STAGE 1 AND STAGE 2
ENVIRONMENTAL SITE INVESTIGATION

677 - 687 CANTERBURY ROAD, BELMORE NSW

PREPARED FOR WM RITCHIE PROPERTIES PTY LTD
& BELMORE 677 PTY LTD
REPORT ID: E13017BEL-R01D

Date: 20 March 2014
Revision No.: 0.1

Client:
WM Ritchie Properties Pty Ltd & Belmore 677 Pty Ltd
C/- City Alliance Property Pty Ltd
PO Box 124
Surry Hills NSW 2010

Author: S. McCormack
Field Engineer / Scientists: S. McCormack

TABLE OF CONTENTS

EXECUTIVE SUMMARY **5**

1 PROJECT INFORMATION **10**
1.1 INTRODUCTION 10
1.2 OBJECTIVES 11
1.3 SCOPE OF WORKS 11
2 SITE IDENTIFICATION **13**
3 SITE HISTORY **14**
3.1 HISTORICAL AERIAL PHOTOGRAPHS 14
3.2 HISTORICAL TITLE INFORMATION 17
3.3 PROPERTY INFORMATION FROM SITE OCCUPIERS 18
3.4 CANTERBURY MUNICIPAL COUNCIL RECORDS 18
3.5 WORKCOVER NSW 19
3.6 CONTAMINATED LAND DATABASE 19
3.7 SUMMARY OF SITE HISTORY INFORMATION 20
4 SITE CONDITION AND SURROUNDING ENVIRONMENT **21**
4.1 SITE IDENTIFICATION AND DESCRIPTION 21
4.1.1 Tanks and Associated Services 24
4.1.2 Fill 24
4.1.3 Odours and Staining 24
4.2 TOPOGRAPHY 24
4.3 PROPOSED LAND-USE 24
4.4 REGIONAL GEOLOGY AND SOILS 25
4.5 REGIONAL HYDROGEOLOGY 25
5 CONCEPTUAL SITE MODEL **26**
6 SAMPLING AND ANALYSIS PROGRAM **29**
6.1 SAMPLING PROGRAM 29
6.1.1 Borehole Drilling Operations and Logging 29
6.1.2 Subsurface Conditions 32
6.1.3 Soil Sampling 33
6.1.4 Field Screening of Soil Samples 34
6.1.5 Monitoring Well Installation 34
6.1.6 Groundwater Monitoring and Sampling 35
6.2 ANALYTICAL PROGRAM 37

7 DATA QUALITY ASSESSMENT 41

8 ASSESSMENT CRITERIA 42
8.1 SOIL SAMPLES 42
8.1.1 Ecological Investigation / Screening Levels 42
8.1.2 Health Investigation Levels 44
8.2 WATER SAMPLES 47

9 ANALYTICAL RESULTS 50
9.1 SOIL SAMPLES 50
9.1.1 Metals 50
9.1.2 TRH and BTEX 51
9.1.3 PAHs 52
9.1.4 OCPs and PCBs 52
9.1.5 Asbestos 52
9.2 WATER FIELD PARAMETERS 61
9.3 WATER ANALYTICAL RESULTS 63
9.3.1 Metals 63
9.3.2 TRH and BTEX 63
9.3.3 PAHs 63
9.3.4 VOCs (including BTEX) 63

10 SITE CHARACTERISATION 65
10.1 SITE HISTORY AND POTENTIAL FOR CONTAMINATION 65
10.2 SOIL ASSESSMENT 66
10.2.1 Waste Classification Estimates 68
10.3 GROUNDWATER ASSESSMENT 69

11 CONCLUSION 70

13 GENERAL LIMITATIONS OF THIS REPORT 72

14 REFERENCES 73

FIGURES

Figure 1: Site location map
Figure 2: Site details
Figure 3: Site plan (site survey)
Figure 4: Site plan (Aerial photography)
Figure 5: Site plan of service station area

TABLES

Table 1: Summary of Potential Contamination
Table 2: Summary of Borehole Information
Table 3: Summary of Subsurface Conditions
Table 4: Summary of the Soil Sampling and Analysis Program
Table 5: Summary of the Groundwater Sampling and Analysis Program
Table 6: Soil Site Assessment Criteria (SAC)
Table 7: Groundwater Investigation Levels (GILs)
Table 8: Soil Analytical Results
Table 9: Groundwater Field Data Results
Table 10: Groundwater Analytical Results

