEX/PAH and asbestos	4 Discrete Samples	TP 23 (0.0-0.1), TP 24 (0.0-0.1), TP 25 (0.0-0.1), TP 26 (0.0-0.1),
Driveway – Area 3	Heavy Metals, TRH/BTEX/PAH and asbestos	3 Discrete Samples	TP 22 (0.0-0.1), TP 27 (0.0-0.1), TP 29 (0.0-0.1),
Backfilled Depression – Area 4	Heavy Metals, OCP, PCB TRH/BTEX/PAH and asbestos	3 Discrete Samples	TP 4 (0.5-0.6), TP 7 (0.3-0.4), TP 10 (1.2-1.3)
	Asbestos	2 Discrete Samples	TP 5 (0.3-0.4), TP 6 (0.1-0.2)
	Asbestos	3 Material Samples	TP 6 – Fibro, TP 8 – Fibro, TP 10 – Fibro
Previous Building and Agricultural Area – Area 5	Heavy Metals, OCP, PCB TRH/BTEX/PAH and asbestos	5 Discrete Samples	TP 15 (0.0-0.1), TP 19 (0.0-0.1), TP 21 (0.0-0.1), TP 17 (0.0-0.1), TP 18 (0.0-0.1)
	Asbestos	3 Discrete Samples	TP 16 (0.0-0.1), TP 20 (0.0-0.1), TP 28 (0.0-0.1),
Previous agricultural/market garden – Area 6	Heavy Metals, OCP, PCB	3 Discrete Sample	TP 36 (0.0-0.1), TP 37 (0.0-0.1), TP 38 (0.0-0.1)
Open Areas	Heavy Metals, OCP, PCB	6 Discrete Sample	TP 1 (0.0-0.1), TP 2 (0.0-0.1), TP 3 (0.0-0.1), TP 9 (0.0-0.1), TP 13 (0.0-0.1), TP 14 (0.0-0.1)

The laboratory results are summarised in Tables 3 to 8. The laboratory test results are detailed on the attached Laboratory Test Report in Appendix G.

Soil analysis was performed by Envirolab Services Pty Ltd, a laboratory accredited by the National Association of Testing Authorities (NATA) for the tests performed. The analytical results and methods employed are presented in the Laboratory Test Report in Appendix G.

5.5 Regulation Policies and Criteria

5.5.1 Legislation

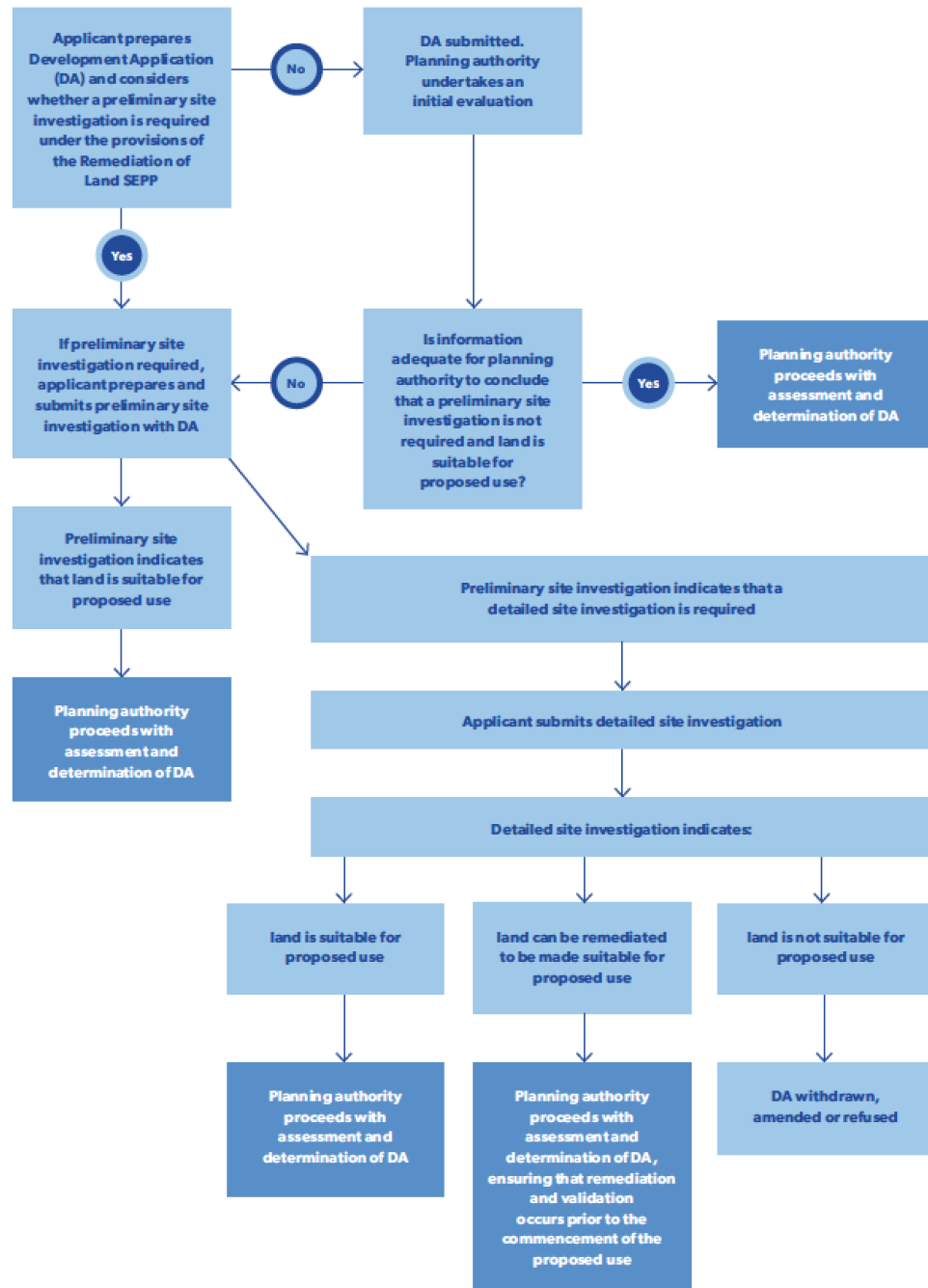
When determining a development application for any use, a planning authority should consider whether the land is contaminated or potentially contaminated.

SEPP 55 requires a consent authority to not grant consent to development unless:

- it has considered whether the land is contaminated, and
- if the land is contaminated, it is satisfied that the land is suitable in its contaminated state (or will be made suitable following remediation) for the purpose for which development is proposed to be carried out, and
- if the land requires remediation to be made suitable for the purpose for which the development is proposed to be carried out, it is satisfied that the land will be remediated before the land is used for that purpose.

The general process for considering contamination issues under the contaminated land planning guidelines is taken from Figure 2 of these guidelines.

Figure 2: Considering contamination issues in the development assessment process



Since 1997, the OEH has introduced significant reforms to the identification and management of contaminated sites within NSW. The purpose of reforms is to provide uniform state-wide control of the management, investigation and remediation of contaminated land.

The following documents outline the reforms undertaken;

- The Contaminated Land Management Act 1997 (CLMA) establishes a process for investigating and remediating land where contamination presents a significant risk of harm to human health or the environment. The main objectives of CLMA are;
 - i. To set out accountabilities for managing contaminated land, if a significant risk of harm is identified.
 - ii. To set out the role of the NSW EPA in the supervision of contaminated site investigations and/or remediation.
 - iii. To provide for the accreditation of site auditors of contaminated land to ensure appropriate standards of auditing in the management of contaminated land, and
 - iv. To ensure that contaminated land is managed with regard to the principals of ecologically sustainable development.
- The OEH's Guidelines on the Significant Risk of Harm from Contaminated land and the Duty to Report, 1999 provide guidelines on the following;
 - i. Assessing whether site contamination presents a significant risk of harm under the CLMA.
 - ii. The duty to report to the OEH of a site is known or suspected to present a significant risk of harm under the CLMA.

- The State Environmental Planning Policy (SEPP) No 55. – Remediation of Land 1998, prepared by the Department of Urban Affairs and Planning (DUAP) is an environmental planning instrument that sets out matters which must be considered by local councils and other planning authorities when determining development application, or making zoning or rezoning decisions. The Managing Land Contamination: Planning Guidelines 1998, prepared by DUAP and the OEH, have been developed to further provide guidance to consent authorities on their responsibilities under SEPP55 and the Environmental Planning and Assessment Act (EP&A Act) 1979.

The object of this Policy is to provide for a Statewide planning approach to the remediation of contaminated land. In particular, this Policy aims to promote the remediation of contaminated land for the purpose of reducing the risk of harm to human health or any other aspect of the environment:

- (a) by specifying when consent is required, and when it is not required, for a remediation work, and
- (b) by specifying certain considerations that are relevant in rezoning land and in determining development applications in general and development applications for consent to carry out a remediation work in particular, and
- (c) by requiring that a remediation work meet certain standards and notification requirements

5.5.2 Assessment Criteria

The results of laboratory analyses for this investigation were compared with published Australian contamination assessment criteria.

The NSW EPA and National Environmental Health Forum (NEHF) (Reference 6) are commonly used to assess contaminant concentrations. The NEHF criteria which was recently updated by the National Environment Protection Council Service Corporation (NEPC) in the National Environmental Protection (Assessment of Contaminated Sites) Measure (NEPM) – Schedule B1 (Reference 7) includes health-based soil investigation levels (HBILs) and this was adopted by NSW EPA in May 2013.

HBILs are scientifically based, generic assessment criteria designed to be used in the first stage (Tier 1 or 'screening') of an assessment of potential risks to human health from chronic exposure to contaminants. They are intentionally conservative and are based on a reasonable worst-case scenario

For the purpose of assessing the contamination status of the site, the criteria for the most sensitive landuse, that being HBIL A - residential with garden/accessible soil including children's day care centres, preschools and primary schools, has been adopted as the Site Criteria.

The more recent updates to the NEPM criteria (Reference 7) have included Health Screening Levels (HSL) developed by the Cooperative Research Centre for Contamination Assessment and Remediation of the Environment (CRC CARE) leading to the adoption of health criteria for TRH, BTEX and PAH. The HSLs have been developed for selected petroleum compounds and fractions and are applicable to assessing human health risk via the inhalation and direct contact pathways. The HSLs depend on specific soil physicochemical properties, land use scenarios, and the characteristics of building structures and they apply to different soil types and depths below surface up to 4 m depth.

For the purpose of assessing the contamination status of the site for TRH, BTEX and PAH, the HSL A and B (Low to high density residential) have been adopted.

The NEPC also includes EIL criteria for the protection of species based on 95% survival and these criteria are based on average background concentrations (ABC) for individual sites and added contaminant levels (ACL) calculated from survival rates for various species to contaminant exposures in different settings. For ecological levels for TRH, BTEX and PAH, the NEPC has provided ecological screening level (ESL) for the assessment. The EIL and ESL criteria have been included in the relevant tables as a sensitivity measure for the protection of ecological diversity within the site.

The results of laboratory analysis of individual samples have been directly compared with the Criteria. The results of laboratory analysis for the composites have been compared with 'modified criteria' by dividing the Criteria with the number of sub-samples forming the composite. The relevant criteria are presented in the summary table of results (Table 3 to 8).

In addition to the above criteria, considerations should be given to;

- Odour (eg hydrocarbon and solvents) where adoption of lower threshold criteria may be required if causes significant nuisance.
- Asbestos in fill or ground surface. All visible signs of asbestos fragments from the stockpiles and soil surface should be eliminated.
- The NEPM 2013 guidelines address the issue of aesthetic considerations in relation to non-hazardous inert foreign material (refuse) in soil or fill resulting from human activities. The guidelines permit the presence of foreign matter within the fill to be retained within the site subject to compliant of the fill material to the Site Criteria and aesthetically acceptable (eg malodorous soils, discoloured chemical deposits, stained soil, large monolithic deposits/large inert foreign matter, putrescible refuse and animal remains). Though the guidelines do not outline specific trigger values, we consider fill containing greater than 5% by weight of foreign matter to be aesthetically unacceptable, therefore the insitu fill is within acceptable limits

5.6 Results of the Investigation

5.6.1 Subsurface Conditions

Reference should be made to the Borehole Reports in Appendix B and Summary of Soil Profile in Table 1 for a summary of subsurface profiles encountered in each test locations. The following is a summary of subsurface conditions noted;

Topsoil and Topsoil/Fill

Topsoil and topsoil/fill were encountered in all boreholes and test pits except BH 17, BH 18, BH 28 and TP 4, 7, 8, 10, 27, 29 and 31 generally consisting of Clayey Silt of low liquid limit. Thickness of the topsoil and topsoil/fill was found to range from 150mm to 450mm.

A trace (<5%) of plastic was encountered in the topsoil/fill in BH 21 which was excavated in the previous building/shed locations (Site Feature F) and in BH 23 some (>5%) crushed rock and an asphalt lump were encountered noting that BH 23 was excavated along the edge of the accessway (Site Feature D).

Fill

Fill was encountered in BH 17, 18, 28 and TP 3 to 8, 10, 27 to 29 and 31 comprising of Clayey Silt/Silty Clay, Clayey Silt/Gravelly Silt, Gravelly Silt, Silty Clay and Silty Gravel. BH 17, 18, TP 27 and 29 were excavated in the access driveway (Site Feature D) and some (>5%) crushed rock and a trace (<5%) of brick fragments were encountered in the fill in BH 17 (Site Feature F).

Rubbish including concrete, brick, plastic metal and glass was encountered within the fill in BH 28, TP 4, 6 to 8 and 10 and this fill appeared to have been placed in the previous depression area (ie Site Feature G). Some (>5%) asbestos fragments were encountered in the fill in BH 28, TP 6 to 8 and 10. The fill was generally found to have thickness ranging from 0.3m to greater than 2.3m.

A disused asbestos pipe originally connected to the building (Site Feature C) was encountered in TP 31.

Natural Soil

Underlying the topsoil and fill in all boreholes and test pits except TP 10, natural soil consisting generally of medium to high plasticity Silty Clay was encountered. In general, the plasticity of the clay reduces to medium plasticity at lower depths with the inclusion of ironstone and siltstone bands, Gravelly Silty Clay and Interbedded Clay and Siltstone in some boreholes.

The natural clayey soil was generally assessed to be dry to moist (ie moisture content less than or equal to the plastic limit) and based on the SPT and hand penetrometer results, hard.

Bedrock

Bedrock consisting of Siltstone and Shale/Siltstone was encountered in all boreholes except 3, 10, 14, 18 and 24 at depths ranging from 0.9m to 3.0m below existing ground surface. The Siltstone and Shale/Siltstone was subjectively assessed to be low to medium strength and extremely weathered to distinctly weathered.

Bedrock was not encountered in any of the test pits which was taken a maximum depth of 1.7m into natural clay.

Groundwater

All boreholes and test pits were found to be dry during and shortly after completion of the site investigation.

5.6.2 Laboratory Test Results

Heavy Metals

The laboratory test results indicate all concentrations of heavy metals in all composite samples were found to be within the modified EIL and modified HBILs A levels except for C4 and C7 which were found to have 170mg/kg and 160mg/kg of Zinc respectively above the Modified EIL Criteria of 144mg/kg. The individual samples forming the composite samples were further analysed for Zinc.

The laboratory analysis of individual samples indicated all concentrations of heavy metals of concern to be within the Site Criteria.

Slightly elevated Zinc concentrations of 550mg/kg and 800mg/kg were encountered in the fill in BH 28 and TP 4 respectively and in TP 8, the concentration of Zinc was found to be 2000mg/kg above the EIL Criteria of 432mg/kg, noting that these samples were taken from the rubbish and asbestos impacted fill in the backfilled depression (Site Feature G).

A slightly elevated concentration of Zinc of 500mg/kg was found in the topsoil sample from TP 1 located in the treed area at the south eastern corner of the site. This concentration was found to be less than 2.5 times the EIL and taking into consideration the background concentration of Zinc within the site, an Upper 95% Confidence Limit of 169mg/kg was calculated and therefore within the EIL, hence acceptable.

The results are summaries in Table 3.

Organochlorine Pesticides (OCP)

All concentrations of OCP were found to be below detection limits or with low concentrations within the Site Criteria. The results are summarised in Table 4.

Polychlorinated Biphenyls (PCB)

All concentrations of PCB were found to be below the detection limits or within low concentrations within the Site Criteria. The results are summarised in Table 5.

Total Recoverable Hydrocarbons (TRH)

Low concentrations of TRH ($C_{10}-C_{36} = 120\text{mg/kg}$ and $C_{16}-C_{34} = 130\text{mg/kg}$) were encountered in TP 25 adjacent to the shed (Site Feature E) with the lighter hydrocarbon chain (C_6-C_{10} and $>C_{10}-C_{16}$) found to be below laboratory detection limits. All other samples analysed were found to have concentrations of TRH below laboratory detection limits.

All concentrations of TRH in other samples were found to be below the detection limits and within the Site Criteria. The results are summarised in Table 6.

Benzene, Toluene, Ethyl Benzene and Xylene (BTEX) and Naphthalene

All samples analysed were found to have concentrations of BTEX and Naphthalene below laboratory detection limits and therefore within the Site Criteria. The results are summarised in Table 6.

Polycyclic Aromatic Hydrocarbons (PAH)

Low concentrations of Total PAH of 0.1 mg/kg , 0.36 mg/kg and 0.5mg/kg were encountered in TP 26 (Site Feature E - Shed) and TP 27 and 29 (Site Feature D – Access driveway) but were found to be within the Site Criteria of 300mg/kg .

All concentrations of PAH in other samples were found to be below laboratory detection limits and therefore within the Site Criteria. The results are summarised in Table 7.

Asbestos

All soil samples analysed for asbestos did not detect respirable asbestos fibres. The material samples taken from BH 28, TP 6, TP 8 and TP 10 which were located within the backfilled depression area (Site Feature G) were found to have bonded asbestos consisting of Chrysotile. The results are summarised Table 8.

5.6.3 Quality Assurance/ Quality Control (QA/QC)

Chain of Custody Forms and Preservation

The fieldwork for this investigation was carried out in accordance with GeoEnviro Consultancy's Standard procedures. This included collection of samples in new glass jars, preservation of samples in ice chests and transport of samples to the contract laboratory under chain of custody documentation. Refer to Appendix B.

Field Duplicates

Five duplicate samples were prepared from primary samples and analysed as follows (Refer to Table 9);

Primary Samples	Duplicate Samples
BH 5 (0.0-0.1m)	Duplicate A
TP 26 (0.0-0.1m)	Duplicate B
TP 7 (0.3-0.4m)	Duplicate C
TP 19 (0.0-0.1m)	Duplicate D
TP 34 (0.0-0.1m)	Duplicate E

The Relative Percentage Difference (RPD) values between primary and the duplicate sample was calculated to assess the results. A zero RPD means perfect agreement of results between the primary and duplicate sample whilst an RPD above 200% indicates total disagreement in results.

For heavy metals, all analysis were found to have RPD values less than 30% except Copper in Duplicate C and Lead in Duplicate E where higher RPDs of 63.2% and 65.6% were calculated.

The RPD values for OCP, PCB, TRH, BTEX and PAH could not be calculated because the results were below laboratory detection limits in both primary and duplicate samples.

The internal laboratory QA/QC results which are presented in the laboratory certificates in Appendix G are considered acceptable based on the duplicate and control samples analysed. The overall results suggest that the laboratory analysis carried out is reliable for this assessment.

Laboratory QA

Envirolab Services carried out internal QA/QC procedures which normally includes one or more of the following;

- Preparation and analysis of duplicate and triplicate samples to assess precision of laboratory results,
- A spike and duplicate spike is prepared for each sample batch. This involves spiking a sample with a known concentration of contaminant to verify the absence of matrix effects and to assess precision,
- Analysis of sample batch as reagent blanks to monitor reagent purity and as an overall procedural blank. Reagent blank will also be run after samples with a high concentration to prevent carry over.
- A surrogate is added to all samples to monitor sample matrix effects throughout all analytical stages by calculating the % recovery at the completion of the analysis.

The laboratory control results are included in the laboratory test reports in Appendix B

QA/QC Assessment

The QA/QC indicators either all complied with the required standards or showed variations that would have no significant effect on the quality or interpretation of the data. It is therefore assessed that for the purposes of this analysis, the QA/QC results are adequate and the quality of the data is acceptable for use in this contamination assessment.

6. ASSESSMENT AND SITE CHARACTERISATION

This contamination assessment of the property referred to as Lot 1 DP 525996 No 85 Byron Road and Lot 2 DP 525996 No 63 Ingleburn Road, Leppington was performed by GeoEnviro Consultancy in order to investigate the likelihood of ground contamination on the site. The investigation consisted of a review of site history, a site inspection and soil sampling and analysis program.

At the time of the site investigation, the site was mainly used for residential with the southern portion of the site consisting of medium dense trees. The site has a number of buildings and sheds (Site Features C and E) used for general storage associated with agricultural activities including nursery and machinery maintenance works. Some minor hydrocarbon staining was visible on surface in the area between the dwelling and the shed (Site Feature C).

In the middle of the site, historical review indicates numerous buildings and sheds (Site Feature F) to have once existed and the southern portion of the site near the western boundary appeared to be originally part of a depression (ie Site Feature G) which has been backfilled.

Soil sampling for initial screening was carried out on the 23rd and 24th April 2018 and involved drilling of forty boreholes (BH 1 to BH 40). An additional detailed investigation was subsequently carried out on the 8th January 2019 to assess the extent of contamination more accurately and this involved excavation and sampling of an additional thirty-eight (TP 1 to TP 38).

Fill ranging from 0.3m to greater than 2.3 thick was encountered in BH 17, 18, 28 and TP 3 to 8, 10, 27 to 29 and 31 comprising of Clayey Silt/Silty Clay, Clayey Silt/Gravelly Silt, Gravelly Silt, Silty Clay and Silty Gravel Silt.

BH 17, 18, 20, 23 and TP 22, 27 and 29 were excavated in the access driveway (Site Feature D) and some (>5%) crushed rock and a trace (<5%) brick fragments were encountered in the fill in BH 17. Some asphalt lumps and crushed rock were encountered in the topsoil/fill in BH 23 in the driveway (Site Feature D).

Rubbish including concrete, brick, plastic metal and glass was encountered within the fill in BH 28, TP 4, 6 to 8 and 10 and this fill appeared to have been placed in the previous depression area (ie Site Feature G). Some asbestos fragments were encountered in the fill in BH 28, TP 6 to TP 8 and TP 10.

A trace of plastic was encountered in the topsoil/fill in TP 21 which was excavated in the previous building/shed locations (Site Feature F). A disused asbestos pipe originally connected to the building (Site Feature C) was encountered in TP 31.

The remainder of the site was generally found to be underlain by topsoil and topsoil/fill overlying natural to medium plasticity Silty Clay.

Selected soil samples were analysed for a range of potential contaminants consisting of Heavy metals (As, Cd, Cr, Cu, Hg, Pb, Ni and Zn), Organochlorine pesticides, Polychlorinated Biphenyls, Total Recoverable Hydrocarbons, Benzene, Toluene, Ethyl Benzene and Xylene, Polycyclic Aromatic Hydrocarbons and asbestos. The results were interpreted by comparison with guideline Criteria recommended by the NSW EPA.

Slightly elevated Zinc concentrations of 550mg/kg and 800mg/kg were encountered in the fill in BH 28 and TP 4 respectively and in TP 8, the concentration of Zinc was found to be 2000mg/kg above the EIL Criteria of 432mg/kg, noting that these samples were taken from the rubbish and asbestos (ie BH 28, TP 6, TP 8 and TP 10) impacted fill in the backfilled depression (Site Feature G).

A slightly elevated concentration of Zinc of 500mg/kg was found in the topsoil sample from TP 1 located in the treed area at the south eastern corner of the site. This concentration was found to be less than 2.5 times the EIL and taking into consideration the background concentration of Zinc within the site, an Upper 95% Confidence Limit of 169mg/kg was calculated and therefore within the EIL, hence acceptable.

The laboratory test results indicate all other samples to have concentrations of contaminants of concern to be within the Site Criteria or with negligible concentrations.

Within the context of the scope of work carried out, we consider the site to have a low risk of gross chemical contaminations, however the site was found to be impacted by buried rubbish/asbestos fill and elevated concentrations of Zinc in the backfilled depression area (Site Feature G) shown as Area 4 in Drawing No 8 with depth of fill ranging from 0.2m to greater than 2.3m.

Other areas which require environmental monitoring during the development stage include;

- Area 1 - Building and shed areas with hydrocarbon staining and asbestos buildings/sheds (Site Feature C). An asbestos pipe connected to the house (Site Feature C) was encountered in TP 31 indicating potential presence of more buried asbestos pipes used in the building area. This area should be monitored for hydrocarbon contamination during site clearing.
- Area 3 - Gravel access driveway with some fill and building debris such as bricks and asphalt (Site Feature D). Thickness of the access driveway was found to vary from 200mm to 300mm. It is possible for asbestos be present in the access way as this material was commonly used as building material in the past
- Area 5 - A spread of localised fill and topsoil/fill encountered in the previous building and shed location (Site Feature F) as encountered in BH 21 to 26 and TP 16 to 18 and 28 with thickness ranging from 0.2m to 0.4m. A trace foreign inclusion such as plastics and tile fragments were encountered in BH 21 and TP 16 and it is possible for asbestos to be present in this area.

The absence of wide spread chemical contaminations within the soil indicates that the potential for groundwater contamination beneath the site is low and the potential off-site impacts of contaminants on groundwater and waterbodies are considered negligible.

7. CONCLUSIONS AND RECOMMENDATIONS

Within the context of the scope of work carried out, we are of the opinion that the site was generally assessed to have a low risk of gross ground chemical contamination, however the site was found to be impacted by buried rubbish/asbestos fill and elevated concentrations of Zinc in the depression area shown as Area 4 on Drawing No 8.

For the proposed school development, site remediation is required to clean up Area 4. In addition the areas of hydrocarbon stained soil encountered between the dwelling and sheds (Area 1 - Site Feature C) should be remediated.

We recommend a remediation action plan (RAP) be prepared outlining a remediation strategy to clean up the site to a suitable level for the proposed school development.

In addition to the above, the following issues which need to be addressed during development of the site are as follows;

- The shed/buildings (Areas 1 and 2) containing asbestos should be removed by licensed contractors to ensure all asbestos is removed off-site in accordance with appropriate legislation. Asbestos pipes were encountered connected to the house (Site Feature C) and therefore these pipes should be removed as part of demolition and site clearing works. Validation testing should be carried out to confirm this area is not impacted by hydrocarbon contamination.
- Rubbish fill containing bonded asbestos may still be present elsewhere within the site in between test locations in particular in the gravel accessway (Area 3- Site Feature D) and the area previously occupied by buildings/sheds (Area 5 – Site Feature F). Should bonded asbestos be encountered during construction works, all works should cease and an “Unexpected Asbestos Finds Protocol” as outlined in Appendix H should be initiated. Should asbestos be encountered, the asbestos impacted fill should be disposed to a landfill. Rubbish fill containing bonded asbestos should be removed and disposal to a landfill as “Special Waste – Asbestos”.

- Validation sampling and laboratory analysis should be carried out after site remediation works to ensure the areas are adequately remediated. Validation sampling and laboratory analysis should also be carried out in all other areas previously occupied by buildings (eg Site Feature B) after removal/demolition of the structures to ensure that contamination does not exist in these areas. Should contaminants be encountered some additional remediation works may be required.
- All site remediation and validation works should be carried out under the supervision of an environmental consultant and this should include soil sampling and validation sampling to ensure these areas are adequately remediated.
- All other surface rubbish material not mentioned above and asbestos material where encountered on-site should be appropriately disposed off-site to an OEH approved landfill.
- All fill material requiring off-site disposal should be laboratory tested and characterised in accordance with NSW EPA guidelines (Reference 11).

Subject to site remediation works as recommended above, the site would be suitable for the proposed school development and comply with SEPP55 Remediation of Land (DUAP, 1998)

8. LIMITATIONS

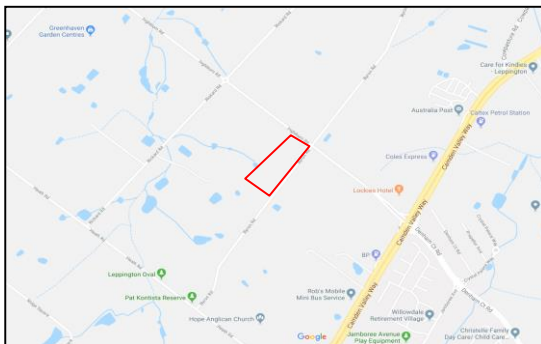
The findings contained in this report are the results of discreet/specific sampling methodologies and small diameter boreholes used in accordance with normal practices and standards. There is no investigation which is thorough enough to preclude the presence of material which presently, or in future, may be considered hazardous to the site. Additional investigation involving exposure of larger areas by test pitting may be carried out to more accurately assess the extent of fill and site contamination.

As regulatory evaluation criteria are constantly updated, concentrations of contaminants presently considered low, may in the future fall short of regulatory standards that require further investigation/redemption.

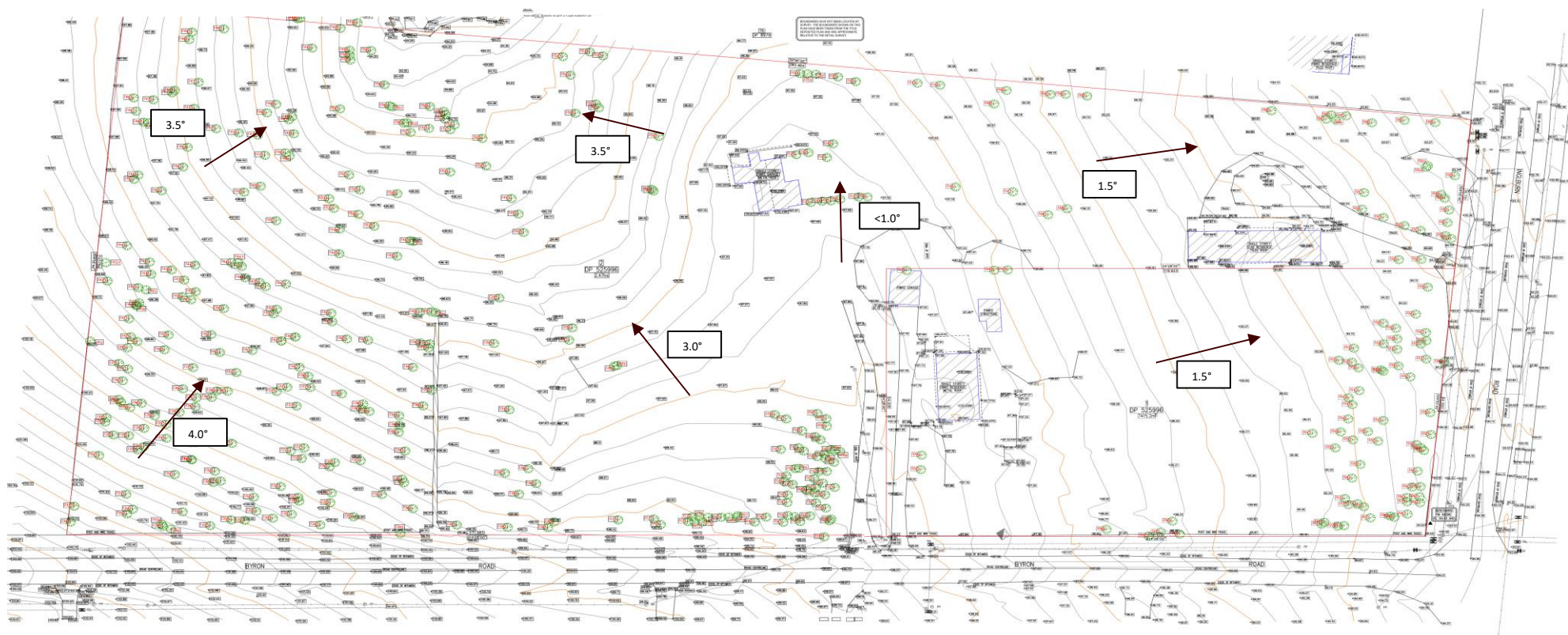
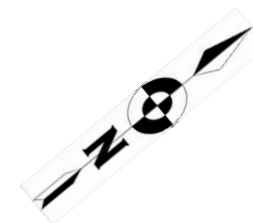
The statements presented in these documents are intended to advise you of what should be your realistic expectations of this report, and to present you with recommendations on how to minimise the risks associated with the ground works for this project. The document is not intended to reduce the level of responsibility accepted by GeoEnviro Consultancy Pty Ltd, but rather to ensure that all parties who may rely on this report are aware of the responsibilities each assumes in so doing. Attached in Appendix I are documents entitled “Important Information about Your Environmental Site Assessment” and Explanatory Notes in conjunction with which this report must be read, as it details important limitations regarding the investigation undertaken and this report.

REFERENCES

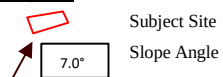
1. *Geotechnical and Salinity Investigation Proposed New Amity College Campus Lot 1 DP 525996 No 85 Byron Road and Lot 2 DP 525996 No 63 Ingleburn Road, Leppington – GeoEnviro Consultancy Pty Ltd – Referenced JC18322A-r2 (rev2) dated May 2019*
2. *1:100,000 Soil Landscape Map of Penrith – Soil Conservation Service of NSW; Sheet 9029-9129*
3. *1:100,000 Geological Map of Penrith– Geological Series Sheet 9029-9129 (Edition 1) 1985*
4. *Australian & New Zealand Guidelines for the Assessment and Management of Contaminated Sites, Australian and New Zealand Conservation Council and National Health and Medical Research Council, 1992.*
5. *Assessment of Orchard and Market Garden Contamination - Contaminated Sites Discussion Paper, NSW EPA 1999.*
6. *Health Based Soil Investigation Levels, National Environmental Health Forum Monographs Soil Series No. 1 – 1996*
7. *National Environment Protection (Assessment of Site Contamination) Measure 1999(including updated Schedule B1 – 2013*
8. *Guidelines for Assessment Service Station Sites – NSW EPA 1994*
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10. *Sampling Design Guidelines – NSW EPA 1995*
11. *Part 1 – Classifying Waste – 2014, NSW EPA*
12. *Australian and New Zealand Guidelines for Fresh and Marine Water Quality 2000 – ANZECC.*
13. *Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia – Department of Health -May 2009*
14. *Australian and New Zealand Guidelines for Fresh and Marine Water Quality 2000 – ANZECC.*
15. *Acid Sulfate Soil Manual – NSW Acid Sulfate Soil Management Advisory Committee August 1998*
16. *Salinity Code of Practice – Western Sydney Regional Organisation of Councils Ltd – 2003 (2004)*



Site Locality



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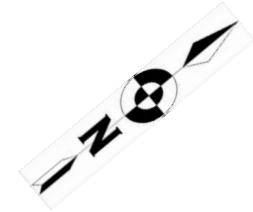
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Checked By: SL	Date: 1/4/19
Revision By:	Date:
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Gran Associates Pty Ltd	
85 Byron Road and 63 Ingleburn Road Leppington	
Site Locality and Survey Plan	
Project No: JC18322A	Drawing No:1

Site Feature	Description
A	Driveway constructed of crushed rock.
B	Single-storey brick, weatherboard and tile dwelling with a metal garage to the rear.
C	Single-storey fibro/metal dwelling with a number of small metal, timber and fibro sheds to the west. Sheds used for storage of miscellaneous items. Some minor hydrocarbon staining visible on surface
D	Driveway constructed of crushed rock, sandstone and traces of building debris (eg bricks and asphalt lumps)
E	Metal, timber and fibro shed with building extensions.
F	Area of previous numerous small buildings and sheds. Previous market garden area (1950s)
G	Backfilled depression with rubbish fill consisting of concrete boulders, bricks, glass and asbestos fragments
H	Recent Market Garden beds
I	Previous market garden/agricultural area



Note: The extent site features are only indicative

Legend



Site Feature



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85 Byron Road and 63 Ingleburn Road Leppington
Site Zoning and Features Plan

Project No: JC18322A

Drawing No: 2



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Gran Associates Pty Ltd
85 Byron Road and 63 Ingleburn Road Leppington
Proposed Development Plan

Project No: JC18322A

Drawing No: 3



Legend

- Subject Site
- Bringelly Shale (Rwb)
- Fluvial Deposit (Qal)



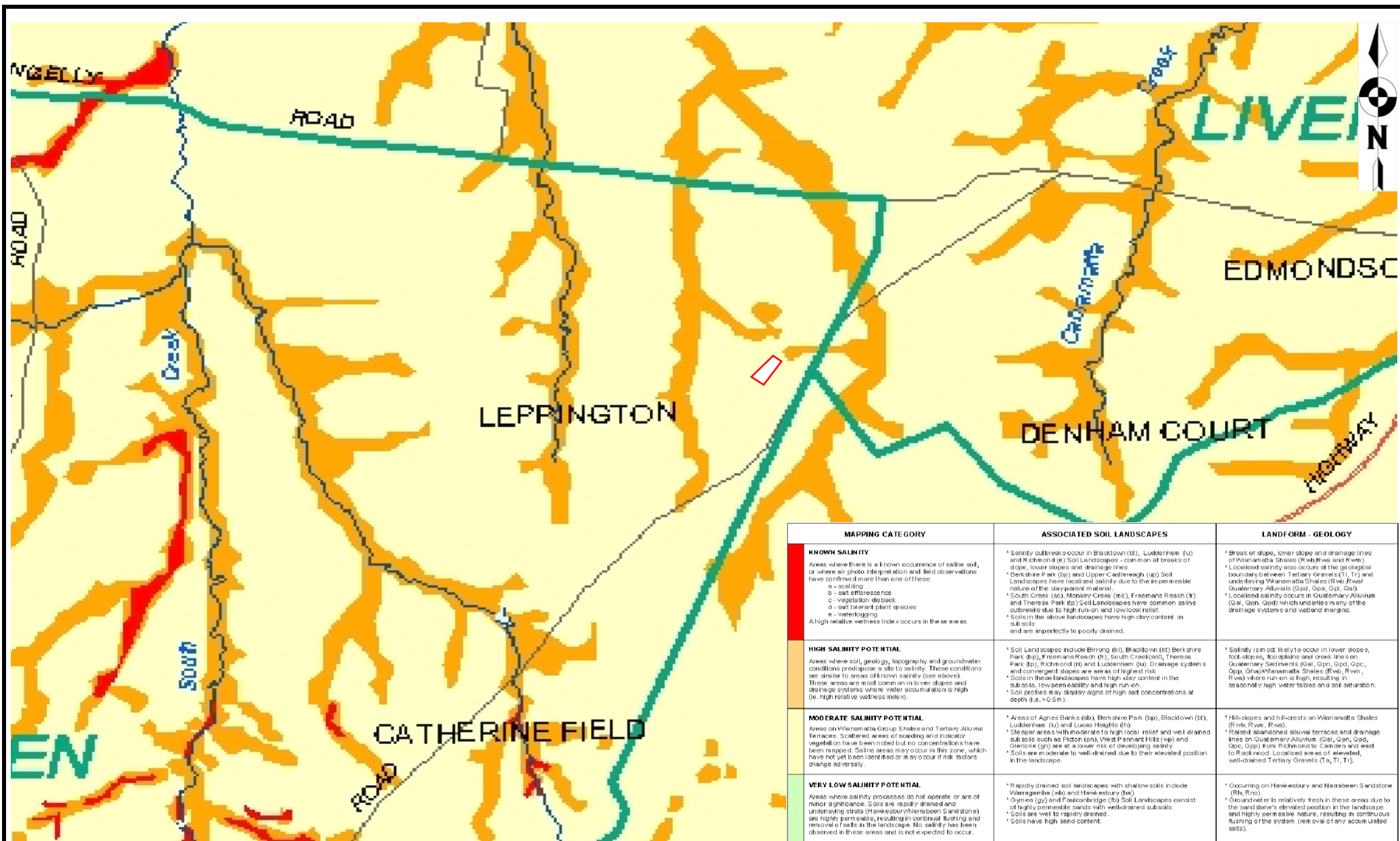
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Gran Associates Pty Ltd
85 Byron Road and 63 Ingleburn Road Leppington
Geological Unit Map

Project No: JC18322A **Drawing No: 5**



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Subject Site



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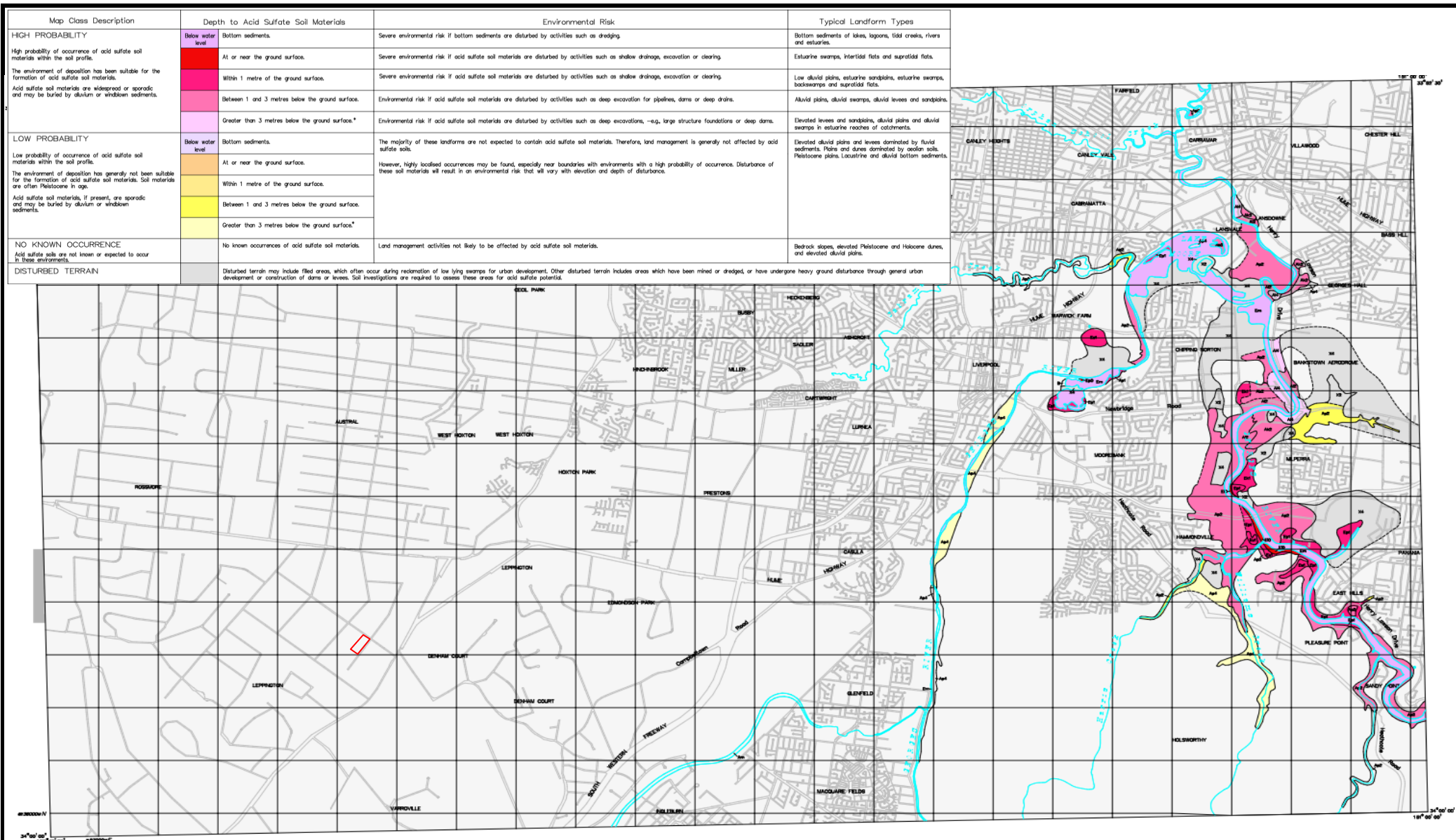
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Gran Associates Pty Ltd
85 Byron Road and 63 Ingleburn Road Leppington
Soil Salinity Map