APPENDICES

Appendix A: Site Survey and Proposed Development Plans
Appendix B: Historical Aerial Photographs
Appendix C: Historical Title Documentation
Appendix D: Sale Contract provided by J. Robins & Sons Pty Ltd
Appendix E: WorkCover NSW search results
Appendix F: NSW EPA Database Information
Appendix G: Data Quality Objectives
Appendix H: Borehole Logs
Appendix I: Quality Assurance Assessment Report
Appendix J: Calibration Certificates
Appendix K: Field Data Sheets
Appendix L: Laboratory Reports and Certificates

EXECUTIVE SUMMARY

Geo-Environmental Engineering Pty Ltd (GEE) was commissioned by City Alliance Property Pty Ltd, on behalf of WM Ritchie Properties Pty Ltd & Belmore 677 Pty Ltd, to undertake a detailed Environmental Site Assessment (ESA) at 677 - 687 Canterbury Road, Belmore, NSW (herein referred to as the 'site').

The site covers a combined area of approximately 6,900m^2 and the following allotments:

◊ Lots 1 & 2 in DP 533919

◊ Lots A & B in DP952115, and

◊ Lot 91 in DP3862.

The investigation was required to support a Development Application with Canterbury Municipal Council (Council) which relates to the proposed demolition of existing structures and the construction of a multi-storey, mixed-use, development with basement carparking. The exact details of the proposed development, including the number of levels above and below ground, have not been finalised. However, it is expected that the ground floor will comprise commercial land-use with residential apartments above. Additionally, the basement level(s) are expected to cover the majority of the site.

The ESA was required to identify the potential for contamination from past and present activities, and possible constraints on future site development. In this regard, GEE has completed a *Stage 1 - Preliminary Site Investigation* (Stage 1 - PSI) and Stage *2 – Detailed Site Investigation* (Stage 2 – DSI).

The objective of the Stage 1 - PSI was to assess the likelihood of site contamination which may have resulted from past and present activities on the site, and the likelihood of contaminating activities on adjoining land, having an impact on the site. The objective of the Stage 2 – DSI was to characterise actual soil and groundwater conditions across the site and whether they have been contaminated from past and/or present activities undertaken on and/or adjacent to the site, which would impact on the proposed development.

Additionally, considering that the site is to be excavated to facilitate the construction of a basement, the client requested that an estimate of the waste classification for the fill and natural soil be provided.

Site History

A review of the historical information indicates that the site has been operating as a shoe factory since approximately 1979. Before 1979 the majority of the site (*i,e*. lots 91, 1 and 2) was occupied by a clothing factory which commenced circa 1937.

Lot A, along the western boundary fronting Drummond Street, appears to have been used as a residential property since at least 1916 and this land-use has continued up until the time of this investigation. The final allotment which makes up the site (Lot B - in the south-western corner of the site) appeared to be a motor vehicle workshop and service station prior to being purchased by J. Robins & Sons Pty Ltd in circa 1980. The garage and/or service station was likely operated between approximately 1929 when Motor & Engineering Works Ltd purchased the allotment. The allotment was then owned by various individuals listed as being a '*garage proprietor*' before Caltex Oil (Australia) Pty Ltd owned the allotment between 1953 and 1979.

In summary, the former service station represented the primary potential for contamination (both soil and groundwater).

Soil Conditions

Soil conditions across the site were assessed at twenty eight borehole locations (BH1 to BH28) positioned across the site and targeting areas of potential contamination (in particular the service station in the south-western corner). The number of boreholes exceeds the minimum number of sampling points required for adequate site characterisation as defined by the EPA NSW and Australian Standards.

The subsurface conditions encountered during the field investigations comprised a layer of fill material which was underlain by a natural clay soil which graded into shale bedrock. The depth of filling was typically between 0.15m and 1.3m bgs, although deeper sand fill was present in the vicinity of the USTs in the south-western corner of the site. The depth to shale bedrock ranged from 0.75m to 2.2m bgs.