Project No: JC18322A

Drawing No: 6



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Subject Site



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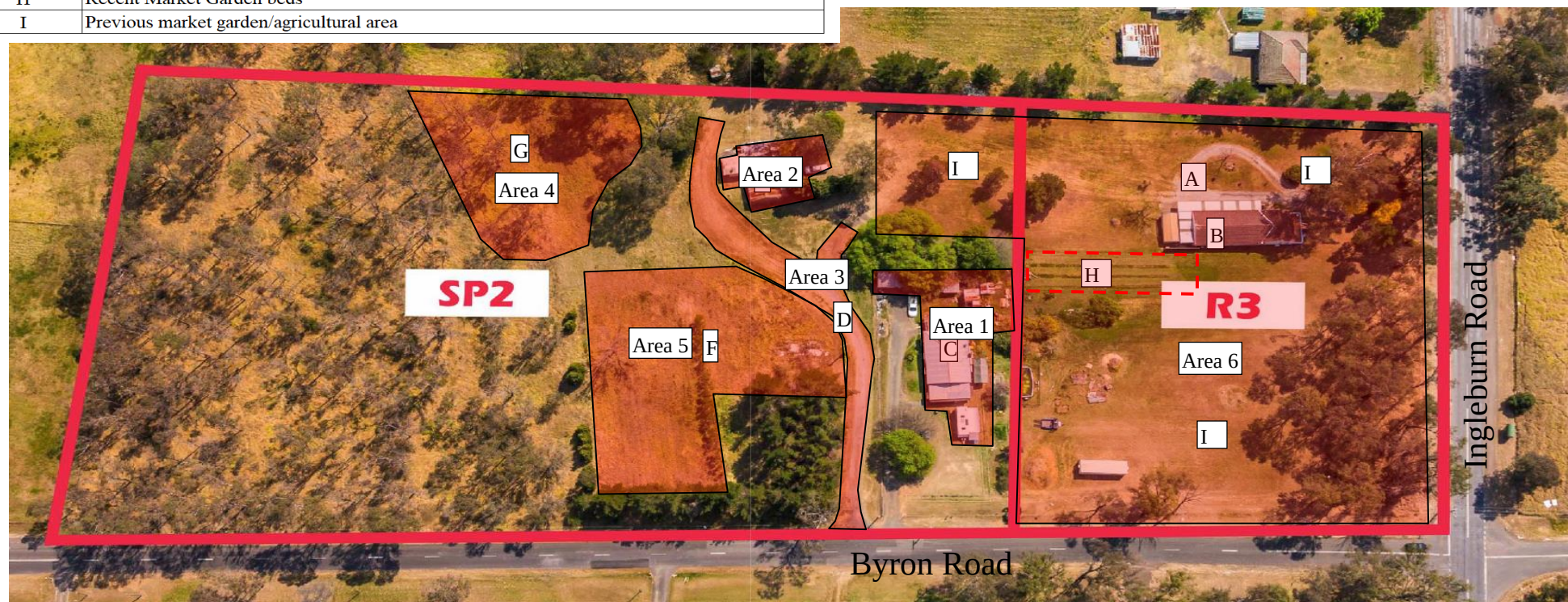
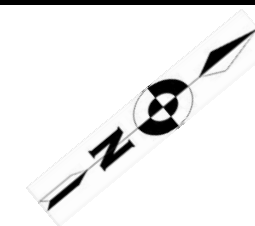
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Gran Associates Pty Ltd
85 Byron Road and 63 Ingleburn Road Leppington
Acid Sulphate Soil Risk Map

Project No: JC18322A

Drawing No: 7

Site Feature	Description
A	Driveway constructed of crushed rock.
B	Single-storey brick, weatherboard and tile dwelling with a metal garage to the rear.
C	Single-storey fibro/metal dwelling with a number of small metal, timber and fibro sheds to the west. Sheds used for storage of miscellaneous items. Some minor hydrocarbon staining visible on surface
D	Driveway constructed of crushed rock, sandstone and traces of building debris (eg bricks and asphalt lumps)
E	Metal, timber and fibro shed with building extensions.
F	Area of previous numerous small buildings and sheds. Previous market garden area (1950s)
G	Backfilled depression with rubbish fill consisting of concrete boulders, bricks, glass and asbestos fragments
H	Recent Market Garden beds
I	Previous market garden/agricultural area



Legend

Area 1

Potential Contaminated Area

Note: The extent Areas 1 to 6 are only indicative



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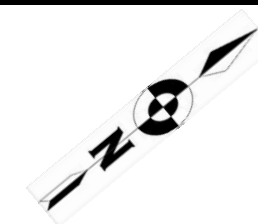
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Gran Associates Pty Ltd
85 Byron Road and 63 Ingleburn Road Leppington
Potential Contaminated Areas Plan

Project No: JC18322A

Drawing No: 8



Legend



Borehole

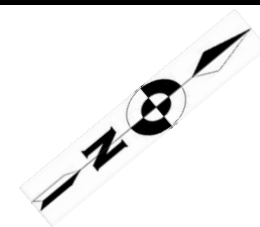


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Gran Associates Pty Ltd 85 Byron Road and 63 Ingleburn Road Leppington Initial Investigation - Borehole Location Plan	
Project No: JC18322A	Drawing No: 9



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 Borehole

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Gran Associates Pty Ltd
85 Byron Road and 63 Ingleburn Road Leppington
Additional Investigation - Test Pit Location Plan

Project No: JC18322A

Drawing No: 10

Test Pit Number	Depth (m)	Profile Type	Description	Visible Contamination (odour, stain, asbestos, inclusion) Yes/No
TP 1	0.00-0.20	Topsoil	Clayey Silt: low liquid limit, brown, dry	No
	0.20-0.50	Natural	(CH) Silty Clay: high plasticity, red brown, dry	No
TP 2	0.00-0.40	Topsoil	Clayey Silt: low liquid limit, brown, dry	No
	0.40-0.70	Natural	(CH) Silty Clay: high plasticity, red brown, dry	No
TP 3	0.00-0.30	Fill	Silty Clay: low to medium plasticity, brown, dry	No
	0.30-0.50	Topsoil	Clayey Silt: low liquid limit, brown, dry	No
	0.50-0.80	Natural	(CH) Silty Clay: high plasticity, red brown, dry	No
TP 4	0.00-1.10	Fill	Silty Clay/Clayey Silt: low plasticity/low liquid limit, brown with some concrete boulders, brick, metal and glass pieces, moist	Yes
	1.10-1.50	Natural	(CI) Silty Clay: medium plasticity, brown grey, dry to moist	No
TP 5	0.00-0.80	Fill	Silty Clay: medium plasticity, brown red with topsoil, dry	No
	0.80-1.10	Topsoil	Clayey Silt: low liquid limit, brown, dry	No
	1.10-1.40	Natural	(CH) Silty Clay: high plasticity, brown red, dry	No
TP 6	0.00-0.30	Fill	Silty Clay/Clayey Silt: low plasticity/low liquid limit, brown with abundant fibro pieces, dry	Yes
	0.30-0.70	Fill	Silty Clay: high plasticity, red brown with gravel, dry	No
	0.70-0.90	Topsoil	Clayey Silt: low liquid limit, brown, dry	No
	0.90-1.20	Natural	(CI) Silty Clay: medium plasticity, brown grey, dry	No
TP 7	0.00-0.40	Fill	Silty Clay/Clayey Silt: low plasticity/low liquid limit, brown with abundant fibro pieces, dry	Yes
	0.40-1.30	Fill	Fill: Silty Clay: medium plasticity, grey brown red with gravel, dry	No
	1.30-1.70	Natural	(CI) Silty Clay: medium plasticity, grey brown, dry to moist	No
TP 8	0.00-0.20	Fill	Silty Clay/Clayey Silt: low plasticity/low liquid limit, brown with 2 fibro pieces, dry	Yes
	0.20-0.40	Topsoil	Clayey Silt: low liquid limit, brown grey, dry	No
	0.40-0.70	Natural	(CI) Silty Clay: medium plasticity, brown grey, dry	No
TP 9	0.00-0.35	Topsoil	Clayey Silt: low liquid limit, brown, dry	No
	0.35-0.60	Natural	(CH) Silty Clay: high plasticity, red brown, dry	No
TP 10	0.00-0.30	Fill	Silty Clay/Clayey Silt: low plasticity/low liquid limit, brown with shale gravel and some concrete pieces, dry	Yes
	0.30-1.20	Fill	Fill: Silty Clay: medium plasticity, grey brown with gravel, dry	No
	1.20-2.30	Fill	Clayey Silt: low liquid limit, brown with some concrete cobble, tile, metal, plastic, bricks and fibro pieces, dry (refusal on concrete)	Yes

Estimated Percentage Foreign Inclusion

Trace = <5%

Some = >5%



**GeoEnviro
Consultancy**

TABLE 1 (Page 1 of 4)
SUMMARY OF SOIL PROFILE

Gran Associates Pty Ltd
Proposed Amity College
85 Byron Road and 63 Ingleburn Road Leppington

Test Pit Number	Depth (m)	Profile Type	Description	Visible Contamination (odour, staining, asbestos) Yes/No
TP 11	0.00-0.20 0.20-0.50	Topsoil/Fill Natural	Clayey Silt: low liquid limit, brown with gravel, dry (CH) Silty Clay: high plasticity, red brown, dry	No No
TP 12	0.00-0.40 0.40-0.70	Topsoil Natural	Clayey Silt: low liquid limit, brown, dry (CH) Silty Clay: high plasticity, red brown, dry	No No
TP 13	0.00-0.45 0.45-0.70	Topsoil Natural	Clayey Silt: low liquid limit, brown, dry to moist (CH) Silty Clay: high plasticity, red brown, dry to moist	No No
TP 14	0.00-0.30 0.30-0.60	Topsoil Natural	Clayey Silt: low liquid limit, brown, dry (CH) Silty Clay: high plasticity, red brown, dry	No No
TP 15	0.00-0.35 0.35-0.70	Topsoil Natural	Clayey Silt: low liquid limit, brown, dry (CH) Silty Clay: high plasticity, red brown, dry	No No
TP 16	0.00-0.40 0.40-0.70	Topsoil/Fill Natural	Clayey Silt; Low liquid limit, brown with gravel and trace of 1 tile fragments, dry (CH) Silty Clay: high plasticity, red brown, dry	No No
TP 17	0.00-0.30 0.30-0.60	Topsoil/Fill Natural	Clayey Silt: low liquid limit, brown with some clay, dry (CH) Silty Clay: high plasticity, red brown, dry	No No
TP 18	0.00-0.30 0.30-0.60	Topsoil/Fill Natural	Clayey Silt: low liquid limit, brown with some clay, dry (CH) Silty Clay: high plasticity, red brown, dry	No No
TP 19	0.00-0.35 0.35-0.60	Topsoil Natural	Clayey Silt: low liquid limit, brown with some clay, dry (CH) Silty Clay: high plasticity, red brown, dry	No No
TP 20	0.00-0.40 0.40-0.70	Topsoil Natural	Clayey Silt: low liquid limit, brown, dry (CH) Silty Clay: high plasticity, brown red, dry	No No
TP 21	0.00-0.30 0.30-0.60	Topsoil Natural	Clayey Silt: low liquid limit, brown with some clay, dry (CH) Silty Clay: high plasticity, red brown, dry	No No
TP 22 Driveway	0.00-0.20 0.20-0.50	Topsoil/Fill Natural	Clayey Silt: low liquid limit, brown with gravel, dry (CH) Silty Clay: high plasticity, brown, dry	No No

Estimated Percentage Foreign Inclusion

Trace = <5%

Some = >5%



TABLE 1 (Page 2 of 4)
SUMMARY OF SOIL PROFILE

Gran Associates Pty Ltd
Proposed Amity College
85 Byron Road and 63 Ingleburn Road Leppington

Test Pit Number	Depth (m)	Profile Type	Description	Visible Contamination (odour, staining, asbestos) Yes/No
TP 23	0.00-0.15	Topsoil	Clayey Silt: low liquid limit, brown, moist to wet	No
	0.15-0.30	Natural	(CH) Silty Clay: high plasticity, red brown, moist	No
TP 24	0.00-0.20	Topsoil/Fill	Clayey Silt: low liquid limit, brown, moist	No
	0.20-0.70	Natural	(CH) Silty Clay: high plasticity, red brown, moist	No
TP 25	0.00-0.25	Topsoil/Fill	Clayey Silt: low liquid limit, brown with shale gravel, dry	No
	0.25-0.50	Natural	(CH) Silty Clay: high plasticity, red brown, dry	No
TP 26	0.00-0.20	Topsoil/Fill	Clayey Silt: low liquid limit, brown with shale gravel, dry	No
	0.20-0.50	Natural	(CH) Silty Clay: high plasticity, brown red, dry	No
TP 27 Driveway	0.00-0.15	Fill	Silty Gravel: fine to medium grained, grey, dry	No
	0.15-0.30	Fill	Gravelly Silt: low liquid limit, dark grey, dry	No
	0.30-0.60	Natural	(CH) Silty Clay: high plasticity, brown red, dry	No
TP 28	0.00-0.25	Topsoil/Fill	Clayey Silt: low liquid limit, brown, dry	No
	0.25-0.40	Fill	Silty Clay: medium plasticity, grey brown, dry	No
	0.40-0.60	Natural	(CH) Silty Clay: high plasticity, red brown, dry	No
TP 29 Driveway	0.00-0.20	Fill	Silty Gravel: fine to medium grained, grey, dry	No
	0.20-0.50	Natural	(CH) Silty Clay: high plasticity, brown red, dry	No
TP 30	0.00-0.30	Topsoil/Fill	Clayey Silt: low liquid limit, brown, dry to moist	No
	0.30-0.60	Natural	(CH) Silty Clay: high plasticity, brown red, dry to moist	No
TP 31	0.00-0.30	Fill	Fill: Silty Clay: low to medium plasticity, brown with sand and an intact asbestos pipe, moist	Yes
	0.30-0.50	Natural	(CH) Silty Clay: high plasticity, brown red, moist	No
TP 32	0.00-0.30	Topsoil	Clayey Silt: low liquid limit, brown, dry	No
	0.30-0.60	Natural	(CH) Silty Clay: high plasticity, red brown, dry	No
TP 33	0.00-0.15	Topsoil	Clayey Silt: low liquid limit, brown with some gravel, dry	No
	0.15-0.40	Natural	(CH) Silty Clay: high plasticity, red brown, dry to moist	No
TP 34	0.00-0.20	Topsoil	Clayey Silt: low liquid limit, brown, moist	No
	0.20-0.40	Natural	(CH) Silty Clay: high plasticity, red brown, moist	No

Estimated Percentage Foreign Inclusion

Trace = <5%

Some = >5%



TABLE 1 (Page 3 of 4)
SUMMARY OF SOIL PROFILE

Gran Associates Pty Ltd
Proposed Amity College
85 Byron Road and 63 Ingleburn Road Leppington

Test Pit Number	Depth (m)	Profile Type	Description	Visible Contamination (odour, staining, asbestos) Yes/No
TP 35	0.00-0.30 0.30-0.50	Topsoil Natural	Clayey Silt: low liquid limit, brown, dry to moist (CH) Silty Clay: high plasticity, red brown, dry to moist	No No
TP 36	0.00-0.20 0.20-0.40	Topsoil Natural	Clayey Silt: low liquid limit, brown with trace of gravel, dry to moist (CH) Silty Clay: high plasticity, red brown, dry	No No
TP 37	0.00-0.25 0.25-0.60	Topsoil Natural	Clayey Silt: low liquid limit, brown, dry (CH) Silty Clay: high plasticity, red brown, dry	No No
TP 38	0.00-0.20 0.20-0.50	Topsoil Natural	Clayey Silt: low liquid limit, brown with some gravel, dry to moist (CH) Silty Clay: high plasticity, red brown, dry to moist	No No

Estimated Percentage Foreign Inclusion

Trace = <5%

Some = >5%



TABLE 1 (Page 4 of 4)
SUMMARY OF SOIL PROFILE

Gran Associates Pty Ltd
Proposed Amity College
85 Byron Road and 63 Ingleburn Road Leppington

Sample	Depths (m)	Sample Date	Sample Type	Composite Schedule Depths (m)			Analysis													
							pH	Heavy Metals							OCP	PCB	TRH	BTEX	PAH	Asbestos
								As	Cd	Cr	Cu	Pb	Hg	Ni	Zn					
C1	0.0-0.1	23/04/2018	Soil	BH 2 (0.0-0.1 m)	BH 3 (0.0-0.1 m)	BH 4 (0.0-0.1 m)		0	0	0	0	0	0	0	0	0	0			
C2	0.0-0.1	23/04/2018	Soil	BH 9 (0.0-0.1 m)	BH 10 (0.0-0.1 m)	BH 11 (0.0-0.1 m)		0	0	0	0	0	0	0	0	0	0			
C3	0.0-0.1	23/04/2018	Soil	BH 12 (0.0-0.1 m)	BH 13 (0.0-0.1 m)	BH 14 (0.0-0.1 m)		0	0	0	0	0	0	0	0	0	0			
C4	0.0-0.1	23/04/2018	Soil	BH 21 (0.0-0.1 m)	BH 25 (0.0-0.1 m)	BH 26 (0.0-0.1 m)		0	0	0	0	0	0	0	0	0	0			
C5	0.0-0.1	23/04/2018	Soil	BH 24 (0.0-0.1 m)	BH 27 (0.0-0.1 m)	BH 38 (0.0-0.1 m)		0	0	0	0	0	0	0	0	0	0			
C6	0.0-0.1	23/04/2018	Soil	BH 31 (0.0-0.1 m)	BH 32 (0.0-0.1 m)	BH 33 (0.0-0.1 m)		0	0	0	0	0	0	0	0	0	0			
C7	0.0-0.1	23/04/2018	Soil	BH 35 (0.0-0.1 m)	BH 36 (0.0-0.1 m)	BH 37 (0.0-0.1 m)		0	0	0	0	0	0	0	0	0	0			
BH5	0.00-0.10	23/04/2018	Soil				0	0	0	0	0	0	0	0	0	0	0	0	0	0
BH17	0.00-0.10	23/04/2018	Soil				0	0	0	0	0	0	0	0	0	0	0	0	0	0
BH19	0.00-0.10	23/04/2018	Soil				0	0	0	0	0	0	0	0	0	0	0	0	0	0
BH23	0.00-0.10	23/04/2018	Soil				0	0	0	0	0	0	0	0	0	0	0	0	0	0
BH28	0.00-0.10	23/04/2018	Soil				0	0	0	0	0	0	0	0	0	0	0	0	0	0
BH34	0.00-0.10	23/04/2018	Soil				0	0	0	0	0	0	0	0	0	0	0	0	0	0
Duplicate A	-	23/04/2018	Soil				0	0	0	0	0	0	0	0	0	0	0	0	0	0
BH28 - ACM	-	23/04/2018	Material																	0
BH21	0.0-0.1	23/04/2018	Soil												0					
BH25	0.0-0.1	23/04/2018	Soil												0					
BH26	0.0-0.1	23/04/2018	Soil												0					
BH36	0.0-0.1	23/04/2018	Soil												0					
BH36	0.0-0.1	23/04/2018	Soil												0					
BH37	0.0-0.1	23/04/2018	Soil												0					
TP1	0.00-0.10	8/01/2019	Soil					0	0	0	0	0	0	0	0	0	0			0
TP2	0.00-0.10	8/01/2019	Soil					0	0	0	0	0	0	0	0	0	0			0
TP3	0.00-0.10	8/01/2019	Soil					0	0	0	0	0	0	0	0	0	0			0
TP4	0.50-0.60	8/01/2019	Soil					0	0	0	0	0	0	0	0	0	0	0	0	0
TP5	0.30-0.40	8/01/2019	Soil					0	0	0	0	0	0	0	0	0	0			0
TP6	0.10-0.20	8/01/2019	Soil					0	0	0	0	0	0	0	0	0	0	0	0	0
TP7	0.30-0.40	8/01/2019	Soil					0	0	0	0	0	0	0	0	0	0	0	0	0
TP8	0.00-0.10	8/01/2019	Soil					0	0	0	0	0	0	0	0	0	0			0
TP9	0.00-0.10	8/01/2019	Soil					0	0	0	0	0	0	0	0	0	0			0
TP10	1.20-0.30	8/01/2019	Soil					0	0	0	0	0	0	0	0	0	0	0	0	0
TP13	0.00-0.10	8/01/2019	Soil					0	0	0	0	0	0	0	0	0	0			0
TP14	0.00-0.10	8/01/2019	Soil					0	0	0	0	0	0	0	0	0	0	0	0	0
TP15	0.00-0.10	8/01/2019	Soil					0	0	0	0	0	0	0	0	0	0	0	0	0
TP16	0.00-0.10	8/01/2019	Soil					0	0	0	0	0	0	0	0	0	0	0	0	0
TP17	0.00-0.10	8/01/2019	Soil					0	0	0	0	0	0	0	0	0	0			0
TP18	0.00-0.10	8/01/2019	Soil					0	0	0	0	0	0	0	0	0	0			0
TP19	0.00-0.10	8/01/2019	Soil					0	0	0	0	0	0	0	0	0	0	0	0	0
TP20	0.00-0.10	8/01/2019	Soil					0	0	0	0	0	0	0	0	0	0			0
TP21	0.00-0.10	8/01/2019	Soil					0	0	0	0	0	0	0	0	0	0	0	0	0
TP22	0.00-0.10	8/01/2019	Soil					0	0	0	0	0	0	0	0	0	0	0	0	0
TP23	0.00-0.10	8/01/2019	Soil					0	0	0	0	0	0	0	0	0	0	0	0	0
TP24	0.00-0.10	8/01/2019	Soil					0	0	0	0	0	0	0	0	0	0	0	0	0
TP25	0.00-0.10	8/01/2019	Soil					0	0	0	0	0	0	0	0	0	0	0	0	0
TP26	0.00-0.10	8/01/2019	Soil					0	0	0	0	0	0	0	0	0	0	0	0	0
TP27	0.00-0.10	8/01/2019	Soil					0	0	0	0	0	0	0	0	0	0	0	0	0
TP28	0.00-0.10	8/01/2019	Soil					0	0	0	0	0	0	0	0	0	0	0	0	0
TP29	0.00-0.10	8/01/2019	Soil					0	0	0	0	0	0	0	0	0	0	0	0	0
TP30	0.00-0.10	8/01/2019	Soil					0	0	0	0	0	0	0	0	0	0	0	0	0
TP31	0.00-0.10	8/01/2019	Soil					0	0	0	0	0	0	0	0	0	0	0	0	0
TP32	0.00-0.10	8/01/2019	Soil					0	0	0	0	0	0	0	0	0	0	0	0	0
TP33	0.00-0.10	8/01/2019	Soil					0	0	0	0	0	0	0	0	0	0	0	0	0
TP34	0.00-0.10	8/01/2019	Soil					0	0	0	0	0	0	0	0	0	0	0	0	0
TP35	0.00-0.10	8/01/2019	Soil					0	0	0	0	0	0	0	0	0	0	0	0	0
TP36	0.00-0.10	8/01/2019	Soil					0	0	0	0	0	0	0	0	0	0	0	0	0
TP37	0.00-0.10	8/01/2019	Soil					0	0	0	0	0	0	0	0	0	0			0
TP38	0.00-0.10	8/01/2019	Soil					0	0	0	0	0	0	0	0	0	0			0
Duplicate B	-	8/01/2019	Soil					0	0	0	0	0	0	0	0	0	0	0	0	0
Duplicate C	-	8/01/2019	Soil					0	0	0	0	0	0	0	0	0	0	0	0	0
Duplicate D	-	8/01/2019	Soil					0	0	0	0	0	0	0	0	0	0	0	0	0
Duplicate E	-	8/01/2019	Soil					0	0	0	0	0	0	0	0	0	0	0	0	0
TP6 - Fibro	-	8/01/2019	Material					0	0	0	0	0	0	0	0	0	0			0
TP8 - Fibro	-	8/01/2019	Material																	0
TP10 - Fibro	-	8/01/2019	Material																	0

Note: 0 denotes tested

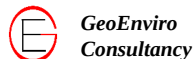


TABLE 2
Analytical Program

Gran Associates Pty Ltd
Proposed Amity College
85 Byron Road and 63 Ingleburn Road Leppington

Composite Sample

Sample	Depths (m)	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc
C1	0.0-0.1	8	<0.4	20	13	23	<0.1	5	18
C2	0.0-0.1	7	<0.4	19	13	19	<0.1	4	19
C3	0.0-0.1	9	<0.4	19	23	25	<0.1	5	120
C4	0.0-0.1	7	<0.4	17	25	45	<0.1	11	170
C5	0.0-0.1	7	<0.4	15	16	21	<0.1	13	50
C6	0.0-0.1	4	<0.4	18	20	21	<0.1	10	39
C7	0.0-0.1	6	<0.4	17	23	32	<0.1	12	160
Modified HBILs 'A' Criteria		33	7	33 (VI)	2000	100	13	133	2467
Modified EIL Criteria²		#REF!		#REF!	#REF!	#REF!		#REF!	#REF!

Individual Samples

Sample	Depths (m)	pH	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc
BH5	0.00-0.10	6.3	13	<0.4	18	18	30	<0.1	4	20
BH17	0.00-0.10	6.8	7	0.5	25	56	92	<0.1	15	430
BH19	0.00-0.10		7	<0.4	17	15	27	<0.1	6	52
BH23	0.00-0.10		11	<0.4	13	19	26	<0.1	13	150
BH28	0.00-0.10	6.9	10	0.6	17	90	120	<0.1	17	550
BH34	0.00-0.10		5	<0.4	17	23	20	<0.1	11	43
Duplicate A	-		13	<0.4	17	18	30	<0.1	4	20
BH21	0.0-0.1									430
BH25	0.0-0.1									63
BH26	0.0-0.1									40
BH36	0.0-0.1									51
BH36	0.0-0.1									220
BH37	0.0-0.1									19
TP1	0.00-0.10		4	<0.4	18	20	91	0.3	14	500
TP2	0.00-0.10		6	<0.4	17	16	25	0.2	9	35
TP3	0.00-0.10		12	<0.4	15	30	22	0.2	12	74
TP4	0.50-0.60		9	2	19	45	59	0.2	16	800
TP7	0.30-0.40		10	0.4	18	26	51	0.2	9	350
TP8	0.00-0.10		7	0.4	24	170	89	0.1	170	2000
TP9	0.00-0.10		9	<0.4	20	23	35	0.2	12	41
TP10	1.20-0.30		5	<0.4	14	36	13	0.3	38	58
TP13	0.00-0.10		6	<0.4	17	22	29	0.2	13	48
TP14	0.00-0.10		6	<0.4	18	25	50	0.1	14	50
TP15	0.00-0.10		6	<0.4	16	24	27	0.1	13	43
TP17	0.00-0.10		6	<0.4	19	40	57	0.1	14	160
TP18	0.00-0.10		6	<0.4	20	26	28	0.1	10	40
TP19	0.00-0.10		6	<0.4	18	19	24	<0.1	25	90
TP21	0.00-0.10		9	0.6	14	14	34	<0.1	8	68
TP22	0.00-0.10		7	<0.4	15	9	15	<0.1	8	44
TP23	0.00-0.10		10	<0.4	16	16	110	0.1	9	150
TP24	0.00-0.10		9	<0.4	19	21	42	<0.1	14	120
TP25	0.00-0.10		12	0.6	33	46	130	0.1	22	280
TP26	0.00-0.10		6	<0.4	14	19	39	<0.1	9	98
TP27	0.00-0.10		4	<0.4	15	20	16	0.1	14	41
TP29	0.00-0.10		<4	<0.4	72	34	11	0.2	70	49
TP30	0.00-0.10		7	1	22	40	110	0.1	21	250
TP31	0.00-0.10		6	<0.4	9	33	52	<0.1	9	360
TP32	0.00-0.10		8	0.8	19	25	32	0.1	17	50
TP33	0.00-0.10		8	<0.4	15	16	32	<0.1	5	56
TP34	0.00-0.10		9	<0.4	18	27	160	<0.1	8	110
TP35	0.00-0.10		14	<0.4	18	34	59	<0.1	6	240
TP36	0.00-0.10		13	<0.4	19	24	37	<0.1	4	23
TP37	0.00-0.10		11	<0.4	21	30	31	<0.1	7	24
TP38	0.00-0.10		12	<0.4	19	21	32	<0.1	4	19
Duplicate B	-		7	<0.4	16	23	39	<0.1	10	110
Duplicate C	-		7	<0.4	13	50	44	<0.1	8	330
Duplicate D	-		5	<0.4	14	15	24	<0.1	41	84
Duplicate E	-		7	<0.4	17	24	81	<0.1	7	90
HBILs 'A' Criteria			100	20	100 (VI)	6000	300	40	400	7400
EIL Criteria			#REF!	NA	#REF!	#REF!	#REF!	NA	#REF!	#REF!

EIL Derivation

ABC³	#REF!	NA	#REF!	#REF!	#REF!	NA	#REF!	#REF!
ACL⁴	#REF!	NA	#REF!	#REF!	#REF!	NA	#REF!	#REF!

Notes

- 1) All results are expressed as mg/kg and pH (units).
- 2) Figures in bold italics that are underlined exceed the modified HBILs 'A' or HBIL 'A' Criteria
- 3) Figures in bold italics exceed the modified EIL or EIL Criteria
- 3) Ambient Background Concentrations
- 4) Added Contaminant Limits



TABLE 3
Summary of Analytical Results - Heavy Metals
 Gran Associates Pty Ltd
 Proposed Amity College
 85 Byron Road and 63 Ingleburn Road Leppington

Composite Sample

Sample	Depths (m)	HCB	alpha-BHC	gamma-BHC	beta-BHC	Heptachlor	delta-BHC	Aldrin	Heptachlor Epoxide	gamma-Chlordane	alpha-chlordane	Endosulfan I	pp-DDE	Dieldrin	Endrin	pp-DDD	Endosulfan II	pp-DDT	Endrin Aldelyde	Endosulfan Sulphate	Methoxychlor	Total OCP
C1	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C2	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C3	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2
C4	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C5	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C6	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C7	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
Modified HBILs 'A' Criteria		3				2			2		17	90	80	2	3	80		80			100	

Individual Sample

Parent Sample		Depths (m)	Contaminants																		Total OCP
Sample	HCB		alpha-BHC	gamma-BHC	beta-BHC	Hepachlor	delta-BHC	Aldrin	Hepachlor Epoxide	gamma-Chlordane	alpha-chlordane	Endosulfan I	pp-DDE	Dieldrin	Endrin	pp-DDD	Endosulfan II	pp-DDT	Endrin Aldehyde	Endosulfan Sulphate	
BH5	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
BH17	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
BH19	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
BH23	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
BH28	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
BH34	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
Duplicate A	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP1	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP2	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP3	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP4	0.50-0.60	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP7	0.30-0.40	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP8	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP9	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP10	1.20-0.30	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP13	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP14	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP15	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP17	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP18	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP19	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP21	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP23	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP24	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP25	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP26	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP30	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP31	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP32	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP33	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP34	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP35	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP36	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP37	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP38	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
Duplicate B	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
Duplicate C	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
Duplicate D	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
Duplicate E	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
HBILs 'A' Criteria		10		6		6		50	270	240	6	10	240		240					300	

Notes

1) All results are expressed as mg/kg and pH (units).

2) Figures in bold italics exceed the modified HBILs 'A' or HBIL 'A' Criteria



TABLE 4
Summary of Analytical Results - OCF

Gran Associates Pty Ltd
Proposed Amity College
85 Byron Road and 63 Ingleburn Road Leppington

Composite Sample

Sample	Depths (m)	Arochlor 1016	Arochlor 1221	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	Total PCB
C1	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C2	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C3	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C4	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C5	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C6	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
C7	0.0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
Modified HBILs 'A' Criteria									0.3

Individual Sample

Sample	Depths (m)	Arochlor 1016	Arochlor 1221	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	Total PCB
BH5	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
BH17	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
BH19	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
BH23	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
BH28	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
BH34	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
Duplicate A	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP1	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP2	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP3	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP4	0.50-0.60	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP7	0.30-0.40	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP8	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP9	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP10	1.20-0.30	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP13	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP14	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP15	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP17	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP18	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP19	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP21	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP23	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP24	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP25	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP26	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP30	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP31	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP32	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP33	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP34	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP35	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP36	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP37	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
TP38	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
Duplicate B	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
Duplicate C	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
Duplicate D	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
Duplicate E	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
HBILs 'A' Criteria									1

Notes

- 1) All results are expressed as mg/kg and pH (units).
- 2) Figures in bold italics exceed the modified HBILs 'A' or HBIL 'A' Criteria



TABLE 5
Summary of Analytical Results - PCB

Gran Associates Pty Ltd
Proposed Amity College
85 Byron Road and 63 Ingleburn Road Leppington

Sample	Depths (m)	C ₆ -C ₉	C ₁₀ -C ₁₄	C ₁₅ -C ₂₈	C ₂₉ -C ₃₆	C ₁₀ -C ₃₆	F1 ⁽⁴⁾	F2 ⁽⁵⁾	F3	F4	Volatile Organic Compounds (VOC)					
							C ₆ -C ₁₀	>C ₁₀ -C ₁₆	C ₁₆ -C ₃₄	C ₃₄ -C ₄₀	Benzene	Toluene	Ethylbenzene	m+p-xylene	o-Xylene	Naphthalene
BH5	0.00-0.10	<25	<50	<100	<100	<250	<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1	<1
BH17	0.00-0.10	<25	<50	<100	<100	<250	<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1	<1
BH19	0.00-0.10	<25	<50	<100	<100	<250	<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1	<1
BH23	0.00-0.10	<25	<50	<100	<100	<250	<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1	<1
BH28	0.00-0.10	<25	<50	<100	<100	<250	<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1	<1
BH34	0.00-0.10	<25	<50	<100	<100	<250	<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1	<1
Duplicate A	-	<25	<50	<100	<100	<250	<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1	<1
TP4	0.50-0.60	<25	<50	<100	<100	<250	<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1	<1
TP7	0.30-0.40	<25	<50	<100	<100	<250	<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1	<1
TP10	1.20-0.30	<25	<50	<100	<100	<250	<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1	<1
TP15	0.00-0.10	<25	<50	<100	<100	<250	<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1	<1
TP19	0.00-0.10	<25	<50	<100	<100	<250	<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1	<1
TP21	0.00-0.10	<25	<50	<100	<100	<250	<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1	<1
TP22	0.00-0.10	<25	<50	<100	<100	<250	<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1	<1
TP23	0.00-0.10	<25	<50	<100	<100	<250	<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1	<1
TP24	0.00-0.10	<25	<50	<100	<100	<250	<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1	<1
TP25	0.00-0.10	<25	<50	<100	120	120	<25	<50	130	<100	<0.2	<0.5	<1	<2	<1	<1
TP26	0.00-0.10	<25	<50	<100	<100	<250	<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1	<1
TP27	0.00-0.10	<25	<50	<100	<100	<250	<25	<50	<100	<100						
TP29	0.00-0.10	<25	<50	<100	<100	<250	<25	<50	<100	<100						
TP30	0.00-0.10	<25	<50	<100	<100	<250	<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1	<1
TP31	0.00-0.10	<25	<50	<100	<100	<250	<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1	<1
TP32	0.00-0.10	<25	<50	<100	<100	<250	<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1	<1
TP33	0.00-0.10	<25	<50	<100	<100	<250	<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1	<1
TP34	0.00-0.10	<25	<50	<100	<100	<250	<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1	<1
TP35	0.00-0.10	<25	<50	<100	<100	<250	<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1	<1
Duplicate B	-	<25	<50	<100	<100	<250	<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1	<1
Duplicate C	-	<25	<50	<100	<100	<250	<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1	<1
Duplicate D	-	<25	<50	<100	<100	<250	<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1	<1
Duplicate E	-	<25	<50	<100	<100	<250	<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1	<1
NSW DEC (1994)		65				1000					1	1.4	3.1	14		
HSLs 'A and B' Criteria (CLAY)							50	280			0.7	480	480	110		5
0m to <1m							90				1			310		
1m to <2m							150				2					
2m to < 4m							290				3					
4m+																
ESL Criteria							180	120	1300	5600	65	105	125	45		

Notes

- 1) All results are expressed as mg/kg unless otherwise specified
- 2) Figures in bold exceed the NSW DEC criteria
- 3) ND Not detected
- 4) F1 is C₆-C₁₀ minus the sum of the BTEX concentrations
- 5) F2 is >C₁₀-C₁₆ Minus Naphthalene
- 6) Figures in bold italics that have been underlined exceed the HSLs 'A and B' Criteria
- 7) Figures in bold italics exceed the ESL Criteria



TABLE 6 Summary of Analytical Results - TRH and VOC

Gran Associates Pty Ltd
Proposed Amity College
85 Byron Road and 63 Ingleburn Road Leppington

Sample	Depths (m)	Naphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo(a)anthracene	Chrysene	Benzo(b+k)fluoranthene	Benzo(a)pyrene	Indeno(1,2,3-c,d)pyrene	Dibenzo(a,h)anthracene	Benzo(g,h,i)perylene	Benzo(a)pyrene TEQ	Total PAHs
BH5	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	<0.5	ND
BH17	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	<0.5	ND
BH19	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	<0.5	ND
BH23	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	<0.5	ND
BH28	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	<0.5	ND
BH34	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	<0.5	ND
Duplicate A	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	<0.5	ND
TP4	0.50-0.60	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	<0.5	ND
TP7	0.30-0.40	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	<0.5	ND
TP10	1.20-0.30	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	<0.5	ND
TP15	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	<0.5	ND
TP19	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	<0.5	ND
TP21	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	<0.5	ND
TP22	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	<0.5	ND
TP23	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	<0.5	ND
TP24	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	<0.5	ND
TP25	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	<0.5	ND
TP26	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	<0.5	0.1
TP27	0.00-0.10	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	0.1	0.1	<0.1	<0.1	<0.2	0.06	<0.1	<0.1	<0.1	<0.5	0.36
TP29	0.00-0.10	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.2	0.1	<0.1	<0.1	0.2	<0.5	0.5
TP30	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	<0.5	ND
TP31	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	<0.5	ND
TP32	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	<0.5	ND
TP33	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	<0.5	ND
TP34	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	<0.5	ND
TP35	0.00-0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	<0.5	ND
Duplicate B	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	<0.5	ND
Duplicate C	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	<0.5	ND
Duplicate D	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	<0.5	ND
Duplicate E	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	<0.5	ND
HBILs 'A' Criteria		3															3*	300
ESL Criteria																		
													0.7					

Notes

- 1) All results are expressed as mg/kg
- 2) Figures in bold italics that have been underlined exceed the HBILs 'A' Criteria
- 3) Figures in bold italic exceed the ESL Criteria

* B(a)P TEQ is calculated by multiplying the concentration of each carcinogenic PAH in the sample by its B(a)P TEF, given below, and summing these products

PAH Species	TEF
Benzo(a)anthracene	0.1
Benzo(a)pyrene	1
Benzo(b+j)fluoranthene	0.1
Benzo(k)fluoranthene	0.1
Benzo(g,h,i)perylene	0.01
Chrysene	0.01
Dibenzo(a,h)anthracene	1
Indeno(1,2,3-c,d)pyrene	0.1



GeoEnviro Consultancy TABLE 7 Summary of Analytical Results - PAH

Gran Associates Pty Ltd
Proposed Amity College
85 Byron Road and 63 Ingleburn Road Leppington

Sample	Depths (m)	Asbestos
BH5	0.00-0.10	ND
BH17	0.00-0.10	ND
BH19	0.00-0.10	ND
BH23	0.00-0.10	ND
BH28	0.00-0.10	ND
BH34	0.00-0.10	ND
BH28 - ACM	-	Chrysotile Asbestos
TP4	0.50-0.60	ND
TP5	0.30-0.40	ND
TP6	0.10-0.20	ND
TP7	0.30-0.40	ND
TP10	1.20-0.30	ND
TP15	0.00-0.10	ND
TP16	0.00-0.10	ND
TP19	0.00-0.10	ND
TP20	0.00-0.10	ND
TP21	0.00-0.10	ND
TP22	0.00-0.10	ND
TP23	0.00-0.10	ND
TP24	0.00-0.10	ND
TP25	0.00-0.10	ND
TP26	0.00-0.10	ND
TP27	0.00-0.10	ND
TP28	0.00-0.10	ND
TP29	0.00-0.10	ND
TP30	0.00-0.10	ND
TP31	0.00-0.10	ND
TP32	0.00-0.10	ND
TP33	0.00-0.10	ND
TP34	0.00-0.10	ND
TP35	0.00-0.10	ND
TP6 - Fibro	-	Chrysotile Asbestos
TP8 - Fibro	-	Chrysotile Asbestos
TP10 - Fibro	-	Chrysotile Asbestos
HBILs 'A' Criteria		0.01% / 0.001% ¹

Note: ND = Not detected

Measured in %w/w

1) Bonded Asbestos Contaminant Material / Fibrous Asbestos and Asbestos Fines

2) Figures in bold italics exceed the HBILs 'A' Criteria



TABLE 8

Summary of Analytical Results - Asbestos

Gran Associates Pty Ltd
Proposed Amity College
85 Byron Road and 63 Ingleburn Road Leppington

Sample	Depths (m)	Metals							
		Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc
BH 5	0.00-0.10	13	<0.4	18	18	30	<0.1	4	20
Duplicate A		13	<0.4	17	18	30	<0.1	4	20
Relative Percentage Difference (RPD)		0.0	NA	5.7	0.0	0.0	NA	0.0	0.0

Sample	Depths (m)	OCP	PCB	TRH	BTEX	PAH
BH 5	0.00-0.10	ND	ND	ND	ND	ND
Duplicate A		ND	ND	ND	ND	ND
Relative Percentage Difference (RPD)		NA	NA	NA	NA	NA

Sample	Depths (m)	Metals							
		Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc
TP 26	0.00-0.10	6	<0.4	14	19	39	<0.1	9	98
Duplicate B		7	<0.4	16	23	39	<0.1	10	110
Relative Percentage Difference (RPD)		15.4	NA	13.3	19.0	0.0	NA	10.5	11.5

Sample	Depths (m)	OCP	PCB	TRH	BTEX	PAH
TP 26	0.00-0.10	ND	ND	ND	ND	ND
Duplicate B		ND	ND	ND	ND	ND
Relative Percentage Difference (RPD)		NA	NA	NA	NA	NA

Sample	Depths (m)	Metals							
		Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc
TP 7	0.3-0.4	10	0.4	18	26	51	0.2	9	350
Duplicate C		7	<0.4	13	50	44	<0.1	8	330
Relative Percentage Difference (RPD)		35.3	NA	32.3	63.2	14.7	NA	11.8	5.9

Sample	Depths (m)	OCP	PCB	TRH	BTEX	PAH
TP 7	0.3-0.4	ND	ND	ND	ND	ND
Duplicate C		ND	ND	ND	ND	ND
Relative Percentage Difference (RPD)		NA	NA	NA	NA	NA

Sample	Depths (m)	Metals							
		Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc
TP 19	0.00-0.10	6	<0.4	18	19	24	<0.1	25	90
Duplicate D		5	<0.4	14	15	24	<0.1	41	84
Relative Percentage Difference (RPD)		18.2	NA	25.0	23.5	0.0	NA	48.5	6.9

Sample	Depths (m)	OCP	PCB	TRH	BTEX	PAH
TP 19	0.00-0.10	ND	ND	ND	ND	ND
Duplicate D		ND	ND	ND	ND	ND
Relative Percentage Difference (RPD)		NA	NA	NA	NA	NA

Sample	Depths (m)	Metals							
		Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc
TP 34	0.00-0.10	9	<0.4	18	27	160	<0.1	8	110
Duplicate E		7	<0.4	17	24	81	<0.1	7	90
Relative Percentage Difference (RPD)		25.0	NA	5.7	11.8	65.6	NA	13.3	20.0

Sample	Depths (m)	OCP	PCB	TRH	BTEX	PAH
TP 34	0.00-0.10	ND	ND	ND	ND	ND
Duplicate E		ND	ND	ND	ND	ND
Relative Percentage Difference (RPD)		NA	NA	NA	NA	NA

Notes

- 1) All results are expressed as mg/kg .
- 2) ND - Not Detected
- 3) NA - Not Applicable



**GeoEnviro
Consultancy**

**TABLE 9
Summary of Analytical Results - Quality Assurance**

Gran Associates Pty Ltd
Proposed Amity College
85 Byron Road and 63 Ingleburn Road Leppington

APPENDIX A

Site Photographs



Photo No 1 – Middle of the site facing north-west towards the shed (Site Feature C) in the background and the driveway (Site Feature D) with crushed rock, sandstone and some building debris on the surface in the foreground.



Photo No 2 – Middle of the site facing the fibro dwelling (Site Feature C)



Photo No 3 – Gravel driveway (Site Feature D) with traces of building debris (eg concrete, bricks and asphalt)



Photo No 4 – Metal and timber sheds to the west of fibro house (Site Feature C) with some minor oil staining on surface.



Photo No 5 – Metal shed (Site Feature C) used for general storage of miscellaneous items



Photo No 6 – Central western portion of the site facing north-west to the backfilled depression area (Site Feature G).



Photo No 7 – Metal, timber and fibro shed (Site Feature E) facing east



Photo No 8 – Metal, timber and fibro shed (Site Feature E)



Photo No 9 – Central western portion of the site facing east towards the area of previous small buildings and market garden area (Site Feature F) with the dwelling (Site Feature C) towards the left background.



Photo No 10 – Central north-eastern portion of the site facing east towards the previous market garden/agricultural area (Site Feature I) and dwelling (Site Feature B) in the background. Adjacent dwelling to the left background.



Photo No 11 – Central eastern portion of the site facing east towards the Byron Road and Ingleburn Road intersection with the previous market garden/agricultural area (Site Feature I) in the foreground.



Photo No 12 – Test Pit No 4 ; Rubbish fill including metal, concrete and bricks encountered in the backfilled depression area (Site Feature G)

APPENDIX B

Borehole Reports



GeoEnviro Consultancy Pty Ltd

Unit 5, 39-41 Fourth Avenue, Blacktown NSW 2148, Australia
Tel: (02) 96798733 Fax: (02) 96798744

Borehole Report

Borehole no: 1

Client: Gran Associates Pty Ltd

Job no: JC18322A

Project: Proposed Amity College

Date: 23/4/18

Location: 85 Byron Road and 63 Ingleburn Road Leppington

Logged by: SG

Drill Model and Mounting: B80

Slope: 90°

R.L. Surface: 95.0m

Hole Diameter: 100mm

Bearing: Vertical

Datum: AHD

Method	Support	Water	Notes: Samples, Tests, etc	Depth(m)	Classification Symbol	Unified Soil Classification	Material Description Soil Type, Plasticity or Particle Characteristic, colour, secondary and minor component	Moisture Content	Consistency/Density Index	Hand Penetrometer kPa	Structure and Additional Observations
V	N I L	D R Y	DS				Topsoil: Clayey Silt: low liquid limit, brown with fine grained gravel				
				1.0		CI-CH	Silty Clay: medium to high plasticity, red brown with fine to medium grained gravel	D			
			6,20/30mm						H	>600	V bit refusal at 1.2
T C			N>20			CI	Silty Clay: medium plasticity, grey with heavy ironstaining, and ironstone and siltstone bands	D			
				2.0							
			DS								
				3.0			Interbedded Clay and Siltstone				
							Siltstone: grey brown, low to medium strength, extremely weathered to distinctly weathered				TC bit refusal at 3.8m
				4.0			End of BH 1 at 3.8m				
				5.0							
				6.0							
				7.0							
				8.0							



GeoEnviro Consultancy Pty Ltd

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Borehole Report

Borehole no: 2

Client: Gran Associates Pty Ltd

Job no: JC18322A

Project: Proposed Amity College

Date: 23/4/18

Location: 85 Byron Road and 63 Ingleburn Road Leppington

Logged by: SG

Drill Model and Mounting: B80

Slope: 90°

R.L. Surface: 94.8m

Hole Diameter: 100mm

Bearing: Vertical

Datum: AHD

Method	Support	Water	Notes: Samples, Tests, etc	Depth(m)	Classification Symbol	Unified Soil Classification	Material Description Soil Type, Plasticity or Particle Characteristic, colour, secondary and minor component	Moisture Content	Consistency/Density Index	Hand Penetrometer kPa	Structure and Additional Observations
V	N I L	D R Y				CH	Topsoil: Clayey Silt: low liquid limit, brown with trace of fine grained gravel Silty Clay: high plasticity, red brown with fine grained gravel	D			
			7,10,19 N=29	1.0		CI	Silty Clay: medium plasticity, dark grey brown with ironstaining and fine grained gravel As above but grey with ironstaining and fine grained gravel	D	H	>600	V bit refusal at 1.5m
T C			8,21,16 /70mm N>37	2.0							
				3.0			Siltstone: grey brown, low to medium strength, extremely weathered to distinctly weathered				
				4.0							TC bit refusal at 4.0m
				5.0			End of BH 2 at 4.0m				
				6.0							
				7.0							
				8.0							



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Borehole Report

Borehole no: 3

Client: Gran Associates Pty Ltd

Job no: JC18322A

Project: Proposed Amity College

Date: 23/4/18

Location: 85 Byron Road and 63 Ingleburn Road Leppington

Logged by: SG

Drill Model and Mounting: B80

Slope: 90°

R.L. Surface: 94.5m

Hole Diameter: 100mm

Bearing: Vertical

Datum: AHD

Method	Support	Water	Notes: Samples, Tests, etc	Depth(m)	Classification Symbol	Unified Soil Classification	Material Description Soil Type, Plasticity or Particle Characteristic, colour, secondary and minor component	Moisture Content	Consistency/Density Index	Hand Penetrometer kPa	Structure and Additional Observations
V	N I L	D R Y					Topsoil: Clayey Silt: low liquid limit, brown with trace of fine grained gravel				
				1.0		CH	Silty Clay: high plasticity, red brown with fine grained gravel	D			
			2,11,22 N=33			CI	Gravelly Silty Clay: medium plasticity, red brown with fine to medium grained gravel and ironstone bands	D	H	>600	V bit refusal at 1.5m
T C				2.0		CI	Silty Clay: medium plasticity, grey brown with ironstaining and fine to medium grained gravel	D			
			11,13,19 /50mm N>32			CI	Gravelly Silty Clay: medium plasticity, red grey with fine to medium grained gravel	D	H	>600	SPT bouncing at 2.85m
				3.0							TC but refusal at 3.4m
				4.0			End of BH 3 at 3.4m				
				5.0							
				6.0							
				7.0							
				8.0							



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Borehole Report

Borehole no: 4

Client: Gran Associates Pty Ltd

Job no: JC18322A

Project: Proposed Amity College

Date: 23/4/18

Location: 85 Byron Road and 63 Ingleburn Road Leppington

Logged by: SG

Drill Model and Mounting: B80

Slope: 90°

R.L. Surface: 93.8m

Hole Diameter: 100mm

Bearing: Vertical

Datum: AHD

Method	Support	Water	Notes: Samples, Tests, etc	Depth(m)	Classification Symbol	Unified Soil Classification	Material Description Soil Type, Plasticity or Particle Characteristic, colour, secondary and minor component	Moisture Content	Consistency/Density Index	Hand Penetrometer kPa	Structure and Additional Observations
V	N I L	D R Y					Topsoil: Clayey Silt: low liquid limit, brown with trace of fine grained gravel				
			5,13,18 N=31	1.0		CI-CH	Silty Clay: medium to high plasticity, brown with fine to medium grained gravel	D			
						CI	Silty Clay: medium plasticity, grey brown with ironstaining and fine to medium grained gravel	H		>600	V bit refusal at 1.5m
T C			10,15,21 N=36	2.0			As above but grey with ironstaining and ironstone bands				
				3.0				H		>600	
							Shale/Siltstone: brown grey, low strength, extremely weathered to distinctly weathered				
							End of BH 4 at 3.4m				
				4.0							
				5.0							
				6.0							
				7.0							
				8.0							



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Borehole Report

Borehole no: 5

Client: Gran Associates Pty Ltd

Job no: JC18322A

Project: Proposed Amity College

Date: 23/4/18

Location: 85 Byron Road and 63 Ingleburn Road Leppington

Logged by: SG

Drill Model and Mounting: B80

Slope: 90°

R.L. Surface: 94.8m

Hole Diameter: 100mm

Bearing: Vertical

Datum: AHD

Method	Support	Water	Notes: Samples, Tests, etc	Depth(m)	Classification Symbol	Unified Soil Classification	Material Description Soil Type, Plasticity or Particle Characteristic, colour, secondary and minor component	Moisture Content	Consistency/Density Index	Hand Penetrometer kPa	Structure and Additional Observations
V	N I L	D R Y	DS				Topsoil: Clayey Silt: low liquid limit, brown with trace of fine grained gravel				
			DS			CH	Silty Clay: high plasticity, red brown with fine to medium grained gravel	D			
			DS								
			6,11,13 N=24	1.0		CI	Silty Clay: medium plasticity, grey with ironstaining and trace of ironstone bands	H		>600	
			8,17 /30mm N>17	2.0			As above but with siltstone bands	H		>600	SPT bouncing at 2.68m V bit refusal at 2.7m
TC				3.0			Siltstone: brown and grey, low to medium strength, extremely weathered to distinctly weathered				
				4.0			End of BH 5 at 4.0m				TC bit refusal at 4.0m
				5.0							
				6.0							
				7.0							
				8.0							



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Borehole Report

Borehole no: 6

Client: Gran Associates Pty Ltd

Job no: JC18322A

Project: Proposed Amity College

Date: 23/4/18

Location: 85 Byron Road and 63 Ingleburn Road Leppington

Logged by: SG

Drill Model and Mounting: B80

Slope: 90°

R.L. Surface: 95.8m

Hole Diameter: 100mm

Bearing: Vertical

Datum: AHD

Method	Support	Water	Notes: Samples, Tests, etc	Depth(m)	Classification Symbol	Unified Soil Classification	Material Description Soil Type, Plasticity or Particle Characteristic, colour, secondary and minor component	Moisture Content	Consistency/Density Index	Hand Penetrometer kPa	Structure and Additional Observations
V	N	D				CH	Topsoil: Clayey Silt: low liquid limit, brown with trace of fine grained gravel	D			
	I	R		1.0		CI	Silty Clay: high plasticity, red brown with fine grained gravel				
	L	Y	5,14,16 N=30				Silty Clay: medium plasticity, brown red	H		>600	
				2.0			As above but grey brown with ironstone bands				
				3.0			Siltstone: brown, low to medium strength, distinctly weathered with ironstone bands				V bit refusal at 2.6m
TC											TC bit refusal at 3.3m
				4.0			End of BH 6 at 3.3m				
				5.0							
				6.0							
				7.0							
				8.0							



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Borehole Report

Borehole no: 7

Client: Gran Associates Pty Ltd

Job no: JC18322A

Project: Proposed Amity College

Date: 23/4/18

Location: 85 Byron Road and 63 Ingleburn Road Leppington

Logged by: SG

Drill Model and Mounting: B80

Slope: 90°

R.L. Surface: 95.4m

Hole Diameter: 100mm

Bearing: Vertical

Datum: AHD

Method	Support	Water	Notes: Samples, Tests, etc	Depth(m)	Classification Symbol	Unified Soil Classification	Material Description Soil Type, Plasticity or Particle Characteristic, colour, secondary and minor component	Moisture Content	Consistency/Density Index	Hand Penetrometer kPa	Structure and Additional Observations
V	N	D				CH	Topsoil: Clayey Silt: low liquid limit, brown with trace of fine grained gravel Silty Clay: high plasticity, red brown	D			
	I		10,16,18 N=34	1.0		CI	Silty Clay: medium plasticity, grey brown with trace of ironstaining and ironstone bands		H		
	L		8,12,18 /40mm N>30	2.0							
				3.0			Siltstone: grey, low to medium strength, extremely weathered to distinctly weathered with ironstaining and clay bands				V bit refusal at 2.8m SPT bouncing at 2.84m
TC											TC bit refusal at 3.6m
				4.0			End of BH 7 at 3.6m				
				5.0							
				6.0							
				7.0							
				8.0							



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Borehole Report

Borehole no: 8

Client: Gran Associates Pty Ltd

Job no: JC18322A

Project: Proposed Amity College

Date: 23/4/18

Location: 85 Byron Road and 63 Ingleburn Road Leppington

Logged by: SG

Drill Model and Mounting: B80

Slope: 90°

R.L. Surface: 95.8m

Hole Diameter: 100mm

Bearing: Vertical

Datum: AHD

Method	Support	Water	Notes: Samples, Tests, etc	Depth(m)	Classification Symbol	Unified Soil Classification	Material Description Soil Type, Plasticity or Particle Characteristic, colour, secondary and minor component	Moisture Content	Consistency/Density Index	Hand Penetrometer kPa	Structure and Additional Observations
V	N I L	D R Y					Topsoil: Clayey Silt: low liquid limit, brown with trace of fine grained gravel	D			
			U50			CH	Silty Clay: high plasticity, red brown	D			
			6,11,13 N=24	1.0		CI	Silty Clay: medium plasticity, red and grey	H		>600	
				2.0							
T C				3.0			Siltstone: grey brown, low to medium strength, extremely weathered to distinctly weathered				V bit refusal at 2.6m TC bit refusal at 3.1
				4.0			End of BH 8 at 3.1m				
				5.0							
				6.0							
				7.0							
				8.0							



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Borehole Report

Borehole no: 9

Client: Gran Associates Pty Ltd

Job no: JC18322A

Project: Proposed Amity College

Date: 23/4/18

Location: 85 Byron Road and 63 Ingleburn Road Leppington

Logged by: SG

Drill Model and Mounting: B80

Slope: 90°

R.L. Surface: 96.1m

Hole Diameter: 100mm

Bearing: Vertical

Datum: AHD

Method	Support	Water	Notes: Samples, Tests, etc	Depth(m)	Classification Symbol	Unified Soil Classification	Material Description Soil Type, Plasticity or Particle Characteristic, colour, secondary and minor component	Moisture Content	Consistency/Density Index	Hand Penetrometer kPa	Structure and Additional Observations
V	N I L	D R Y					Topsoil: Clayey Silt: low liquid limit, brown with trace of fine grained gravel	D			
				1.0		CH	Silty Clay: high plasticity, red brown	D			
			9,18,24 N=42			CI	Silty Clay: medium plasticity, grey brown with ironstaining and trace of ironstone bands		H	>600	
				2.0							
				3.0			Siltstone: grey brown, low to medium strength, extremely weathered to distinctly weathered				V bit refusal at 2.8m
TC											TC bit refusal at 3.6m
				4.0			End of BH 9 at 3.6m				
				5.0							
				6.0							
				7.0							
				8.0							



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Borehole Report

Borehole no: 10

Client: Gran Associates Pty Ltd

Job no: JC18322A

Project: Proposed Amity College

Date: 23/4/18

Location: 85 Byron Road and 63 Ingleburn Road Leppington

Logged by: SG

Drill Model and Mounting: B80

Slope: 90°

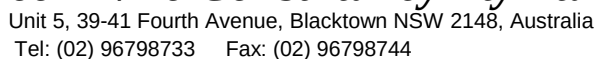
R.L. Surface: 96.3m

Hole Diameter: 100mm

Bearing: Vertical

Datum: AHD

Method	Support	Water	Notes: Samples, Tests, etc	Depth(m)	Classification Symbol	Unified Soil Classification	Material Description Soil Type, Plasticity or Particle Characteristic, colour, secondary and minor component	Moisture Content	Consistency/Density Index	Hand Penetrometer kPa	Structure and Additional Observations
V	N	D	7,8,10 N=18	1.0	CH	CH	Topsoil: Clayey Silt: low liquid limit, brown with trace of fine grained gravel Silty Clay: high plasticity, red brown with trace of fine grained gravel	D	Vst		
				2.0	CI	CI	Silty Clay: medium plasticity, grey red with fine grained gravel As above but grey with ironstaining and fine to medium grained gravel	H		>600	V bit refusal at 2.6m
				3.0			End of BH 10 at 2.6m				
				4.0							
				5.0							
				6.0							
				7.0							
				8.0							



Borehole no: 11

Job no: JC18322A

Date: 23/4/18

Logged by: SG

Slope: 90°

R.L. Surface: 97.1m

Bearing: Vertical

Datum: AHD

[illegible]



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Borehole Report

Borehole no: 12

Client: Gran Associates Pty Ltd

Job no: JC18322A

Project: Proposed Amity College

Date: 23/4/16

Location: 85 Byron Road and 63 Ingleburn Road Leppington

Logged by: SG

Drill Model and Mounting: B80

Slope: 90°

R.L. Surface: 96.9m

Hole Diameter: 100mm

Bearing: Vertical

Datum: AHD

Method	Support	Water	Notes: Samples, Tests, etc	Depth(m)	Classification Symbol	Unified Soil Classification	Material Description Soil Type, Plasticity or Particle Characteristic, colour, secondary and minor component	Moisture Content	Consistency/Density Index	Hand Penetrometer kPa	Structure and Additional Observations
V	N I L	D R Y					Topsoil: Clayey Silt: low liquid limit, brown	D			
				1.0		CH	Silty Clay: high plasticity, red brown	D	Vst		
			4,8,10 N=18			CI	Silty Clay: medium plasticity, grey and red with ironstone gravel bands		H	>600	
				2.0							
				3.0			Siltstone: grey brown, low to medium strength, extremely weathered to distinctly weathered				V bit refusal at 2.8m
TC											TC bit refusal at 3.6m
				4.0			End of BH 12 at 3.6m				
				5.0							
				6.0							
				7.0							
				8.0							



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Borehole Report

Borehole no: 13

Client: Gran Associates Pty Ltd

Job no: JC18322A

Project: Proposed Amity College

Date: 23/4/18

Location: 85 Byron Road and 63 Ingleburn Road Leppington

Logged by: SG

Drill Model and Mounting: B80

Slope: 90°

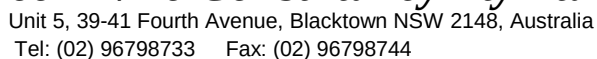
R.L. Surface: 96.5m

Hole Diameter: 100mm

Bearing: Vertical

Datum: AHD

Method	Support	Water	Notes: Samples, Tests, etc	Depth(m)	Classification Symbol	Unified Soil Classification	Material Description Soil Type, Plasticity or Particle Characteristic, colour, secondary and minor component	Moisture Content	Consistency/Density Index	Hand Penetrometer kPa	Structure and Additional Observations
V	N I L	D R Y					Topsoil: Clayey Silt: low liquid limit, brown with trace of fine grained gravel	D			
				1.0		CI-CH	Silty Clay: medium to high plasticity, red brown with fine grained gravel	D			
T C			4,18 /50mm N>18	2.0		CI	Silty Clay: medium plasticity, grey with ironstaining and ironstone bands	H		>600	SPT bouncing at 1.2m V bit refusal at 1.2m
							Siltstone: grey brown, low to medium strength, extremely weathered to distinctly weathered				
				3.0			End of BH 13 at 2.5m				
				4.0							
				5.0							
				6.0							
				7.0							
				8.0							



Borehole no: 14

Job no: JC18322A

Date: 23/4/18

Logged by: SG

Slope: 90°

R.L. Surface: 95.9m

Bearing: Vertical

Datum: AHD

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Borehole Report

Borehole no: 15

Client: Gran Associates Pty Ltd

Job no: JC18322A

Project: Proposed Amity College

Date: 24/4/18

Location: 85 Byron Road and 63 Ingleburn Road Leppington

Logged by: SG

Drill Model and Mounting: B80

Slope: 90°

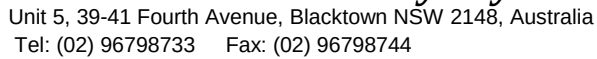
R.L. Surface: 97.4m

Hole Diameter: 100mm

Bearing: Vertical

Datum: AHD

Method	Support	Water	Notes: Samples, Tests, etc	Depth(m)	Classification Symbol	Unified Soil Classification	Material Description Soil Type, Plasticity or Particle Characteristic, colour, secondary and minor component	Moisture Content	Consistency/Density Index	Hand Penetrometer kPa	Structure and Additional Observations
V	N I L	D R Y	DS	1.0		CH	Topsoil: Clayey Silt: low liquid limit, brown	D			
						CI	Silty Clay: high plasticity, red brown	D	(H)		
							Silty Clay: medium plasticity, grey brown with fine grained gravel				V bit refusal at 1.2m
T C							Siltstone: grey brown, low to medium strength, extremely weathered to distinctly weathered				TC bit refusal at 1.8m
				2.0			End of BH 15 at 1.8m				
				3.0							
				4.0							
				5.0							
				6.0							
				7.0							
				8.0							



Borehole no: 16

Job no: JC18322A

Date: 24/4/18

Logged by: SG

R.L. Surface: 97.1m

Datum: AHD

[illegible]



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Borehole Report

Borehole no: 17

Client: Gran Associates Pty Ltd

Job no: JC18322A

Project: Proposed Amity College

Date: 24/4/18

Location: 85 Byron Road and 63 Ingleburn Road Leppington

Logged by: SG

Drill Model and Mounting: B80

Slope: 90°

R.L. Surface: 97.8m

Hole Diameter: 100mm

Bearing: Vertical

Datum: AHD

Method	Support	Water	Notes: Samples, Tests, etc	Depth(m)	Classification Symbol	Unified Soil Classification	Material Description Soil Type, Plasticity or Particle Characteristic, colour, secondary and minor component	Moisture Content	Consistency/Density Index	Hand Penetrometer kPa	Structure and Additional Observations
V	N I L	D R Y	DS				Fill: Clayey Silt/Gravelly Silt: low liquid limit, brown with crushed rock and a trace of brick fragments	D			Driveway
			DS			CH	Silty Clay: high plasticity, red brown	D			
			15,12 /20mm N>12	1.0		CI	Silty Clay: medium plasticity, grey brown		H		SPT bouncing at 1.17m V bit refusal at 1.3m
T C				2.0			Siltstone: grey brown, low to medium strength, extremely weathered to distinctly weathered				TC bit refusal at 2.0m
				3.0			End of BH 17 at 2.0m				
				4.0							
				5.0							
				6.0							
				7.0							
				8.0							



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Borehole Report

Borehole no: 18

Client: Gran Associates Pty Ltd

Job no: JC18322A

Project: Proposed Amity College

Date: 24/4/18

Location: 85 Byron Road and 63 Ingleburn Road Leppington

Logged by: SG

Drill Model and Mounting: B80

Slope: 90°

R.L. Surface: 98.0m

Hole Diameter: 100mm

Bearing: Vertical

Datum: AHD

Method	Support	Water	Notes: Samples, Tests, etc	Depth(m)	Classification Symbol	Unified Soil Classification	Material Description Soil Type, Plasticity or Particle Characteristic, colour, secondary and minor component	Moisture Content	Consistency/Density Index	Hand Penetrometer kPa	Structure and Additional Observations
V	N	D					Fill: Gravelly Silt: low liquid limit, dark grey	D			Driveway
	I					CH	Silty Clay: high plasticity, red brown with fine grained gravel	D			
	L			1.0		CI	Silty Clay: medium plasticity, grey brown with ironstaining and fine grained gravel		H	>600	
			3,10,19 N=29								V bit refusal at 1.6m
				2.0			End of BH 18 at 1.6m				
				3.0							
				4.0							
				5.0							
				6.0							
				7.0							
				8.0							



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Borehole Report

Borehole no:19

Client: Gran Associates Pty Ltd

Job no: JC18322A

Project: Proposed Amity College

Date: 24/4/18

Location: 85 Byron Road and 63 Ingleburn Road Leppington

Logged by: SG

Drill Model and Mounting: B80

Slope: 90°

R.L. Surface: 97.7m

Hole Diameter: 100mm

Bearing: Vertical

Datum: AHD

Method	Support	Water	Notes: Samples, Tests, etc	Depth(m)	Classification Symbol	Unified Soil Classification	Material Description Soil Type, Plasticity or Particle Characteristic, colour, secondary and minor component	Moisture Content	Consistency/Density Index	Hand Penetrometer kPa	Structure and Additional Observations
V	N	D					Topsoil: Clayey Silt: low liquid limit, brown with fine grained gravel	D			
	I	R				CH	Silty Clay: high plasticity, red brown with fine grained gravel	D	Vst		
	L	Y		1.0							
			3,4,6 N=10			CI	Silty Clay: medium plasticity, grey with ironstaining		H	450 600	
				2.0							
											V bit refusal at 2.4m
TC				3.0			Siltstone: grey brown, low to medium strength, extremely weathered to distinctly weathered				TC bit refusal at 3.0m
							End of BH 19 at 3.0m				
				4.0							
				5.0							
				6.0							
				7.0							
				8.0							



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Borehole Report

Borehole no: 20

Client: Gran Associates Pty Ltd

Job no: JC18322A

Project: Proposed Amity College

Date: 24/4/18

Location: 85 Byron Road and 63 Ingleburn Road Leppington

Logged by: SG

Drill Model and Mounting: B80

Slope: 90°

R.L. Surface: 98.3m

Hole Diameter: 100mm

Bearing: Vertical

Datum: AHD

Method	Support	Water	Notes: Samples, Tests, etc	Depth(m)	Classification Symbol	Unified Soil Classification	Material Description Soil Type, Plasticity or Particle Characteristic, colour, secondary and minor component	Moisture Content	Consistency/Density Index	Hand Penetrometer kPa	Structure and Additional Observations
V	N	D					Topsoil/Fill: Gravelly Clayey Silt: brown	D			Driveway
	I					CH	Silty Clay: high plasticity, red brown with fine grained gravel	D			
	L			1.0		CI	Silty Clay: medium plasticity, grey brown with fine gravel gravel and ironstone bands As above but with siltstone bands		H		SPT bouncing at 1.37m V bit refusal at 1.6m
			6,12,18 /70mm N>30								
T				2.0			Siltstone/Shale: grey brown, low to medium strength, extremely weathered to distinctly weathered				TC bit refusal at 2.4m
				3.0			End of BH 20 at 2.4m				
				4.0							
				5.0							
				6.0							
				7.0							
				8.0							



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Unit 5, 39-41 Fourth Avenue, Blacktown NSW 2148, Australia
Tel: (02) 96798733 Fax: (02) 96798744

Borehole Report

Borehole no: 21

Client: Gran Associates Pty Ltd

Job no: JC18322A

Project: Proposed Amity College

Date: 24/4/18

Location: 85 Byron Road and 63 Ingleburn Road Leppington

Logged by: SG

Drill Model and Mounting: B80

Slope: 90°

R.L. Surface: 97.8m

Hole Diameter: 100mm

Bearing: Vertical

Datum: AHD

Method	Support	Water	Notes: Samples, Tests, etc	Depth(m)	Classification Symbol	Unified Soil Classification	Material Description Soil Type, Plasticity or Particle Characteristic, colour, secondary and minor component	Moisture Content	Consistency/Density Index	Hand Penetrometer kPa	Structure and Additional Observations
V	N	D					Topsoil/fill: Clayey Silt: brown a trace of plastic	D			
I	L	R				CH	Silty Clay: high plasticity, red brown	D	(H)		
L				1.0		CI	Silty Clay: medium plasticity, grey brown with fine grained gravel				V bit refusal at 0.9m
							Siltstone: grey brown, low to medium strength, extremely weathered to distinctly weathered				TC bit refusal at 1.4m
TC							End of BH 21 at 1.4m				
				2.0							
				3.0							
				4.0							
				5.0							
				6.0							
				7.0							
				8.0							



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Borehole Report

Borehole no: 22

Client: Gran Associates Pty Ltd

Job no: JC18322A

Project: Proposed Amity College

Date: 24/4/18

Location: 85 Byron Road and 63 Ingleburn Road Leppington

Logged by: SG

Drill Model and Mounting: B80

Slope: 90°

R.L. Surface: 97.5m

Hole Diameter: 100mm

Bearing: Vertical

Datum: AHD

Method	Support	Water	Notes: Samples, Tests, etc	Depth(m)	Classification Symbol	Unified Soil Classification	Material Description Soil Type, Plasticity or Particle Characteristic, colour, secondary and minor component	Moisture Content	Consistency/Density Index	Hand Penetrometer kPa	Structure and Additional Observations
V	N	D					Topsoil: Clayey Silt: low liquid limit, brown				
	I					CH	Silty Clay: high plasticity, red brown	D			
	L			1.0		CI	Silty Clay: medium plasticity, grey brown		H		
			14,14,22 N=36								V bit refusal at 1.4m
T				2.0			Siltstone: grey brown, low to medium strength, extremely weathered to distinctly weathered				
											TC bit refusal at 2.2m
				3.0			End of BH 22 at 2.2m				
				4.0							
				5.0							
				6.0							
				7.0							
				8.0							



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Borehole Report

Borehole no: 23

Client: Gran Associates Pty Ltd

Job no: JC18322A

Project: Proposed Amity College

Date: 24/4/18

Location: 85 Byron Road and 63 Ingleburn Road Leppington

Logged by: SG

Drill Model and Mounting: B80

Slope: 90°

R.L. Surface: 97.2m

Hole Diameter: 100mm

Bearing: Vertical

Datum: AHD

Method	Support	Water	Notes: Samples, Tests, etc	Depth(m)	Classification Symbol	Unified Soil Classification	Material Description Soil Type, Plasticity or Particle Characteristic, colour, secondary and minor component	Moisture Content	Consistency/Density Index	Hand Penetrometer kPa	Structure and Additional Observations
V	N	D		1.0		CH	Topsoil/fill: Clayey Silt: low liquid limit, brown with crushed rock with an asphalt lump	D			Driveway
	I	R				CI	Silty Clay: high plasticity, red brown	D			
	L	Y					Silty Clay: medium plasticity, grey brown with fine to medium grained gravel	(H)			V bit refusal at 0.9m
T	C						Siltstone: grey brown, low to medium strength, extremely weathered to distinctly weathered				TC refusal at 1.5m
				2.0			End of BH 23 at 1.5m				
				3.0							
				4.0							
				5.0							
				6.0							
				7.0							
				8.0							



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Borehole Report

Borehole no: 24

Client: Gran Associates Pty Ltd

Job no: JC18322A

Project: Proposed Amity College

Date: 24/4/18

Location: 85 Byron Road and 63 Ingleburn Road Leppington

Logged by: SG

Drill Model and Mounting: B80

Slope: 90°

R.L. Surface: 97.0m

Hole Diameter: 100mm

Bearing: Vertical

Datum: AHD

Method	Support	Water	Notes: Samples, Tests, etc	Depth(m)	Classification Symbol	Unified Soil Classification	Material Description Soil Type, Plasticity or Particle Characteristic, colour, secondary and minor component	Moisture Content	Consistency/Density Index	Hand Penetrometer kPa	Structure and Additional Observations
V	N	D	R	Y			Topsoil/fill: Clayey Silt: low liquid limit, brown with some gravel	D			
						CH	Silty Clay: high plasticity, red brown	D			
				1.0		CI	Silty Clay: medium plasticity, grey brown		(H)		V bit refusal at 0.9m
							End of BH 24 at 0.9m				
				2.0							
				3.0							
				4.0							
				5.0							
				6.0							
				7.0							
				8.0							



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Borehole Report

Borehole no: 25

Client: Gran Associates Pty Ltd

Job no: JC18322A

Project: Proposed Amity College

Date: 24/4/18

Location: 85 Byron Road and 63 Ingleburn Road Leppington

Logged by: SG

Drill Model and Mounting: B80

Slope: 90°

R.L. Surface: 97.4m

Hole Diameter: 100mm

Bearing: Vertical

Datum: AHD

Method	Support	Water	Notes: Samples, Tests, etc	Depth(m)	Classification Symbol	Unified Soil Classification	Material Description Soil Type, Plasticity or Particle Characteristic, colour, secondary and minor component	Moisture Content	Consistency/Density Index	Hand Penetrometer kPa	Structure and Additional Observations
V	N I L	D R Y					Topsoil/Fill: Clayey Silt: low liquid limit, brown	D			
			U50			CH	Silty Clay: high plasticity, red brown	D			
				1.0		CI	Silty Clay: medium plasticity, grey brown	(H)			V bit refusal at 1.0m
TC							Siltstone: grey brown, low to medium strength, distinctly weathered				TC bit refusal at 1.6m
				2.0			End of BH 25 at 1.6m				
				3.0							
				4.0							
				5.0							
				6.0							
				7.0							
				8.0							



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Borehole Report

Borehole no: 26

Client: Gran Associates Pty Ltd

Job no: JC18322A

Project: Proposed Amity College

Date: 24/4/18

Location: 85 Byron Road and 63 Ingleburn Road Leppington

Logged by: SG

Drill Model and Mounting: B80

Slope: 90°

R.L. Surface: 98.4m

Hole Diameter: 100mm

Bearing: Vertical

Datum: AHD

Method	Support	Water	Notes: Samples, Tests, etc	Depth(m)	Classification Symbol	Unified Soil Classification	Material Description Soil Type, Plasticity or Particle Characteristic, colour, secondary and minor component	Moisture Content	Consistency/Density Index	Hand Penetrometer kPa	Structure and Additional Observations
V	N I L	D R Y	DS				Topsoil: Clayey Silt: low liquid limit, brown	D			
			DS			CH	Silty Clay: high plasticity, red brown	D			
				1.0		CI	Silty Clay: medium plasticity, brown and grey with ironstaining				
			3,9,12 N=21				As above with siltstone bands		H	>600	
T C				2.0							V bit refusal at 2.2m
				3.0			Siltstone: grey brown, low to medium strength, extremely weathered to distinctly weathered				TC bit refusal at 3.0m
				4.0			End of BH 26 at 3.0m				
				5.0							
				6.0							
				7.0							
				8.0							



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Unit 5, 39-41 Fourth Avenue, Blacktown NSW 2148, Australia
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Borehole Report

Borehole no: 27

Client: Gran Associates Pty Ltd

Job no: JC18322A

Project: Proposed Amity College

Date: 24/4/18

Location: 85 Byron Road and 63 Ingleburn Road Leppington

Logged by: SG

Drill Model and Mounting: B80

Slope: 90°

R.L. Surface: 96.2m

Hole Diameter: 100mm

Bearing: Vertical

Datum: AHD

Method	Support	Water	Notes: Samples, Tests, etc	Depth(m)	Classification Symbol	Unified Soil Classification	Material Description Soil Type, Plasticity or Particle Characteristic, colour, secondary and minor component	Moisture Content	Consistency/Density Index	Hand Penetrometer kPa	Structure and Additional Observations
V	N	D	8,12,14 N=26	1.0	CH	CH	Topsoil: Clayey Silt: low liquid limit, brown	D			
	I			2.0	CI	CI	Silty Clay: high plasticity, red brown with fine grained gravel	D			
	L			3.0			Silty Clay: medium plasticity, grey with ironstaining	H		>600	V bit refusal at 2.7m
TC				4.0			Siltstone: grey brown, low to medium strength, extremely weathered to distinctly weathered				TC bit refusal at 3.4m
				5.0			End of BH 27 at 3.4m				
				6.0							
				7.0							
				8.0							



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Borehole Report

Borehole no: 28

Client: Gran Associates Pty Ltd

Job no: JC18322A

Project: Proposed Amity College

Date: 24/4/18

Location: 85 Byron Road and 63 Ingleburn Road Leppington

Logged by: SG

Drill Model and Mounting: B80

Slope: 90°

R.L. Surface: 95.3m

Hole Diameter: 100mm

Bearing: Vertical

Datum: AHD

Method	Support	Water	Notes: Samples, Tests, etc	Depth(m)	Classification Symbol	Unified Soil Classification	Material Description Soil Type, Plasticity or Particle Characteristic, colour, secondary and minor component	Moisture Content	Consistency/Density Index	Hand Penetrometer kPa	Structure and Additional Observations
V	N I L	D R Y	DS				Fill: Clayey Silt/Silty Clay: low liquid limit, brown with Asbestos and tile fragments	D			
			DS								
			5,11,11 N=22	1.0		CI-CH	Silty Clay: medium to high plasticity, grey brown with ironstaining				
				2.0		CI	Silty Clay: medium plasticity, grey with ironstaining	H	>600		V bit refusal at 1.9m
T C				3.0			Siltstone/Shale: grey brown, low to medium strength, extremely weathered to distinctly weathered				
				4.0			End of BH 28 at 3.2m				TC bit refusal at 3.2m
				5.0							
				6.0							
				7.0							
				8.0							



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Borehole Report

Borehole no: 29

Client: Gran Associates Pty Ltd

Job no: JC18322A

Project: Proposed Amity College

Date: 30/4/18

Location: 85 Byron Road and 63 Ingleburn Road Leppington

Logged by: SG

Drill Model and Mounting: B80

Slope: 90°

R.L. Surface: 94.6m

Hole Diameter: 100mm

Bearing: Vertical

Datum: AHD

Method	Support	Water	Notes: Samples, Tests, etc	Depth(m)	Classification Symbol	Unified Soil Classification	Material Description Soil Type, Plasticity or Particle Characteristic, colour, secondary and minor component	Moisture Content	Consistency/Density Index	Hand Penetrometer kPa	Structure and Additional Observations
V	N	D					Topsoil: Clayey Silt: low liquid limit, brown with trace of fine grained gravel	D			
	I	R				CI-CH	Silty Clay: medium to high plasticity, red brown/grey	D			
	L	Y		1.0							
			12,18			CI	Silty Clay: medium plasticity, grey with ironstaining and ironstone bands		H	>600	SPT bouncing at 1.19m
			/40mm								V bit refusal at 1.2m
			N>18				Siltstone: grey brown, low to medium strength, extremely weathered to distinctly weathered				TC bit refusal at 1.7m
TC							End of BH 29 at 1.7m				
				2.0							
				3.0							
				4.0							
				5.0							
				6.0							
				7.0							
				8.0							



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Borehole Report

Borehole no: 30

Client: Gran Associates Pty Ltd

Job no: JC18322A

Project: Proposed Amity College

Date: 30/4/18

Location: 85 Byron Road and 63 Ingleburn Road Leppington

Logged by: SG

Drill Model and Mounting: B80

Slope: 90°

R.L. Surface: 95.8m

Hole Diameter: 100mm

Bearing: Vertical

Datum: AHD

Method	Support	Water	Notes: Samples, Tests, etc	Depth(m)	Classification Symbol	Unified Soil Classification	Material Description Soil Type, Plasticity or Particle Characteristic, colour, secondary and minor component	Moisture Content	Consistency/Density Index	Hand Penetrometer kPa	Structure and Additional Observations
V	N I L	D R Y					Topsoil: Clayey Silt: low liquid limit, brown	D			
			U50			CI-CH	Silty Clay: medium to high plasticity, red brown	D			
			16,16	1.0		CI	Silty Clay: medium plasticity, grey brown				
			/120mm					H	>600		V bit refusal at 1.2m SPT bouncing at 1.27m
TC			N>16				Siltstone: grey brown, low to medium strength, extremely weathered to distinctly weathered				TC bit refusal at 1.8m
				2.0			End of BH 30 at 1.8m				
				3.0							
				4.0							
				5.0							
				6.0							
				7.0							
				8.0							



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Borehole Report

Borehole no: 31

Client: Gran Associates Pty Ltd

Job no: JC18322A

Project: Proposed Amity College

Date: 30/4/18

Location: 85 Byron Road and 63 Ingleburn Road Leppington

Logged by: SG

Drill Model and Mounting: B80

Slope: 90°

R.L. Surface: 97.2m

Hole Diameter: 100mm

Bearing: Vertical

Datum: AHD

Method	Support	Water	Notes: Samples, Tests, etc	Depth(m)	Classification Symbol	Unified Soil Classification	Material Description Soil Type, Plasticity or Particle Characteristic, colour, secondary and minor component	Moisture Content	Consistency/Density Index	Hand Penetrometer kPa	Structure and Additional Observations
V	N I L	D R Y	DS				Topsoil: Clayey Silt: low liquid limit, brown	D			
			DS			CI-CH	Silty Clay: medium to high plasticity, red grey	D			
			8,12,19 N=31	1.0		CI	Silty Clay: medium plasticity, grey with ironstaining	H		>600	
				2.0			Siltstone: grey brown, low to medium strength, extremely weathered to distinctly weathered				V bit refusal at 1.6m
TC							End of BH 31 at 2.6m				TC bit refusal at 2.6m
				3.0							
				4.0							
				5.0							
				6.0							
				7.0							
				8.0							



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Borehole Report

Borehole no: 32

Client: Gran Associates Pty Ltd

Job no: JC18322A

Project: Proposed Amity College

Date: 30/4/18

Location: 85 Byron Road and 63 Ingleburn Road Leppington

Logged by: SG

Drill Model and Mounting: B80

Slope: 90°

R.L. Surface: 97.9m

Hole Diameter: 100mm

Bearing: Vertical

Datum: AHD

Method	Support	Water	Notes: Samples, Tests, etc	Depth(m)	Classification Symbol	Unified Soil Classification	Material Description Soil Type, Plasticity or Particle Characteristic, colour, secondary and minor component	Moisture Content	Consistency/Density Index	Hand Penetrometer kPa	Structure and Additional Observations
V	N I L	D R Y					Topsoil: Clayey Silt: low liquid limit, brown	D			
				1.0		CI-CH	Silty Clay: medium to high plasticity, red brown	D			
			5,13,17 N=30			CI	Silty Clay: medium plasticity, grey with ironstaining		H	>600	
T C				2.0							V bit refusal at 1.6m
							Siltstone: grey brown, low to medium strength, extremely weathered to distinctly weathered				
				3.0			End of BH 32 at 2.5m				
				4.0							
				5.0							
				6.0							
				7.0							
				8.0							



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Unit 5, 39-41 Fourth Avenue, Blacktown NSW 2148, Australia
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Borehole Report

Borehole no: 33

Client: Gran Associates Pty Ltd

Job no: JC18322A

Project: Proposed Amity College

Date: 30/4/18

Location: 85 Byron Road and 63 Ingleburn Road Leppington

Logged by: SG

Drill Model and Mounting: B80

Slope: 90°

R.L. Surface: 98.9m

Hole Diameter: 100mm

Bearing: Vertical

Datum: AHD

Method	Support	Water	Notes: Samples, Tests, etc	Depth(m)	Classification Symbol	Unified Soil Classification	Material Description Soil Type, Plasticity or Particle Characteristic, colour, secondary and minor component	Moisture Content	Consistency/Density Index	Hand Penetrometer kPa	Structure and Additional Observations
V	N I L	D R Y					Topsoil: Clayey Silt: low liquid limit, brown	D			
			DS			CI-CH	Silty Clay: medium to high plasticity, red brown	D			
			7,12,15 N=27	1.0		CI	Silty Clay: medium plasticity, grey with ironstaining		H	>600	
				2.0							V bit refusal at 1.9m
TC							Siltstone: grey brown, low to medium strength, extremely weathered to distinctly weathered				
				3.0			End of BH 33 at 2.8m				TC bit refusal at 2.8m
				4.0							
				5.0							
				6.0							
				7.0							
				8.0							



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Unit 5, 39-41 Fourth Avenue, Blacktown NSW 2148, Australia
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Borehole Report

Borehole no: 34

Client: Gran Associates Pty Ltd

Job no: JC18322A

Project: Proposed Amity College

Date: 30/4/18

Location: 85 Byron Road and 63 Ingleburn Road Leppington

Logged by: SG

Drill Model and Mounting: B80

Slope: 90°

R.L. Surface: 100.9m

Hole Diameter: 100mm

Bearing: Vertical

Datum: AHD

Method	Support	Water	Notes: Samples, Tests, etc	Depth(m)	Classification Symbol	Unified Soil Classification	Material Description Soil Type, Plasticity or Particle Characteristic, colour, secondary and minor component	Moisture Content	Consistency/Density Index	Hand Penetrometer kPa	Structure and Additional Observations
V	N I L	D R Y					Topsoil: Clayey Silt: low liquid limit, brown	D			
				1.0		CH	Silty Clay: high plasticity, red brown	D			
			5,11,12 /50mm N>23			CI	Silty Clay: medium plasticity grey with ironstaining	H		>600	SPT bouncing at 1.35m V bit refusal at 1.4m
T C				2.0			Shale/Siltstone: grey brown, low to medium strength, extremely weathered to distinctly weathered				TC bit refusal at 2.0m
				3.0			End of BH 34 at 2.0m				
				4.0							
				5.0							
				6.0							
				7.0							
				8.0							



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Borehole Report

Borehole no: 35

Client: Gran Associates Pty Ltd

Job no: JC18322A

Project: Proposed Amity College

Date: 30/4/18

Location: 85 Byron Road and 63 Ingleburn Road Leppington

Logged by: SG

Drill Model and Mounting: B80

Slope: 90°

R.L. Surface: 99.8m

Hole Diameter: 100mm

Bearing: Vertical

Datum: AHD

Method	Support	Water	Notes: Samples, Tests, etc	Depth(m)	Classification Symbol	Unified Soil Classification	Material Description Soil Type, Plasticity or Particle Characteristic, colour, secondary and minor component	Moisture Content	Consistency/Density Index	Hand Penetrometer kPa	Structure and Additional Observations
V	N I L	D R Y					Topsoil: Clayey Silt: low liquid limit, brown	D			
			DS			CH	Silty Clay: high plasticity, red brown	D			
			8,14,18 /20mm N>32	1.0		CI	Silty Clay: medium plasticity grey with ironstaining	H	>600		V bit refusal at 1.4m
TC				2.0			Shale/Siltstone: grey brown, low to medium strength, extremely weathered to distinctly weathered				TC bit refusal at 2.1m
				3.0			End of BH 35 at 2.1m				
				4.0							
				5.0							
				6.0							
				7.0							
				8.0							



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Unit 5, 39-41 Fourth Avenue, Blacktown NSW 2148, Australia
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Borehole Report

Borehole no: 36

Client: Gran Associates Pty Ltd

Job no: JC18322A

Project: Proposed Amity College

Date: 30/4/18

Location: 85 Byron Road and 63 Ingleburn Road Leppington

Logged by: SG

Drill Model and Mounting: B80

Slope: 90°

R.L. Surface: 97.8m

Hole Diameter: 100mm

Bearing: Vertical

Datum: AHD

Method	Support	Water	Notes: Samples, Tests, etc	Depth(m)	Classification Symbol	Unified Soil Classification	Material Description Soil Type, Plasticity or Particle Characteristic, colour, secondary and minor component	Moisture Content	Consistency/Density Index	Hand Penetrometer kPa	Structure and Additional Observations
V	N I L	D R Y	3,8,13 N=21	1.0		CI	Topsoil: Clayey Silt: low liquid limit, brown	D			
				2.0			Silty Clay: medium plasticity, grey red	D			
							As above but with shale bands		H	>600	Disturbed Sample Taken
											V bit refusal at 2.4m
T C				3.0			Shale/Siltstone: grey brown, low to medium strength, extremely weathered to distinctly weathered				TC bit refusal at 3.0m
				4.0			End of BH 36 at 3.0m				
				5.0							
				6.0							
				7.0							
				8.0							