During the drilling of boreholes, there were no unusual odours (that could be potentially associated with contamination) noted. Additionally, no potentially Asbestos Containing Materials (ACM) was observed below ground during sampling and logging. Permanent groundwater was not encountered during the drilling of each borehole, however, groundwater seepage did eventually occur in the monitoring wells installed within bores BH2, BH3, BH4, BH10, BH14 and BH20.

GEE submitted a total of 69 soil samples from the 28 boreholes to Envirolab for NATA accredited laboratory analysis of metals (arsenic, cadmium, chromium, copper, nickel, lead, mercury and zinc), TRH, BTEX, PAHs, OCPs, PCBs and asbestos and the analytical results were compared against relevant set of SAC appropriate for the proposed residential land-use with minimal access to soil.

In summary, the only analytes to exceed the health and/or ecological SAC was:

◊ Lead within the fill layer at BH26 (sample SM060114-93 – 6000mg/kg) which exceeded the ecological and health based SAC. BH26 was 17m from the eastern boundary and 15m from the northern boundary of the factory, and

◊ B(a)P within the fill at BH4 (sample SM161213-22 – 1.3mg/kg) which exceeded the ecological SAC of 0.7mg/kg. BH4 was 2m from the western boundary and 4m from the southern boundary.

The lead concentration in sample SM060114-93 was re-analysed three times using new sub-samples from the same sample jar and the results were 1700mg/kg, 2400mg/kg and 3900mg/kg which equates to an average lead concentration of 3500mg/kg. The average concentration of lead was more than 2.5 times the health and ecological SAC and therefore is considered to be a 'hot-spot' of contamination which will need to be remediated and/or managed as part of the proposed redevelopment works.

The concentration of B(a)P in sample SM161213-22 only marginally exceeded the ecological SAC. The ecological SAC for B(a)P is a screening level, above which will require further evaluation and consideration. Considering the urban environment in which the site lies, the existing land-use and the extent and type of the proposed development (particularly the fact that the site will be excavated to form a basement level), GEE considers that the elevated B(a)P concentration does not require specific remediation and can be managed appropriately as part of the proposed redevelopment work. This should include provision of a waste classification for the fill layer and disposal to an appropriately licenced landfill facility.

With respect to future earthworks proposed as part of the development, the following waste classifications are <u>likely</u> to apply to the fill and natural soil profile across the site:

- ◊ Fill layer in the vicinity of BH23 which is impacted with lead up to 6000mg/kg. This portion of fill is expected to have a waste classification of 'Restricted Solid Waste' and GEE estimates a volume of this waste of approximately 100m^3.
- ◊ The remaining portion of the fill layer is likely to be classified as General solid waste (non-putrescible).
- ◊ The natural soil profile (including shale bedrock) is free of any contamination and is likely to have a classification of virgin excavated natural material (VENM) which is a sub-class of general solid waste (non-putrescible) which and can be re-used, rather than be disposed at a landfill. To ensure VENM classification the natural soil / bedrock must not be mixed with any fill material or other deleterious material. GEE recommends that all remediation work including removal of any USTs, the lead impacted soil at BH26 and remaining fill layer be removed from site before excavation and disposal of VENM.

The above waste classifications are only estimates at this stage and further testing of the fill layer will be necessary including leachate analysis using the Toxicity Characteristic Leaching Procedure (TCLP).

<u>Groundwater Conditions</u>

Groundwater conditions beneath the site were assessed using six monitoring wells installed within boreholes BH2, BH3, BH4, BH10, BH14 and BH20. Water within the wells was generally neutral in pH and high in conductivity indicating brackish / saline water. The standing (or stabilised) water level was recorded in each well prior to purging and sampling and when compared to the surface elevations it was determined that groundwater is flowing in a north-westerly direction which is commensurate with the topography.

To assess the presence of contamination within the groundwater beneath the site, water from each wells was submitted to Envirolab for NATA accredited analysis of dissolved metals (arsenic, cadmium, chromium, copper, nickel, lead, zinc and mercury), TRH, BTEX, PAHs and VOCs. The analytical results were then compared against a set of groundwater investigation Levels (GILs) considered appropriate for the environmental setting of the site.