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Borehole Report

Borehole no: 37

Client: Gran Associates Pty Ltd

Job no: JC18322A

Project: Proposed Amity College

Date: 30/4/18

Location: 85 Byron Road and 63 Ingleburn Road Leppington

Logged by: SG

Drill Model and Mounting: B80

Slope: 90°

R.L. Surface: 96.4m

Hole Diameter: 100mm

Bearing: Vertical

Datum: AHD

Method	Support	Water	Notes: Samples, Tests, etc	Depth(m)	Classification Symbol	Unified Soil Classification	Material Description Soil Type, Plasticity or Particle Characteristic, colour, secondary and minor component	Moisture Content	Consistency/Density Index	Hand Penetrometer kPa	Structure and Additional Observations
V	N I L	D R Y					Topsoil: Clayey Silt: low liquid limit, brown	D			
				1.0		CH	Silty Clay: high plasticity, red brown	D			
			8,11,13 N=24			CI	Silty Clay: medium plasticity, grey red with ironstaining	H		>600	V bit refusal at 1.4m
T C				2.0			Shale/Siltstone: grey brown, low to medium strength, extremely weathered to distinctly weathered				TC bit refusal at 2.4m
				3.0			End of BH 37 at 2.4m				
				4.0							
				5.0							
				6.0							
				7.0							
				8.0							



GeoEnviro Consultancy Pty Ltd

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Borehole Report

Borehole no: 38

Client: Gran Associates Pty Ltd

Job no: JC18322A

Project: Proposed Amity College

Date: 30/4/18

Location: 85 Byron Road and 63 Ingleburn Road Leppington

Logged by: SG

Drill Model and Mounting: B80

Slope: 90°

R.L. Surface: 96.0m

Hole Diameter: 100mm

Bearing: Vertical

Datum: AHD

Method	Support	Water	Notes: Samples, Tests, etc	Depth(m)	Classification Symbol	Unified Soil Classification	Material Description Soil Type, Plasticity or Particle Characteristic, colour, secondary and minor component	Moisture Content	Consistency/Density Index	Hand Penetrometer kPa	Structure and Additional Observations
V	N I L	D R Y					Topsoil/Fill: Clayey Silt: low liquid limit, brown	D			
			6,11,17 N=28	1.0		CH	Silty Clay: high plasticity, red brown	D			
				2.0		CI	Silty Clay: medium plasticity, grey red with ironstaining		H	>600	
T C							As above with siltstone bands				V bit refusal at 2.2m
				3.0			Siltstone: grey brown, low to medium strength, extremely weathered to distinctly weathered				
							End of BH 38 at 3.0m				
				4.0							
				5.0							
				6.0							
				7.0							
				8.0							



GeoEnviro Consultancy Pty Ltd

Unit 5, 39-41 Fourth Avenue, Blacktown NSW 2148, Australia
Tel: (02) 96798733 Fax: (02) 96798744

Borehole Report

Borehole no: 39

Client: Gran Associates Pty Ltd

Job no: JC18322A

Project: Proposed Amity College

Date: 30/4/18

Location: 85 Byron Road and 63 Ingleburn Road Leppington

Logged by: SG

Drill Model and Mounting: B80

Slope: 90°

R.L. Surface: 97.1m

Hole Diameter: 100mm

Bearing: Vertical

Datum: AHD

Method	Support	Water	Notes: Samples, Tests, etc	Depth(m)	Classification Symbol	Unified Soil Classification	Material Description Soil Type, Plasticity or Particle Characteristic, colour, secondary and minor component	Moisture Content	Consistency/Density Index	Hand Penetrometer kPa	Structure and Additional Observations
V	N I L	D R Y					Topsoil: Clayey Silt: low liquid limit, brown	D			
				1.0		CI-CH	Silty Clay: medium to high plasticity, red brown	D			
			6,9,12 N=21			CI	Silty Clay: medium plasticity, grey red with ironstaining		H	>600	
				2.0			Siltstone: grey brown, low to medium strength, extremely weathered to distinctly weathered				V bit refusal at 1.7m
T C											TC bit refusal at 2.6m
				3.0			End of BH 39 at 2.6m				
				4.0							
				5.0							
				6.0							
				7.0							
				8.0							



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Borehole Report

Borehole no: 40

Client: Gran Associates Pty Ltd

Job no: JC18322A

Project: Proposed Amity College

Date: 30/4/18

Location: 85 Byron Road and 63 Ingleburn Road Leppington

Logged by: SG

Drill Model and Mounting: B80

Slope: 90°

R.L. Surface: 98.5m

Hole Diameter: 100mm

Bearing: Vertical

Datum: AHD

Method	Support	Water	Notes: Samples, Tests, etc	Depth(m)	Classification Symbol	Unified Soil Classification	Material Description Soil Type, Plasticity or Particle Characteristic, colour, secondary and minor component	Moisture Content	Consistency/Density Index	Hand Penetrometer kPa	Structure and Additional Observations
V	N	D	DB	1.0		CI-CH	Topsoil: Clayey Silt: low liquid limit, brown	D			
			4,10,13 N=23				Silty Clay: medium to high plasticity, red brown	D			
							As above but grey brown		H	>600	
T				2.0			Siltstone: grey brown, low to medium strength, extremely weathered to distinctly weathered				V bit refusal at 1.6m
							End of BH 40 at 2.2m				TC bit refusal at 2.2m
				3.0							
				4.0							
				5.0							
				6.0							
				7.0							
				8.0							



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Tel: (02) 96798733 Fax: (02) 96798744

Borehole Report

Borehole no: 41

Client: Gran Associates Pty Ltd

Job no: JC18322A

Project: Proposed Amity College

Date: 4/4/19

Location: 85 Byron Road and 63 Ingleburn Road Leppington

Logged by: AT

Drill Model and Mounting: 5-tonne excavator

Slope: 90°

R.L. Surface: 101.6m

Hole Diameter: 200mm

Bearing: Vertical

Datum: AHD

Method	Support	Water	Notes: Samples, Tests, etc	Depth(m)	Classification Symbol	Unified Soil Classification	Material Description Soil Type, Plasticity or Particle Characteristic, colour, secondary and minor component	Moisture Content	Consistency/Density Index	Hand Penetrometer kPa	Structure and Additional Observations
AUGER	NIL	DRY	DS				Topsoil: Clayey Silt: low liquid limit, brown	D			
			DS			CH	Silty Clay: high plasticity, red brown	M			
				1.0		CI	Silty Clay: medium plasticity, grey brown	D-M			
			DS				As above but with shale bands				
				2.0							
				3.0			Shale/Siltstone: grey brown				
				4.0			End of BH 41 at 2.8m				
				5.0							
				6.0							
				7.0							
				8.0							



GeoEnviro Consultancy Pty Ltd

Unit 5, 39-41 Fourth Avenue, Blacktown NSW 2148, Australia
Tel: (02) 96798733 Fax: (02) 96798744

Borehole Report

Borehole no: 42

Client: Gran Associates Pty Ltd

Job no: JC18322A

Project: Proposed Amity College

Date: 4/4/19

Location: 85 Byron Road and 63 Ingleburn Road Leppington

Logged by: AT

Drill Model and Mounting: 5-tonne excavator

Slope: 90°

R.L. Surface: 95.3m

Hole Diameter: 200mm

Bearing: Vertical

Datum: AHD

Method	Support	Water	Notes: Samples, Tests, etc	Depth(m)	Classification Symbol	Unified Soil Classification	Material Description Soil Type, Plasticity or Particle Characteristic, colour, secondary and minor component	Moisture Content	Consistency/Density Index	Hand Penetrometer kPa	Structure and Additional Observations
A U G E R	N I L	D R Y	DS				Topsoil: Clayey Silt: low liquid limit, brown	D			
			DS			CH	Silty Clay: high plasticity, red brown	M			
				1.0		CI	Silty Clay: medium plasticity, grey brown	D			
			DS				Shale: grey brown				
							End of BH 42 at 1.3m				Refusal at 1.3m
				2.0							
				3.0							
				4.0							
				5.0							
				6.0							
				7.0							
				8.0							



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Borehole Report

Borehole no: 43

Client: Gran Associates Pty Ltd

Job no: JC18322A

Project: Proposed Amity College

Date: 4/4/19

Location: 85 Byron Road and 63 Ingleburn Road Leppington

Logged by: AT

Drill Model and Mounting: 5-tonne excavator

Slope: 90°

R.L. Surface: 95.7m

Hole Diameter: 200mm

Bearing: Vertical

Datum: AHD

Method	Support	Water	Notes: Samples, Tests, etc	Depth(m)	Classification Symbol	Unified Soil Classification	Material Description Soil Type, Plasticity or Particle Characteristic, colour, secondary and minor component	Moisture Content	Consistency/Density Index	Hand Penetrometer kPa	Structure and Additional Observations
A U G E R	N I L	D R Y	DS				Topsoil: Clayey Silt: low liquid limit, brown	D-M			
			DS			CH	Silty Clay: high plasticity, red brown	D-M			
				1.0		CI	Silty Clay: medium plasticity, brown				
			DS				As above but grey	D			
			DS								
				2.0							
							Siltstone: grey brown,				
							End of BH 43 at 2.8m				Refusal at 2.4m
				3.0							
				4.0							
				5.0							
				6.0							
				7.0							
				8.0							



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Borehole Report

Borehole no: 44

Client: Gran Associates Pty Ltd

Job no: JC18322A

Project: Proposed Amity College

Date: 4/4/19

Location: 85 Byron Road and 63 Ingleburn Road Leppington

Logged by: AT

Drill Model and Mounting: 5-tonne excavator

Slope: 90°

R.L. Surface: 95.6m

Hole Diameter: 200mm

Bearing: Vertical

Datum: AHD

Method	Support	Water	Notes: Samples, Tests, etc	Depth(m)	Classification Symbol	Unified Soil Classification	Material Description Soil Type, Plasticity or Particle Characteristic, colour, secondary and minor component	Moisture Content	Consistency/Density Index	Hand Penetrometer kPa	Structure and Additional Observations
A U G E R	N I L	D R Y	DS				Topsoil: Clayey Silt: low liquid limit, brown	M-W			
			DS			CH	Silty Clay: high plasticity, red brown	M			
				1.0		CI	Silty Clay: medium plasticity, brown	D-M			
			DS								
				2.0			Shale: grey brown				
							End of BH 44 at 2.0m				
				3.0							
				4.0							
				5.0							
				6.0							
				7.0							
				8.0							



GeoEnviro Consultancy Pty Ltd

Unit 5, 39-41 Fourth Avenue, Blacktown NSW 2148, Australia
Tel: (02) 96798733 Fax: (02) 96798744

Borehole Report

Borehole no: 45

Client: Gran Associates Pty Ltd

Job no: JC18322A

Project: Proposed Amity College

Date: 4/4/19

Location: 85 Byron Road and 63 Ingleburn Road Leppington

Logged by: AT

Drill Model and Mounting: 5-tonne excavator

Slope: 90°

R.L. Surface: 94.4m

Hole Diameter: 200mm

Bearing: Vertical

Datum: AHD

Method	Support	Water	Notes: Samples, Tests, etc	Depth(m)	Classification Symbol	Unified Soil Classification	Material Description Soil Type, Plasticity or Particle Characteristic, colour, secondary and minor component	Moisture Content	Consistency/Density Index	Hand Penetrometer kPa	Structure and Additional Observations
AUGER	NIL	DRY	DG				Topsoil: Clayey Silt: low liquid limit, brown	D			
						CH	Silty Clay: high plasticity, red brown	D-M			
			DG	1.0							
						CI	Silty Clay: medium plasticity, grey red with ironstone gravel	D			
			DG	2.0							
							Shale: grey brown				
							End of BH 45 at 1.4m				Refusal at 1..4m
				3.0							
				4.0							
				5.0							
				6.0							
				7.0							
				8.0							

APPENDIX C

Quality Assurance and Control Plan

QUALITY ASSURANCE AND CONTROL

A detailed Quality Assurance/Quality Control (QA/QC) assessment, including the collection and analysis of quality control samples, was completed for the data arising from the analysis of soil samples, in order to determine the suitability of the data for use in the assessment of site conditions. This included the collection of lab duplicates

Field Investigation Procedure

All fieldwork was conducted in general accordance with GHD's Standard Field Operating Procedures (FOP), which are aimed at collecting environmental samples using uniform and systematic methods, as required by GHD's Quality Assurance system. Key requirements of these procedures are as follows:

- Field staff - all field investigations were conducted by staff with sufficient and appropriate site specific training with the experience to assess and document field conditions and undertake the investigation tasks in accordance with relevant procedures. Soil types shall be recorded in accordance with the geotechnical classifications detailed in AS1726-1993 Geotechnical Site Investigations. A field log shall record the following but not limited to the following information;
 - Profile type – fill, natural, bedrock etc
 - Depths of profile type
 - Soil classification including composition, properties and characteristics.
 - Groundwater conditions.
 - Depths of samples collected.
 - Unusual or unexpected conditions including odour, colour etc.
- Field Documentation - included photographs, a field logbook to record an account of daily works and events including works start/end time, weather, presence of odours and/or dust, calibration results and checks and sample details.
- A visual and olfactory assessment was made on samples for the potential presence of contamination indicators or asbestos. Field screened for volatile organic compounds may also undertaken using a Photo-Ionisation Detector (PID).

- Notes are collected included the location and extent of fill and features such as seepage, moisture, water bearing zones, depth of groundwater tables, discolouration, staining, odours and other indications of contamination. This information was recorded on the field borehole logs.
- Decontamination procedures - included the use of new disposable gloves for the collection of each sample, decontamination of the sampling equipment between each sampling location (using DECON90 where required) and the use of dedicated sampling containers provided by the laboratory.
- Sample procedures - collected samples were immediately transferred into laboratory supplied jars of appropriate composition and preservation for the required analysis. The sample containers were transferred to a chilled cooler for sample preservation prior to and during shipment to the testing laboratory.
- Duplicate samples were collected included blind duplicates. These were coded duplicate samples submitted to the primary laboratory for analysis as individual samples without any indication to the laboratory that they have been duplicated.
- Each sample was assigned an individual sample identification number that began with a location code and site number designation for the specific sample type and sample location number. The sampling depth or interval indicates the discrete depth or interval at which the sample was taken below the surface to the nearest 0.1 metre.

Sample Custody

A Laboratory Test Request & Chain of Custody (COC) form shall be completed for each sample set collected. The form is maintained as a record of sample collection, transfer, shipment and receipt by the laboratory. When physical possession of samples is transferred, both the individual relinquishing the samples and the individual receiving them shall sign, date and record the time on the COC.

Any samples damage shall be reported to the field personnel so that resampling could take place.

Laboratory Program

The contracted laboratory used their internal procedures and NATA accredited methods in accordance with their quality assurance system. GeoEnviro reviewed the laboratory reports to ensure that the laboratory analytical methods and limits of reporting are acceptable for the analysis required. Laboratory quality control procedures used during the project include:

- **Laboratory duplicate samples:** Duplicate sub samples collected by the laboratory from one sample submitted for analytical testing at a rate equivalent to one in twenty samples per analytical batch, or one sample per batch if less than twenty samples are analysed in a batch. A laboratory duplicate provides data on the analytical precision and reproducibility of the test result.
- **Certified reference standards:** A reference standard of known (certified) concentration is analysed along with a batch of samples. The Certified Reference Standard (CRS) or Laboratory Control Spike provides an indication of the analytical accuracy and the precision of the test method and is used for inorganic analyses.
- **Spiked samples:** An authentic field sample is spiked by adding an aliquot of known concentration of the target analyte(s) prior to sample extraction and analysis. A spike documents the effect of the sample matrix on the extraction and analytical techniques. Spiked samples will be analysed for each batch where samples are analysed for organic chemicals of concern.
- **Surrogate standard/spikes:** These are organic compounds which are similar to the analyte of interest in terms of chemical composition, extractability, and chromatographic conditions (retention time), but which are not normally found in environmental samples. These surrogate compounds are spiked into blanks, standards and samples submitted for organic analyses by gas-chromatographic techniques prior to sample extraction. Surrogate Standard/Spikes provide a means of checking that no gross errors have occurred during any stage of the test method leading to significant analyte loss.

- **Laboratory blank:** Usually an organic or aqueous solution that is as free as possible of analytes of interest to which is added all the reagents, in the same volume, as used in the preparation and subsequent analysis of the samples. The reagent blank is carried through the complete sample preparation procedure and contains the same reagent concentrations in the final solution as in the sample solution used for analysis. The reagent blank is used to correct for possible contamination resulting from the preparation or processing of the sample.

The contracted laboratory conducted an assessment of the laboratory QC program internally; however the results were independently reviewed and assessed by GeoEnviro.

APPENDIX D

Aerial Photographs



1947 Aerial Photo



1956 Aerial Photo



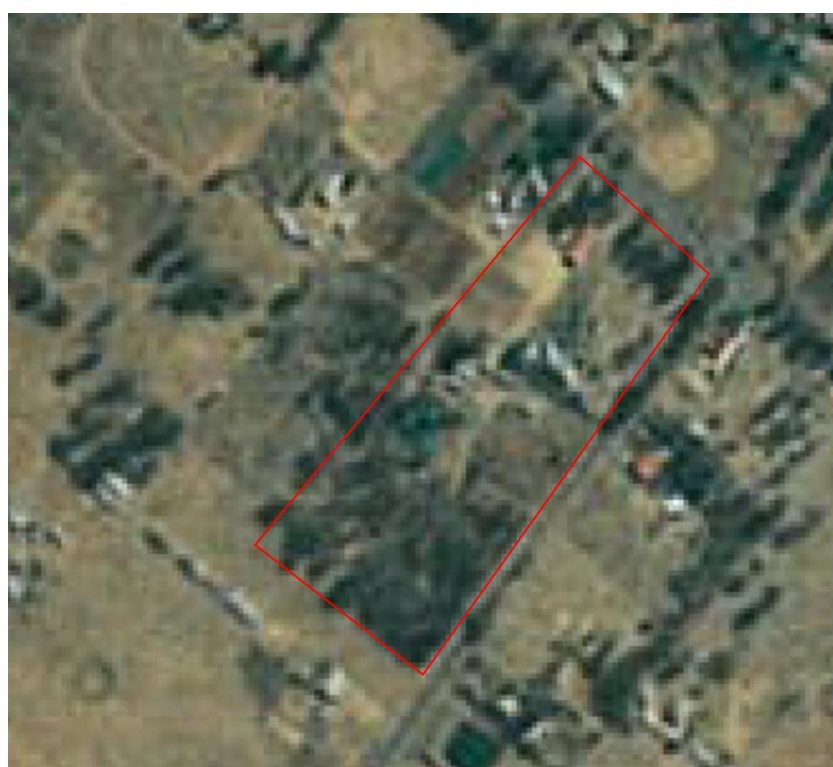
1965 Aerial Photo



1978 Aerial Photo



1986 Aerial Photo



1994 Aerial Photo



2005 Aerial Photo

APPENDIX E

Section 10.7 Certificate and Land Title Searches



Camden Council

70 Central Avenue, Oran Park NSW 2570

PO Box 183, Camden 2570

Telephone: 02 4654 7777

Email: mail@camden.nsw.gov.au

DX 25807

ABN: 31 117 341 764

Fax: 02 4654 7829

PLANNING CERTIFICATE UNDER SECTION 10.7 ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

Applicant: Geoenviro Consultancy Pty Ltd
PO Box 1543
MACQUARIE CENTRE NSW 2113

Certificate number: 20181826
Receipt number: 1805028
Property number: 101585
Certificate date: 20/04/2018
Certificate fee: \$53.00
Applicant's reference: JC18322A

DESCRIPTION OF PROPERTY

Title: LOT: 1 DP: 525996
Property: 85 Byron Road LEPPINGTON 2179

BACKGROUND INFORMATION

This certificate provides information on how a property (such as land, a house, commercial building, etc..) may be used and the limits on its development. The certificate contains information Council is aware of through records and environmental plans with data supplied by the State Government. The details contained in this certificate are limited to that required by Section 10.7 of the Environmental Planning and Assessment Act.



1 Names of relevant planning instruments and DCPs

- (1) The name of each environmental planning instrument that applies to the carrying out of development on the land.

Local Environmental Plans (LEP's)

The subject land is not within a Local Environmental Plan.

State Environmental Planning Policies (SEPP's)

SEPP No 19 - Bushland in Urban Areas

SEPP No 21 - Caravan Parks

SEPP No 30 - Intensive Agriculture

SEPP No 50 - Canal Estates

SEPP No 55 - Remediation of Land

SEPP No 62 - Sustainable Aquaculture

SEPP No 64 - Advertising and Signage

SEPP No 65 - Design Quality of Residential Apartment Development

SEPP No 70 - Affordable Housing (Revised Schemes)

SEPP (Housing for Seniors or People with a Disability) 2004

SEPP (Building Sustainability Index: BASIX) 2004

SEPP (State Significant Precincts) 2005

SEPP (Sydney Region Growth Centres) 2006

SEPP (Mining, Petroleum Production and Extractive Industries) 2007

SEPP (Infrastructure) 2007

SEPP (Exempt and Complying Development Codes) 2008

SEPP (Affordable Rental Housing) 2009

SEPP (State and Regional Development) 2011

SEPP (Educational Establishments and Child Care Facilities) 2017

Note: The above SEPP's may apply subject to the relevant criteria and requirements as listed in each of the SEPP's.

Deemed State Environmental Planning Policies (SEPP's)

Sydney Regional Environmental Plan No 9 - Extractive Industry (No 2 - 1996)

Sydney Regional Environmental Plan No 20 - Hawkesbury - Nepean River (No 2 - 1997)

- (2) **The name of each proposed environmental planning instrument that will apply to the carrying out of development on the land and that is or has been the subject of community consultation or on public exhibition under the Act (unless the Secretary has notified the council that the making of the proposed instrument has been deferred indefinitely or has not been approved).**

Draft Local Environmental Plan (LEP's)

The subject land is not affected by an exhibited Draft Local Environmental Plan.

Draft State Environmental Planning Policy (SEPP's)

Draft SEPP to amend SEPP (Sydney Region Growth Centres) 2006

SEPP (Exempt and Complying Development Codes) Amendment (Proposed Medium Density Housing Code) 2016

SEPP (Environment) 2017

SEPP (Primary Production and Rural Development) 2017

SEPP (Remediation of Land) 2018

Note: The above draft LEP's or draft SEPP's may apply subject to the relevant criteria and requirements as listed in each of these draft instruments.

- (3) **The name of each development control plan that applies to the carrying out of development on the land.**

Camden Growth Centre Precincts Development Control Plan, as amended

- (4) **In this clause, proposed environmental planning instrument includes a planning proposal for a LEP or a draft environmental planning instrument.**

2/2A Zoning and land use under relevant Local Environmental Plan, and/or under State Environmental Planning Policy (Sydney Region Growth Centres) 2006

This section contains information required under clauses 2 and 2A of Schedule 4 of the EP&A Regulation 2000, relating to zoning and land use under relevant Environmental Planning Instruments.

Clause 2 of Schedule 4 of the Regulation requires Council to provide information with respect to zoning and land-use in areas zoned under a Local Environmental Plan, or zoning and land use under a proposed instrument referred to in clause 1(2).

Clause 2A of Schedule 4 of the Regulation requires Council to provide information with respect to zoning and land-use in areas which are zoned, or proposed to be zoned, under the *State Environmental Planning Policy (Sydney Region Growth Centres) 2006*. This includes a Precinct Plan or a proposed Precinct Plan that is or has been the subject of community consultation or on public exhibition under the Act.

A. R3 MEDIUM DENSITY RESIDENTIAL

CAMDEN GROWTH CENTRES PRECINCT PLAN

Objectives of zone

- * To provide for the housing needs of the community within a medium density residential environment.
- * To provide a variety of housing types within a medium density residential environment.
- * To enable other land uses that provide facilities or services to meet the day to day needs of residents.
- * To support the well-being of the community by enabling educational, recreational, community, religious and other activities where compatible with the amenity of a medium density residential environment.

B. Permitted without consent

Home-based child care; Home occupations.

C. Permitted with consent

Attached dwellings; Bed and breakfast accommodation; Boarding houses; Building identification signs; Business identification signs; Centre-based child care facilities; Community facilities; Dual occupancies; Dwelling houses; Group homes; Manor homes; Multi dwelling housing; Neighbourhood shops; Places of public worship; Residential flat buildings; Roads; Secondary dwellings; Semi-detached dwellings; Seniors housing; Studio dwellings; Any other development not specified in item B or D

D. Prohibited

Agriculture; Air transport facilities; Airstrips; Amusementcentres; Boat repair facilities; Boat sheds; Business premises; Caravan parks; Cemeteries; Charter and tourism boating facilities; Correctional centres; Crematoria; Depots; Electricity generating works; Entertainment facilities; Extractive industries; Freight transport facilities; Function centres; Helipads; Highway service centres; Home occupations (sex services); Industries; Information and education facilities; Marinas; Moorings; Mortuaries; Office premises; Passenger transport facilities; Public administration buildings; Recreation facilities (indoor); Recreation facilities (major); Recreation facilities (outdoor); Registered clubs; Research stations; Restricted premises; Retail premises; Rural supplies; Service stations; Sex services premises; Signage; Storage premises; Tourist and visitor accommodation; Transport depots; Truck depots; Vehicle body repair workshops; Vehicle repair stations; Vehicle sales or hire premises; Veterinary hospitals;

Warehouse or distribution centres; Waste or resource management facilities; Water recreation structures; Wholesale supplies

A. SP2 INFRASTRUCTURE

CAMDEN GROWTH CENTRES PRECINCT PLAN

Objectives of zone

- * To provide for infrastructure and related uses.
- * To prevent development that is not compatible with or that may detract from the provision of infrastructure.

B. Permitted without consent

Roads.

C. Permitted with consent

The purpose shown on the Land Zoning Map, including any development that is ordinarily incidental or ancillary to development for that purpose

D. Prohibited

Any development not specified in item B or C

E. **Whether any development standards applying to the land fix minimum land dimensions for the erection of a dwelling-house on the land and, if so, the minimum land dimensions so fixed**

R3 Medium Density Residential: Clause 4.1AB of Camden Growth Centres Precinct Plan fixes a minimum 300m² for the erection of a dwelling house, however exceptions apply in circumstances as specified under clauses 4.1AD and 4.1AF for minimum and dimensions of 225m² and minimum 125m².

F. **Whether the land includes or comprises critical habitat**

No.

G. **Whether the land is in a conservation area (however described)**

No.

H. **Whether an item of environmental heritage (however described) is situated on the land.**

No

3 Complying development

- (1) The extent to which the land is land on which complying development may be carried out under each of the codes for complying development because of the provisions of clauses 1.17A (1) (c) to (e), (2), (3) and (4), 1.18 (1) (c3) and 1.19 of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*.
- (2) The extent to which complying development may not be carried out on that land because of the provisions of clauses 1.17A (1) (c) to (e), (2), (3) and (4), 1.18 (1) (c3) and 1.19 of that Policy and the reasons why it may not be carried out under those clauses.
- (3) If the council does not have sufficient information to ascertain the extent to which complying development may or may not be carried out on the land, a statement that a restriction applies to the land, but it may not apply to all of the land, and that council does not have sufficient information to ascertain the extent to which complying development may or may not be carried out on the land.

General Housing Code

Complying Development MAY be carried out on the land.

Rural Housing Code

Complying development MAY be carried out on the land.

Housing Alterations Code

Complying development MAY be carried out on the land.

General Development Code

Complying development MAY be carried out on the land.

Subdivision Code

Complying development MAY be carried out on the land.

Demolition Code

Complying development MAY be carried out on the land.

Commercial and Industrial Alterations Code

Complying development MAY be carried out on the land.

Commercial and Industrial New Buildings and Additions Code

Complying development MAY be carried out on the land.

Fire Safety Code

Complying development MAY be carried out on the land.

Note: This certificate only addresses the exclusions raised in clauses 1.17A (1)(c) to (e), (2), (3) and (4), 1.18(1)(c3) and 1.19 of SEPP (Exempt and Complying Development Codes) 2008.

Where complying development MAY be carried out, on land not affected by exclusions, it is subject to the requirements and standards of the SEPP and the relevant Codes, including

requirements relating to the zoning of the land.

4 Coastal protection

Not Applicable.

4A Certain information relating to beaches and coasts

Not Applicable.

4B Annual charges under Local Government Act 1993 for coastal protection services that relate to existing coastal protection works

Not Applicable.

5 Mine subsidence

Whether or not the land is proclaimed to be a mine subsidence district within the meaning of section 15 of the *Mine Subsidence Compensation Act 1961*.

No.

6 Road widening and road realignment

Whether or not the land is affected by any road widening or road realignment under:

- (a) Division 2 of Part 3 of the *Roads Act 1993*, or
- (b) any environmental planning instrument, or
- (c) any resolution of the council.

No.

7 Council and other public authority policies on hazard risk restrictions



Whether or not the land is affected by a policy:

- (a) **adopted by the council, or**
- (b) **adopted by any other public authority and notified to the council for the express purpose of its adoption by that authority being referred to in planning certificates issued by the council,**

that restricts the development of the land because of the likelihood of land slip, bushfire, tidal inundation, subsidence, acid sulphate soils or any other risk (other than flooding).

Land slip

The subject land is not affected by a policy adopted by the Council or with Council being notified of a policy adopted by any other public authority that restricts the development of the subject land because of the likelihood of landslip.

Bushfire

The land is not affected by the provisions of a Development Control Plan and by Planning for Bushfire Protection 2006 (NSW Rural Fire Service) that may restrict the development of the land because of the likelihood of bushfire.

Tidal inundation

The subject land is not affected by a policy adopted by the Council or with Council being notified of a policy adopted by any other public authority that restricts the development of the subject land because of the likelihood of tidal inundation.

Subsidence

The subject land is not affected by a policy adopted by the Council or with Council being notified of a policy adopted by any other public authority that restricts the development of the subject land because of the likelihood of subsidence or any other risk.

Acid sulphate soils

The subject land is not affected by a policy adopted by the Council or with Council being notified of a policy adopted by any other public authority that restricts the development of the subject land because of the likelihood of acid sulphate soils.

Other risk

Contamination:

Council's policy 'Management of Contaminated Lands' applies to the whole of the council area and may restrict, development of land. The policy is implemented when zoning or land use changes are proposed, or when further development is proposed, where land has been used for contaminating or potentially contaminating activities, including those activities listed in schedule 1 of the policy. A copy of the policy is available on Council's website.

Salinity:

Council's policy 'Building in a Salinity Prone Environment' applies to the whole of the council area. The policy includes mandatory building requirements, unless other requirements are identified in any site specific salinity risk assessment or salinity management plan applying to the land. A copy of the policy is available on Council's website.

7A Flood related development controls information

- (a) **Whether or not development on that land or part of the land for the purposes of dwelling houses, dual occupancies, multi-dwelling housing or residential flat buildings (not including development for the purposes of group homes or senior housing) is subject to flood related development controls.**

The subject land is not affected by flood related development controls that restrict development of the subject land due to the likelihood of flooding.

- (b) **Whether or not development on that land or part of the land for any other purpose is subject to flood related development controls.**

The subject land is not affected by flood related development controls that restrict development of the subject land due to the likelihood of flooding.

- (3) **Words and expressions in this clause have the same meanings as in the standard instrument set out in the Standard Instrument (Local Environmental Plans) Order 2006.**

8 Land reserved for acquisition

Whether or not any environmental planning instrument or proposed environmental planning instrument referred to in clause 1 makes provision in relation to the acquisition of the land by a public authority, as referred to in section 3.15 of the Act.

Yes, clause 5.1 of the Camden Growth Centres Precinct Plan applies to the land as shown on the Land Reservation Acquisition Maps under State Environmental Planning Policy (Sydney Region Growth Centres) 2006.

9 Contributions plans

The name of each contributions plan applying to the land

Camden Growth Areas Contributions Plan - Leppington Precinct and Leppington North Precinct

9A Bio-diversity certified land

If the land is biodiversity certified land under Part 8 of the *Biodiversity Conservation Act 2016*, a statement to that effect.

Note. Biodiversity certified land includes land certified under Part 7AA of the *Threatened Species Conservation Act*



1995 that is taken to be certified under Part 8 of the *Biodiversity Conservation Act 2016*.

The land is not biodiversity certified under Part 8 of the Biodiversity Conservation Act 2016 or Part 7AA of the Threatened Species Conservation Act 1995.

The land however is subject to biodiversity certification as described in Schedule 7 Part 7 "Bio-certification of Sydney Region Growth Centre State Environmental Planning Policy and related Environmental Planning Instruments" in the Threatened Species Conservation Act 1995, which remains in force under the Biodiversity (Savings and Transitional) Regulation 2017 . Further information is available at:

<http://www.planning.nsw.gov.au/Plans-for-your-area/Priority-Growth-Areas-and-Precincts/South-West-Priority-Growth-Area/Key-actions-and-documents>

10 Bio-banking agreements

If the land is a biodiversity stewardship site under a biodiversity stewardship agreement under Part 5 of the *Biodiversity Conservation Act 2016*, a statement to that effect (but only if the council has been notified of the existence of the agreement by the Chief Executive of the Office of Environment and Heritage).

Note. Biodiversity stewardship agreements include biobanking agreements under Part 7A of the *Threatened Species Conservation Act 1995* that are taken to be biodiversity stewardship agreements under Part 5 of the *Biodiversity Conservation Act 2016*.

No.

10A Native vegetation clearing set asides

If the land contains a set aside area under section 60ZC of the *Local Land Services Act 2013*, a statement to that effect (but only if the council has been notified of the existence of the set aside area by Local Land Services or it is registered in the public register under that section).

No.

11 Bush fire prone land

If any of the land is bush fire prone land (as defined in the Act), a statement that all or, as the case may be, some of the land is bush fire prone land.

If none of the land is bush fire prone land, a statement to that effect.

None of the land is shown to be bushfire prone land in Council's records.

12 Property vegetation plans

If the land is land to which a property vegetation plan approved under Part 4 of the *Native Vegetation Act 2003* (and that continues in force) applies, a statement to that effect (but only if the council has been notified of the existence of the plan by the person or body that approved the plan under that Act).

No.

13 Orders under Trees (Disputes Between Neighbours) Act 2006

Whether an order has been made under the *Trees (Disputes Between Neighbours) Act 2006* to carry out work in relation to a tree on the land (but only if the council has been notified of the order).

No.

14 Directions under Part 3A

If there is a direction by the Minister in force under section 75P (2) (c1) of the Act that a provision of an environmental planning instrument prohibiting or restricting the carrying out of project or a stage of a project on the land under Part 4 of the Act does not have effect, a statement to that effect identifying the provision that does not have effect.

No.

15 Site compatibility certificates and conditions for seniors housing

If the land is land to which *State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004* applies.

- (a) Is there a current site compatibility certificate (seniors housing) of which the council is aware, in respect of proposed development on the land?

No.

- (b) Are there any terms of a kind referred to in clause 18(2) of that Policy that have been imposed as a condition to a development application granted after 11 October 2007 in respect of the land?

No.

It is the responsibility of the person who benefits from a development consent to ascertain the validity of the development consent within the meaning of section 4.19 and section 4.53 of the Environmental Planning and Assessment Act 1979, as amended.

16 Site compatibility certificates for infrastructure

A statement of whether there is a valid site compatibility certificate (infrastructure), or site compatibility certificate (schools of TAFE establishments) of which the council is aware, in respect of proposed development on the land and, if there is a certificate, the statement is to include:

- (a) the period for which the certificate is valid, and
(b) that a copy may be obtained from the head office of the Department.

No.

17 Site compatibility certificates and conditions for affordable rental housing

- (1) Is there a current site compatibility certificate (affordable rental housing), of which the council is aware, in respect of proposed development on the land?

No.

- (2) Are there any terms of a kind referred to in clause 17(1) or 38(1) of *State Environmental Planning Policy (Affordable Rental Housing) 2009* that have been imposed as a condition of consent to a development application in respect of the land?

No.

18 Paper subdivision information

- (1) The name of any development plan adopted by a relevant authority that applies to the land or that is proposed to be subject to a consent ballot.
- (2) The date of any subdivision order that applies to the land.
- (3) Words and expressions used in this clause have the same meaning as they have in Part 16C of this Regulation.

Not Applicable.

19 Site verification certificates

Is there a current site verification certificate, of which the council is aware, in respect of the land?

Note: A site verification certificate sets out the Secretary's opinion as to whether the land concerned is or is not biophysical strategic agricultural land or critical industry cluster land—see Division 3 of Part 4AA of *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007*

No.

20 Loose-fill asbestos insulation

If the land includes any residential premises (within the meaning of Division 1A of Part 8 of the *Home Building Act 1989*) that are listed on the register that is required to be maintained under that Division, a statement to that effect.

No, not listed.
Contact NSW Fair Trading for more information.

21 Contaminated Land Management Act, 1997

The following matters are prescribed by section 59 (2) of the *Contaminated Land Management Act 1997* as additional matters to be specified in a planning certificate

- (a) that the land to which the certificate relates is significantly contaminated land within the meaning of that Act—if the land (or part of the land) is significantly contaminated land at the date when the certificate is issued,

No.

- (a) that the land to which the certificate relates is subject to a management order within the meaning of that Act—if it is subject to such an order at the date when the certificate is issued,
- No.
- (c) that the land to which the certificate relates is the subject of an approved voluntary management proposal within the meaning of that Act—if it is the subject of such an approved proposal at the date when the certificate is issued,
- No.
- (d) that the land to which the certificate relates is subject to an ongoing maintenance order within the meaning of that Act—if it is subject to such an order at the date when the certificate is issued,
- No.
- (e) that the land to which the certificate relates is the subject of a site audit statement within the meaning of that Act—if a copy of such a statement has been provided at any time to the local authority issuing the certificate.
- No.

DISCLAIMER AND CAUTION

1. The information on zones, controls etc., given below relates to the land for which the certificate was sought. If enquirers wish to know what zones, other controls, etc., apply or are proposed on nearby land then they should make enquiries in person at Council's offices.
2. The information contained in this certificate **is accurate as at the date of this certificate.**

In providing this certificate Council has in good faith relied upon information provided to it or sourced from third parties. Where Council has obtained the information from third parties, either exclusively or in conjunction with information held by Council, the Certificate details the source of that third party information. Council cautions persons against relying upon information in the Certificate sourced from third parties as to its accuracy, applicability to specific lands and its currency without verification from the specified third party and, where appropriate, professional advice and the adoption of prudent land acquisition measures and appropriate professional advice. To the full extent permitted by law Council disclaims liability with respect to any information in this Certificate sourced from third parties.

Ron Moore
General Manager



Camden Council

70 Central Avenue, Oran Park NSW 2570

PO Box 183, Camden 2570

Telephone: 02 4654 7777

Email: mail@camden.nsw.gov.au

DX 25807

ABN: 31 117 341 764

Fax: 02 4654 7829

PLANNING CERTIFICATE UNDER SECTION 10.7 ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

Applicant: Geoenviro Consultancy Pty Ltd
PO Box 1543
MACQUARIE CENTRE NSW 2113

Certificate number: 20181825
Receipt number: 1805028
Property number: 105993
Certificate date: 20/04/2018
Certificate fee: \$53.00
Applicant's reference: J98322A

DESCRIPTION OF PROPERTY

Title: LOT: 2 DP: 525996
Property: 63 Ingleburn Road LEPPINGTON 2179

BACKGROUND INFORMATION

This certificate provides information on how a property (such as land, a house, commercial building, etc..) may be used and the limits on its development. The certificate contains information Council is aware of through records and environmental plans with data supplied by the State Government. The details contained in this certificate are limited to that required by Section 10.7 of the Environmental Planning and Assessment Act.



1 Names of relevant planning instruments and DCPs

- (1) The name of each environmental planning instrument that applies to the carrying out of development on the land.

Local Environmental Plans (LEP's)

The subject land is not within a Local Environmental Plan.

State Environmental Planning Policies (SEPP's)

SEPP No 19 - Bushland in Urban Areas

SEPP No 21 - Caravan Parks

SEPP No 30 - Intensive Agriculture

SEPP No 50 - Canal Estates

SEPP No 55 - Remediation of Land

SEPP No 62 - Sustainable Aquaculture

SEPP No 64 - Advertising and Signage

SEPP No 65 - Design Quality of Residential Apartment Development

SEPP No 70 - Affordable Housing (Revised Schemes)

SEPP (Housing for Seniors or People with a Disability) 2004

SEPP (Building Sustainability Index: BASIX) 2004

SEPP (State Significant Precincts) 2005

SEPP (Sydney Region Growth Centres) 2006

SEPP (Mining, Petroleum Production and Extractive Industries) 2007

SEPP (Infrastructure) 2007

SEPP (Exempt and Complying Development Codes) 2008

SEPP (Affordable Rental Housing) 2009

SEPP (State and Regional Development) 2011

SEPP (Educational Establishments and Child Care Facilities) 2017

SEPP (Vegetation in Non-Rural Areas) 2017

Note: The above SEPP's may apply subject to the relevant criteria and requirements as listed in each of the SEPP's.

Deemed State Environmental Planning Policies (SEPP's)

Sydney Regional Environmental Plan No 9 - Extractive Industry (No 2 - 1996)

Sydney Regional Environmental Plan No 20 - Hawkesbury - Nepean River (No 2 - 1997)

- (2) **The name of each proposed environmental planning instrument that will apply to the carrying out of development on the land and that is or has been the subject of community consultation or on public exhibition under the Act (unless the Secretary has notified the council that the making of the proposed instrument has been deferred indefinitely or has not been approved).**

Draft Local Environmental Plan (LEP's)

The subject land is not affected by an exhibited Draft Local Environmental Plan.

Draft State Environmental Planning Policy (SEPP's)

SEPP (Exempt and Complying Development Codes) Amendment (Proposed Medium Density Housing Code) 2016

SEPP (Environment) 2017

SEPP (Primary Production and Rural Development) 2017

SEPP (Remediation of Land) 2018

Note: The above draft LEP's or draft SEPP's may apply subject to the relevant criteria and requirements as listed in each of these draft instruments.

- (3) **The name of each development control plan that applies to the carrying out of development on the land.**

Camden Growth Centre Precincts Development Control Plan, as amended

- (4) **In this clause, proposed environmental planning instrument includes a planning proposal for a LEP or a draft environmental planning instrument.**

2/2A Zoning and land use under relevant Local Environmental Plan, and/or under State Environmental Planning Policy (Sydney Region Growth Centres) 2006

This section contains information required under clauses 2 and 2A of Schedule 4 of the EP&A Regulation 2000, relating to zoning and land use under relevant Environmental Planning Instruments.

Clause 2 of Schedule 4 of the Regulation requires Council to provide information with respect to zoning and land-use in areas zoned under a Local Environmental Plan, or zoning and land use under a proposed instrument referred to in clause 1(2).

Clause 2A of Schedule 4 of the Regulation requires Council to provide information with respect to zoning and land-use in areas which are zoned, or proposed to be zoned, under the *State Environmental Planning Policy (Sydney Region Growth Centres) 2006*. This includes a Precinct Plan or a proposed Precinct Plan that is or has been the subject of community consultation or on public exhibition under the Act.

A. R2 LOW DENSITY RESIDENTIAL

CAMDEN GROWTH CENTRES PRECINCT PLAN

Objectives of zone

- * To provide for the housing needs of the community within a low density residential environment.
- * To enable other land uses that provide facilities or services to meet the day to day needs of residents.
- * To allow people to carry out a reasonable range of activities from their homes where such activities are not likely to adversely affect the living environment of neighbours.
- * To support the well-being of the community by enabling educational, recreational, community, religious and other activities where compatible with the amenity of a low density residential environment.
- * To provide a diverse range of housing types to meet community housing needs within a low density residential environment.

B. Permitted without consent

Home-based child care; Home occupations

C. Permitted with consent

Bed and breakfast accommodation; Boarding houses; Business identification signs; Centre-based child care facilities; Community facilities; Drainage; Dual occupancies; Dwelling houses; Earthworks; Educational establishments; Environmental Facilities; Environmental protection; works; Exhibition homes; Exhibition villages; Flood mitigation works; Group homes; Health consulting rooms; Home businesses; Home industries; Information and education facilities; Neighbourhood shops; Places of public worship; Recreation areas; Recreation facilities (indoor); Recreation facilities (outdoor); Roads; Secondary dwellings; Semi-detached dwellings; Seniors housing; Shop top housing; Studio dwellings; Veterinary hospitals; Waterbodies (artificial)

D. Prohibited

Any development not specified in item B or C.

A. R3 MEDIUM DENSITY RESIDENTIAL

CAMDEN GROWTH CENTRES PRECINCT PLAN

Objectives of zone

- * To provide for the housing needs of the community within a medium density residential environment.
- * To provide a variety of housing types within a medium density residential environment.
- * To enable other land uses that provide facilities or services to meet the day to day needs of residents.
- * To support the well-being of the community by enabling educational, recreational, community, religious and other activities where compatible with the amenity of a medium density residential environment.

B. Permitted without consent

Home-based child care; Home occupations.

C. Permitted with consent

Attached dwellings; Bed and breakfast accommodation; Boarding houses; Building identification signs; Business identification signs; Centre-based child care facilities; Community facilities; Dual occupancies; Dwelling houses; Group homes; Manor homes; Multi dwelling housing; Neighbourhood shops; Places of public worship; Residential flat buildings; Roads; Secondary dwellings; Semi-detached dwellings; Seniors housing; Studio dwellings; Any other development not specified in item B or D

D. Prohibited

Agriculture; Air transport facilities; Airstrips; Amusement centres; Boat repair facilities; Boat sheds; Business premises; Caravan parks; Cemeteries; Charter and tourism boating facilities; Correctional centres; Crematoria; Depots; Electricity generating works; Entertainment facilities; Extractive industries; Freight transport facilities; Function centres; Helipads; Highway service centres; Home occupations (sex services); Industries; Information and education facilities; Marinas; Moorings; Mortuaries; Office premises; Passenger transport facilities; Public administration buildings; Recreation facilities (indoor); Recreation facilities (major); Recreation facilities (outdoor); Registered clubs; Research stations; Restricted premises; Retail premises; Rural supplies; Service stations; Sex services premises; Signage; Storage premises; Tourist and visitor accommodation; Transport depots; Truck depots; Vehicle body repair workshops; Vehicle repair stations; Vehicle sales or hire premises; Veterinary hospitals; Warehouse or distribution centres; Waste or resource management facilities; Water recreation structures; Wholesale supplies

A. SP2 INFRASTRUCTURE

CAMDEN GROWTH CENTRES PRECINCT PLAN

Objectives of zone

- * To provide for infrastructure and related uses.
- * To prevent development that is not compatible with or that may detract from the provision of



infrastructure.

- B. Permitted without consent

Roads.

- C. Permitted with consent

The purpose shown on the Land Zoning Map, including any development that is ordinarily incidental or ancillary to development for that purpose

- D. Prohibited

Any development not specified in item B or C

- E. **Whether any development standards applying to the land fix minimum land dimensions for the erection of a dwelling-house on the land and, if so, the minimum land dimensions so fixed**

R2 Low Density Residential: Clause 4.1AB of Camden Growth Centres Precinct Plan fixes a minimum 300m² for the erection of a dwelling house, however exceptions apply in circumstances as specified under clauses 4.1AD, 4.1AE and 4.1AF for minimum land dimensions of 250m² and minimum 200m².

R3 Medium Density Residential: Clause 4.1AB of Camden Growth Centres Precinct Plan fixes a minimum 300m² for the erection of a dwelling house, however exceptions apply in circumstances as specified under clauses 4.1AD and 4.1AF for minimum and dimensions of 225m² and minimum 125m².

- F. **Whether the land includes or comprises critical habitat**

No.

- G. **Whether the land is in a conservation area (however described)**

No.

- H. **Whether an item of environmental heritage (however described) is situated on the land.**

No

3 Complying development

- (1) The extent to which the land is land on which complying development may be carried out under each of the codes for complying development because of the provisions of clauses 1.17A (1) (c) to (e), (2), (3) and (4), 1.18 (1) (c3) and 1.19 of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*.



- (2) The extent to which complying development may not be carried out on that land because of the provisions of clauses 1.17A (1) (c) to (e), (2), (3) and (4), 1.18 (1) (c3) and 1.19 of that Policy and the reasons why it may not be carried out under those clauses.
- (3) If the council does not have sufficient information to ascertain the extent to which complying development may or may not be carried out on the land, a statement that a restriction applies to the land, but it may not apply to all of the land, and that council does not have sufficient information to ascertain the extent to which complying development may or may not be carried out on the land.

General Housing Code

Complying Development MAY be carried out on the land.

Rural Housing Code

Complying development MAY be carried out on the land.

Housing Alterations Code

Complying development MAY be carried out on the land.

General Development Code

Complying development MAY be carried out on the land.

Subdivision Code

Complying development MAY be carried out on the land.

Demolition Code

Complying development MAY be carried out on the land.

Commercial and Industrial Alterations Code

Complying development MAY be carried out on the land.

Commercial and Industrial New Buildings and Additions Code

Complying development MAY be carried out on the land.

Fire Safety Code

Complying development MAY be carried out on the land.

Note: This certificate only addresses the exclusions raised in clauses 1.17A (1)(c) to (e), (2), (3) and (4), 1.18(1)(c3) and 1.19 of SEPP (Exempt and Complying Development Codes) 2008.

Where complying development MAY be carried out, on land not affected by exclusions, it is subject to the requirements and standards of the SEPP and the relevant Codes, including requirements relating to the zoning of the land.

4 Coastal protection



Not Applicable.

4A Certain information relating to beaches and coasts

Not Applicable.

4B Annual charges under Local Government Act 1993 for coastal protection services that relate to existing coastal protection works

Not Applicable.

5 Mine subsidence

Whether or not the land is proclaimed to be a mine subsidence district within the meaning of section 15 of the *Mine Subsidence Compensation Act 1961*.

No.

6 Road widening and road realignment

Whether or not the land is affected by any road widening or road realignment under:

- (a) Division 2 of Part 3 of the *Roads Act 1993*, or
- (b) any environmental planning instrument, or
- (c) any resolution of the council.

No.

7 Council and other public authority policies on hazard risk restrictions

Whether or not the land is affected by a policy:

- (a) adopted by the council, or
- (b) adopted by any other public authority and notified to the council for the express purpose of its adoption by that authority being referred to in planning certificates issued by the council,

that restricts the development of the land because of the likelihood of land slip, bushfire, tidal inundation, subsidence, acid sulphate soils or any other risk (other than flooding).

Land slip

The subject land is not affected by a policy adopted by the Council or with Council being notified of a policy adopted by any other public authority that restricts the development of the subject land because of the likelihood of landslip.

Bushfire

The land is not affected by the provisions of a Development Control Plan and by Planning for Bushfire Protection 2006 (NSW Rural Fire Service) that may restrict the development of the land because of the likelihood of bushfire.

Tidal inundation

The subject land is not affected by a policy adopted by the Council or with Council being notified of a policy adopted by any other public authority that restricts the development of the subject land because of the likelihood of tidal inundation.

Subsidence

The subject land is not affected by a policy adopted by the Council or with Council being notified of a policy adopted by any other public authority that restricts the development of the subject land because of the likelihood of subsidence or any other risk.

Acid sulphate soils

The subject land is not affected by a policy adopted by the Council or with Council being notified of a policy adopted by any other public authority that restricts the development of the subject land because of the likelihood of acid sulphate soils.

Other risk

Contamination:

Council's policy 'Management of Contaminated Lands' applies to the whole of the council area and may restrict, development of land. The policy is implemented when zoning or land use changes are proposed, or when further development is proposed, where land has been used for contaminating or potentially contaminating activities, including those activities listed in schedule 1 of the policy. A copy of the policy is available on Council's website.

Salinity:

Council's policy 'Building in a Salinity Prone Environment' applies to the whole of the council area. The policy includes mandatory building requirements, unless other requirements are identified in any site specific salinity risk assessment or salinity management plan applying to the land. A copy of the policy is available on Council's website.

7A Flood related development controls information

- (a) **Whether or not development on that land or part of the land for the purposes of dwelling houses, dual occupancies, multi-dwelling housing or residential flat buildings (not including development for the purposes of group homes or senior housing) is subject to flood related development controls.**

Yes.

- (b) **Whether or not development on that land or part of the land for any other purpose is subject to flood related development controls.**

Yes.

- (3) **Words and expressions in this clause have the same meanings as in the standard instrument set out in the Standard Instrument (Local Environmental Plans) Order 2006.**

8 Land reserved for acquisition

Whether or not any environmental planning instrument or proposed environmental planning instrument referred to in clause 1 makes provision in relation to the acquisition of the land by a public authority, as referred to in section 3.15 of the Act.

Yes, clause 5.1 of the Camden Growth Centres Precinct Plan applies to the land as shown on the Land Reservation Acquisition Maps under State Environmental Planning Policy (Sydney Region Growth Centres) 2006.

9 Contributions plans

The name of each contributions plan applying to the land

Camden Growth Areas Contributions Plan - Leppington Precinct and Leppington North Precinct

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If the land is biodiversity certified land under Part 8 of the *Biodiversity Conservation Act 2016*, a statement to that effect.

Note. Biodiversity certified land includes land certified under Part 7AA of the *Threatened Species Conservation Act 1995* that is taken to be certified under Part 8 of the *Biodiversity Conservation Act 2016*.

The land is not biodiversity certified under Part 8 of the Biodiversity Conservation Act 2016 or Part 7AA of the Threatened Species Conservation Act 1995.

The land however is subject to biodiversity certification as described in Schedule 7 Part 7 "Bio-certification of Sydney Region Growth Centre State Environmental Planning Policy and related Environmental Planning Instruments" in the Threatened Species Conservation Act 1995, which remains in force under the Biodiversity (Savings and Transitional) Regulation 2017 . Further information is available at:

<http://www.planning.nsw.gov.au/Plans-for-your-area/Priority-Growth-Areas-and-Precincts/South-West-Priority-Growth-Area/Key-actions-and-documents>

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If the land is a biodiversity stewardship site under a biodiversity stewardship agreement under Part 5 of the *Biodiversity Conservation Act 2016*, a statement to that effect (but only if the council has been notified of the existence of the agreement by the Chief Executive of the Office of Environment and Heritage).

Note. Biodiversity stewardship agreements include biobanking agreements under Part 7A of the *Threatened Species Conservation Act 1995* that are taken to be biodiversity stewardship agreements under Part 5 of the *Biodiversity Conservation Act 2016*.

No.

10A Native vegetation clearing set asides

If the land contains a set aside area under section 60ZC of the *Local Land Services Act 2013*, a statement to that effect (but only if the council has been notified of the existence of the set aside area by Local Land Services or it is registered in the public register under that section).

No.

11 Bush fire prone land

If any of the land is bush fire prone land (as defined in the Act), a statement that all or, as the case may be, some of the land is bush fire prone land.

If none of the land is bush fire prone land, a statement to that effect.

None of the land is shown to be bushfire prone land in Council's records.

12 Property vegetation plans

If the land is land to which a property vegetation plan approved under Part 4 of the *Native Vegetation Act 2003* (and that continues in force) applies, a statement to that effect (but only if the council has been notified of the existence of the plan by the person or body that approved the plan under that Act).

No.

13 Orders under Trees (Disputes Between Neighbours) Act 2006

Whether an order has been made under the Trees (Disputes Between Neighbours) Act 2006 to carry out work in relation to a tree on the land (but only if the council has been notified of the order).

No.

14 Directions under Part 3A

If there is a direction by the Minister in force under section 75P (2) (c1) of the Act that a provision of an environmental planning instrument prohibiting or restricting the carrying out of project or a stage of a project on the land under Part 4 of the Act does not have effect, a statement to that effect identifying the provision that does not have effect.

No.

15 Site compatibility certificates and conditions for seniors housing

If the land is land to which *State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004* applies.

- (a) Is there a current site compatibility certificate (seniors housing) of which the council is aware, in respect of proposed development on the land?

No.

- (b) Are there any terms of a kind referred to in clause 18(2) of that Policy that have been imposed as a condition to a development application granted after 11 October 2007 in respect of the land?

No.

It is the responsibility of the person who benefits from a development consent to ascertain the validity of the development consent within the meaning of section 4.19 and section 4.53 of the Environmental Planning and Assessment Act 1979, as amended.

16 Site compatibility certificates for infrastructure

A statement of whether there is a valid site compatibility certificate (infrastructure), or site compatibility certificate (schools of TAFE establishments) of which the council is aware, in respect of proposed development on the land and, if there is a certificate, the statement is to include:

- (a) the period for which the certificate is valid, and
- (b) that a copy may be obtained from the head office of the Department.

No.

17 Site compatibility certificates and conditions for affordable rental housing

- (1) Is there a current site compatibility certificate (affordable rental housing), of which the council is aware, in respect of proposed development on the land?

No.

- (2) Are there any terms of a kind referred to in clause 17(1) or 38(1) of *State Environmental Planning Policy (Affordable Rental Housing) 2009* that have been imposed as a condition of consent to a development application in respect of the land?

No.

18 Paper subdivision information

- (1) The name of any development plan adopted by a relevant authority that applies to the land or that is proposed to be subject to a consent ballot.
- (2) The date of any subdivision order that applies to the land.
- (3) Words and expressions used in this clause have the same meaning as they have in Part 16C of this Regulation.

Not Applicable.

19 Site verification certificates

Is there a current site verification certificate, of which the council is aware, in respect of the land?

Note: A site verification certificate sets out the Secretary's opinion as to whether the land concerned is or is not biophysical strategic agricultural land or critical industry cluster land—see Division 3 of Part 4AA of *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007*

No.

20 Loose-fill asbestos insulation

If the land includes any residential premises (within the meaning of Division 1A of Part 8 of the *Home Building Act 1989*) that are listed on the register that is required to be maintained under that Division, a statement to that effect.

No, not listed.
Contact NSW Fair Trading for more information.

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The following matters are prescribed by section 59 (2) of the *Contaminated Land Management Act 1997* as additional matters to be specified in a planning certificate

- (a) that the land to which the certificate relates is significantly contaminated land within the meaning of that Act—if the land (or part of the land) is significantly contaminated land at the date when the certificate is issued,

No.

- (a) that the land to which the certificate relates is subject to a management order within the meaning of that Act—if it is subject to such an order at the date when the certificate is issued,

No.

- (c) that the land to which the certificate relates is the subject of an approved voluntary management proposal within the meaning of that Act—if it is the subject of such an approved proposal at the date when the certificate is issued,

No.



- (d) that the land to which the certificate relates is subject to an ongoing maintenance order within the meaning of that Act—if it is subject to such an order at the date when the certificate is issued,

No.

- (e) that the land to which the certificate relates is the subject of a site audit statement within the meaning of that Act—if a copy of such a statement has been provided at any time to the local authority issuing the certificate.

No.

DISCLAIMER AND CAUTION

1. The information on zones, controls etc., given below relates to the land for which the certificate was sought. If enquirers wish to know what zones, other controls, etc., apply or are proposed on nearby land then they should make enquiries in person at Council's offices.
2. The information contained in this certificate **is accurate as at the date of this certificate.**

In providing this certificate Council has in good faith relied upon information provided to it or sourced from third parties. Where Council has obtained the information from third parties, either exclusively or in conjunction with information held by Council, the Certificate details the source of that third party information. Council cautions persons against relying upon information in the Certificate sourced from third parties as to its accuracy, applicability to specific lands and its currency without verification from the specified third party and, where appropriate, professional advice and the adoption of prudent land acquisition measures and appropriate professional advice. To the full extent permitted by law Council disclaims liability with respect to any information in this Certificate sourced from third parties.

Ron Moore
General Manager



Summary of Owners Report

LPI

Sydney

Address: - 85 Byron Road, & 63 Ingleburn Road, Leppington

Description: - Lots 1 & 2 D.P. 525996

As regards Lot 1 D.P. 525996

<u>Date of Acquisition and term held</u>	<u>Registered Proprietor(s) & Occupations where available</u>	<u>Reference to Title at Acquisition and sale</u>
06.03.1922 (1922 to 1935)	John Reginald Francis (Labourer)	Vol 3289 Fol 56
13.07.1935 (1935 to 1948)	William John Smith (Farmer)	Vol 3289 Fol 56
16.03.1948 (1948 to 1953)	Elsie Florence Smith (Widow) (Transmission Application not investigated)	Vol 3289 Fol 56
24.11.1953 (1953 to 2005)	Granville Charles Berkley Walters (Market Gardener) (Transmission Application not investigated)	Vol 3289 Fol 56 Now 1/525996
30.05.2005 (2005 to 2018)	Jean Ann Walters	1/525996
28.02.2013 (2013 to 2018)	Norman Charles Walters (Executor of the estate of Jean Ann Walters)	1/525996
22.01.2018 (2018 to 2018)	Pinoi Investments Pty Ltd	1/525996
22.01.2018 (2018 to date)	# Galaxy Foundation Limited	1/525996

Denotes Current Registered Proprietor

Easements and Leases: - NIL

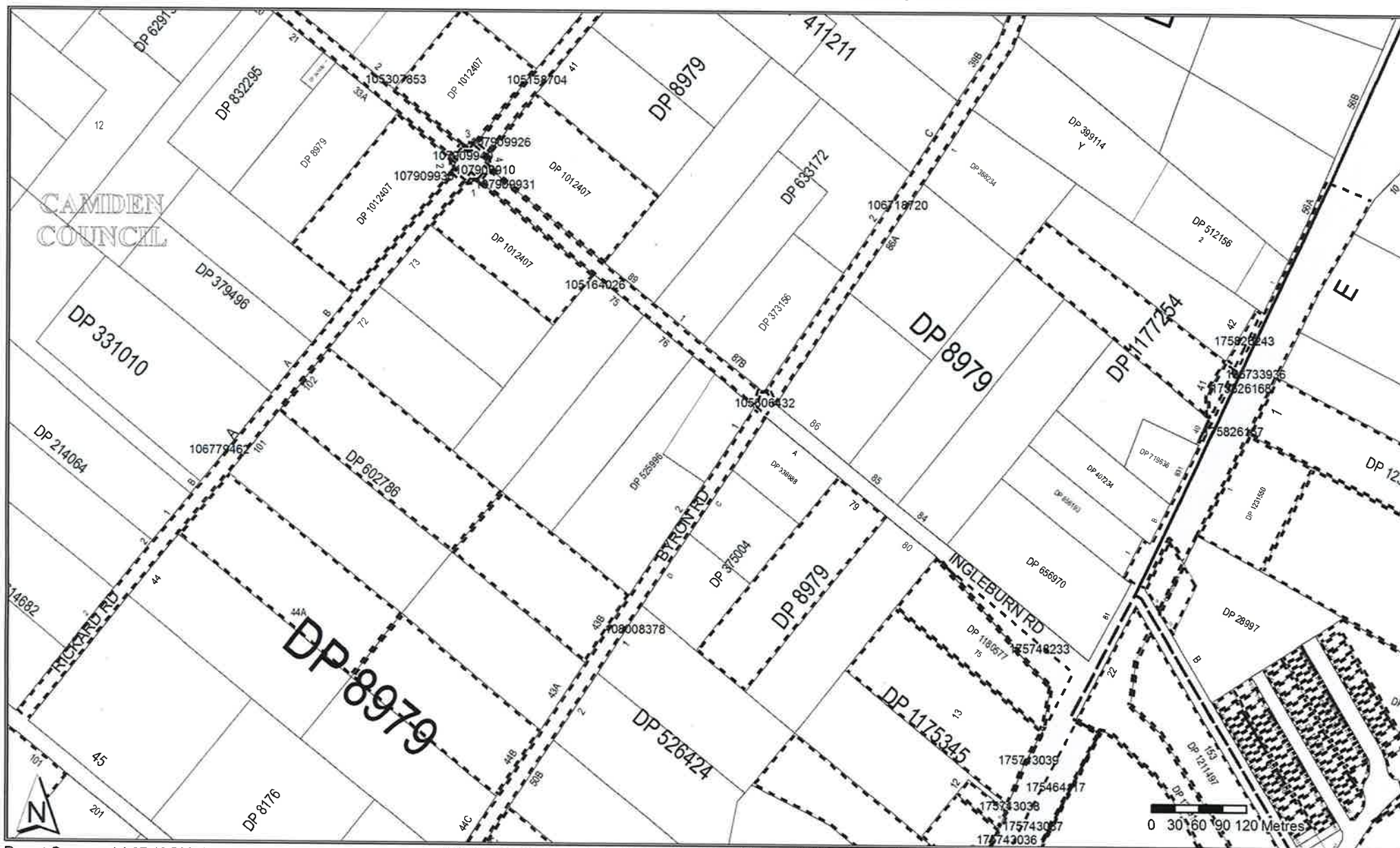
As regards Lot 2 D.P. 525996

<u>Date of Acquisition and term held</u>	<u>Registered Proprietor(s) & Occupations where available</u>	<u>Reference to Title at Acquisition and sale</u>
06.03.1922 (1922 to 1935)	John Reginald Francis (Labourer)	Vol 3289 Fol 56
13.07.1935 (1935 to 1948)	William John Smith (Farmer)	Vol 3289 Fol 56
16.03.1948 (1948 to 1953)	Elsie Florence Smith (Widow) (Transmission Application not investigated)	Vol 3289 Fol 56
24.11.1953 (1953 to 1969)	Granville Charles Berkley Walters (Market Gardener) (Transmission Application not investigated)	Vol 3289 Fol 56 Now Vol 10670 Fol 25
29.05.1969 (1969 to 1984)	Isidoro Bianchi (Box Manufacturer) Gino Carra (Box Manufacturer)	Vol 10670 Fol 25
03.07.1984 (1984 to 2018)	Isidoro Bianchi Vince Monteleone Flavia Monteleone	Vol 10670 Fol 25 Now 2/525996
07.03.2018 (2018 to date)	# Galaxy Foundation Limited	2/525996

Denotes Current Registered Proprietor

Easements and Leases: - NIL

Yours Sincerely
Matthew Hillerman (checked by Mark Groll)
19 April 2018



NEW SOUTH WALES

Application No.1469

Prior Title Vol.3289 Fol. 56

CERTIFICATE OF TITLE
PROPERTY ACT, 1900, as amended.



MA

First issued 30-10-1967

CANCELLED

I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown in the Second Schedule.

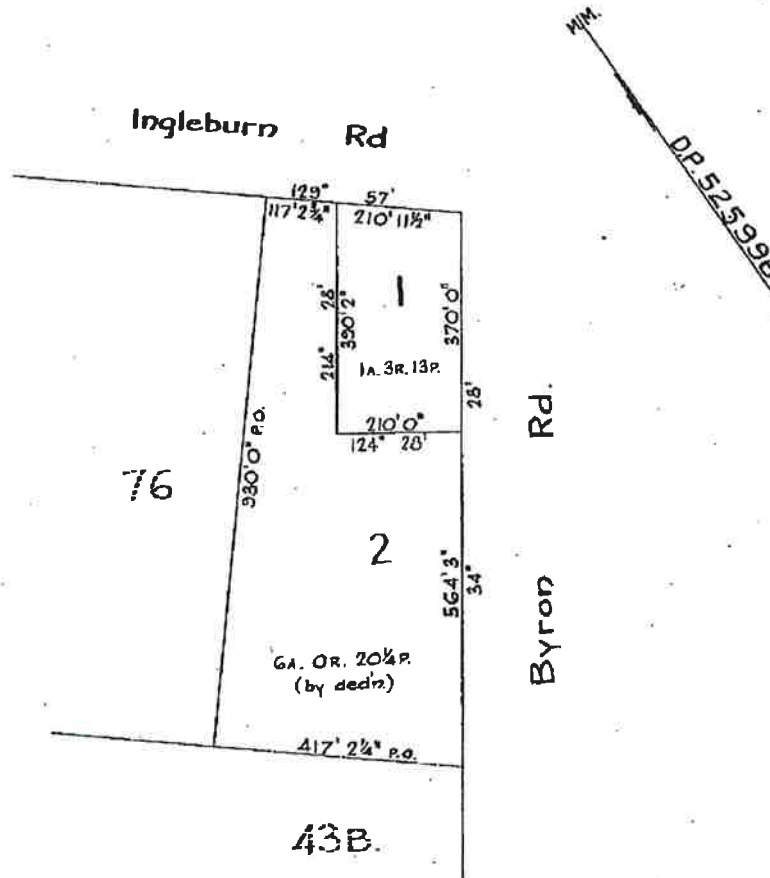
Witness *M. S. Alter*

SEE AUTO FOLIO

Jawatson
Registrar General.



PLAN SHOWING LOCATION OF LAND



ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 1 in Deposited Plan 525996 at Leppington in the Municipality of Camden Parish of Cook and County of Cumberland being part of Portion 63 granted to Alexander Riley on 8-10-1816.

FIRST SCHEDULE (continued overleaf)

GRANVILLE CHARLES BERKLEY WALTERS, of Leppington, Market Gardener.

SECOND SCHEDULE (continued overleaf)

- GBY
CV 1. Reservations and conditions, if any, contained in the Crown Grant above referred to.
2. Covenant created by Transfer No. A782698.P
3. Mortgage No. H999464 to The Commercial Banking Company of Sydney Limited. Entered 15-3-1962. Discharged L151158

Jawatson
Registrar General.

FIRST SCHEDULE (continued)[illegible]**SECOND SCHEDULE (continued)**

SECOND SCHEDULE (continued)						
NATURE	INSTRUMENT NUMBER	DATE	PARTICULARS	ENTERED	Signature of Registrar-General	CANCELLATION
Mortgage	L151157	9.8.1968	to Charles Bernard William Gray of Seppington, Garage Proprietor and Florence Gray his wife	5-9-1968	<i>J. J. J.</i>	Discharged L444963 <i>J. J. J.</i>
			CANCELLED			
			SEE AUTO FOLD			

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR-GENERAL ARE CANCELLED



LAND REGISTRY SERVICES

NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE

17/4/2018 1:26PM

FOLIO: 1/525996

First Title(s): SEE PRIOR TITLE(S)

Prior Title(s): VOL 10670 FOL 24

Recorded	Number	Type of Instrument	C.T. Issue
28/3/1988		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
30/6/1988		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
8/6/2005	AB538474	TRANSMISSION APPLICATION	EDITION 1
7/3/2013	AH596115	TRANSMISSION APPLICATION (EXECUTOR, ADMINISTRATOR, TRUSTEE)	EDITION 2
6/12/2017	AM947401	MORTGAGE	EDITION 3 CORD ISSUED
22/1/2018	AN55721	DISCHARGE OF MORTGAGE	
22/1/2018	AN55722	TRANSFER	
22/1/2018	AN55723	TRANSFER	EDITION 4

*** END OF SEARCH ***

PSH-GROLLY-helen

PRINTED ON 17/4/2018

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Date and Time of Search: Tue Apr 17 13:26:20 2018

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Form: 03TA
Release: 1.1
www.lpi.nsw.gov.au

TRANSMISSION APPLICATION



AB538474Y

New South Wales
Section 93 Real Property Act 1900

PRIVACY NOTE: this information is legally required and will become part of the public record

STAMP DUTY

Office of State Revenue use only

NSW Treasury
Client No: 3144282 1338
Duty: \$10 - Trans No: 2706543
Asst details:

(A) LAND

Torrens Title

Volume: 10670 Folio: 24

(B) REGISTERED DEALING

Number

Torrens Title

(C) LODGED BY

Delivery
Box

Name, Address or DX and Telephone

LLPN: 123824 M

BOX 302G
LegalStream
Tel: 9231 0122 Fax: 9238 6411

CODE

Reference: MACRI:WALTERS EST: 050059

TA

(D) DECEASED REGISTERED PROPRIETOR

GRANVILLE CHARLES BERKLEY WALTERS

(E) APPLICANT

JEAN ANN WALTERS

- (F) The applicant, being entitled as beneficiary of the will of the deceased registered proprietor (who died on 16 Dec 2004) pursuant to probate No. 106720/05 granted on 05 May 2005 to ROY KYNASTON (the original of which is lodged herewith) applies to be registered as proprietor of the estate or interest of the deceased registered proprietor in the abovementioned land

DATE 30 May 2005

- (G) I certify that the person(s) signing opposite, with whom I am personally acquainted or as to whose identity I am otherwise satisfied, signed this instrument in my presence.

Certified correct for the purposes of the Real Property Act 1900 by the Applicant.

Signature of witness:

Milka Andzic

Signature of Applicant:

Jean A. Walters

Name of witness:

Milka Andzic

Address of witness:

2/132-134 Moore St. Liverpool NSW 2170

(H) CONSENT OF EXECUTOR, ADMINISTRATOR OR TRUSTEE

I, ROY KYNASTON of 19 Wellard Close, Medowie

executor of the will of the deceased registered proprietor, hereby consent to this application.

Signature of witness:

Gavin Smith J.P. (NSW)

Signature of executor of the will

Roy Kynaston

Name of witness:

Gavin Leigh Smith

GAVIN SMITH J.P. (NSW)

Address of witness:

*38 Stewart Ave
Hamilton South, NSW 2303*

Reg. No. 198626833

All handwriting must be in block capitals.

Office use only— PROBATE

Evidence sighted and returned: to 302G

Page 1 of 2

LAND AND PROPERTY INFORMATION NSW

CT SIGHTED
CANC. & REG.

Reg 82
JA

STATUTORY DECLARATION

I ROY KYNASTON of 19 Wellard Close, Medowie in the State of New South Wales, do solemnly and sincerely declare as follows:

1. I am the Executor named in the Will of GRANVILLE CHARLES WALTERS dated 6 May 1978 and Probate granted on 5 May 2005.
2. I state the name of the registered proprietor on the Certificate of Title Volume: 10670 Folio: 24 for the property known as 85 Byron Road, Leppington being GRANVILLE CHARLES BERKLEY WALTERS is the one and same person as the deceased GRANVILLE CHARLES WALTERS.

I make this solemn declaration conscientiously believing the same to be true and by virtue of the provisions of the Oaths Act 1900.

X Made and subscribed at MEDOWIE)
in the State of New South Wales)
X on the 18th day of MAY 2005)
in the presence of:)

Gavin Smith J.P. (NSW)
Signature of Witness

GAVIN LEIGH SMITH
Name of Witness (block letters)

Justice of the Peace (NSW)
Solicitor/Justice of the Peace

X Roy Kynaston
Roy Kynaston
KynAston

GAVIN SMITH J.P. (NSW)
Reg. No. 198626833

Form: 03AE
Release: 2-1

**TRANSMISSION
APPLICATION**
by an Executor,
Administrator or Trustee
New South Wales
Section 93 Real Property Act 1



AH596115B

PRIVACY NOTE: Section 31B of the Real Property Act 1900 (RP Act) authorises the Registrar General to collect the information required by this form for the establishment and maintenance of the Real Property Act Register. Section 96B RP Act requires that the Register is made available to any person for search upon payment of a fee, if any.

(A) TORRENS TITLE

1/525996

(B) REGISTERED
DEALING

NUMBER

TORRENS TITLE

(C) LODGED BY

DOCUMENT
COLLECTION
BOX

NAME, ADDRESS OR DX, TELEPHONE, AND CUSTOMER ACCOUNT NUMBER IF ANY

LLPN: 123824M

BOX 3029
LegalStream

Tel: 9231 0122 Fax: 9233 6411

CODE

3029

REFERENCE: MACRI, EST WALTERS, 120330

AE

(D) DECEASED
REGISTERED
PROPRIETOR

Jean Ann WALTERS

(E) APPLICANT

Norman Charles WALTERS

(F) The abovementioned applicant, being entitled as executor of the will of the deceased registered proprietor (who died on 12 August 2012) pursuant to probate No. 2012/396122 granted on 12 February 2013 (a certified copy of which is lodged herewith) hereby applies to be registered as proprietor of the estate or interest of the deceased registered proprietor in the abovementioned land

DATE 28 February 2013.

(G)

I certify I am an eligible witness and that the applicant signed this dealing in my presence.
[See note* below]

Certified correct for the purposes of the Real Property Act 1900 by the applicant.

Signature of witness:

Signature of applicant:

Name of witness:

JESSICA MACRI

Address of witness:

Suite 3, 3-5 Norfolk St
LIVERPOOL NSW 2170

(H) This section is to be completed where a notice of sale is required and the relevant data has been forwarded through eNOS. The applicant _____ certifies that the eNOS data relevant to this dealing has been submitted and stored under eNOS ID No. _____ Full name: _____ Signature: _____

* s117 RP Act requires that you must have known the signatory for more than 12 months or have sighted identifying documentation.

ALL HANDWRITING MUST BE IN BLOCK CAPITALS.

Evidence sighted and returned (office use only): Copy ✓

Form: 01T
Release: 6.2
Licence: 01-05-025
Licensee: LEAP Legal Software Pty Limited
Firm name: Mak Conveyancing

TRANSFER

New South Wales
Real Property Act 1900



AN55722X

PRIVACY NOTE: Section 31B of the Real Property Act 1900 (RP Act) authorises the Registrar General to collect the information required by this form for the establishment and maintenance of the Real Property Act Register. Section 96B RP Act requires that the Register is made available to any person for search upon payment of a fee, if any.

STAMP DUTY

Revenue NSW use only

Office of State Revenue (NSW)	
Client No: 136781601	4608
Duty: \$10	Trans No: 4255126-001

(A) TORRENS TITLE

1/525996

(B) LODGED BY

Document Collection Box 7194	Name, Address or DX, Telephone, and Customer Account Number if any ACE agents UPN 129 2098 Reference: GKN: Galaxy	CODES T TW
---------------------------------------	--	------------------

(C) TRANSFEROR

Norman Charles WALTERS

(D) CONSIDERATION

The transferor acknowledges receipt of the consideration of \$3,500,000.00 and as regards the abovementioned land transfers to the transferee an estate in fee simple.

(E) ESTATE

(F) SHARE

TRANSFERRED

(G)

Encumbrances (if applicable):

(H) TRANSFEE

Pinoi Investments Pty Ltd ACN 614724248

(I)

TENANCY:

DATE

(J) I certify that I am an eligible witness and that the transferor signed this dealing in my presence.
[See note* below]

Certified correct for the purposes of the Real Property Act 1900 by the transferor.

Signature of witness:

M. De Santis

Signature of transferor:

N Walters

Name of witness: MONIQUE DE SANTIS

Address of witness: 3-5 NORFOLK STREET,
LIVERPOOL NSW 2170

Certified correct for the purposes of the Real Property Act 1900 on behalf of the transferee by the person whose signature appears below.

Signature:

Melanie Mak

Signatory's name: Melanie Mak

Signatory's capacity: Licensed Conveyancer for the Transferee

(K) The transferee certifies that the eNOS data relevant to this dealing has been submitted and stored under

eNOS ID No. 1493980

Full name: Samantha Wynn Malcolm Foyers Signature: *[Signature]*

* s 117 RP Act requires that you must have known the signatory for more than 12 months or have sighted identifying documentation.

**LAND
REGISTRY
SERVICES**

NEW SOUTH WALES LAND REGISTRY SERVICES - TITLE SEARCH

FOLIO: 1/525996

SEARCH DATE	TIME	EDITION NO	DATE
17/4/2018	1:25 PM	4	22/1/2018

LAND

LOT 1 IN DEPOSITED PLAN 525996
AT LEPPINGTON
LOCAL GOVERNMENT AREA CAMDEN
PARISH OF COOK COUNTY OF CUMBERLAND
TITLE DIAGRAM DP525996

FIRST SCHEDULE

GALAXY FOUNDATION LIMITED

(T AN55723)

SECOND SCHEDULE (2 NOTIFICATIONS)

- 1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
- 2 A782698 COVENANT

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

PSH-GROLLY-helen

PRINTED ON 17/4/2018

* Any entries preceded by an asterisk do not appear on the current edition of the Certificate of Title.

Warning: the information appearing under notations has not been formally recorded in the Register.

Hazlett Information Services hereby certifies that the information contained in this document has been provided electronically by the Registrar-General in accordance with Section 96B(2) of the Real Property Act 1900.

Date and Time of Search: Tue Apr 17 13:25:43 2018

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INFORMATION SERVICES

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NEW SOUTH WALES

CERTIFICATE OF TITLE ~~See new editions~~ TITLE
REAL PROPERTY ACT, 1900, as amended. Register Book

Application No. 1469

Prior Title Vol. 3289 Fol. 56

Vol. **10670** Fol. **25**

Edition issued 30-10-1967



MA

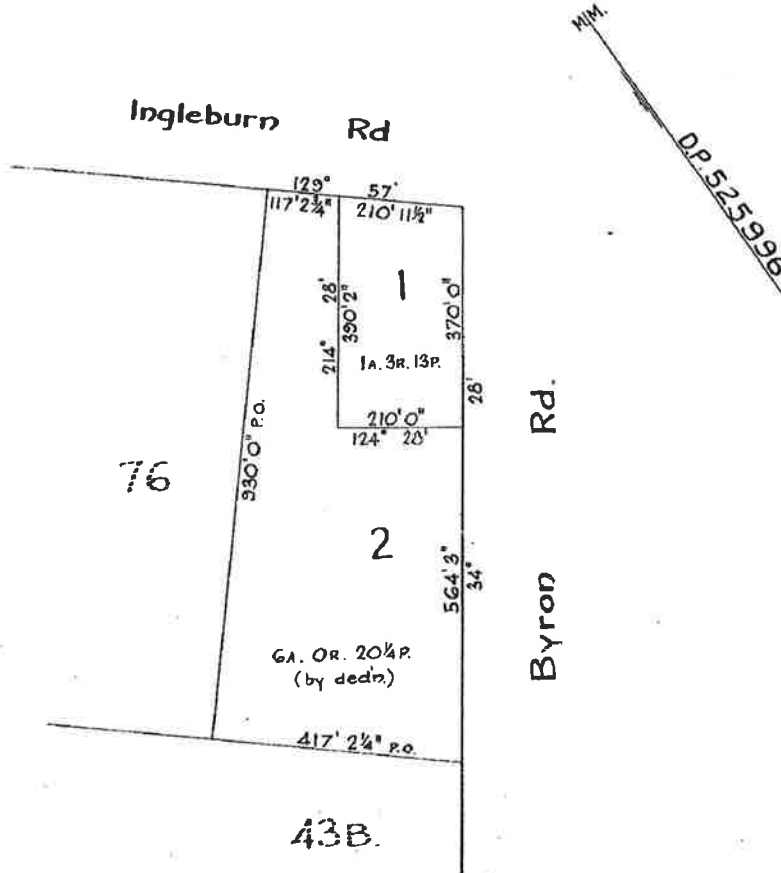
I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown in the Second Schedule.

Witness *in alter*

Jawatson
Registrar General.



PLAN SHOWING LOCATION OF LAND



ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 2 in Deposited Plan 525996 at Leppington in the Municipality of Camden Parish of Cook and County of Cumberland being part of Portion 63 granted to Alexander Riley on 8-10-1816.

FIRST SCHEDULE (continued overleaf)

~~GRANVILLE CHARLES BERKLEY WALTERS, of Leppington, Market Gardener.~~

SECOND SCHEDULE (continued overleaf)

1. Reservations and conditions, if any, contained in the Crown Grant above referred to.
2. Covenant created by Transfer No. A782698.
3. Mortgage No. H999464 to The Commercial Banking Company of Sydney Limited Entered 15-3-1962. Discharged 15-11-58

Jawatson
Registrar General.

CT10670-025



UGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED

PERSONS ARE CAUTIONED AGAINST ALTERING OR ADDING TO THIS CERTIFICATE OR ANY NOTIFICATION HEREON

WARNING THIS DOCUMENT MUST NOT BE REMOVED FROM THE LAND TITLES OFFICE

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	INSTRUMENT			ENTERED	Signature of Registrar-General
	NATURE	NUMBER	DATE		
Isidoro Bianchi and Ljona Costa, both of Georges Hall, Box Manufacturers as tenants in common in equal shares.	Transfer	2444962	29-5-1969	3-6-1969	Jaworski
Isidoro Bianchi in 1/2 share, Vince Monteleone in 1/2 share and Flavia Monteleone in 1/2 share as tenants in common by	Transfer V2115	Registered	3.7.1984		
CANCELLED					
See new edition issued 15-8-1984					
Vide V 2115. Edition Issued in A & B.					
  REGISTRAR GENERAL					

SECOND SCHEDULE (continued)

NATURE	INSTRUMENT		PARTICULARS	ENTERED	Signature of Registrar-General	CANCELLATION		
	NUMBER	DATE						
Mortgage	1151159	9-8-1968	to Charles Bernard William Gray of Seppington Garage Proprietor and Rita Elvira Gray					
Mortgage	1707041	19-12-1969	To Maud Lachlan Smith of Maud Lachlan Smith	5-9-1968	Jaworski	Discharged	2444963	Jaworski
Mortgage	P103757	12-6-1972	to Commonwealth Trading Bank of Australia.	17-12-1970	Jaworski	Discharged	M779512	Jaworski
Caveat	P108836	11-12-1974		17-12-1974	Jaworski	Discharged	T978888	Jaworski
Caveat	G314809		by Avco Financial Services Limited.	9-1-1975	Jaworski	Withdrawn	Q903667	Jaworski
				23-2-1981	Jaworski	Withdrawn	T266532	Jaworski
T266533 Caveat by Avco Financial Services Limited. Registered 19-10-1982.								
T266533 Caveat. V2115 Caveator consented. Registered 3.7.1984								

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR-GENERAL ARE CANCELLED

L151159
 L707041
 M779512
 P103757
 P108836
 Q903667 w/1R
 S314809 P/1R
 T266532 w/1R
 T978888 Om
 V2115 T/1R

CERTIFICATE OF TITLE

CANCELLED
TO BE RE-REGISTERED
SEE AUTO FOLIO

NEW SOUTH WALES

REAL PROPERTY ACT, 1900

First Title : Old System

Vol. **10670** Fol. **25A**

Prior Title : Vol.3289 Fol.56



15 9 1984

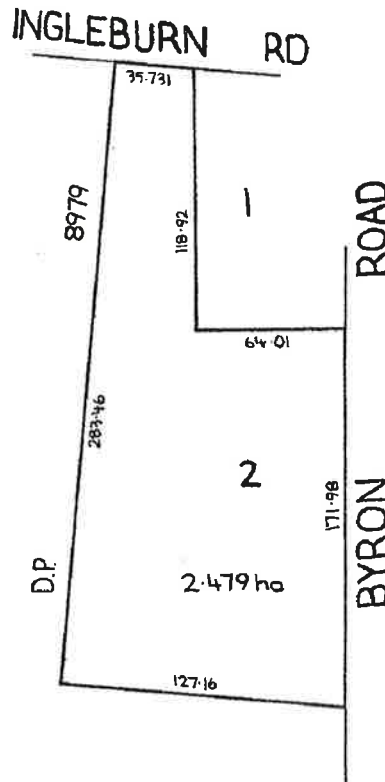
I certify that the person named in the First Schedule is the registered proprietor of an estate in fee simple (or such other estate or interest as is set out below) in the land described subject to the recordings appearing in the Second Schedule and to the provisions of the Real Property Act, 1900.

[Signature]
Registrar General.



PLAN SHOWING LOCATION OF LAND

LENGTHS ARE IN METRES



V2115

LAND REFERRED TO

An undivided 1/2 share in Lot 2 in Deposited Plan 525996 at Leppington in the Municipality of Camden Parish of Cook and County of Cumberland.

FIRST SCHEDULE

ISIDORO BIANCHI.

SECOND SCHEDULE

1. Reservations and conditions in the Crown Grant.

CV2. A782698 Covenant.

3. T266533 Caveat by AVCO Financial Services Limited 1722925

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED

Vol. 10670 Fol. 25A

99346D 8.81 D. West, Government Printer

FIRST SCHEDULE (continued)
REGISTERED PROPRIETOR

Registrar General

SECOND SCHEDULE (continued)

PARTICULARS

Registrar General

CANCELLATION

M ~~V722926 Mortgage to Avco Financial Services Ltd. Registered 30-5-1985.~~

2561889
7-11-1996

FOLIO CANCELLED NEW FOLIO IS..... 2 / 525996 A
NO FURTHER DEALINGS TO BE REGISTERED

NOTATIONS AND UNREGISTERED DEALINGS

V722 92504/11
- 26 m / 2
2561889 omk

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED

CERTIFICATE OF TITLE

REAL PROPERTY ACT, 1900

CANCELLED
SEE AUTO FOLIO

Vol. **10670** Fol. **25B**

NEW SOUTH WALES

First Title : Old System

Prior Title : Vol.3289 Fol.56



SECTION
ISSUED 15 8 1984

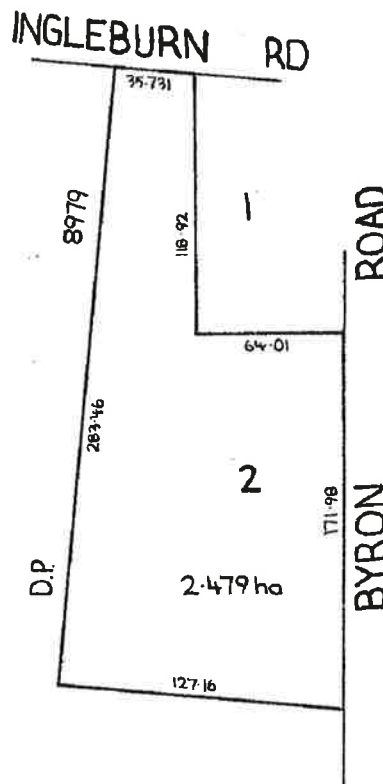
I certify that the person named in the First Schedule is the registered proprietor of an estate in fee simple (or such other estate or interest as is set out below) in the land described subject to the recordings appearing in the Second Schedule and to the provisions of the Real Property Act, 1900.

[Signature]
Registrar General.



PLAN SHOWING LOCATION OF LAND

LENGTHS ARE IN METRES



PERSONS ARE CAUTIONED AGAINST ALTERING OR ADDING TO THIS CERTIFICATE OR ANY NOTIFICATION HEREON
(Page 1) Vol. 10670, Fol. 25B

V2115
[Signature]

LAND REFERRED TO

An undivided 1/2 share in Lot 2 in Deposited Plan 525996 at Leppington in the Municipality of Camden Parish of Cook and County of Cumberland.

FIRST SCHEDULE

VINCE MONTELEONE in 1/2 share and FLAVIA MONTELEONE in 1/2 share, as tenants in common.