The concentrations of arsenic, cadmium, chromium, copper, lead, mercury, TRH, BTEX and PAHs conformed to the adopted GILs, while the concentrations of nickel and zinc in some wells exceeded the SAC. The metal exceedances are not considered to be significant because:

- The groundwater from the site was collected from a stratigraphy comprising shale and according Hem (1989 – reference 13), the concentrations of nickel and zinc are commensurate with naturally occurring background concentrations.
- The concentrations are consistent across the site (including the up-hydraulic gradient wells).
- No source of metal contamination was identified in the fill and natural soils across the site.
- The concentrations detected are commensurate with metal concentrations within the groundwater across the Sydney region.

1 PROJECT INFORMATION

1.1 INTRODUCTION

Geo-Environmental Engineering Pty Ltd (GEE) was commissioned by City Alliance Property Pty Ltd, on behalf of WM Ritchie Properties Pty Ltd & Belmore 677 Pty Ltd, to undertake a detailed Environmental Site Assessment (ESA) at 677 - 687 Canterbury Road, Belmore, NSW (herein referred to as the 'site').

The site covers a combined area of approximately 6,900m^2 and the following allotments:

◊ Lots 1 & 2 in DP 533919

◊ Lots A & B in DP952115, and

◊ Lot 91 in DP3862.

A site location map is provided as **Figure 1,** while the allotment boundaries which make up the site are shown on **Figure 2**. A detailed site survey is provided for reference in **Appendix A.**

The investigation was required to support a Development Application with Canterbury Municipal Council (Council) which relates to the proposed demolition of existing structures and the construction of a multi-storey, mixed-use, development with basement carparking. The exact details of the proposed development, including the number of levels above and below ground, have not been finalised. However, it is expected that the ground floor will comprise commercial land-use with residential apartments above. Additionally, the basement level(s) are expected to cover the majority of the site.

The ESA was required to identify the potential for contamination from past and present activities, and possible constraints on future site development. In this regard, GEE has completed a *Stage 1 - Preliminary Site Investigation* (Stage 1 - PSI) and Stage *2 – Detailed Site Investigation* (Stage 2 – DSI) in accordance with the NSW Environment Protection Authority (NSW EPA) in the *Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites* (reference 1) and NEPM (2013) Schedule B(2) *Guideline on Site Characterisation* (Reference 2).

The investigation was conducted in accordance with the approved GEE proposal dated 22 July 2013 and with consideration to relevant guidelines made or approved by the NSW Environmental Protection Authority (EPA) part of the NSW Office of Environment and Heritage (OEH), State Environmental Planning Policy No.55 – *Remediation of Land* (SEPP 55 – reference 3) and relevant Australian Standards.

Finally, the preliminary ESA was carried out by GEE in conjunction with a preliminary geotechnical investigation, the results of which are reported separately.

1.2 OBJECTIVES

The objective of the Stage 1 - PSI was to assess the likelihood of site contamination which may have resulted from past and present activities on the site, and the likelihood of contaminating activities on adjoining land, having an impact on the site. The objective of the Stage 2 – DSI was to characterise actual soil and groundwater conditions across the site and whether they have been contaminated from past and/or present activities undertaken on and/or adjacent to the site, which would impact on the proposed development.

Additionally, considering that the site is to be excavated to facilitate the construction of a basement, the client requested that an estimate of the waste classification for the fill and natural soil be provided.

1.3 SCOPE OF WORKS

The scope of works completed by GEE, to achieve the above objectives, is provided below:

- ◊ A review of the environmental and physical setting in which the site lies, including geology, hydrogeology and topography,
- ◊ A review of the history of the site using available records including historical land titles and historical aerial photographs,
- ◊ A detailed site inspection for potential sources of contamination,
- ◊ Field investigations including:
    - o The drilling of 28 boreholes across accessible areas of the site, and
    - o The installation of groundwater monitoring wells within 6 of the 28 boreholes.
    - o Sampling of soil and groundwater from the boreholes and wells.

- Laboratory analysis of selected soil and groundwater samples for a broad suite of potential contaminants, and
- Preparation of this report including the comparison of the laboratory analytical results against relevant Office of Environment and Heritage (OEH)[1] endorsed guidelines.