SECOND SCHEDULE

- GRY*
1. Reservations and conditions in the Crown Grant.
 2. A782698 Covenant.
 3. T266533 Caveat by AVCO Financial Services Limited. V722925

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED

Vol. 10670 Fol. 25B

99346D 8.81 D. West, Government Printer

FIRST SCHEDULE (continued)
 REGISTERED PROPRIETOR

Registrar General

SECOND SCHEDULE (continued)

PARTICULARS

Registrar General

CANCELLATION

M V722926 Mortgage to Avco Financial Services Ltd. Registered 26-11-1985.

2561889
 7-11-1996

FOLIO CANCELLED NEW FOLIO IS 21525996B
 NO FURTHER DEALINGS TO BE REGISTERED

NOTATIONS AND UNREGISTERED DEALINGS

V722925 w/h
 -26 m/h
 2561889 dm d

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED

**LAND
REGISTRY
SERVICES**

NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE

17/4/2018 1:26PM

FOLIO: 2/525996

First Title(s): OLD SYSTEM

Prior Title(s): VOL 10670 FOLS 25A-B

Recorded	Number	Type of Instrument	C.T. Issue
28/3/1988		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
13/7/2005	AB618513	DEPARTMENTAL DEALING	FOLIO CREATED CT NOT ISSUED
13/7/2005	AB618513	SUB FOLIOS CREATED: 2/525996A-B.	
2/3/2018	AN160438	SUB FOLIOS CANCELLED: 2/525996A-B.	
7/3/2018	AN141983	TRANSFER	EDITION 1

*** END OF SEARCH ***

PSH-GROLLY-helen

PRINTED ON 17/4/2018

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Date and Time of Search: Tue Apr 17 13:26:41 2018

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**LAND
REGISTRY
SERVICES**

NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE

17/4/2018 1:27PM

FOLIO: 2/525996A

Recorded	Number	Type of Instrument	C.T. Issue
13/7/2005	AB618513	DEPARTMENTAL DEALING	FOLIO CREATED CT NOT ISSUED
12/2/2018	AN109926	APPLICATION FOR REPLACEMENT CERTIFICATE OF TITLE	EDITION 1
2/3/2018	AN160438	DEPARTMENTAL DEALING	FOLIO CANCELLED

*** END OF SEARCH ***

PSH-GROLLY-helen

PRINTED ON 17/4/2018

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Date and Time of Search: Tue Apr 17 13:27:18 2018

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Level 4, 122 Castlereagh Street, Sydney 2000 | DX 1078 SYDNEY | GPO Box 96, Sydney 2001
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**LAND
REGISTRY
SERVICES**

NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE

17/4/2018 1:27PM

FOLIO: 2/525996B

Recorded	Number	Type of Instrument	C.T. Issue
13/7/2005	AB618513	DEPARTMENTAL DEALING	FOLIO CREATED CT NOT ISSUED
12/2/2018	AN109927	APPLICATION FOR REPLACEMENT CERTIFICATE OF TITLE	EDITION 1
2/3/2018	AN160438	DEPARTMENTAL DEALING	FOLIO CANCELLED

*** END OF SEARCH ***

PSH-GROLLY-helen

PRINTED ON 17/4/2018

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Date and Time of Search: Tue Apr 17 13:27:32 2018

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**LAND
REGISTRY
SERVICES**

NEW SOUTH WALES LAND REGISTRY SERVICES - TITLE SEARCH

FOLIO: 2/525996

SEARCH DATE	TIME	EDITION NO	DATE
17/4/2018	1:25 PM	1	7/3/2018

LAND

LOT 2 IN DEPOSITED PLAN 525996
AT LEPPINGTON
LOCAL GOVERNMENT AREA CAMDEN
PARISH OF COOK COUNTY OF CUMBERLAND
TITLE DIAGRAM DP525996

FIRST SCHEDULE

GALAXY FOUNDATION LIMITED

(T AN141983)

SECOND SCHEDULE (2 NOTIFICATIONS)

- 1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
- 2 A782698 COVENANT

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

PSH-GROLLY-helen

PRINTED ON 17/4/2018

* Any entries preceded by an asterisk do not appear on the current edition of the Certificate of Title.

Warning: the information appearing under notations has not been formally recorded in the Register.

Hazlett Information Services hereby certifies that the information contained in this document has been provided electronically by the Registrar-General in accordance with Section 96B(2) of the Real Property Act 1900.

Date and Time of Search: Tue Apr 17 13:25:57 2018
© Office of the Registrar-General 2018**Hazlett**
INFORMATION SERVICESLevel 4, 122 Castlereagh Street, Sydney 2000 | DX 1078 SYDNEY | GPO Box 96, Sydney 2001
Ph: 02 92615211 Fax: 02 92647752 | R Hazlett & Co. ABN 20 104 470 340 | www.hazlett.com.au

APPENDIX F

NSW EPA and Groundwater Borehole Searches

[Home](#) [Contaminated land](#) [Record of notices](#)

Search results

Your search for: LGA: Camden Council

did not find any records in our database.

If a site does not appear on the record it may still be affected by contamination. For example:

- Contamination may be present but the site has not been regulated by the EPA under the Contaminated Land Management Act 1997 or the Environmentally Hazardous Chemicals Act 1985.
- The EPA may be regulating contamination at the site through a licence or notice under the Protection of the Environment Operations Act 1997 (POEO Act).
- Contamination at the site may be being managed under the [planning process](#).

More information about particular sites may be available from:

- The [POEO public register](#)
- The appropriate planning authority: for example, on a planning certificate issued by the local council under [section 149 of the Environmental Planning and Assessment Act](#).

See [What's in the record and What's not in the record](#).

If you want to know whether a specific site has been the subject of notices issued by the EPA under the CLM Act, we suggest that you search by Local Government Area only and carefully review the sites that are listed.

This public record provides information about sites regulated by the EPA under the Contaminated Land Management Act 1997, including sites currently and previously regulated under the Environmentally Hazardous Chemicals Act 1985. Your inquiry using the above search criteria has not matched any record of current or former regulation. You should consider searching again using different criteria. The fact that a site does not appear on the record does not necessarily mean that it is not affected by contamination. The site may have been notified to the EPA but not yet assessed, or contamination may be present but the site is not yet being regulated by the EPA. Further information about particular sites may be available from the appropriate planning authority, for example, on a planning certificate issued by the local council under section 149 of the Environmental Planning and Assessment Act. In addition the EPA may be regulating contamination at the site through a licence under the Protection of the Environment Operations Act 1997. You may wish to search the [POEO public register](#).

[Search Again](#)[Refine Search](#)

Search TIP

To search for a specific site, search by LGA (local government area) and carefully review all sites listed.

... [more search tips](#)

[Connect](#)[Feed](#)[Web](#)
[Pub](#)

8 August 2016

Eastern Standard Time

Scale = 1 : 14K	150.838, -33.968	300251, 6239286, 56
-----------------	------------------	---------------------

NSW Office of Water

Work Summary

GW112660

Licence: 10BL605092

Licence Status: ACTIVE

Authorised Purpose MONITORING BORE
(s):
Intended Purpose(s): MONITORING BORE

Work Type: Bore

Work Status: Equipped

Construct.Method:

Owner Type: Private

Commenced Date:

Completion Date: 22/02/2012

Final Depth:

Drilled Depth:

Contractor Name: ROCKWELL DRILLING

Driller: Unknown Unknown

Assistant Driller:

Property: GERACE 1466 CAMDEN
VALLEY WAY LEPPINGTON
2179 NSW

Standing Water Level:

GWMA:
GW Zone:

Salinity:
Yield:

Site Details

Site Chosen By:

County
Form A: CUMBE
Licensed: Parish CUMBE.14
Cadastre 1//614682

Region: 10 - Sydney South Coast
River Basin: - Unknown
Area/District:

CMA Map:

Grid Zone:

Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Unknown
Source:

Northing: 6239181.0
Easting: 296770.0

Latitude: 33°58'05.8"S
Longitude: 150°48'01.2"E

GS Map: -

MGA Zone: 0

Coordinate Unknown
Source:

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)

Geologists Log

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
-------------	-----------	------------------	----------------------	---------------------	----------

Remarks

23/07/2014: Nat Carling, 23-July-2014; Added status, drill method & depth, updated work type.

***** End of GW112660 *****

Warning To Clients: This raw data has been supplied to the NSW Office of Water by drillers, licensees and other sources. The NOW does not verify the accuracy of this data. The data is presented for use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.

NSW Office of Water

Work Summary

GW110359

Licence: 10BL603111

Licence Status: ACTIVE

Authorised Purpose MONITORING BORE
(s):

Intended Purpose(s): MONITORING BORE

Work Type: Well**Work Status:****Construct.Method:** Auger - Solid Flight**Owner Type:** Private**Commenced Date:****Completion Date:** 27/04/2009**Final Depth:** 6.00 m**Drilled Depth:** 6.00 m**Contractor Name:** Macquarie Drilling**Driller:** Douglas Stephen Miller**Assistant Driller:**

Property: STIPANOVICH 1389 CAMDEN
VALLEY WAY LEPPINGTON
2179 NSW

Standing Water Level: 2.900

GWMA:
GW Zone:

Salinity:
Yield:

Site Details

Site Chosen By:

County
Form A: CUMBE
Licensed:

Parish
CUMBE.14

Cadastre
C//100409

Region: 10 - Sydney South Coast**CMA Map:****River Basin:** - Unknown**Grid Zone:****Scale:****Area/District:****Elevation:** 0.00 m (A.H.D.)**Northing:** 6238973.0**Latitude:** 33°58'13.3"S**Elevation** Unknown**Easting:** 297920.0**Longitude:** 150°48'45.8"E**Source:****GS Map:** -**MGA Zone:** 0

Coordinate Unknown
Source:

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	6.00	125			Auger - Solid Flight
1		Annulus	Waterworn/Rounded	0.60	6.00				Graded
1	1	Casing	Pvc Class 18	0.00	1.00	65	53		Seated on Bottom, Screwed
1	1	Opening	Slots - Horizontal	1.00	6.00	65		1	Casing - Machine Slotted, PVC Class 18, Screwed, SL: 30.0mm, A: 0.40mm

Water Bearing Zones

WBZ Type									
----------	--	--	--	--	--	--	--	--	--

From (m)	To (m)	Thickness (m)		S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
2.90	6.00	3.10	Unknown	2.90					

Geologists Log

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	0.10	0.10	CONCRETE	Conglomerate	
0.10	0.50	0.40	SAND YELLOW,FINE TO MEDIUM	Sand Grains (Lithic)	
0.50	0.90	0.40	CLAY WHITE	Clay Loam	
0.90	1.50	0.60	IRONSTONE SHALE	Ironstone Gravel	
1.50	2.20	0.70	CLAY POSSIBLE WEATHERED SHALE	Clay Loam	
2.20	6.00	3.80	SHALE,WEATHERED BROWN,BECOMING PALE BROWN	Shale	

Remarks

*** End of GW110359 ***

Warning To Clients: This raw data has been supplied to the NSW Office of Water by drillers, licensees and other sources. The NOW does not verify the accuracy of this data. The data is presented for use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
4.90	7.00	2.10	Unknown	4.90					

Geologists Log

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	0.10	0.10	CONCRETE	Conglomerate	
0.10	0.30	0.20	FILL BROWN	Fill	
0.30	2.00	1.70	CLAY RED, WITH WHITE MOTTLED	Clay Loam	
2.00	3.20	1.20	SHALE WEATHERED BROWN,RED/IRONSTONE FRAGS.	Shale	
3.20	4.00	0.80	CLAY GREY,NO ODOUR	Clay Loam	
4.00	7.00	3.00	SHALE WETHERED,BROWN,BECOMING DARK GREY	Shale	

Remarks

*** End of GW110358 ***

Warning To Clients: This raw data has been supplied to the NSW Office of Water by drillers, licensees and other sources. The NOW does not verify the accuracy of this data. The data is presented for use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
2.50	6.00	3.50	Unknown	2.50					

Geologists Log**Drillers Log**

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	0.10	0.10	BITUMEN	Biotite	
0.10	1.70	1.60	CLAY,RED/GREY	Clay	
1.70	2.00	0.30	SHALE,WEATHERED BROWN	Shale	
2.00	2.20	0.20	CLAY,GREY,POSSIBLE WEATHERED SHALE	Clay	
2.20	6.00	3.80	SHALE,WEATHERED BROWN,HARD TO DRILL	Shale	

Remarks

*** End of GW110356 ***

Warning To Clients: This raw data has been supplied to the NSW Office of Water by drillers, licensees and other sources. The NOW does not verify the accuracy of this data. The data is presented for use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.

APPENDIX G

Councils Records (DA/BA)

13th October, 1983.

Dear [REDACTED],

RE: SUBDIVISION APPLICATION SEEKING PERMISSION TO SUBDIVIDE LOT 1 D.P.
525292 INGLEBURN ROAD, LEPPINGTON SO AS TO CREATE 2 ALLOTMENTS OF MINIMUM
AVERAGE AREA OF 1.8 HECTARES

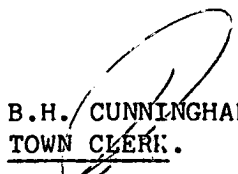
I wish to advise that Council, at its meeting of 10th October, 1983, resolved to approve the abovementioned application pursuant to the provisions of Interim Development Order No. 7, subject to the concurrence of the Director of the Department of Environment and Planning and the attached conditions.

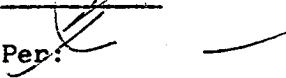
It should be noted that you have a right of appeal to the Land and Environment Court should you wish to contest any or all of the attached conditions.

You are further advised that you should withhold compliance with the attached conditions until such time as you are advised that the Director of the Department of Environment and Planning has granted his concurrence in respect of the subject application.

Should you have any further enquiries in relation to this matter please do not hesitate to contact Council's Town Planning Department.

Yours faithfully,


B.H. CUNNINGHAM,
TOWN CLERK.

Per: 

Encl.



*The Council of the Municipality
of Camden*

(Incorporated 1889 - Reconstituted 1949)

Council Chambers,
Camden, 2570, N.S.W.

YOUR REF.: J. Harley/UP
(YOUR REF.: _____)

'Phone: Camden 66 9221

All communications to be addressed to the Town Clerk, Box 183 P.O. Camden.

29th April, 1980

BUILDING APPROVAL

FOR **Additions**

BUILDING APPLICATION NO.: **276/80**

OWNER: [REDACTED]

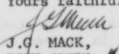
ADDRESS OF PREMISES: **Lot 2 NO. 12 Ingleburn Rd., Leppington**

The above application to carry out building works has been approved pursuant to the provisions of Part XI of the Local Government Act, 1919, and Ordinance 70. The approval is granted subject to compliance with Ordinance 70 and the conditions specified hereunder.

The approval shall become void, if substantial commencement is not undertaken within 12 months.

Applicants that are aggrieved by Council's approval may appeal to the Local Government Appeals Tribunal.

Yours faithfully,


J.G. MACK,
TOWN CLERK.

CONDITIONS OF APPROVAL

(SEE OVERLEAF FOR ADDITIONAL CONDITIONS)

- 1) Building materials are not permitted to be stored or placed upon public footpaths or roads.
- 2) Council requires 48 hours written notice for inspections at the following stages of construction.
 - (a) When foundation excavations have been undertaken and prior to footings being placed and subsequently of footings before trenches are filled in.
 - (b) At sub-floor, wall and floor framing, for damp-proofing and capping and drains before they are covered in.
 - (c) Re-inforcement of structural components prior to placement of concrete encasement boxing or lining.
 - (d) Wall and roof framing prior to lining or loading with roof coverings.
 - (e) On completion prior to occupation or where appropriate prior to occupation being permitted.
- 3) The classification of the building is Class _____ and is required to be of Type _____ construction, subject to variations as may be permitted pursuant to Ordinance 70.

ATTENTION IS DRAWN TO:

- (a) The owner or builder is required to notify Council in writing:-
 - i) forthwith upon completion of any unoccupied building; ii) before permitting any person to use or occupy any incomplete building.
- (b) The use of the building is not permitted until Council issues a Certificate of Classification.
- (c) The use of the building is to conform to the Certificate of Classification.
- (d) Change in use is only permitted after notification to the Council and subject to the building complying with the appropriate classification.

ADDITIONAL CONDITIONS

4. The width of bedrooms 2 and 3 is to be increased to a minimum of 2,5 metres.
5. Footings to be taken to solid and uniform bearing.
6. Structural Engineers details for reinforced concrete raft floor slab to be submitted to Council and approval obtained prior to the work being carried out.
7. Existing septic tank to be relocated to a minimum of 1.5 metres from the dwelling.
8. Timber wall framing and roof framing to be constructed in accordance with the requirements of SAA AS1684 Timber Framing Code.
9. Any exhaust fans or rangehoods installed within the kitchen are to be provided with ducting to the outside air to prevent possible fire hazards.
10. Roof cladding to be fixed and supported in accordance with the manufacturers recommendations.
11. Roofwater to be disposed of, without nuisance, within the bounds of the allotment to Council's satisfaction.
12. A separate septic tank application is to be submitted to Council in respect of disposal of all soil and sillage wastes and approval is to be obtained prior to work commencing.
13. Before any building works commence on the allotment, a standard dish crossing shall be constructed, subject to inspection by Council's Engineers Department, and in accordance with the DMR Standard SD6246, along the gutter oline of the road at the proposed entrance point to the allotment. If, due to the individual circumstances existing, a pipe culvert crossing is proposed, prior written approval and construction details are to be obtained from Council's Engineers Department.

CAMDEN MUNICIPAL COUNCIL

(Local Government Act, 1919, Section 342V)

TOWN PLANNING CONSENT UNDER INTERIM DEVELOPMENT ORDER NO. 7

FILE NO: B/A 301/81

DEVELOPMENT CONSENT PERMIT NO: 555

APPLICANTS NAME (in full)

ADDRESS:

LOCATION & DESCRIPTION OF LAND OR PROPERTY CONCERNED:

LOT: 2 D.P. 525996 ROAD: Ingleburn Road

COUNTY: Cumberland PARISH: Cook

LOCALITY: Leppington AREA: --

DIMENSIONS: --

OWNER RECORDED BY COUNCIL:

The CAMDEN MUNICIPAL COUNCIL being the Responsible Planning Authority under the above Order HEREBY CONSENTS by virtue of ~~COUNCIL RESOLUTION NO. 1188~~ X ~~XXXXXXXXXX~~ /Section 530A of the Local Government Act, 1919, Delegation of Authority, to the following development:-

Additions

CONDITIONS ATTACHING TO THIS CONSENT

(a) The applicant be advised that approvals remain current for a period of two (2) years.

DATE 19 June, 1981

TOWN CLERK

FEES PAID: --

DATE: --

RECEIPT NO: --

NOTES:

1. This consent expires in two (2) years from the date above, but on application and for satisfactory reasons, may be renewed by Council.
2. Prior to any structural work being carried out, a building application, plans and specifications are to be submitted to and approved by Council's Health and Building Department.
3. You are advised of your right of appeal against the conditions of consent to the Land and Environment Court. Advice on this is available from Council's Town Planning Department.

APPENDIX H

Laboratory Test Certificates

CERTIFICATE OF ANALYSIS 191051

Client Details

Client	Geoenviro Consultancy Pty Ltd
Attention	Solern Liew
Address	PO Box 1543, Macquarie Centre, North Ryde, NSW, 2113

Sample Details

Your Reference	<u>JC18322A, Leppington</u>
Number of Samples	49 Soil, 1 Material
Date samples received	07/05/2018
Date completed instructions received	07/05/2018

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.
 Samples were analysed as received from the client. Results relate specifically to the samples as received.
 Results are reported on a dry weight basis for solids and on an as received basis for other matrices.
Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	15/05/2018
Date of Issue	15/05/2018
NATA Accreditation Number 2901. This document shall not be reproduced except in full.	
Accredited for compliance with ISO/IEC 17025 - Testing. Tests not covered by NATA are denoted with *	

Asbestos Approved By

Analysed by Asbestos Approved Identifier: Lucy Zhu
 Authorised by Asbestos Approved Signatory: Lucy Zhu

Results Approved By

Alexander Mitchell Maclean, Senior Chemist
 Dragana Tomas, Senior Chemist
 Jeremy Faircloth, Organics Supervisor
 Long Pham, Team Leader, Metals
 Lucy Zhu, Asbestos Analyst
 Nancy Zhang, Assistant Lab Manager
 Priya Samarawickrama, Senior Chemist

Authorised By



Jacinta Hurst, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil

Our Reference		191051-29	191051-30	191051-31	191051-32	191051-33
Your Reference	UNITS	BH5	BH17	BH19	BH23	BH28
Composite Reference		-	-	-	-	-
Depth		0.00-0.10	0.00-0.10	0.00-0.10	0.00-0.10	0.00-0.10
Date Sampled		30/04/2018	30/04/2018	30/04/2018	30/04/2018	30/04/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	09/05/2018	09/05/2018	09/05/2018	09/05/2018	09/05/2018
Date analysed	-	11/05/2018	11/05/2018	11/05/2018	11/05/2018	11/05/2018
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	88	88	88	90	88

vTRH(C6-C10)/BTEXN in Soil

Our Reference		191051-35	191051-36
Your Reference	UNITS	BH34	Duplicate A
Composite Reference		-	-
Depth		0.00-0.10	-
Date Sampled		30/04/2018	30/04/2018
Type of sample		Soil	Soil
Date extracted	-	09/05/2018	09/05/2018
Date analysed	-	11/05/2018	11/05/2018
TRH C ₆ - C ₉	mg/kg	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25
Benzene	mg/kg	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1
m+p-xylene	mg/kg	<2	<2
o-Xylene	mg/kg	<1	<1
naphthalene	mg/kg	<1	<1
Total +ve Xylenes	mg/kg	<1	<1
Surrogate aaa-Trifluorotoluene	%	87	91

svTRH (C10-C40) in Soil

Our Reference		191051-29	191051-30	191051-31	191051-32	191051-33
Your Reference	UNITS	BH5	BH17	BH19	BH23	BH28
Composite Reference		-	-	-	-	-
Depth		0.00-0.10	0.00-0.10	0.00-0.10	0.00-0.10	0.00-0.10
Date Sampled		30/04/2018	30/04/2018	30/04/2018	30/04/2018	30/04/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	09/05/2018	09/05/2018	09/05/2018	09/05/2018	09/05/2018
Date analysed	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	81	80	81	82	80

svTRH (C10-C40) in Soil

Our Reference		191051-35	191051-36
Your Reference	UNITS	BH34	Duplicate A
Composite Reference		-	-
Depth		0.00-0.10	-
Date Sampled		30/04/2018	30/04/2018
Type of sample		Soil	Soil
Date extracted	-	09/05/2018	09/05/2018
Date analysed	-	10/05/2018	10/05/2018
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50
Surrogate o-Terphenyl	%	79	80

PAHs in Soil						
Our Reference		191051-29	191051-30	191051-31	191051-32	191051-33
Your Reference	UNITS	BH5	BH17	BH19	BH23	BH28
Composite Reference		-	-	-	-	-
Depth		0.00-0.10	0.00-0.10	0.00-0.10	0.00-0.10	0.00-0.10
Date Sampled		30/04/2018	30/04/2018	30/04/2018	30/04/2018	30/04/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	09/05/2018	09/05/2018	09/05/2018	09/05/2018	09/05/2018
Date analysed	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	104	100	108	104	99

PAHs in Soil			
Our Reference		191051-35	191051-36
Your Reference	UNITS	BH34	Duplicate A
Composite Reference		-	-
Depth		0.00-0.10	-
Date Sampled		30/04/2018	30/04/2018
Type of sample		Soil	Soil
Date extracted	-	09/05/2018	09/05/2018
Date analysed	-	10/05/2018	10/05/2018
Naphthalene	mg/kg	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5
Surrogate <i>p</i> -Terphenyl-d14	%	106	105

Organochlorine Pesticides in soil

Our Reference		191051-1	191051-2	191051-3	191051-4	191051-5
Your Reference	UNITS	C1	C2	C3	C4	C5
Composite Reference		8 + 9 + 10	11 + 12 + 13	14 + 15 + 16	17 + 18 + 19	20 + 21 + 22
Depth		-	-	-	-	-
Date Sampled		30/04/2018	30/04/2018	30/04/2018	30/04/2018	30/04/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	09/05/2018	09/05/2018	09/05/2018	09/05/2018	09/05/2018
Date analysed	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	0.2	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	0.2	<0.1	<0.1
Surrogate TCMX	%	104	110	104	111	103

Organochlorine Pesticides in soil

Our Reference		191051-6	191051-7	191051-29	191051-30	191051-31
Your Reference	UNITS	C6	C7	BH5	BH17	BH19
Composite Reference		23 + 24 + 25	26 + 27 + 28	-	-	-
Depth		-	-	0.00-0.10	0.00-0.10	0.00-0.10
Date Sampled		30/04/2018	30/04/2018	30/04/2018	30/04/2018	30/04/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	09/05/2018	09/05/2018	09/05/2018	09/05/2018	09/05/2018
Date analysed	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	104	101	105	106	104

Organochlorine Pesticides in soil					
Our Reference		191051-32	191051-33	191051-35	191051-36
Your Reference	UNITS	BH23	BH28	BH34	Duplicate A
Composite Reference		-	-	-	-
Depth		0.00-0.10	0.00-0.10	0.00-0.10	-
Date Sampled		30/04/2018	30/04/2018	30/04/2018	30/04/2018
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	09/05/2018	09/05/2018	09/05/2018	09/05/2018
Date analysed	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	105	107	105	105

PCBs in Soil						
Our Reference	UNITS	191051-1	191051-2	191051-3	191051-4	191051-5
Your Reference		C1	C2	C3	C4	C5
Composite Reference		8 + 9 + 10	11 + 12 + 13	14 + 15 + 16	17 + 18 + 19	20 + 21 + 22
Depth		-	-	-	-	-
Date Sampled		30/04/2018	30/04/2018	30/04/2018	30/04/2018	30/04/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	09/05/2018	09/05/2018	09/05/2018	09/05/2018	09/05/2018
Date analysed	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	104	110	104	111	103

PCBs in Soil						
Our Reference	UNITS	191051-6	191051-7	191051-29	191051-30	191051-31
Your Reference		C6	C7	BH5	BH17	BH19
Composite Reference		23 + 24 + 25	26 + 27 + 28	-	-	-
Depth		-	-	0.00-0.10	0.00-0.10	0.00-0.10
Date Sampled		30/04/2018	30/04/2018	30/04/2018	30/04/2018	30/04/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	09/05/2018	09/05/2018	09/05/2018	09/05/2018	09/05/2018
Date analysed	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	104	101	105	106	104

PCBs in Soil					
Our Reference		191051-32	191051-33	191051-35	191051-36
Your Reference	UNITS	BH23	BH28	BH34	Duplicate A
Composite Reference		-	-	-	-
Depth		0.00-0.10	0.00-0.10	0.00-0.10	-
Date Sampled		30/04/2018	30/04/2018	30/04/2018	30/04/2018
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	09/05/2018	09/05/2018	09/05/2018	09/05/2018
Date analysed	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	105	107	105	105

Acid Extractable metals in soil

Our Reference		191051-1	191051-2	191051-3	191051-4	191051-5
Your Reference	UNITS	C1	C2	C3	C4	C5
Composite Reference		8 + 9 + 10	11 + 12 + 13	14 + 15 + 16	17 + 18 + 19	20 + 21 + 22
Depth		-	-	-	-	-
Date Sampled		30/04/2018	30/04/2018	30/04/2018	30/04/2018	30/04/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	09/05/2018	09/05/2018	09/05/2018	09/05/2018	09/05/2018
Date analysed	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Arsenic	mg/kg	8	7	9	7	7
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	20	19	19	17	15
Copper	mg/kg	13	13	23	25	16
Lead	mg/kg	23	19	25	45	21
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	5	4	5	11	13
Zinc	mg/kg	18	19	120	170	50

Acid Extractable metals in soil

Our Reference		191051-6	191051-7	191051-29	191051-30	191051-31
Your Reference	UNITS	C6	C7	BH5	BH17	BH19
Composite Reference		23 + 24 + 25	26 + 27 + 28	-	-	-
Depth		-	-	0.00-0.10	0.00-0.10	0.00-0.10
Date Sampled		30/04/2018	30/04/2018	30/04/2018	30/04/2018	30/04/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	09/05/2018	09/05/2018	09/05/2018	09/05/2018	09/05/2018
Date analysed	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Arsenic	mg/kg	4	6	13	7	7
Cadmium	mg/kg	<0.4	<0.4	<0.4	0.5	<0.4
Chromium	mg/kg	18	17	18	25	17
Copper	mg/kg	20	23	18	56	15
Lead	mg/kg	21	32	30	92	27
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	10	12	4	15	6
Zinc	mg/kg	39	160	20	430	52

Acid Extractable metals in soil					
Our Reference		191051-32	191051-33	191051-35	191051-36
Your Reference	UNITS	BH23	BH28	BH34	Duplicate A
Composite Reference		-	-	-	-
Depth		0.00-0.10	0.00-0.10	0.00-0.10	-
Date Sampled		30/04/2018	30/04/2018	30/04/2018	30/04/2018
Type of sample		Soil	Soil	Soil	Soil
Date prepared	-	09/05/2018	09/05/2018	09/05/2018	09/05/2018
Date analysed	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Arsenic	mg/kg	11	10	5	13
Cadmium	mg/kg	<0.4	0.6	<0.4	<0.4
Chromium	mg/kg	13	17	17	17
Copper	mg/kg	19	90	23	18
Lead	mg/kg	26	120	20	30
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	13	17	11	4
Zinc	mg/kg	150	550	43	20

Misc Inorg - Soil						
Our Reference		191051-19	191051-23	191051-26	191051-29	191051-30
Your Reference	UNITS	TP26	TP31	TP26	BH5	BH17
Composite Reference		-	-	-	-	-
Depth		0.0-0.1	0.0-0.1	0.0-0.1	0.00-0.10	0.00-0.10
Date Sampled		30/04/2018	30/04/2018	30/04/2018	30/04/2018	30/04/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	11/05/2018	11/05/2018	11/05/2018	11/05/2018	11/05/2018
Date analysed	-	11/05/2018	11/05/2018	11/05/2018	11/05/2018	11/05/2018
pH 1:5 soil:water	pH Units	5.7	6.0	5.9	6.3	6.8
Electrical Conductivity 1:5 soil:water	µS/cm	96	48	170	56	180

Misc Inorg - Soil						
Our Reference		191051-33	191051-37	191051-38	191051-39	191051-40
Your Reference	UNITS	BH28	BH1	BH1	BH1	BH5
Composite Reference		-	-	-	-	-
Depth		0.00-0.10	0.00-0.10	0.60-0.70	2.50-2.80	1.00-1.45
Date Sampled		30/04/2018	30/04/2018	30/04/2018	30/04/2018	30/04/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	11/05/2018	11/05/2018	11/05/2018	11/05/2018	11/05/2018
Date analysed	-	11/05/2018	11/05/2018	11/05/2018	11/05/2018	11/05/2018
pH 1:5 soil:water	pH Units	6.9	6.1	5.5	5.3	5.0
Electrical Conductivity 1:5 soil:water	µS/cm	150	45	130	260	570
Chloride, Cl 1:5 soil:water	mg/kg	[NA]	[NA]	99	290	670
Sulphate, SO4 1:5 soil:water	mg/kg	[NA]	[NA]	93	86	130

Misc Inorg - Soil						
Our Reference		191051-41	191051-42	191051-43	191051-44	191051-45
Your Reference	UNITS	BH5	BH17	BH17	BH26	BH26
Composite Reference		-	-	-	-	-
Depth		2.50-2.90	0.50-0.60	1.00-1.45	0.50-0.60	1.00-1.45
Date Sampled		30/04/2018	30/04/2018	30/04/2018	30/04/2018	30/04/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	11/05/2018	11/05/2018	11/05/2018	11/05/2018	11/05/2018
Date analysed	-	11/05/2018	11/05/2018	11/05/2018	11/05/2018	11/05/2018
pH 1:5 soil:water	pH Units	5.0	7.3	6.0	5.6	5.0
Electrical Conductivity 1:5 soil:water	µS/cm	690	100	200	120	480
Chloride, Cl 1:5 soil:water	mg/kg	710	20	98	92	480
Sulphate, SO4 1:5 soil:water	mg/kg	180	10	210	60	230

Misc Inorg - Soil						
Our Reference		191051-46	191051-47	191051-48	191051-49	191051-50
Your Reference	UNITS	BH28	BH28	BH31	BH31	BH35
Composite Reference		-	-	-	-	-
Depth		0.50-0.60	1.00-1.45	0.50-0.60	1.00-1.45	0.50-0.60
Date Sampled		30/04/2018	30/04/2018	30/04/2018	30/04/2018	30/04/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	11/05/2018	11/05/2018	11/05/2018	11/05/2018	11/05/2018
Date analysed	-	11/05/2018	11/05/2018	11/05/2018	11/05/2018	11/05/2018
pH 1:5 soil:water	pH Units	5.7	5.1	6.1	5.1	5.2
Electrical Conductivity 1:5 soil:water	µS/cm	62	550	57	570	380
Chloride, Cl 1:5 soil:water	mg/kg	23	560	20	600	290
Sulphate, SO4 1:5 soil:water	mg/kg	55	170	48	240	230

Moisture						
Our Reference	UNITS	191051-1	191051-2	191051-3	191051-4	191051-5
Your Reference		C1	C2	C3	C4	C5
Composite Reference		8 + 9 + 10	11 + 12 + 13	14 + 15 + 16	17 + 18 + 19	20 + 21 + 22
Depth		-	-	-	-	-
Date Sampled		30/04/2018	30/04/2018	30/04/2018	30/04/2018	30/04/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	09/05/2018	09/05/2018	09/05/2018	09/05/2018	09/05/2018
Date analysed	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Moisture	%	6.4	7.9	8.2	7.0	9.3

Moisture						
Our Reference	UNITS	191051-6	191051-7	191051-29	191051-30	191051-31
Your Reference		C6	C7	BH5	BH17	BH19
Composite Reference		23 + 24 + 25	26 + 27 + 28	-	-	-
Depth		-	-	0.00-0.10	0.00-0.10	0.00-0.10
Date Sampled		30/04/2018	30/04/2018	30/04/2018	30/04/2018	30/04/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	09/05/2018	09/05/2018	09/05/2018	09/05/2018	09/05/2018
Date analysed	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Moisture	%	9.9	11	6.0	9.8	9.3

Moisture					
Our Reference	UNITS	191051-32	191051-33	191051-35	191051-36
Your Reference		BH23	BH28	BH34	Duplicate A
Composite Reference		-	-	-	-
Depth		0.00-0.10	0.00-0.10	0.00-0.10	-
Date Sampled		30/04/2018	30/04/2018	30/04/2018	30/04/2018
Type of sample		Soil	Soil	Soil	Soil
Date prepared	-	09/05/2018	09/05/2018	09/05/2018	09/05/2018
Date analysed	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Moisture	%	5.8	9.0	10	6.0

Asbestos ID - soils						
Our Reference	UNITS	191051-29	191051-30	191051-31	191051-32	191051-33
Your Reference		BH5	BH17	BH19	BH23	BH28
Composite Reference		-	-	-	-	-
Depth		0.00-0.10	0.00-0.10	0.00-0.10	0.00-0.10	0.00-0.10
Date Sampled		30/04/2018	30/04/2018	30/04/2018	30/04/2018	30/04/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Sample mass tested	g	Approx. 30g	Approx. 35g	Approx. 30g	Approx. 35g	Approx. 30g
Sample Description	-	Brown fine-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown sandy soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

Asbestos ID - soils		
Our Reference		191051-35
Your Reference	UNITS	BH34
Composite Reference		-
Depth		0.00-0.10
Date Sampled		30/04/2018
Type of sample		Soil
Date analysed	-	10/05/2018
Sample mass tested	g	Approx. 35g
Sample Description	-	Brown sandy soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected

Asbestos ID - materials		
Our Reference	UNITS	191051-34
Your Reference		BH28 - ACM
Composite Reference		-
Depth		-
Date Sampled		30/04/2018
Type of sample		Material
Date analysed	-	11/05/2018
Mass / Dimension of Sample	-	60x40x5mm
Sample Description	-	Beige fibre cement material
Asbestos ID in materials	-	Chrysotile asbestos detected

ESP/CEC				
Our Reference		191051-38	191051-45	191051-48
Your Reference	UNITS	BH1	BH26	BH31
Composite Reference		-	-	-
Depth		0.60-0.70	1.00-1.45	0.50-0.60
Date Sampled		30/04/2018	30/04/2018	30/04/2018
Type of sample		Soil	Soil	Soil
Date prepared	-	10/05/2018	10/05/2018	10/05/2018
Date analysed	-	11/05/2018	11/05/2018	11/05/2018
Exchangeable Ca	meq/100g	2.2	0.2	2.2
Exchangeable K	meq/100g	0.2	0.3	0.4
Exchangeable Mg	meq/100g	4.4	7.4	5.4
Exchangeable Na	meq/100g	1.1	1.6	0.27
Cation Exchange Capacity	meq/100g	7.9	9.4	8.2
ESP	%	14	17	3

Method ID	Methodology Summary
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-002	Conductivity and Salinity - measured using a conductivity cell at 25°C in accordance with APHA latest edition 2510 and Rayment & Lyons.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Inorg-081	Anions - a range of Anions are determined by Ion Chromatography, in accordance with APHA latest edition, 4110-B. Alternatively determined by colourimetry/turbidity using Discrete Analyser.
Metals-009	Determination of exchangeable cations and cation exchange capacity in soils using 1M Ammonium Chloride exchange and ICP-AES analytical finish.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PCBs" is simply a sum of the positive individual PCBs.

Method ID	Methodology Summary
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL' values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero' values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL' values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

Client Reference: JC18322A, Leppington

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-8	[NT]
Date extracted	-			09/05/2018	29	09/05/2018	09/05/2018		09/05/2018	[NT]
Date analysed	-			11/05/2018	29	11/05/2018	11/05/2018		11/05/2018	[NT]
TRH C ₆ - C ₉	mg/kg	25	Org-016	<25	29	<25	<25	0	94	[NT]
TRH C ₆ - C ₁₀	mg/kg	25	Org-016	<25	29	<25	<25	0	94	[NT]
Benzene	mg/kg	0.2	Org-016	<0.2	29	<0.2	<0.2	0	75	[NT]
Toluene	mg/kg	0.5	Org-016	<0.5	29	<0.5	<0.5	0	96	[NT]
Ethylbenzene	mg/kg	1	Org-016	<1	29	<1	<1	0	93	[NT]
m+p-xylene	mg/kg	2	Org-016	<2	29	<2	<2	0	104	[NT]
o-Xylene	mg/kg	1	Org-016	<1	29	<1	<1	0	96	[NT]
naphthalene	mg/kg	1	Org-014	<1	29	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	90	29	88	92	4	86	[NT]

Client Reference: JC18322A, Leppington

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-8	[NT]
Date extracted	-			09/05/2018	29	09/05/2018	09/05/2018		09/05/2018	[NT]
Date analysed	-			10/05/2018	29	10/05/2018	10/05/2018		10/05/2018	[NT]
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-003	<50	29	<50	<50	0	129	[NT]
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-003	<100	29	<100	<100	0	117	[NT]
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-003	<100	29	<100	<100	0	108	[NT]
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-003	<50	29	<50	<50	0	129	[NT]
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-003	<100	29	<100	<100	0	117	[NT]
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-003	<100	29	<100	<100	0	108	[NT]
Surrogate o-Terphenyl	%		Org-003	79	29	81	81	0	89	[NT]

QUALITY CONTROL: PAHs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-8	[NT]
Date extracted	-			09/05/2018	29	09/05/2018	09/05/2018		09/05/2018	[NT]
Date analysed	-			10/05/2018	29	10/05/2018	10/05/2018		10/05/2018	[NT]
Naphthalene	mg/kg	0.1	Org-012	<0.1	29	<0.1	<0.1	0	107	[NT]
Acenaphthylene	mg/kg	0.1	Org-012	<0.1	29	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	<0.1	29	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	<0.1	29	<0.1	<0.1	0	107	[NT]
Phenanthrene	mg/kg	0.1	Org-012	<0.1	29	<0.1	<0.1	0	113	[NT]
Anthracene	mg/kg	0.1	Org-012	<0.1	29	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	<0.1	29	<0.1	<0.1	0	111	[NT]
Pyrene	mg/kg	0.1	Org-012	<0.1	29	<0.1	<0.1	0	110	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-012	<0.1	29	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	<0.1	29	<0.1	<0.1	0	102	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012	<0.2	29	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	<0.05	29	<0.05	<0.05	0	106	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	<0.1	29	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	<0.1	29	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	<0.1	29	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	114	29	104	109	5	98	[NT]

Client Reference: JC18322A, Leppington

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-8	[NT]
Date extracted	-			09/05/2018	29	09/05/2018	09/05/2018		09/05/2018	[NT]
Date analysed	-			10/05/2018	29	10/05/2018	10/05/2018		10/05/2018	[NT]
HCB	mg/kg	0.1	Org-005	<0.1	29	<0.1	<0.1	0	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	<0.1	29	<0.1	<0.1	0	106	[NT]
gamma-BHC	mg/kg	0.1	Org-005	<0.1	29	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	<0.1	29	<0.1	<0.1	0	93	[NT]
Heptachlor	mg/kg	0.1	Org-005	<0.1	29	<0.1	<0.1	0	100	[NT]
delta-BHC	mg/kg	0.1	Org-005	<0.1	29	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	<0.1	29	<0.1	<0.1	0	102	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	29	<0.1	<0.1	0	96	[NT]
gamma-Chlordane	mg/kg	0.1	Org-005	<0.1	29	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	<0.1	29	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	<0.1	29	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	<0.1	29	<0.1	<0.1	0	105	[NT]
Dieldrin	mg/kg	0.1	Org-005	<0.1	29	<0.1	<0.1	0	109	[NT]
Endrin	mg/kg	0.1	Org-005	<0.1	29	<0.1	<0.1	0	99	[NT]
pp-DDD	mg/kg	0.1	Org-005	<0.1	29	<0.1	<0.1	0	106	[NT]
Endosulfan II	mg/kg	0.1	Org-005	<0.1	29	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	<0.1	29	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	<0.1	29	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	<0.1	29	<0.1	<0.1	0	100	[NT]
Methoxychlor	mg/kg	0.1	Org-005	<0.1	29	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-005	103	29	105	106	1	124	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	1	09/05/2018	09/05/2018		[NT]	[NT]
Date analysed	-			[NT]	1	10/05/2018	10/05/2018		[NT]	[NT]
HCB	mg/kg	0.1	Org-005	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
gamma-BHC	mg/kg	0.1	Org-005	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-005	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
delta-BHC	mg/kg	0.1	Org-005	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-005	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
gamma-Chlordane	mg/kg	0.1	Org-005	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
Dieldrin	mg/kg	0.1	Org-005	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
Endrin	mg/kg	0.1	Org-005	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-005	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-005	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
Methoxychlor	mg/kg	0.1	Org-005	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-005	[NT]	1	104	106	2	[NT]	[NT]

Client Reference: JC18322A, Leppington

QUALITY CONTROL: PCBs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-8	[NT]
Date extracted	-			09/05/2018	29	09/05/2018	09/05/2018		09/05/2018	[NT]
Date analysed	-			10/05/2018	29	10/05/2018	10/05/2018		10/05/2018	[NT]
Aroclor 1016	mg/kg	0.1	Org-006	<0.1	29	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	<0.1	29	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	<0.1	29	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	<0.1	29	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	<0.1	29	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	<0.1	29	<0.1	<0.1	0	102	[NT]
Aroclor 1260	mg/kg	0.1	Org-006	<0.1	29	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCLMX	%		Org-006	103	29	105	106	1	101	[NT]

QUALITY CONTROL: PCBs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	1	09/05/2018	09/05/2018		[NT]	[NT]
Date analysed	-			[NT]	1	10/05/2018	10/05/2018		[NT]	[NT]
Aroclor 1016	mg/kg	0.1	Org-006	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1260	mg/kg	0.1	Org-006	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCLMX	%		Org-006	[NT]	1	104	106	2	[NT]	[NT]

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-8	[NT]
Date prepared	-			09/05/2018	29	09/05/2018	09/05/2018		09/05/2018	[NT]
Date analysed	-			10/05/2018	29	10/05/2018	10/05/2018		10/05/2018	[NT]
Arsenic	mg/kg	4	Metals-020	<4	29	13	12	8	107	[NT]
Cadmium	mg/kg	0.4	Metals-020	<0.4	29	<0.4	<0.4	0	98	[NT]
Chromium	mg/kg	1	Metals-020	<1	29	18	19	5	105	[NT]
Copper	mg/kg	1	Metals-020	<1	29	18	16	12	111	[NT]
Lead	mg/kg	1	Metals-020	<1	29	30	27	11	103	[NT]
Mercury	mg/kg	0.1	Metals-021	<0.1	29	<0.1	<0.1	0	105	[NT]
Nickel	mg/kg	1	Metals-020	<1	29	4	4	0	105	[NT]
Zinc	mg/kg	1	Metals-020	<1	29	20	17	16	103	[NT]

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	1	09/05/2018	09/05/2018		[NT]	[NT]
Date analysed	-			[NT]	1	10/05/2018	10/05/2018		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	1	8	9	12	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	1	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	1	20	21	5	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	1	13	12	8	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	1	23	24	4	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	1	5	5	0	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	1	18	19	5	[NT]	[NT]

Client Reference: JC18322A, Leppington

QUALITY CONTROL: Misc Inorg - Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-8	191051-41
Date prepared	-			11/05/2018	19	11/05/2018	11/05/2018		11/05/2018	11/05/2018
Date analysed	-			11/05/2018	19	11/05/2018	11/05/2018		11/05/2018	11/05/2018
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	19	5.7	5.7	0	102	[NT]
Electrical Conductivity 1:5 soil:water	µS/cm	1	Inorg-002	<1	19	96	88	9	94	[NT]
Chloride, Cl 1:5 soil:water	mg/kg	10	Inorg-081	<10	40	670	800	18	87	#
Sulphate, SO4 1:5 soil:water	mg/kg	10	Inorg-081	[NT]	40	130	170	27	89	#

QUALITY CONTROL: Misc Inorg - Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	40	11/05/2018	11/05/2018		[NT]	[NT]
Date analysed	-			[NT]	40	11/05/2018	11/05/2018		[NT]	[NT]
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	40	5.0	4.8	4	[NT]	[NT]
Electrical Conductivity 1:5 soil:water	µS/cm	1	Inorg-002	[NT]	40	570	710	22	[NT]	[NT]

Client Reference: JC18322A, Leppington

QUALITY CONTROL: ESP/CEC					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-8	[NT]
Date prepared	-			10/05/2018	[NT]	[NT]	[NT]	[NT]	10/05/2018	[NT]
Date analysed	-			11/05/2018	[NT]	[NT]	[NT]	[NT]	11/05/2018	[NT]
Exchangeable Ca	meq/100g	0.1	Metals-009	<0.1	[NT]	[NT]	[NT]	[NT]	113	[NT]
Exchangeable K	meq/100g	0.1	Metals-009	<0.1	[NT]	[NT]	[NT]	[NT]	108	[NT]
Exchangeable Mg	meq/100g	0.1	Metals-009	<0.1	[NT]	[NT]	[NT]	[NT]	103	[NT]
Exchangeable Na	meq/100g	0.1	Metals-009	<0.1	[NT]	[NT]	[NT]	[NT]	107	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.
Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.	