---

[1] The OEH incorporates the NSW Environment Protection Authority (EPA) and was formerly known as the NSW Department of Environment and Climate Change and Water (DECCW), the NSW Department of

2 SITE IDENTIFICATION

A summary of the site location details is provided below, while a site location map is provided as **Figure 1**:

Street Address:	677 - 687 Canterbury Road, Belmore NSW
Legal Description:	Lots 1 & 2 in DP 533919, Lots A & B in DP952115 and Lot 91 in DP3862 (refer to **Appendix A**)
Coordinates (MGA 56):	323700 mE, 6244780 mN
Local Government Area:	Canterbury Municipal Council
Site Area:	Approximately 6,900m^2
Current Owner:	WM Ritchie Properties Pty Ltd
Current Zoning:	B6 – Enterprise Corridor & R3 Medium density residential[2]
Current Use:	J. Robins & Sons Pty Ltd – Manufacture of shoes
Proposed Zoning:	GEE understands that the proposed development will be within the requirements of the current zoning[2]
Proposed Use:	Mixed Commercial and Residential

---

[2] Canterbury Local Environment Plan 2012 – Land Zoning Map – Sheet LZN_004

3 SITE HISTORY

The history of the site was researched to provide an understanding of past and present site activities which in turn may indicate sources and areas of potential contamination as well as potential chemicals of concern.

Information obtained and reviewed included:

- Historical aerial photographs dating back to 1930, as supplied by the NSW Land and Property Information or online sources such as Google Earth (**Appendix B**).
- Historical title information, dating back to 1905, obtained from the Land and Property Information Department of NSW (**Appendix C**).
- Property information held by the current occupiers of the site (J. Robins & Sons Pty Ltd) (**Appendix D**).
- Council records of past development applications and approvals.
- A search of dangerous good licences held with WorkCover NSW which often includes underground fuel storage tanks (USTs) (**Appendix E**).
- A search of the contaminated land database, which is available on the OEH website, was conducted which reveals if there has been any past records of written notices issued on the site by OEH under the Contaminated Land Management Act 1997 (CLM Act), including preliminary investigation orders. Additionally, the search can reveal if the site has ever been notified to the OEH under Section 60 duty to report contaminated sites, of the CLM Act (**Appendix F**).

3.1 HISTORICAL AERIAL PHOTOGRAPHS

Historical aerial photographs were examined for the years 1930, 1951, 1961, 1970. 1978, 1986, 1998, 2001, 2003, 2007, 2009 and 2011. A description of the site from each photograph is provided below while a copy of the aerial photography is provided in **Appendix B**:

1930 The earliest available photograph shows that the site was partially developed. Lots 1 and 2 at the eastern end of the site were occupied by at least two buildings. The poor photograph quality makes it difficult to determine the exact type of buildings and consequently land-use.

Lot 91 appears to be vacant undeveloped land, while Lot A is occupied by a residential dwelling with a detached building in the north-eastern corner which is assumed to be a garage.

Lot B (located in the south-western corner of the site) is occupied by at least 2 buildings. In the south-western corner of the allotment is an irregular shaped building, which is likely the same building which currently occupies the site. Based on land title information, this building was likely associated with a former service station. The other building or structure on Lot B is in the north-eastern corner. The type and use of this building could not be determined.

Predominately commercial or industrial properties appear to front Canterbury Road, while low density residential development appears to dominate the land further north and south.

1943 By 1943, part of the main shoe factory on Lot 1 and 2 had been constructed. At the time of this investigation, the factory building occupied the entire footprint of Lots 1 and 2, however, in the 1943 aerial photograph the factory only occupied the central portion of Lots 1 and 2 combined. In the south-eastern corner of Lot 2 (adjacent to Anderson Street) was a narrow building. The type and use of this building could not be determined, although base on the land title documentation this may have been a green grocer or newsagency.

There appeared to be little change to the remaining allotments (Lots 91, A and B) and surrounding land when compared to the 1930 photograph.

1951 There appears to be little change to the site compared to the 1943 image. Increased development is visible on the surrounding land to the north, south and west.

1961 By 1961 the remainder of the factory building across Lots 1 and 2 has been constructed. On the other allotments that make up the site, there appears to be little change compared to the 1951 image.

Again there appears to be increased development on the land adjoining the site.

1970 The main change to the site since the 1961 aerial photograph is the demolition and clearance of the residential dwelling and associated outbuilding on Lot A. Also, the driveway leading to the rear dock of the factory is present on Lot 91.