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Report Comments

Asbestos: A portion of the supplied sample was sub-sampled for asbestos analysis according to Envirolab procedures. We cannot guarantee that this sub-sample is indicative of the entire sample. Envirolab recommends supplying 40-50g of sample in its own container.

Note: Samples were sub-sampled from jars provided by the client.

Misc Inorg.

Percent recovery is not possible to report due to the high concentration of the element/s in the sample/s. However an acceptable recovery was obtained for the LCS.

SAMPLE RECEIPT ADVICE

Client Details

Client	Geoenviro Consultancy Pty Ltd
Attention	Solern Liew

Sample Login Details

Your reference	JC18322A, Leppington
Envirolab Reference	191051
Date Sample Received	07/05/2018
Date Instructions Received	07/05/2018
Date Results Expected to be Reported	15/05/2018

Sample Condition

Samples received in appropriate condition for analysis	YES
No. of Samples Provided	49 Soil, 1 Material
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	23.1
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie

Phone: 02 9910 6200
Fax: 02 9910 6201
Email: ahie@envirolab.com.au

Jacinta Hurst

Phone: 02 9910 6200
Fax: 02 9910 6201
Email: jhurst@envirolab.com.au

Analysis Underway, details on the following page:

Sample ID	VTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	PCBs in Soil	Acid Extractable metals in soil	pH1:5 soil:water	Electrical Conductivity1:5 soil:water	Chloride, C1:5 soil:water	Sulphate, SO4:1:5 soil:water	Asbestos ID - soils	Asbestos ID - materials	ESP/CEC	On Hold
C1				✓	✓	✓								
C2				✓	✓	✓								
C3				✓	✓	✓								
C4				✓	✓	✓								
C5				✓	✓	✓								
C6				✓	✓	✓								
C7				✓	✓	✓								
TP2-0.0-0.1														✓
TP3-0.0-0.1														✓
TP4-0.0-0.1														✓
TP9-0.0-0.1														✓
TP10-0.0-0.1														✓
TP11-0.0-0.1														✓
TP12-0.0-0.1														✓
TP13-0.0-0.1														✓
TP14-0.0-0.1														✓
TP21-0.0-0.1														✓
TP25-0.0-0.1														✓
TP26-0.0-0.1							✓	✓						
TP24-0.0-0.1														✓
TP27-0.0-0.1														✓
TP38-0.0-0.1														✓
TP31-0.0-0.1							✓	✓						
TP32-0.0-0.1														✓
TP33-0.0-0.1														✓
TP26-0.0-0.1							✓	✓						
TP36-0.0-0.1														✓
TP37-0.0-0.1														✓
BH5-0.00-0.10	✓	✓	✓	✓	✓	✓	✓	✓			✓			
BH17-0.00-0.10	✓	✓	✓	✓	✓	✓	✓	✓			✓			
BH19-0.00-0.10	✓	✓	✓	✓	✓	✓					✓			
BH23-0.00-0.10	✓	✓	✓	✓	✓	✓					✓			

Sample ID	VTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	PCBs in Soil	Acid Extractable metals in soil	pH1:5 soil:water	Electrical Conductivity1:5 soil:water	Chloride, Cl1:5 soil:water	Sulphate, SO41:5 soil:water	Asbestos ID - soils	Asbestos ID - materials	ESP/CEC	On Hold
BH28-0.00-0.10	✓	✓	✓	✓	✓	✓	✓	✓			✓			
BH28 - ACM												✓		
BH34-0.00-0.10	✓	✓	✓	✓	✓	✓					✓			
Duplicate A	✓	✓	✓	✓	✓	✓								
BH1-0.00-0.10							✓	✓						
BH1-0.60-0.70							✓	✓	✓	✓			✓	
BH1-2.50-2.80							✓	✓	✓	✓				
BH5-1.00-1.45							✓	✓	✓	✓				
BH5-2.50-2.90							✓	✓	✓	✓				
BH17-0.50-0.60							✓	✓	✓	✓				
BH17-1.00-1.45							✓	✓	✓	✓				
BH26-0.50-0.60							✓	✓	✓	✓				
BH26-1.00-1.45							✓	✓	✓	✓			✓	
BH28-0.50-0.60							✓	✓	✓	✓				
BH28-1.00-1.45							✓	✓	✓	✓				
BH31-0.50-0.60							✓	✓	✓	✓			✓	
BH31-1.00-1.45							✓	✓	✓	✓				
BH35-0.50-0.60							✓	✓	✓	✓				

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.



Composite Schedule

Location: 85 Byron Rd, 63 Inleburn Rd, Leppington

Job No: JC18322A

Services
 1st
 NGW LGST
 6910 6290
 Cl. SWW
 Ph: (02
 Job No:
 191051715
 Date Received: 1830
 Time Received:
 Received by: PH
 Temp. Cooling Unit
 Cooling Unit
 Security: (initials) None



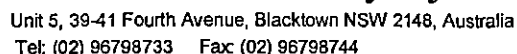
Laboratory Test Request/Chain of Custody Record

Job Details		Sample Date: 30/04/2017		External Laboratory Details:	
Job Number: JC18322A		Sampled By: SG		Laboratory name: Envirolab Services Pty Ltd	
Client:		Project Manager: SL		Address: 12 Ashley Street	
Project: Proposed College Development		Store Location:		Chatswood	
Location: 85 Byron Rd, 63 Ingleburn Rd, Leppington				Contact: Tania Notaris	

Sampling Details		Sample Type		Test Required (\)														Test Performed(X)									
Location		Depth (m)		Soil	Water																						
						Metals (As Cd Cr Cu Pb Zn Ni Hg)	OCB / PCB	Combination 12a	Combination 5a	Combination 5	ASBESTOS		pH	EC	CEC/ESP	Cl / SO4	Resistivity										Keep Sample
191051		From	To																								
1	C1	0.00	0.10	DG																							
2	C2	0.00	0.10	DG																							
3	C3	0.00	0.10	DG																							
4	C4	0.00	0.10	DG																							
5	C5	0.00	0.10	DG																							
6	C6	0.00	0.10	DG																							
7	C7	0.00	0.10	DG																							
29	BH 5	0.00	0.10	DG																							
30	BH 17	0.00	0.10	DG																							
31	BH 19	0.00	0.10	DG																							
32	BH 23	0.00	0.10	DG																							
33	BH 28	0.00	0.10	DG																							
34	BH 28 - ACM	-	-	DG																							
35	BH 34	0.00	0.10	DG																							
36	Duplicate A	-	-	DG																							

Relinquished by				Received By			
Laboratory	Name	Signature	Date	Laboratory	Name	Signature	Date
GeoEnviro Consultancy	Steven Goss	<i>SMG</i>	7/05/2018	as	PH.	<i>[Signature]</i>	7/5

Legend		
DB Disturbed Sample (Bulk, Plastic bag)	U50 Undisturbed Sample, 50mm Tube	Y Keep Sample
DS Disturbed Sample (Small, Plastic bag)	U75 Undisturbed Sample, 75mm Tube	N Discard Sample
DG Disturbed Sample (Glass Jar)	WG Water Sample, Amber Glass Jar	
STP Standard Penetration Test Sample	WP Water Sample, Plastic Bottle	



Laboratory name: Envirolab Services Pty Ltd

Address: 12 Ashley Street

Chatswood

Contact: Tania Notaris

Job Details

Job Number: JC18322A

Client:

Project: Proposed College Development

Location: 85 Byron Rd, 63 Ingleburn Rd, Leppington

Sample Date: 30/04/2017

Sampled By: SG

Project Manager: SL

Store Location:

Relinquished by

Laboratory

Name

Signature

Date _____

Received By

Laboratory

Name	
------	--

Signature _____

Date _____

GeoEnviro Consultancy

Steven Goss

87M Jan

7/05/2018

ES

PH

Signature

DATE	7/5
------	-----

Legend

DB Disturbed Sample (Bulk, Plastic bag)

U50 Undisturbed Sample, 50mm Tube

Y Keep Sample

DS Disturbed Sample (Small, Plastic bag)

U75 Undisturbed Sample, 75mm Tube

N Discard Sample

DG Disturbed Sample (Glass Jar)

WG Water Sample, Amber Glass Jar

STP Standard Penetration Test Sample

WP Water Sample, Plastic Bottle



Page 3 of 3

Job Details

Client:

Location: 85 Byron Rd, 63 Ingleburn Rd, Leppington

Sample Date: 30/04/2017

Sampled By: SG

Project Manager: SL

Store Location:

External Laboratory Details:

Laboratory name: Envirolab Services Pty Ltd

Address: 12 Ashley Street

Chatswood

Contact: Tania Notaris

[illegible]

Relinquished by				Received By			
Laboratory	Name	Signature	Date	Laboratory	Name	Signature	Date
GeoEnviro Consultancy	Steven Goss	<i>SMG</i>	7/05/2018	EL3	PH	<i>[Signature]</i>	7/5

DB Disturbed Sample (Bulk, Plastic bag)

DS Disturbed Sample (Small, Plastic bag)

DG Disturbed Sample (Glass Jar)

STP Standard Penetration Test Sample

U50 Undisturbed Sample, 50mm Tube

U75 Undisturbed Sample, 75mm Tube

WG Water Sample, Amber Glass Jar

WP Water Sample, Plastic Bottle

Y Keep Sample

N Discard Sample

CERTIFICATE OF ANALYSIS 191051-A

Client Details

Client	Geoenviro Consultancy Pty Ltd
Attention	Solern Liew
Address	PO Box 1543, Macquarie Centre, North Ryde, NSW, 2113

Sample Details

Your Reference	<u>JC18322A, Leppington</u>
Number of Samples	49 Soil, 1 Material
Date samples received	07/05/2018
Date completed instructions received	24/05/2018

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	31/05/2018
Date of Issue	29/05/2018
NATA Accreditation Number 2901. This document shall not be reproduced except in full.	
Accredited for compliance with ISO/IEC 17025 - Testing. Tests not covered by NATA are denoted with *	

Results Approved By

Long Pham, Team Leader, Metals

Authorised By



Jacinta Hurst, Laboratory Manager

Acid Extractable metals in soil

Our Reference		191051-A-17	191051-A-18	191051-A-19	191051-A-26	191051-A-27
Your Reference	UNITS	TP21	TP25	TP26	TP26	TP36
Composite Reference		-	-	-	-	-
Depth		0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1
Date Sampled		30/04/2018	30/04/2018	30/04/2018	30/04/2018	30/04/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	28/05/2018	28/05/2018	28/05/2018	28/05/2018	28/05/2018
Date analysed	-	28/05/2018	28/05/2018	28/05/2018	28/05/2018	28/05/2018
Zinc	mg/kg	430	63	40	51	220

Acid Extractable metals in soil

Our Reference		191051-A-28
Your Reference	UNITS	TP37
Composite Reference		-
Depth		0.0-0.1
Date Sampled		30/04/2018
Type of sample		Soil
Date prepared	-	28/05/2018
Date analysed	-	28/05/2018
Zinc	mg/kg	19

Client Reference: JC18322A, Leppington

Moisture						
Our Reference	UNITS	191051-A-17	191051-A-18	191051-A-19	191051-A-26	191051-A-27
Your Reference		TP21	TP25	TP26	TP26	TP36
Composite Reference		-	-	-	-	-
Depth		0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1	0.0-0.1
Date Sampled		30/04/2018	30/04/2018	30/04/2018	30/04/2018	30/04/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	28/05/2018	28/05/2018	28/05/2018	28/05/2018	28/05/2018
Date analysed	-	29/05/2018	29/05/2018	29/05/2018	29/05/2018	29/05/2018
Moisture	%	2.3	8.0	9.8	12	9.3

Moisture		
Our Reference	UNITS	191051-A-28
Your Reference		TP37
Composite Reference		-
Depth		0.0-0.1
Date Sampled		30/04/2018
Type of sample		Soil
Date prepared	-	28/05/2018
Date analysed	-	29/05/2018
Moisture	%	6.5

Method ID	Methodology Summary
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Metals-020	Determination of various metals by ICP-AES.

Client Reference: JC18322A, Leppington

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	[NT]
Date prepared	-			28/05/2018	17	28/05/2018	28/05/2018		28/05/2018	[NT]
Date analysed	-			28/05/2018	17	28/05/2018	28/05/2018		28/05/2018	[NT]
Zinc	mg/kg	1	Metals-020	<1	17	430	440	2	102	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.
Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.	

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

SAMPLE RECEIPT ADVICE

Client Details

Client	Geoenviron Consultancy Pty Ltd
Attention	Solern Liew

Sample Login Details

Your reference	JC18322A, Leppington
Envirolab Reference	191051-A
Date Sample Received	07/05/2018
Date Instructions Received	24/05/2018
Date Results Expected to be Reported	31/05/2018

Sample Condition

Samples received in appropriate condition for analysis	YES
No. of Samples Provided	49 Soil, 1 Material
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	23.1
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie

Phone: 02 9910 6200
Fax: 02 9910 6201
Email: ahie@envirolab.com.au

Jacinta Hurst

Phone: 02 9910 6200
Fax: 02 9910 6201
Email: jhurst@envirolab.com.au

Analysis Underway, details on the following page:



Envirolab Services Pty Ltd

ABN 37 112 535 645

12 Ashley St Chatswood NSW 2067

ph 02 9910 6200 fax 02 9910 6201

customerservice@envirolab.com.au

www.envirolab.com.au

Sample ID	Acid Extractable metals in soil	On Hold
C1		✓
C2		✓
C3		✓
C4		✓
C5		✓
C6		✓
C7		✓
TP2-0.0-0.1		✓
TP3-0.0-0.1		✓
TP4-0.0-0.1		✓
TP9-0.0-0.1		✓
TP10-0.0-0.1		✓
TP11-0.0-0.1		✓
TP12-0.0-0.1		✓
TP13-0.0-0.1		✓
TP14-0.0-0.1		✓
TP21-0.0-0.1	✓	
TP25-0.0-0.1	✓	
TP26-0.0-0.1	✓	
TP24-0.0-0.1		✓
TP27-0.0-0.1		✓
TP38-0.0-0.1		✓
TP31-0.0-0.1		✓
TP32-0.0-0.1		✓
TP33-0.0-0.1		✓
TP26-0.0-0.1	✓	
TP36-0.0-0.1	✓	
TP37-0.0-0.1	✓	
BH5-0.00-0.10		✓
BH17-0.00-0.10		✓
BH19-0.00-0.10		✓
BH23-0.00-0.10		✓



Sample ID	Acid Extractable metals in soil	On Hold
BH28-0.00-0.10		✓
BH28 - ACM		✓
BH34-0.00-0.10		✓
Duplicate A		✓
BH1-0.00-0.10		✓
BH1-0.60-0.70		✓
BH1-2.50-2.80		✓
BH5-1.00-1.45		✓
BH5-2.50-2.90		✓
BH17-0.50-0.60		✓
BH17-1.00-1.45		✓
BH26-0.50-0.60		✓
BH26-1.00-1.45		✓
BH28-0.50-0.60		✓
BH28-1.00-1.45		✓
BH31-0.50-0.60		✓
BH31-1.00-1.45		✓
BH35-0.50-0.60		✓

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

Andrew Fitzsimons

From: Nancy Zhang
Sent: Thursday, 24 May 2018 10:18 AM
To: Samplereceipt
Subject: FW: Results for Registration 191051 JC18322A, Leppington

ELS: 191051-A
TAT: 5 days
Due: 31/5/18

Regards,

Nancy Zhang | Assistant Lab Manager | Envirolab Services Pty Ltd

Atz

Great Science, Great Service.

12 Ashley Street Chatswood NSW 2067
T 612 9910 6200 F 612 9910 6201
E nzhang@envirolab.com.au | W www.envirolab.com.au

Please note that all samples submitted to the Envirolab Group laboratories will be analysed under the Envirolab Group Terms and Conditions. The Terms and Conditions are accessible by clicking this link

From: Adrian Tejada [mailto:at.geoenviro@exemail.com.au]
Sent: Thursday, 24 May 2018 8:23 AM
To: Nancy Zhang <NZhang@envirolab.com.au>
Subject: RE: Results for Registration 191051 JC18322A, Leppington

Hi Nancy,

17, 18, 19, 26, 27, 28

Could we please test Zinc for the individual samples forming the composite samples C4 and C7 for the below job please?

Envirolab Ref: 191051
GeoEnviro Ref: JC18322A

If there's any problems please let me know.

Thanks

Regards

CERTIFICATE OF ANALYSIS 209239

Client Details

Client	Geoenviro Consultancy Pty Ltd
Attention	Solern Liew
Address	PO Box 1543, Macquarie Centre, North Ryde, NSW, 2113

Sample Details

Your Reference	<u>JC18322B, Leppington</u>
Number of Samples	40 Soil
Date samples received	10/01/2019
Date completed instructions received	10/01/2019

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.
 Samples were analysed as received from the client. Results relate specifically to the samples as received.
 Results are reported on a dry weight basis for solids and on an as received basis for other matrices.
Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	17/01/2019
Date of Issue	17/01/2019
NATA Accreditation Number 2901. This document shall not be reproduced except in full.	
Accredited for compliance with ISO/IEC 17025 - Testing. Tests not covered by NATA are denoted with *	

Asbestos Approved By

Analysed by Asbestos Approved Identifier: Aida Marner
 Authorised by Asbestos Approved Signatory: Lucy Zhu

Results Approved By

Giovanni Agosti, Group Technical Manager
 Jeremy Faircloth, Organics Supervisor
 Lucy Zhu, Asbestos Analyst
 Steven Luong, Senior Chemist

Authorised By



Jacinta Hurst, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil

Our Reference		209239-4	209239-7	209239-10	209239-13	209239-17
Your Reference	UNITS	TP4	TP7	TP10	TP15	TP19
Depth		0.50-0.60	0.30-0.40	1.20-0.30	0.00-0.10	0.00-0.10
Date Sampled		08/01/2019	08/01/2019	08/01/2019	08/01/2019	08/01/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/01/2019	14/01/2019	14/01/2019	14/01/2019	14/01/2019
Date analysed	-	15/01/2019	15/01/2019	15/01/2019	15/01/2019	15/01/2019
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	86	82	85	84	85

vTRH(C6-C10)/BTEXN in Soil

Our Reference		209239-19	209239-20	209239-21	209239-22	209239-23
Your Reference	UNITS	TP21	TP22	TP23	TP24	TP25
Depth		0.00-0.10	0.00-0.10	0.00-0.10	0.00-0.10	0.00-0.10
Date Sampled		08/01/2019	08/01/2019	08/01/2019	08/01/2019	08/01/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/01/2019	14/01/2019	14/01/2019	14/01/2019	14/01/2019
Date analysed	-	15/01/2019	15/01/2019	15/01/2019	15/01/2019	15/01/2019
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	[NA]	<25	<25	<25
Benzene	mg/kg	<0.2	[NA]	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	[NA]	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	[NA]	<1	<1	<1
m+p-xylene	mg/kg	<2	[NA]	<2	<2	<2
o-Xylene	mg/kg	<1	[NA]	<1	<1	<1
naphthalene	mg/kg	<1	[NA]	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	[NA]	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	84	104	84	81	89

vTRH(C6-C10)/BTEXN in Soil

Our Reference		209239-24	209239-25	209239-27	209239-28	209239-29
Your Reference	UNITS	TP26	TP27	TP29	TP30	TP31
Depth		0.00-0.10	0.00-0.10	0.00-0.10	0.00-0.10	0.00-0.10
Date Sampled		08/01/2019	08/01/2019	08/01/2019	08/01/2019	08/01/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/01/2019	14/01/2019	14/01/2019	14/01/2019	14/01/2019
Date analysed	-	15/01/2019	15/01/2019	15/01/2019	15/01/2019	15/01/2019
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	[NA]	[NA]	<25	<25
Benzene	mg/kg	<0.2	[NA]	[NA]	<0.2	<0.2
Toluene	mg/kg	<0.5	[NA]	[NA]	<0.5	<0.5
Ethylbenzene	mg/kg	<1	[NA]	[NA]	<1	<1
m+p-xylene	mg/kg	<2	[NA]	[NA]	<2	<2
o-Xylene	mg/kg	<1	[NA]	[NA]	<1	<1
naphthalene	mg/kg	<1	[NA]	[NA]	<1	<1
Total +ve Xylenes	mg/kg	<1	[NA]	[NA]	<1	<1
Surrogate aaa-Trifluorotoluene	%	93	88	85	83	88

vTRH(C6-C10)/BTEXN in Soil

Our Reference		209239-30	209239-31	209239-32	209239-33	209239-40
Your Reference	UNITS	TP32	TP33	TP34	TP35	Duplicate B
Depth		0.00-0.10	0.00-0.10	0.00-0.10	0.00-0.10	-
Date Sampled		08/01/2019	08/01/2019	08/01/2019	08/01/2019	08/01/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/01/2019	14/01/2019	14/01/2019	14/01/2019	14/01/2019
Date analysed	-	15/01/2019	15/01/2019	15/01/2019	15/01/2019	15/01/2019
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	87	84	82	79	86

svTRH (C10-C40) in Soil						
Our Reference	UNITS	209239-4	209239-7	209239-10	209239-13	209239-17
Your Reference		TP4	TP7	TP10	TP15	TP19
Depth		0.50-0.60	0.30-0.40	1.20-0.30	0.00-0.10	0.00-0.10
Date Sampled		08/01/2019	08/01/2019	08/01/2019	08/01/2019	08/01/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/01/2019	14/01/2019	14/01/2019	14/01/2019	14/01/2019
Date analysed	-	14/01/2019	14/01/2019	14/01/2019	14/01/2019	14/01/2019
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	85	88	86	85	84

svTRH (C10-C40) in Soil						
Our Reference	UNITS	209239-19	209239-20	209239-21	209239-22	209239-23
Your Reference		TP21	TP22	TP23	TP24	TP25
Depth		0.00-0.10	0.00-0.10	0.00-0.10	0.00-0.10	0.00-0.10
Date Sampled		08/01/2019	08/01/2019	08/01/2019	08/01/2019	08/01/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/01/2019	14/01/2019	14/01/2019	14/01/2019	14/01/2019
Date analysed	-	14/01/2019	14/01/2019	14/01/2019	15/01/2019	15/01/2019
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	120
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	<100	130
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	130
Surrogate o-Terphenyl	%	84	86	92	85	87

svTRH (C10-C40) in Soil

Our Reference		209239-24	209239-25	209239-27	209239-28	209239-29
Your Reference	UNITS	TP26	TP27	TP29	TP30	TP31
Depth		0.00-0.10	0.00-0.10	0.00-0.10	0.00-0.10	0.00-0.10
Date Sampled		08/01/2019	08/01/2019	08/01/2019	08/01/2019	08/01/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/01/2019	14/01/2019	14/01/2019	14/01/2019	14/01/2019
Date analysed	-	15/01/2019	15/01/2019	15/01/2019	15/01/2019	15/01/2019
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	85	88	94	82	92

svTRH (C10-C40) in Soil

Our Reference		209239-30	209239-31	209239-32	209239-33	209239-40
Your Reference	UNITS	TP32	TP33	TP34	TP35	Duplicate B
Depth		0.00-0.10	0.00-0.10	0.00-0.10	0.00-0.10	-
Date Sampled		08/01/2019	08/01/2019	08/01/2019	08/01/2019	08/01/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/01/2019	14/01/2019	14/01/2019	14/01/2019	14/01/2019
Date analysed	-	15/01/2019	15/01/2019	15/01/2019	15/01/2019	15/01/2019
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	83	83	89	91	84

PAHs in Soil						
Our Reference	UNITS	209239-4	209239-7	209239-10	209239-13	209239-17
Your Reference		TP4	TP7	TP10	TP15	TP19
Depth		0.50-0.60	0.30-0.40	1.20-0.30	0.00-0.10	0.00-0.10
Date Sampled		08/01/2019	08/01/2019	08/01/2019	08/01/2019	08/01/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/01/2019	14/01/2019	14/01/2019	14/01/2019	14/01/2019
Date analysed	-	15/01/2019	15/01/2019	15/01/2019	15/01/2019	15/01/2019
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate <i>p</i> -Terphenyl-d14	%	122	109	109	105	108

PAHs in Soil						
Our Reference		209239-19	209239-20	209239-21	209239-22	209239-23
Your Reference	UNITS	TP21	TP22	TP23	TP24	TP25
Depth		0.00-0.10	0.00-0.10	0.00-0.10	0.00-0.10	0.00-0.10
Date Sampled		08/01/2019	08/01/2019	08/01/2019	08/01/2019	08/01/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/01/2019	14/01/2019	14/01/2019	14/01/2019	14/01/2019
Date analysed	-	15/01/2019	15/01/2019	15/01/2019	15/01/2019	15/01/2019
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	105	107	107	107	103

PAHs in Soil						
Our Reference		209239-24	209239-25	209239-27	209239-28	209239-29
Your Reference	UNITS	TP26	TP27	TP29	TP30	TP31
Depth		0.00-0.10	0.00-0.10	0.00-0.10	0.00-0.10	0.00-0.10
Date Sampled		08/01/2019	08/01/2019	08/01/2019	08/01/2019	08/01/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/01/2019	14/01/2019	14/01/2019	14/01/2019	14/01/2019
Date analysed	-	15/01/2019	15/01/2019	15/01/2019	15/01/2019	15/01/2019
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	0.1	0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	0.06	0.1	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	0.2	<0.1	<0.1
Total +ve PAH's	mg/kg	0.1	0.4	0.50	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	107	108	104	102	103

PAHs in Soil						
Our Reference		209239-30	209239-31	209239-32	209239-33	209239-40
Your Reference	UNITS	TP32	TP33	TP34	TP35	Duplicate B
Depth		0.00-0.10	0.00-0.10	0.00-0.10	0.00-0.10	-
Date Sampled		08/01/2019	08/01/2019	08/01/2019	08/01/2019	08/01/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/01/2019	14/01/2019	14/01/2019	14/01/2019	14/01/2019
Date analysed	-	15/01/2019	15/01/2019	15/01/2019	15/01/2019	15/01/2019
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	105	104	106	107	105

Organochlorine Pesticides in soil						
Our Reference	UNITS	209239-1	209239-2	209239-3	209239-4	209239-7
Your Reference		TP1	TP2	TP3	TP4	TP7
Depth		0.00-0.10	0.00-0.10	0.00-0.10	0.50-0.60	0.30-0.40
Date Sampled		08/01/2019	08/01/2019	08/01/2019	08/01/2019	08/01/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/01/2019	14/01/2019	14/01/2019	14/01/2019	14/01/2019
Date analysed	-	14/01/2019	14/01/2019	14/01/2019	14/01/2019	14/01/2019
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	80	80	81	82	81

Organochlorine Pesticides in soil

Our Reference		209239-8	209239-9	209239-10	209239-11	209239-12
Your Reference	UNITS	TP8	TP9	TP10	TP13	TP14
Depth		0.00-0.10	0.00-0.10	1.20-0.30	0.00-0.10	0.00-0.10
Date Sampled		08/01/2019	08/01/2019	08/01/2019	08/01/2019	08/01/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/01/2019	14/01/2019	14/01/2019	14/01/2019	14/01/2019
Date analysed	-	14/01/2019	14/01/2019	14/01/2019	14/01/2019	14/01/2019
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	82	82	82	80	81

Organochlorine Pesticides in soil						
Our Reference	UNITS	209239-13	209239-15	209239-16	209239-17	209239-19
Your Reference		TP15	TP17	TP18	TP19	TP21
Depth		0.00-0.10	0.00-0.10	0.00-0.10	0.00-0.10	0.00-0.10
Date Sampled		08/01/2019	08/01/2019	08/01/2019	08/01/2019	08/01/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/01/2019	14/01/2019	14/01/2019	14/01/2019	14/01/2019
Date analysed	-	14/01/2019	14/01/2019	14/01/2019	14/01/2019	14/01/2019
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	82	80	82	82	82

Organochlorine Pesticides in soil

Our Reference		209239-21	209239-22	209239-23	209239-24	209239-28
Your Reference	UNITS	TP23	TP24	TP25	TP26	TP30
Depth		0.00-0.10	0.00-0.10	0.00-0.10	0.00-0.10	0.00-0.10
Date Sampled		08/01/2019	08/01/2019	08/01/2019	08/01/2019	08/01/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/01/2019	14/01/2019	14/01/2019	14/01/2019	14/01/2019
Date analysed	-	14/01/2019	14/01/2019	14/01/2019	14/01/2019	14/01/2019
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	82	82	79	83	81

Organochlorine Pesticides in soil

Our Reference		209239-29	209239-30	209239-31	209239-32	209239-33
Your Reference	UNITS	TP31	TP32	TP33	TP34	TP35
Depth		0.00-0.10	0.00-0.10	0.00-0.10	0.00-0.10	0.00-0.10
Date Sampled		08/01/2019	08/01/2019	08/01/2019	08/01/2019	08/01/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/01/2019	14/01/2019	14/01/2019	14/01/2019	14/01/2019
Date analysed	-	14/01/2019	14/01/2019	14/01/2019	14/01/2019	14/01/2019
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	83	82	82	83	85

Organochlorine Pesticides in soil					
Our Reference		209239-34	209239-35	209239-36	209239-40
Your Reference	UNITS	TP36	TP37	TP38	Duplicate B
Depth		0.00-0.10	0.00-0.10	0.00-0.10	-
Date Sampled		08/01/2019	08/01/2019	08/01/2019	08/01/2019
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	14/01/2019	14/01/2019	14/01/2019	14/01/2019
Date analysed	-	14/01/2019	14/01/2019	14/01/2019	14/01/2019
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	82	84	84	83

PCBs in Soil						
Our Reference	UNITS	209239-1	209239-2	209239-3	209239-4	209239-7
Your Reference		TP1	TP2	TP3	TP4	TP7
Depth		0.00-0.10	0.00-0.10	0.00-0.10	0.50-0.60	0.30-0.40
Date Sampled		08/01/2019	08/01/2019	08/01/2019	08/01/2019	08/01/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/01/2019	14/01/2019	14/01/2019	14/01/2019	14/01/2019
Date analysed	-	14/01/2019	14/01/2019	14/01/2019	14/01/2019	14/01/2019
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	80	80	81	82	81

PCBs in Soil						
Our Reference	UNITS	209239-8	209239-9	209239-10	209239-11	209239-12
Your Reference		TP8	TP9	TP10	TP13	TP14
Depth		0.00-0.10	0.00-0.10	1.20-0.30	0.00-0.10	0.00-0.10
Date Sampled		08/01/2019	08/01/2019	08/01/2019	08/01/2019	08/01/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/01/2019	14/01/2019	14/01/2019	14/01/2019	14/01/2019
Date analysed	-	14/01/2019	14/01/2019	14/01/2019	14/01/2019	14/01/2019
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	82	82	82	80	81

PCBs in Soil						
Our Reference	UNITS	209239-13	209239-15	209239-16	209239-17	209239-19
Your Reference		TP15	TP17	TP18	TP19	TP21
Depth		0.00-0.10	0.00-0.10	0.00-0.10	0.00-0.10	0.00-0.10
Date Sampled		08/01/2019	08/01/2019	08/01/2019	08/01/2019	08/01/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/01/2019	14/01/2019	14/01/2019	14/01/2019	14/01/2019
Date analysed	-	14/01/2019	14/01/2019	14/01/2019	14/01/2019	14/01/2019
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	82	80	82	82	82

PCBs in Soil						
Our Reference	UNITS	209239-21	209239-22	209239-23	209239-24	209239-28
Your Reference		TP23	TP24	TP25	TP26	TP30
Depth		0.00-0.10	0.00-0.10	0.00-0.10	0.00-0.10	0.00-0.10
Date Sampled		08/01/2019	08/01/2019	08/01/2019	08/01/2019	08/01/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/01/2019	14/01/2019	14/01/2019	14/01/2019	14/01/2019
Date analysed	-	14/01/2019	14/01/2019	14/01/2019	14/01/2019	14/01/2019
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	82	82	79	83	81

PCBs in Soil						
Our Reference		209239-29	209239-30	209239-31	209239-32	209239-33
Your Reference	UNITS	TP31	TP32	TP33	TP34	TP35
Depth		0.00-0.10	0.00-0.10	0.00-0.10	0.00-0.10	0.00-0.10
Date Sampled		08/01/2019	08/01/2019	08/01/2019	08/01/2019	08/01/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/01/2019	14/01/2019	14/01/2019	14/01/2019	14/01/2019
Date analysed	-	14/01/2019	14/01/2019	14/01/2019	14/01/2019	14/01/2019
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	83	82	82	83	85

PCBs in Soil					
Our Reference		209239-34	209239-35	209239-36	209239-40
Your Reference	UNITS	TP36	TP37	TP38	Duplicate B
Depth		0.00-0.10	0.00-0.10	0.00-0.10	-
Date Sampled		08/01/2019	08/01/2019	08/01/2019	08/01/2019
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	14/01/2019	14/01/2019	14/01/2019	14/01/2019
Date analysed	-	14/01/2019	14/01/2019	14/01/2019	14/01/2019
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	82	84	84	83

Acid Extractable metals in soil

Our Reference		209239-1	209239-2	209239-3	209239-4	209239-7
Your Reference	UNITS	TP1	TP2	TP3	TP4	TP7
Depth		0.00-0.10	0.00-0.10	0.00-0.10	0.50-0.60	0.30-0.40
Date Sampled		08/01/2019	08/01/2019	08/01/2019	08/01/2019	08/01/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/01/2019	14/01/2019	14/01/2019	14/01/2019	14/01/2019
Date analysed	-	15/01/2019	15/01/2019	15/01/2019	15/01/2019	15/01/2019
Arsenic	mg/kg	4	6	12	9	10
Cadmium	mg/kg	<0.4	<0.4	<0.4	2	0.4
Chromium	mg/kg	18	17	15	19	18
Copper	mg/kg	20	16	30	45	26
Lead	mg/kg	91	25	22	59	51
Mercury	mg/kg	0.3	0.2	0.2	0.2	0.2
Nickel	mg/kg	14	9	12	16	9
Zinc	mg/kg	500	35	74	800	350

Acid Extractable metals in soil

Our Reference		209239-8	209239-9	209239-10	209239-11	209239-12
Your Reference	UNITS	TP8	TP9	TP10	TP13	TP14
Depth		0.00-0.10	0.00-0.10	1.20-0.30	0.00-0.10	0.00-0.10
Date Sampled		08/01/2019	08/01/2019	08/01/2019	08/01/2019	08/01/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/01/2019	14/01/2019	14/01/2019	14/01/2019	14/01/2019
Date analysed	-	15/01/2019	15/01/2019	15/01/2019	15/01/2019	15/01/2019
Arsenic	mg/kg	7	9	5	6	6
Cadmium	mg/kg	0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	24	20	14	17	18
Copper	mg/kg	170	23	36	22	25
Lead	mg/kg	89	35	13	29	50
Mercury	mg/kg	0.1	0.2	0.3	0.2	0.1
Nickel	mg/kg	170	12	38	13	14
Zinc	mg/kg	2,000	41	58	48	50

Acid Extractable metals in soil

Our Reference		209239-13	209239-15	209239-16	209239-17	209239-19
Your Reference	UNITS	TP15	TP17	TP18	TP19	TP21
Depth		0.00-0.10	0.00-0.10	0.00-0.10	0.00-0.10	0.00-0.10
Date Sampled		08/01/2019	08/01/2019	08/01/2019	08/01/2019	08/01/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/01/2019	14/01/2019	14/01/2019	14/01/2019	14/01/2019
Date analysed	-	15/01/2019	15/01/2019	15/01/2019	15/01/2019	15/01/2019
Arsenic	mg/kg	6	6	6	6	9
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	0.6
Chromium	mg/kg	16	19	20	18	14
Copper	mg/kg	24	40	26	19	14
Lead	mg/kg	27	57	28	24	34
Mercury	mg/kg	0.1	0.1	0.1	<0.1	<0.1
Nickel	mg/kg	13	14	10	25	8
Zinc	mg/kg	43	160	40	90	68

Acid Extractable metals in soil

Our Reference		209239-20	209239-21	209239-22	209239-23	209239-24
Your Reference	UNITS	TP22	TP23	TP24	TP25	TP26
Depth		0.00-0.10	0.00-0.10	0.00-0.10	0.00-0.10	0.00-0.10
Date Sampled		08/01/2019	08/01/2019	08/01/2019	08/01/2019	08/01/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/01/2019	14/01/2019	14/01/2019	14/01/2019	14/01/2019
Date analysed	-	15/01/2019	15/01/2019	15/01/2019	15/01/2019	15/01/2019
Arsenic	mg/kg	7	10	9	12	6
Cadmium	mg/kg	<0.4	<0.4	<0.4	0.6	<0.4
Chromium	mg/kg	15	16	19	33	14
Copper	mg/kg	9	16	21	46	19
Lead	mg/kg	15	110	42	130	39
Mercury	mg/kg	<0.1	0.1	<0.1	0.1	<0.1
Nickel	mg/kg	8	9	14	22	9
Zinc	mg/kg	44	150	120	280	98

Acid Extractable metals in soil

Our Reference		209239-25	209239-27	209239-28	209239-29	209239-30
Your Reference	UNITS	TP27	TP29	TP30	TP31	TP32
Depth		0.00-0.10	0.00-0.10	0.00-0.10	0.00-0.10	0.00-0.10
Date Sampled		08/01/2019	08/01/2019	08/01/2019	08/01/2019	08/01/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/01/2019	14/01/2019	14/01/2019	14/01/2019	14/01/2019
Date analysed	-	15/01/2019	15/01/2019	15/01/2019	15/01/2019	15/01/2019
Arsenic	mg/kg	4	<4	7	6	8
Cadmium	mg/kg	<0.4	<0.4	1	<0.4	0.8
Chromium	mg/kg	15	72	22	9	19
Copper	mg/kg	20	34	40	33	25
Lead	mg/kg	16	11	110	52	32
Mercury	mg/kg	0.1	0.2	0.1	<0.1	0.1
Nickel	mg/kg	14	70	21	9	17
Zinc	mg/kg	41	49	250	360	50

Acid Extractable metals in soil

Our Reference		209239-31	209239-32	209239-33	209239-34	209239-35
Your Reference	UNITS	TP33	TP34	TP35	TP36	TP37
Depth		0.00-0.10	0.00-0.10	0.00-0.10	0.00-0.10	0.00-0.10
Date Sampled		08/01/2019	08/01/2019	08/01/2019	08/01/2019	08/01/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/01/2019	14/01/2019	14/01/2019	14/01/2019	14/01/2019
Date analysed	-	15/01/2019	15/01/2019	15/01/2019	15/01/2019	15/01/2019
Arsenic	mg/kg	8	9	14	13	11
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	15	18	18	19	21
Copper	mg/kg	16	27	34	24	30
Lead	mg/kg	32	160	59	37	31
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	5	8	6	4	7
Zinc	mg/kg	56	110	240	23	24

Acid Extractable metals in soil			
Our Reference		209239-36	209239-40
Your Reference	UNITS	TP38	Duplicate B
Depth		0.00-0.10	-
Date Sampled		08/01/2019	08/01/2019
Type of sample		Soil	Soil
Date prepared	-	14/01/2019	14/01/2019
Date analysed	-	15/01/2019	15/01/2019
Arsenic	mg/kg	12	7
Cadmium	mg/kg	<0.4	<0.4
Chromium	mg/kg	19	16
Copper	mg/kg	21	23
Lead	mg/kg	32	39
Mercury	mg/kg	<0.1	<0.1
Nickel	mg/kg	4	10
Zinc	mg/kg	19	110

Moisture						
Our Reference	UNITS	209239-1	209239-2	209239-3	209239-4	209239-7
Your Reference		TP1	TP2	TP3	TP4	TP7
Depth		0.00-0.10	0.00-0.10	0.00-0.10	0.50-0.60	0.30-0.40
Date Sampled		08/01/2019	08/01/2019	08/01/2019	08/01/2019	08/01/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/01/2019	14/01/2019	14/01/2019	14/01/2019	14/01/2019
Date analysed	-	15/01/2019	15/01/2019	15/01/2019	15/01/2019	15/01/2019
Moisture	%	12	12	12	12	12

Moisture						
Our Reference	UNITS	209239-8	209239-9	209239-10	209239-11	209239-12
Your Reference		TP8	TP9	TP10	TP13	TP14
Depth		0.00-0.10	0.00-0.10	1.20-0.30	0.00-0.10	0.00-0.10
Date Sampled		08/01/2019	08/01/2019	08/01/2019	08/01/2019	08/01/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/01/2019	14/01/2019	14/01/2019	14/01/2019	14/01/2019
Date analysed	-	15/01/2019	15/01/2019	15/01/2019	15/01/2019	15/01/2019
Moisture	%	13	10	7.8	11	11

Moisture						
Our Reference	UNITS	209239-13	209239-15	209239-16	209239-17	209239-19
Your Reference		TP15	TP17	TP18	TP19	TP21
Depth		0.00-0.10	0.00-0.10	0.00-0.10	0.00-0.10	0.00-0.10
Date Sampled		08/01/2019	08/01/2019	08/01/2019	08/01/2019	08/01/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/01/2019	14/01/2019	14/01/2019	14/01/2019	14/01/2019
Date analysed	-	15/01/2019	15/01/2019	15/01/2019	15/01/2019	15/01/2019
Moisture	%	10	9.3	9.9	11	9.5

Moisture						
Our Reference	UNITS	209239-20	209239-21	209239-22	209239-23	209239-24
Your Reference		TP22	TP23	TP24	TP25	TP26
Depth		0.00-0.10	0.00-0.10	0.00-0.10	0.00-0.10	0.00-0.10
Date Sampled		08/01/2019	08/01/2019	08/01/2019	08/01/2019	08/01/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/01/2019	14/01/2019	14/01/2019	14/01/2019	14/01/2019
Date analysed	-	15/01/2019	15/01/2019	15/01/2019	15/01/2019	15/01/2019
Moisture	%	6.6	20	16	12	8.8

Moisture						
Our Reference	UNITS	209239-25	209239-27	209239-28	209239-29	209239-30
Your Reference		TP27	TP29	TP30	TP31	TP32
Depth		0.00-0.10	0.00-0.10	0.00-0.10	0.00-0.10	0.00-0.10
Date Sampled		08/01/2019	08/01/2019	08/01/2019	08/01/2019	08/01/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/01/2019	14/01/2019	14/01/2019	14/01/2019	14/01/2019
Date analysed	-	15/01/2019	15/01/2019	15/01/2019	15/01/2019	15/01/2019
Moisture	%	4.0	3.5	13	8.3	11

Moisture						
Our Reference	UNITS	209239-31	209239-32	209239-33	209239-34	209239-35
Your Reference		TP33	TP34	TP35	TP36	TP37
Depth		0.00-0.10	0.00-0.10	0.00-0.10	0.00-0.10	0.00-0.10
Date Sampled		08/01/2019	08/01/2019	08/01/2019	08/01/2019	08/01/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	14/01/2019	14/01/2019	14/01/2019	14/01/2019	14/01/2019
Date analysed	-	15/01/2019	15/01/2019	15/01/2019	15/01/2019	15/01/2019
Moisture	%	12	20	22	7.2	6.6

Moisture			
Our Reference	UNITS	209239-36	209239-40
Your Reference		TP38	Duplicate B
Depth		0.00-0.10	-
Date Sampled		08/01/2019	08/01/2019
Type of sample		Soil	Soil
Date prepared	-	14/01/2019	14/01/2019
Date analysed	-	15/01/2019	15/01/2019
Moisture	%	6.9	9.0

Asbestos ID - soils						
Our Reference	UNITS	209239-4	209239-5	209239-6	209239-7	209239-10
Your Reference		TP4	TP5	TP6	TP7	TP10
Depth		0.50-0.60	0.30-0.40	0.10-0.20	0.30-0.40	1.20-0.30
Date Sampled		08/01/2019	08/01/2019	08/01/2019	08/01/2019	08/01/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	15/11/2019	15/11/2019	15/11/2019	15/11/2019	15/11/2019
Sample mass tested	g	Approx. 30g	Approx. 30g	Approx. 30g	Approx. 30g	Approx. 30g
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg
		Organic fibres detected	Organic fibres detected	Organic fibres detected	Organic fibres detected	Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

Asbestos ID - soils

Our Reference		209239-13	209239-14	209239-17	209239-18	209239-19
Your Reference	UNITS	TP15	TP16	TP19	TP20	TP21
Depth		0.00-0.10	0.00-0.10	0.00-0.10	0.00-0.10	0.00-0.10
Date Sampled		08/01/2019	08/01/2019	08/01/2019	08/01/2019	08/01/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	15/11/2019	15/11/2019	15/11/2019	15/11/2019	15/11/2019
Sample mass tested	g	Approx. 30g	Approx. 30g	Approx. 30g	Approx. 25g	Approx. 30g
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

Asbestos ID - soils

Our Reference		209239-20	209239-21	209239-22	209239-23	209239-24
Your Reference	UNITS	TP22	TP23	TP24	TP25	TP26
Depth		0.00-0.10	0.00-0.10	0.00-0.10	0.00-0.10	0.00-0.10
Date Sampled		08/01/2019	08/01/2019	08/01/2019	08/01/2019	08/01/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	15/11/2019	15/11/2019	15/11/2019	15/11/2019	15/11/2019
Sample mass tested	g	Approx. 30g	Approx. 25g	Approx. 25g	Approx. 25g	Approx. 30g
Sample Description	-	Brown clayey soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

Asbestos ID - soils						
Our Reference	UNITS	209239-25	209239-26	209239-27	209239-28	209239-29
Your Reference		TP27	TP28	TP29	TP30	TP31
Depth		0.00-0.10	0.00-0.10	0.00-0.10	0.00-0.10	0.00-0.10
Date Sampled		08/01/2019	08/01/2019	08/01/2019	08/01/2019	08/01/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	15/11/2019	15/11/2019	15/11/2019	15/11/2019	15/11/2019
Sample mass tested	g	Approx. 35g	Approx. 30g	Approx. 35g	Approx. 30g	Approx. 30g
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

Asbestos ID - soils					
Our Reference	UNITS	209239-30	209239-31	209239-32	209239-33
Your Reference		TP32	TP33	TP34	TP35
Depth		0.00-0.10	0.00-0.10	0.00-0.10	0.00-0.10
Date Sampled		08/01/2019	08/01/2019	08/01/2019	08/01/2019
Type of sample		Soil	Soil	Soil	Soil
Date analysed	-	15/11/2019	15/11/2019	15/11/2019	15/11/2019
Sample mass tested	g	Approx. 25g	Approx. 25g	Approx. 25g	Approx. 25g
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

Asbestos ID - materials				
Our Reference	UNITS	209239-37	209239-38	209239-39
Your Reference		TP6 - Fibro	TP8 - Fibro	TP10 - Fibro
Depth		-	-	-
Date Sampled		08/01/2019	08/01/2019	08/01/2019
Type of sample		Soil	Soil	Soil
Date analysed	-	15/01/2019	15/01/2019	15/01/2019
Mass / Dimension of Sample	-	80x40x5mm	50x45x5mm	95x35x5mm
Sample Description	-	Grey fibre cement material	Grey fibre cement material	Grey fibre cement material
Asbestos ID in materials	-	Chrysotile asbestos detected	Chrysotile asbestos detected	Chrysotile asbestos detected

Method ID	Methodology Summary
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PCBs" is simply a sum of the positive individual PCBs.

Method ID	Methodology Summary
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL' values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero' values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL' values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	209239-22
Date extracted	-			14/01/2019	10	14/01/2019	14/01/2019		14/01/2019	14/01/2019
Date analysed	-			15/01/2019	10	15/01/2019	15/01/2019		15/01/2019	15/01/2019
TRH C ₆ - C ₉	mg/kg	25	Org-016	<25	10	<25	<25	0	98	90
TRH C ₆ - C ₁₀	mg/kg	25	Org-016	<25	10	<25	<25	0	98	90
Benzene	mg/kg	0.2	Org-016	<0.2	10	<0.2	<0.2	0	105	98
Toluene	mg/kg	0.5	Org-016	<0.5	10	<0.5	<0.5	0	101	93
Ethylbenzene	mg/kg	1	Org-016	<1	10	<1	<1	0	94	86
m+p-xylene	mg/kg	2	Org-016	<2	10	<2	<2	0	94	87
o-Xylene	mg/kg	1	Org-016	<1	10	<1	<1	0	94	87
naphthalene	mg/kg	1	Org-014	<1	10	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	88	10	85	82	4	86	80

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	21	14/01/2019	14/01/2019		[NT]	[NT]
Date analysed	-			[NT]	21	15/01/2019	15/01/2019		[NT]	[NT]
TRH C ₆ - C ₉	mg/kg	25	Org-016	[NT]	21	<25	<25	0	[NT]	[NT]
TRH C ₆ - C ₁₀	mg/kg	25	Org-016	[NT]	21	<25	<25	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-016	[NT]	21	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-016	[NT]	21	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-016	[NT]	21	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-016	[NT]	21	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-016	[NT]	21	<1	<1	0	[NT]	[NT]
naphthalene	mg/kg	1	Org-014	[NT]	21	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	[NT]	21	84	81	4	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	209239-22
Date extracted	-			14/01/2019	10	14/01/2019	14/01/2019		14/01/2019	14/01/2019
Date analysed	-			14/01/2019	10	14/01/2019	14/01/2019		14/01/2019	15/01/2019
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-003	<50	10	<50	<50	0	99	75
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-003	<100	10	<100	<100	0	95	79
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-003	<100	10	<100	<100	0	111	118
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-003	<50	10	<50	<50	0	99	75
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-003	<100	10	<100	<100	0	95	79
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-003	<100	10	<100	<100	0	111	118
Surrogate o-Terphenyl	%		Org-003	86	10	86	86	0	93	85

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	21	14/01/2019	14/01/2019		[NT]	[NT]
Date analysed	-			[NT]	21	14/01/2019	14/01/2019		[NT]	[NT]
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-003	[NT]	21	<50	<50	0	[NT]	[NT]
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-003	[NT]	21	<100	<100	0	[NT]	[NT]
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-003	[NT]	21	<100	<100	0	[NT]	[NT]
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-003	[NT]	21	<50	<50	0	[NT]	[NT]
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-003	[NT]	21	<100	<100	0	[NT]	[NT]
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-003	[NT]	21	<100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-003	[NT]	21	92	91	1	[NT]	[NT]

QUALITY CONTROL: PAHs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	209239-22
Date extracted	-			14/01/2019	10	14/01/2019	14/01/2019		14/01/2019	14/01/2019
Date analysed	-			15/01/2019	10	15/01/2019	15/01/2019		15/01/2019	15/01/2019
Naphthalene	mg/kg	0.1	Org-012	<0.1	10	<0.1	<0.1	0	93	92
Acenaphthylene	mg/kg	0.1	Org-012	<0.1	10	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	<0.1	10	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	<0.1	10	<0.1	<0.1	0	91	89
Phenanthrene	mg/kg	0.1	Org-012	<0.1	10	<0.1	<0.1	0	92	91
Anthracene	mg/kg	0.1	Org-012	<0.1	10	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	<0.1	10	<0.1	<0.1	0	96	94
Pyrene	mg/kg	0.1	Org-012	<0.1	10	<0.1	<0.1	0	93	92
Benzo(a)anthracene	mg/kg	0.1	Org-012	<0.1	10	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	<0.1	10	<0.1	<0.1	0	107	104
Benzo(b,j,k)fluoranthene	mg/kg	0.2	Org-012	<0.2	10	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	<0.05	10	<0.05	<0.05	0	103	96
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	<0.1	10	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	<0.1	10	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	<0.1	10	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	105	10	109	107	2	126	125

QUALITY CONTROL: PAHs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	21	14/01/2019	14/01/2019		[NT]	[NT]
Date analysed	-			[NT]	21	15/01/2019	15/01/2019		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-012	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-012	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-012	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-012	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-012	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-012	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Benzo(b,j,k)fluoranthene	mg/kg	0.2	Org-012	[NT]	21	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	[NT]	21	<0.05	<0.05	0	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	[NT]	21	107	107	0	[NT]	[NT]

Client Reference: JC18322B, Leppington

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	209239-2
Date extracted	-			14/01/2019	1	14/01/2019	14/01/2019		14/01/2019	14/01/2019
Date analysed	-			14/01/2019	1	14/01/2019	14/01/2019		14/01/2019	14/01/2019
HCB	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	107	109
gamma-BHC	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	85	86
Heptachlor	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	89	90
delta-BHC	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	79	79
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	83	82
gamma-Chlordane	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	87	87
Dieldrin	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	94	93
Endrin	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	86	88
pp-DDD	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	92	92
Endosulfan II	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	92	93
Methoxychlor	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-005	83	1	80	81	1	99	99

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	209239-22
Date extracted	-			[NT]	10	14/01/2019	14/01/2019		14/01/2019	14/01/2019
Date analysed	-			[NT]	10	14/01/2019	14/01/2019		14/01/2019	14/01/2019
HCB	mg/kg	0.1	Org-005	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	[NT]	10	<0.1	<0.1	0	106	104
gamma-BHC	mg/kg	0.1	Org-005	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	[NT]	10	<0.1	<0.1	0	85	83
Heptachlor	mg/kg	0.1	Org-005	[NT]	10	<0.1	<0.1	0	90	89
delta-BHC	mg/kg	0.1	Org-005	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	[NT]	10	<0.1	<0.1	0	80	78
Heptachlor Epoxide	mg/kg	0.1	Org-005	[NT]	10	<0.1	<0.1	0	83	81
gamma-Chlordane	mg/kg	0.1	Org-005	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	[NT]	10	<0.1	<0.1	0	88	86
Dieldrin	mg/kg	0.1	Org-005	[NT]	10	<0.1	<0.1	0	95	93
Endrin	mg/kg	0.1	Org-005	[NT]	10	<0.1	<0.1	0	87	87
pp-DDD	mg/kg	0.1	Org-005	[NT]	10	<0.1	<0.1	0	91	90
Endosulfan II	mg/kg	0.1	Org-005	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	[NT]	10	<0.1	<0.1	0	78	86
Methoxychlor	mg/kg	0.1	Org-005	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-005	[NT]	10	82	80	2	100	98

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	21	14/01/2019	14/01/2019		[NT]	[NT]
Date analysed	-			[NT]	21	14/01/2019	14/01/2019		[NT]	[NT]
HCB	mg/kg	0.1	Org-005	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
gamma-BHC	mg/kg	0.1	Org-005	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-005	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
delta-BHC	mg/kg	0.1	Org-005	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-005	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
gamma-Chlordane	mg/kg	0.1	Org-005	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Dieldrin	mg/kg	0.1	Org-005	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Endrin	mg/kg	0.1	Org-005	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-005	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-005	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Methoxychlor	mg/kg	0.1	Org-005	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-005	[NT]	21	82	83	1	[NT]	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	34	14/01/2019	14/01/2019		[NT]	[NT]
Date analysed	-			[NT]	34	14/01/2019	14/01/2019		[NT]	[NT]
HCB	mg/kg	0.1	Org-005	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
gamma-BHC	mg/kg	0.1	Org-005	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-005	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
delta-BHC	mg/kg	0.1	Org-005	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-005	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
gamma-Chlordane	mg/kg	0.1	Org-005	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Dieldrin	mg/kg	0.1	Org-005	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Endrin	mg/kg	0.1	Org-005	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-005	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-005	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Methoxychlor	mg/kg	0.1	Org-005	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-005	[NT]	34	82	83	1	[NT]	[NT]

Client Reference: JC18322B, Leppington

QUALITY CONTROL: PCBs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	209239-2
Date extracted	-			14/01/2019	1	14/01/2019	14/01/2019		14/01/2019	14/01/2019
Date analysed	-			14/01/2019	1	14/01/2019	14/01/2019		14/01/2019	14/01/2019
Aroclor 1016	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	102	101
Aroclor 1260	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCLMX	%		Org-006	83	1	80	81	1	78	89

QUALITY CONTROL: PCBs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	209239-22
Date extracted	-			[NT]	10	14/01/2019	14/01/2019		14/01/2019	14/01/2019
Date analysed	-			[NT]	10	14/01/2019	14/01/2019		14/01/2019	14/01/2019
Aroclor 1016	mg/kg	0.1	Org-006	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	[NT]	10	<0.1	<0.1	0	102	100
Aroclor 1260	mg/kg	0.1	Org-006	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCLMX	%		Org-006	[NT]	10	82	80	2	80	93

QUALITY CONTROL: PCBs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	21	14/01/2019	14/01/2019		[NT]	[NT]
Date analysed	-			[NT]	21	14/01/2019	14/01/2019		[NT]	[NT]
Aroclor 1016	mg/kg	0.1	Org-006	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1260	mg/kg	0.1	Org-006	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCLMX	%		Org-006	[NT]	21	82	83	1	[NT]	[NT]

Client Reference: JC18322B, Leppington

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	34	14/01/2019	14/01/2019		[NT]	[NT]
Date analysed	-			[NT]	34	14/01/2019	14/01/2019		[NT]	[NT]
Aroclor 1016	mg/kg	0.1	Org-006	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1260	mg/kg	0.1	Org-006	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCLMX	%		Org-006	[NT]	34	82	83	1	[NT]	[NT]

Client Reference: JC18322B, Leppington

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	209239-2
Date prepared	-			14/01/2019	1	14/01/2019	14/01/2019		14/01/2019	14/01/2019
Date analysed	-			15/01/2019	1	15/01/2019	15/01/2019		15/01/2019	15/01/2019
Arsenic	mg/kg	4	Metals-020	<4	1	4	5	22	121	94
Cadmium	mg/kg	0.4	Metals-020	<0.4	1	<0.4	<0.4	0	107	88
Chromium	mg/kg	1	Metals-020	<1	1	18	18	0	117	96
Copper	mg/kg	1	Metals-020	<1	1	20	20	0	125	116
Lead	mg/kg	1	Metals-020	<1	1	91	82	10	110	87
Mercury	mg/kg	0.1	Metals-021	<0.1	1	0.3	0.3	0	88	114
Nickel	mg/kg	1	Metals-020	<1	1	14	13	7	111	93
Zinc	mg/kg	1	Metals-020	<1	1	500	480	4	109	84

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	209239-22
Date prepared	-			[NT]	10	14/01/2019	14/01/2019		14/01/2019	14/01/2019
Date analysed	-			[NT]	10	15/01/2019	15/01/2019		15/01/2019	15/01/2019
Arsenic	mg/kg	4	Metals-020	[NT]	10	5	5	0	124	104
Cadmium	mg/kg	0.4	Metals-020	[NT]	10	<0.4	<0.4	0	108	91
Chromium	mg/kg	1	Metals-020	[NT]	10	14	15	7	119	109
Copper	mg/kg	1	Metals-020	[NT]	10	36	35	3	129	125
Lead	mg/kg	1	Metals-020	[NT]	10	13	14	7	111	90
Mercury	mg/kg	0.1	Metals-021	[NT]	10	0.3	0.2	40	96	96
Nickel	mg/kg	1	Metals-020	[NT]	10	38	38	0	112	98
Zinc	mg/kg	1	Metals-020	[NT]	10	58	65	11	109	122

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	21	14/01/2019	14/01/2019		[NT]	[NT]
Date analysed	-			[NT]	21	15/01/2019	15/01/2019		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	21	10	10	0	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	21	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	21	16	14	13	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	21	16	16	0	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	21	110	83	28	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	21	0.1	0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	21	9	9	0	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	21	150	190	24	[NT]	[NT]

Client Reference: JC18322B, Leppington

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	34	14/01/2019	14/01/2019		[NT]	[NT]
Date analysed	-			[NT]	34	15/01/2019	15/01/2019		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	34	13	12	8	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	34	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	34	19	18	5	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	34	24	28	15	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	34	37	34	8	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	34	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	34	4	5	22	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	34	23	34	39	[NT]	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.
Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.	

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Report Comments

Asbestos: A portion of the supplied samples were sub-sampled for asbestos analysis according to Envirolab procedures.
We cannot guarantee that these sub-samples are indicative of the entire sample.
Envirolab recommends supplying 40-50g of sample in its own container.
Note: Samples requested for asbestos testing were sub-sampled from jars provided by the client.

SAMPLE RECEIPT ADVICE

Client Details

Client	Geoenviro Consultancy Pty Ltd
Attention	Solern Liew

Sample Login Details

Your reference	JC18322B, Leppington
Envirolab Reference	209239
Date Sample Received	10/01/2019
Date Instructions Received	10/01/2019
Date Results Expected to be Reported	17/01/2019

Sample Condition

Samples received in appropriate condition for analysis	YES
No. of Samples Provided	40 Soil
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	22.5
Cooling Method	None
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	Phone: 02 9910 6200
Fax: 02 9910 6201	Fax: 02 9910 6201
Email: ahie@envirolab.com.au	Email: jhurst@envirolab.com.au

Analysis Underway, details on the following page:



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Sample ID	VTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	PCBs in Soil	Acid Extractable metals in soil	Asbestos ID - soils	Asbestos ID - materials
TP1-0.00-0.10				✓		✓		
TP2-0.00-0.10				✓		✓		
TP3-0.00-0.10				✓		✓		
TP4-0.50-0.60	✓	✓	✓	✓	✓	✓	✓	
TP5-0.30-0.40							✓	
TP6-0.10-0.20							✓	
TP7-0.30-0.40	✓	✓	✓	✓	✓	✓	✓	
TP8-0.00-0.10				✓		✓		
TP9-0.00-0.10				✓		✓		
TP10-1.20-0.30	✓	✓	✓	✓	✓	✓	✓	
TP13-0.00-0.10				✓		✓		
TP14-0.00-0.10				✓		✓		
TP15-0.00-0.10	✓	✓	✓	✓	✓	✓	✓	
TP16-0.00-0.10							✓	
TP17-0.00-0.10				✓		✓		
TP18-0.00-0.10				✓		✓		
TP19-0.00-0.10	✓	✓	✓	✓	✓	✓	✓	
TP20-0.00-0.10							✓	
TP21-0.00-0.10	✓	✓	✓	✓	✓	✓	✓	
TP22-0.00-0.10	✓	✓	✓			✓	✓	
TP23-0.00-0.10	✓	✓	✓	✓	✓	✓	✓	
TP24-0.00-0.10	✓	✓	✓	✓	✓	✓	✓	
TP25-0.00-0.10	✓	✓	✓	✓	✓	✓	✓	
TP26-0.00-0.10	✓	✓	✓	✓	✓	✓	✓	
TP27-0.00-0.10	✓	✓	✓			✓	✓	
TP28-0.00-0.10							✓	
TP29-0.00-0.10	✓	✓	✓			✓	✓	
TP30-0.00-0.10	✓	✓	✓	✓	✓	✓	✓	
TP31-0.00-0.10	✓	✓	✓	✓	✓	✓	✓	
TP32-0.00-0.10	✓	✓	✓	✓	✓	✓	✓	
TP33-0.00-0.10	✓	✓	✓	✓	✓	✓	✓	
TP34-0.00-0.10	✓	✓	✓	✓	✓	✓	✓	



Envirolab Services Pty Ltd

ABN 37 112 535 645

12 Ashley St Chatswood NSW 2067

ph 02 9910 6200 fax 02 9910 6201

customerservice@envirolab.com.au

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Sample ID	VTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	PCBs in Soil	Acid Extractable metals in soil	Asbestos ID - soils	Asbestos ID - materials
TP35-0.00-0.10	✓	✓	✓	✓	✓	✓	✓	
TP36-0.00-0.10				✓	✓	✓		
TP37-0.00-0.10				✓	✓	✓		
TP38-0.00-0.10				✓	✓	✓		
TP6 - Fibro								✓
TP8 - Fibro								✓
TP10 - Fibro								✓
Duplicate B	✓	✓	✓	✓	✓	✓		

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.



GeoEnviro Consultancy Pty Ltd

Unit 5, 39-41 Fourth Avenue, Blacktown NSW 2148, Australia

Tel: (02) 96798733 Fax: (02) 96798744

Laboratory Test Request/Chain of Custody Record

Page 1 of 3

Job Details

Job Number: JC18322B

Client:

Project: Proposed College

Location: 85 Byron Road and 63 Ingleburn Road Leppington

Sample Date: 8/1/19

Sampled By: AT

Project Manager: SL

Store Location:

External Laboratory Details:

Laboratory name: Envirolab Services Pty Ltd

Address: 12 Ashley Street

Chatswood

Contact: Tania Notaris

Sampling Details		Sample Type		Test Required (Y)														Test Performed (X)									
Location		Depth (m)		Soil	Water																						
		From	To			Metals (As Cd Cr Cu Pb Zn Ni Hg)	OCP	TRH / PAH	Combination 5	Combination 5a	Combination 12a	Asbestos	pH	EC	CEC/ESP	Cl / SO4	Resistivity										Keep Sample
1	TP 1	0.00	0.10	DG		/	/																				
2	TP 2	0.00	0.10	DG		/	/																				
3	TP 3	0.00	0.10	DG		/	/																				
4	TP 4	0.50	0.60	DG						/																	
5	TP 5	0.30	0.40	DG						/																	
6	TP 6	0.10	0.20	DG						/																	
7	TP 7	0.30	0.40	DG						/																	
8	TP 8	0.00	0.10	DG		/	/																				
9	TP 9	0.00	0.10	DG		/	/																				
10	TP 10	1.20	1.30	DG						/																	
11	TP 13	0.00	0.10	DG		/	/																				
12	TP 14	0.00	0.10	DG		/	/																				
13	TP 15	0.00	0.10	DG		/	/																				
14	TP 16	0.00	0.10	DG		/	/																				
15	TP 17	0.00	0.10	DG		/	/																				
16	TP 18	0.00	0.10	DG		/	/																				



Envirolab Services
12 Ashley St
Chatswood NSW 1587
Ph: (02) 9310 0200

Job No: 209239

Date Received: 10/1/19

Time Received: 13:35

Received by: Niamh

Temp: Cool Ambient 22.5

Cooling: Ice/icepack

Security: Intact/Broken/None

Relinquished by

Laboratory	Name	Signature	Date	Received By	Laboratory	Name	Signature	Date
GeoEnviro Consultancy	Adrian Tejada		10/01/2019	Niamh	Envirolab	Niamh May		10/1/19

Legend

DB Disturbed Sample (Bulk, Plastic bag) U50 Undisturbed Sample, 50mm Tube
DS Disturbed Sample (Small, Plastic bag) U75 Undisturbed Sample, 75mm Tube
DG Disturbed Sample (Glass Jar) WG Water Sample, Amber Glass Jar
STP Standard Penetration Test Sample WP Water Sample, Plastic Bottle

Y Keep Sample
N Discard Sample



GeoEnviro Consultancy Pty Ltd

Unit 5, 39-41 Fourth Avenue, Blacktown NSW 2148, Australia

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Laboratory Test Request/Chain of Custody Record

Page 2 of 3

Job Details		Sample Date: 8/1/19		External Laboratory Details:	
Job Number: JC18322B		Sampled By: AT		Laboratory name: Envirolab Services Pty Ltd	
Client:		Project Manager: SL		Address: 12 Ashley Street	
Project: Proposed College		Store Location:		Chatswood	
Location: 85 Byron Road and 63 Ingleburn Road Leppington				Contact: Tania Notaris	

Sampling Details		Sample Type		Test Required (Y)														Test Performed(X)									
Location		Depth (m)		Soil	Water																						
		From	To			Metals (As Cd Cr Cu Pb Zn Ni Hg)	OCP / PCB	TRH / PAH	Combination 5	Combination 5a	Combination 12a	Asbestos	pH	EC	CEC/ESP	Cl / SO4	Resistivity										Keep Sample
209239																											
17	TP 19	0.00	0.10	DG																							
18	TP 20	0.00	0.10	DG																							
19	TP 21	0.00	0.10	DG																							
20	TP 22	0.00	0.10	DG																							
21	TP 23	0.00	0.10	DG																							
22	TP 24	0.00	0.10	DG																							
23	TP 25	0.00	0.10	DG																							
24	TP 26	0.00	0.10	DG																							
25	TP 27	0.00	0.10	DG																							
26	TP 28	0.00	0.10	DG																							
27	TP 29	0.00	0.10	DG																							
28	TP 30	0.00	0.10	DG																							
29	TP 31	0.00	0.10	DG																							
30	TP 32	0.00	0.10	DG																							
31	TP 33	0.00	0.10	DG																							
32	TP 34	0.00	0.10	DG																							

Relinquished by				Received By <u>Niamh May</u>			
Laboratory	Name	Signature	Date	Laboratory	Name	Signature	Date
GeoEnviro Consultancy	Adrian Tejada	<i>[Signature]</i>	10/01/2019	Envirolab	Niamh	<i>[Signature]</i>	10/1/19

Legend

DB Disturbed Sample (Bulk, Plastic bag)	U50 Undisturbed Sample, 50mm Tube
OS Disturbed Sample (Small, Plastic bag)	U75 Undisturbed Sample, 75mm Tube
DG Disturbed Sample (Glass Jar)	WG Water Sample, Amber Glass Jar
STP Standard Penetration Test Sample	WP Water Sample, Plastic Bottle

Y Keep Sample
N Discard Sample



Tel: (02) 96798733 Fax: (02) 96798744

Page 3 of 3

Form No. W019-1/Ver06/12/09

CERTIFICATE OF ANALYSIS 209239-A

Client Details

Client	Geoenviro Consultancy Pty Ltd
Attention	Steven Goss
Address	PO Box 1543, Macquarie Centre, North Ryde, NSW, 2113

Sample Details

Your Reference	<u>JC18322B, Leppington</u>
Number of Samples	40 Soil
Date samples received	10/01/2019
Date completed instructions received	12/03/2019

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.
Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	19/03/2019
Date of Issue	18/03/2019
NATA Accreditation Number 2901. This document shall not be reproduced except in full.	
Accredited for compliance with ISO/IEC 17025 - Testing. Tests not covered by NATA are denoted with *	

Results Approved By

Giovanni Agosti, Group Technical Manager
Jeremy Faircloth, Operations Manager, Sydney
Nancy Zhang, Laboratory Manager, Sydney
Steven Luong, Organics Supervisor

Authorised By



Jacinta Hurst, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil				
Our Reference		209239-A-7	209239-A-17	209239-A-32
Your Reference	UNITS	Duplicate C	Duplicate D	Duplicate E
Depth		-	-	-
Date Sampled		08/01/2019	08/01/2019	08/01/2019
Type of sample		Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019
TRH C ₆ - C ₉	mg/kg	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	93	93	92

svTRH (C10-C40) in Soil				
Our Reference		209239-A-7	209239-A-17	209239-A-32
Your Reference	UNITS	Duplicate C	Duplicate D	Duplicate E
Depth		-	-	-
Date Sampled		08/01/2019	08/01/2019	08/01/2019
Type of sample		Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	15/03/2019	15/03/2019	15/03/2019
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50
Surrogate o-Terphenyl	%	98	86	96

PAHs in Soil				
Our Reference		209239-A-7	209239-A-17	209239-A-32
Your Reference	UNITS	Duplicate C	Duplicate D	Duplicate E
Depth		-	-	-
Date Sampled		08/01/2019	08/01/2019	08/01/2019
Type of sample		Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019
Naphthalene	mg/kg	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5
Surrogate <i>p</i> -Terphenyl-d14	%	119	117	117

Organochlorine Pesticides in soil				
Our Reference		209239-A-7	209239-A-17	209239-A-32
Your Reference	UNITS	Duplicate C	Duplicate D	Duplicate E
Depth		-	-	-
Date Sampled		08/01/2019	08/01/2019	08/01/2019
Type of sample		Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	15/03/2019	15/03/2019	15/03/2019
HCB	mg/kg	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1
Surrogate TCMX	%	113	108	110

PCBs in Soil				
Our Reference		209239-A-7	209239-A-17	209239-A-32
Your Reference	UNITS	Duplicate C	Duplicate D	Duplicate E
Depth		-	-	-
Date Sampled		08/01/2019	08/01/2019	08/01/2019
Type of sample		Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	15/03/2019	15/03/2019	15/03/2019
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1
Surrogate TCLMX	%	113	108	110

Acid Extractable metals in soil				
Our Reference		209239-A-7	209239-A-17	209239-A-32
Your Reference	UNITS	Duplicate C	Duplicate D	Duplicate E
Depth		-	-	-
Date Sampled		08/01/2019	08/01/2019	08/01/2019
Type of sample		Soil	Soil	Soil
Date prepared	-	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	13/03/2019	13/03/2019	13/03/2019
Arsenic	mg/kg	7	5	7
Cadmium	mg/kg	<0.4	<0.4	<0.4
Chromium	mg/kg	13	14	17
Copper	mg/kg	50	15	24
Lead	mg/kg	44	24	81
Mercury	mg/kg	<0.1	<0.1	<0.1
Nickel	mg/kg	8	41	7
Zinc	mg/kg	330	84	90

Moisture				
Our Reference		209239-A-7	209239-A-17	209239-A-32
Your Reference	UNITS	Duplicate C	Duplicate D	Duplicate E
Depth		-	-	-
Date Sampled		08/01/2019	08/01/2019	08/01/2019
Type of sample		Soil	Soil	Soil
Date prepared	-	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019
Moisture	%	14	12	20

Method ID	Methodology Summary
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PCBs" is simply a sum of the positive individual PCBs.

Method ID	Methodology Summary
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL' values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero' values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL' values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

Client Reference: JC18322B, Leppington

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	[NT]
Date extracted	-			13/03/2019	[NT]	[NT]	[NT]	[NT]	13/03/2019	[NT]
Date analysed	-			14/03/2019	[NT]	[NT]	[NT]	[NT]	14/03/2019	[NT]
TRH C ₆ - C ₉	mg/kg	25	Org-016	<25	[NT]	[NT]	[NT]	[NT]	89	[NT]
TRH C ₆ - C ₁₀	mg/kg	25	Org-016	<25	[NT]	[NT]	[NT]	[NT]	89	[NT]
Benzene	mg/kg	0.2	Org-016	<0.2	[NT]	[NT]	[NT]	[NT]	101	[NT]
Toluene	mg/kg	0.5	Org-016	<0.5	[NT]	[NT]	[NT]	[NT]	95	[NT]
Ethylbenzene	mg/kg	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	81	[NT]
m+p-xylene	mg/kg	2	Org-016	<2	[NT]	[NT]	[NT]	[NT]	84	[NT]
o-Xylene	mg/kg	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	82	[NT]
naphthalene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	107	[NT]	[NT]	[NT]	[NT]	111	[NT]

Client Reference: JC18322B, Leppington

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	[NT]
Date extracted	-			13/03/2019	[NT]	[NT]	[NT]	[NT]	13/03/2019	[NT]
Date analysed	-			14/03/2019	[NT]	[NT]	[NT]	[NT]	14/03/2019	[NT]
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	97	[NT]
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	97	[NT]
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	100	[NT]
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	97	[NT]
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	97	[NT]
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	100	[NT]
Surrogate o-Terphenyl	%		Org-003	105	[NT]	[NT]	[NT]	[NT]	105	[NT]

QUALITY CONTROL: PAHs in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	[NT]
Date extracted	-			13/03/2019	[NT]	[NT]	[NT]	[NT]	13/03/2019	[NT]
Date analysed	-			14/03/2019	[NT]	[NT]	[NT]	[NT]	14/03/2019	[NT]
Naphthalene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	102	[NT]
Acenaphthylene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	108	[NT]
Phenanthrene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	116	[NT]
Anthracene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	103	[NT]
Pyrene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	97	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	128	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	<0.05	[NT]	[NT]	[NT]	[NT]	107	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	113	[NT]	[NT]	[NT]	[NT]	112	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	[NT]
Date extracted	-			13/03/2019	[NT]	[NT]	[NT]	[NT]	13/03/2019	[NT]
Date analysed	-			15/03/2019	[NT]	[NT]	[NT]	[NT]	15/03/2019	[NT]
HCB	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	92	[NT]
gamma-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	84	[NT]
Heptachlor	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	86	[NT]
delta-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	88	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	98	[NT]
gamma-Chlordane	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	98	[NT]
Dieldrin	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	119	[NT]
Endrin	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	100	[NT]
pp-DDD	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	84	[NT]
Endosulfan II	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	95	[NT]
Methoxychlor	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate TCMX	%		Org-005	118	[NT]	[NT]	[NT]	[NT]	126	[NT]

Client Reference: JC18322B, Leppington

QUALITY CONTROL: PCBs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	[NT]
Date extracted	-			13/03/2019	[NT]	[NT]	[NT]	[NT]	13/03/2019	[NT]
Date analysed	-			15/03/2019	[NT]	[NT]	[NT]	[NT]	15/03/2019	[NT]
Aroclor 1016	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NT]	[NT]	122	[NT]
Aroclor 1260	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate TCLMX	%		Org-006	118	[NT]	[NT]	[NT]	[NT]	106	[NT]

Client Reference: JC18322B, Leppington

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	[NT]
Date prepared	-			13/03/2019	[NT]	[NT]	[NT]	[NT]	13/03/2019	[NT]
Date analysed	-			13/03/2019	[NT]	[NT]	[NT]	[NT]	13/03/2019	[NT]
Arsenic	mg/kg	4	Metals-020	<4	[NT]	[NT]	[NT]	[NT]	93	[NT]
Cadmium	mg/kg	0.4	Metals-020	<0.4	[NT]	[NT]	[NT]	[NT]	94	[NT]
Chromium	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	101	[NT]
Copper	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	105	[NT]
Lead	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	100	[NT]
Mercury	mg/kg	0.1	Metals-021	<0.1	[NT]	[NT]	[NT]	[NT]	101	[NT]
Nickel	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	97	[NT]
Zinc	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	97	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.
Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.	

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Report Comments

The samples are outside of the recommended Technical Holding Time (THT) for organics, however, the analysis has proceeded as requested.

APPENDIX I

Unexpected Finds Protocol



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UNEXPECTED FINDS PROTOCOL

ITEM	REQUIREMENTS	
DEFINITION	An unexpected find may be identified as a result of site activity, for example through earthworks and movement of plant on site including preparatory site works.	
SITE SUPERVISOR	On being notified of an Unexpected Find, the Principal Contractor must: • Stop work & notify the site manager/HSE coordinator as soon as practically possible. • Ensure the find is not further disturbed. • Ensure all personnel are removed from the area with the exception of personnel required to isolate or make safe the area. • Establish an “unexpected find” isolation zone as required to prevent or minimise exposure risks for site personnel, members of the public, fauna or flora. Note: Persons are not to expose themselves to further risk whilst establishing isolation zone. • Assess the requirement to evacuate areas or the entire site. • Co-ordinate site or area evacuation as assessed. Note: It is preferable to evacuate the whole site if there is any doubt as to the safety of personnel or the environment. • As soon as the safety of personnel, environment & the site is secured the Site Manager/Supervisor should notify their relevant HSE Manager, Project Manager & Construction Manager. • As soon as practically possible record the events associated with the unexpected find.	
PROJECT MANAGER	The Project Manager and/or HSE Manager in consultation with the relevant General Manager notify regulatory authorities as required. Establish a risk based process for managing clearance of the unexpected find & establishing incident investigation.	
	The Project Manager or HSE Manager must also ensure that the find is reported to the Principal. This may be by verbal communication.	
UNEXPLODED ORDNANCE	• Do not touch or disturb. • Contact Police immediately.	
UNEXPECTED SERVICES (LIVE OR DISUSED)	• This may include power, gas or fuel. • Do not touch or further disturb. • The area must be immediately designated a non-smoking and “no naked flames” area. • All nearby machinery should be turned off. • Contact relevant governing authority. • Contact appropriate trade supervisor.	
ASBESTOS OR OTHER CONTAMINANTS	Products made from asbestos cement not only include fibro sheeting (flat and corrugated), but items such as water, drainage and flue pipes, roofing shingles and gutters. • Do not touch or further disturb. • Isolate area (10 metre isolation zone required for asbestos). • Contact hygienist. • Implement hygienist’s recommendations. • If persons have been exposed arrange medical advice/consultation i.e. possible asbestos fibre exposure will require lung function test & chest x-ray. Note: This applies more specifically to friable type asbestos rather than non friable asbestos containing material however if any doubt exists treat as friable. • Obtain clearance from hygienist prior to re-entering area.	
	Non-Friable Asbestos Over 97% of the products in Australia were non-friable material in which the Asbestos fibres were bonded by cement, vinyl, resin or other similar material.	Friable Asbestos The hazardous friable asbestos is material which can be crumbled, pulverised, or reduced to powder by hand pressure. This may also include previously non-friable material which becomes broken or damaged by mechanical force.

ITEM	REQUIREMENTS
HUMAN REMAINS	- Do not touch or disturb. - Contact Police immediately. Please note that aboriginal burial objects (such as bark coffins) are defined by legislation as human remains.
HERITAGE ITEMS	- Do not touch or disturb. - Contact Heritage Office or relevant State or Local Government Authority.
OBJECTS OF POSSIBLE CULTURAL SIGNIFICANCE	Do not touch or disturb. Contact Department of Indigenous Affairs or relevant State or Local Government Authority.
UNEXPECTED FIND PROCESS	Unexpected Find Discovered ↓ Person Uncovering Find 1. Stop work 2. Consider personnel safety etc 3. Notify Site Supervisor/ Manager location ↓ Site Supervisor/Manager - Establish Unexpected Find isolation zone as required - Notify Project Manager/ Construction Manager and HSE Managers ↓ Project Manager/Construction Manager - In consultation with State General Manager/HSE Manager notify relevant authority (where required) - Complete Incident Register in site diary - Develop, document and implement process to clear find

APPENDIX J

Important Information about your Environmental Site Assessment Explanatory Notes



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IMPORTANT INFORMATION REGARDING YOUR ENVIRONMENTAL SITE ASSESSMENT

This Environmental Assessment Report was performed in general conformance with our understanding of the guidelines by the Australian and New Zealand Conservation Council (ANZECC), the Office of Environment and Heritage (OEH) and the National Environmental Protection (Assessment of Site Contamination) Measure 1999 (amended 2013).

These accompanying notes have been prepared by GeoEnviro Consultancy Pty Ltd, using guidelines prepared by ASFE; The Association of Engineering Firms Practising in the Geosciences. The notes are offered as an aid in the interpretation of your environmental site assessment report.

REASONS FOR AN ENVIRONMENTAL SITE ASSESSMENT

Environmental site assessments are typically, though not exclusively, performed in the following circumstances:

- As a pre- acquisition assessment on behalf of either a purchaser or a vendor, when a property is to be sold
- As a pre-development assessment, when a property or area of land is to be redeveloped, or the land use has change, eg from a factory to a residential subdivision
- As a pre-development assessment of greenfield sites, to establish baseline conditions and assess environmental, geological and hydrological constraints to the development of, eg, a landfill
- As an audit of the environmental effects of previous and present site usage

Each circumstance requires a specific approach to the assessment of soil and groundwater contamination. In all cases the objective is to identify and if possible, quantify the risks which unrecognised contamination poses to the ongoing or proposed activity. Such risk may be both financial (clean-up costs or limitations in site use) and physical (health risks to site users or the public).

ENVIRONMENTAL SITE ASSESSMENT LIMITATIONS

Although information provided by an environmental site assessment can reduce exposure to the risk of the presence of contamination, no environmental site assessment can eliminate the risk. Even a rigorous professional assessment may not detect all contamination within a site. Contaminants may be present in areas that were not surveyed or sampled, or may migrate to areas which did not show signs of contamination when sampled. Contaminant analysis cannot possibly cover every type of contaminant which may occur, only the most likely contaminants are screened.



AN ENVIRONMENTAL SITE ASSESSMENT REPORT IS BASED ON A UNIQUE SET OF PROJECT SPECIFIC FACTORS

Your environmental assessment report should not be used;

- When the nature of the proposed development is changed, eg, if a residential development is proposed, rather than a commercial development
- When the size or configuration of the proposed development is altered, eg, if a basement is added
- When the location or orientation of the proposed structure is modified
- When there is a change of land ownership, or
- For application to an adjacent site

In order to avoid costly problems, you should ask your consultant to assess any changes in the project since the assessment and the implications, if any, to recommendations made in the assessment.

ENVIRONMENTAL SITE ASSESSMENT FINDINGS ARE PROFESSIONAL ESTIMATES

Site assessment identifies actual sub-surface conditions only at those points where samples are taken, when they are taken. Data obtained from the sampling and subsequent laboratory analyses are interpreted by geologists, engineers or scientist and opinions are drawn about the overall subsurface conditions, the nature and extent of contamination, the likely impact on any proposed development and appropriate remediation measures. Actual conditions may differ from those inferred, because no professional, no matter how qualified and no sub-surface exploration program, no matter how comprehensive, can reveal what is hidden by earth, rock and time. The actual interface between materials may be far more gradual or abrupt than an assessment indicates. Actual conditions in areas not sampled may differ from predictions. Nothing can be done to prevent the unanticipated, however, steps can be taken to help minimise the impact. For this reason, site owner should retain the services of their consultants throughout the development stage of the project in order to identify variances, conduct additional tests which may be necessary and to recommend solutions to problems encountered on site.

Soil and groundwater contamination is a field in which legislation and interpretation of legislation by government departments is changing rapidly. Whilst every attempt is made by GeoEnviro Consultancy Pty Ltd to be familiar with current policy, our interpretation of the investigation findings should not be taken to be that of the relevant authority. When approval from a statutory authority is required for a project, that approval should be directly sought.

STABILITY OF SUB-SURFACE CONDITIONS

Sub-surface conditions can change by natural processes and site activities. As an environmental site assessment is based on conditions existing at the time of the investigation, project decisions should not be based on environmental site assessment data which may have been affected by time. The consultant should be requested to advise if additional tests are required.



ENVIRONMENTAL SITE ASSESSMENTS ARE PERFORMED FOR SPECIFIC PURPOSES AND CLIENTS

Environmental site assessments are prepared in response to a specific scope of work required to meet the specific needs or specific individuals. An assessment prepared for a consulting civil engineer may not be adequate to a construction contractor or another civil engineer.

An assessment should not be used by other persons for any purpose, or by the client for a different purposes. No individual, other than the client, should apply an assessment, even for its intended purposes, without first conferring with the consultant. No person should apply an assessment for any purposes other than that originally contemplated, without first conferring with the consultant.

MISINTERPRETATION OF ENVIRONMENTAL SITE ASSESSMENTS

Costly problems can occur when design professionals develop plans based on misinterpretation of an environmental site assessment. In order to minimise problems, the environmental consultant should be retained to work with appropriate design professionals, to explain relevant findings and to review the adequacy of plans and specifications relative to contamination issues.

LOGS SHOULD NOT BE SEPARATED FORM THE REPORT

Borehole and test pit logs are prepared by environmental scientists, engineers or geologist, based upon interpretation of field conditions and laboratory evaluation of field samples. Field logs normally provided in our reports and these should not be redrawn for inclusion in site remediation or other design drawings, as subtle but significant drafting errors or omissions may occur in the transfer process. Photographic reproduction can eliminate this problem, however, contractors can still misinterpret the logs during bid preparation if separated from the test of the assessment. Should this occur, delays and disputes , or unanticipated costs may result.

To reduce the likelihood of boreholes and test pit logs misinterpretation, the complete assessment should be available to persons or organisations involved in the project, such as contractors, for their use. Denial of such access and disclaiming responsibility for the accuracy of sub-surface information does not insulate an owner from the attendant liability. It is critical that the site owner provides all available site information to persons and organisations, such as contractors.

READ RESPONSIBILITY CLAUSES CLOSELY

An environmental site assessment is based extensively on judgement and opinion, therefore, it is necessarily less exact than other disciplines. This situation has resulted in wholly unwarranted claim being lodged against consultants. In order to aid in prevention of this problem, model clauses have been developed for use in written transmittals. These are definitive clauses, designed to indicate consultant responsibility. Their use helps all parties involved recognise individual responsibilities and formulate appropriate action. Some of these definitive clauses are likely to appear in the environmental site assessment and you are encouraged to read them closely. Your consultant will be happy to give full and frank answers to any questions you may have.