The surrounding land is similar in appearance to the 1961 image.

1978 By 1978 the residential apartment building on Lot A has been constructed. Elsewhere, there appears to be little change when compared to the 1970 image.

1986 There appears to be little change to the site and adjoining properties compared to the 1978 image.

1998 By 1998, the small building or structure in the north-eastern corner of Lot B has been cleared and this portion of the site is being used for car-parking. The development of the site as shown in the 1998 aerial photograph is very similar to the appearance of the site at the time of this investigation and as described in the site survey prepared in early 2104 (**Appendix A**).

There appears to be little change to the adjoining properties compared to the 1986 image.

2001 There appears to be little change to the site and the adjoining properties compared to the 1998 image.

2003 There appears to be little change to the site and the adjoining properties compared to the 2001 image.

2007 There appears to be little change to the site and the adjoining properties compared to the 2003 image.

2009 There appears to be little change to the site and the adjoining properties compared to the 2007 image.

2011 There appears to be little change to the site and the adjoining properties compared to the 2009 image.

In summary, the existing single storey brick and metal building located in the south-western corner of the site was constructed prior to the earliest available site photograph taken in February 1930. The factory on Lots 1 and 2 was progressively developed between 1930 and 1961. The residential apartment building which currently occupies Lot A was constructed between 1970 and 1978 following demolition of a smaller residential dwelling. Lot 91 appears to have been vacant and largely undeveloped since 1930.

3.2 HISTORICAL TITLE INFORMATION

The historical title deed information, which was obtained from the Land and Property Information of NSW, reveals that the site was originally part of a larger parcel of land granted to Francis Wilde by Crown Grant on 13th June 1823.

A copy of the historical title information is provided for reference in **Appendix C** along with a summary table listing the past proprietors (owners) and leaseholders of the five allotments along with a description of likely land-use based on cross referencing with aerial photograph information, information from Council and searches conducted using Google™.

As indicated by the title documentation, the current owners of the site (WM Ritchie Properties Pty Ltd) purchased the site from J. Robins & Sons Pty Ltd circa 2004 before leasing the site back to J. Robins & Sons Pty Ltd.

J. Robins & Sons Pty Ltd is a shoe manufacturing company, which purchased Lots 91, B, 1 and 2 around 1979 and Lot A in 1987. Lot A appears to have been used as a residential property since at least 1916 and this land-use has continued up until the time of this investigation. Lot B (in the south-western corner of the site) appeared to be a motor vehicle workshop and service station prior to being purchased by J. Robins & Sons Pty Ltd. The garage and/or service station appeared to operate from approximately 1929 when Motor & Engineering Works Ltd purchased the allotment. The allotment was then owned by various individuals listed as being a '*garage proprietor'* before Caltex Oil (Australia) Pty Ltd owned the allotment between 1953 and 1979.

Before lots 91, 1 and 2 were owned by J. Robins & Sons Pty Ltd, they were owned by the Crystal Clothing Industries Pty Ltd and/or David Chrystal (the owner of Crystal Clothing Industries). This company and/or David Chrystal had owned Lots 1 and 2 since approximately 1937 and purchased Lot 91 in 1959. GEE assumes that this company operated a clothing manufacturing business at the site which largely took place within the saw-tooth factory building occupying Lots 1 and 2. A review of the historical aerial photographs indicates that the factory building on Lots 1 and 2 first appeared soon after David Crystal purchased allotments in 1937. Prior to 1937, these allotments were owned by various individuals and possibly occupied by a green grocer and a newsagency.

Prior to being owned by Crystal Clothing Industries Pty Ltd, lot 91 (at the rear or northern end of the site) was also owned by various individuals and the land-use was likely to have been residential which is consistent with historical aerial photographs.

Overall, the most significant information obtained by the title documentation was the past use of Lot B (in the south-western corner) as a motor vehicle garage (or service station) between approximately 1929 to 1980.

3.3 PROPERTY INFORMATION FROM SITE OCCUPIERS

The current site occupiers (J. Robins & Sons Pty Ltd) provided a contract of sale document relating to Lot B (in the south-western corner of the site) and formerly identified as Lot 92 and 93 in DP3862. The contract of sale was dated 1979 and the vendor was Caltex Oil (Australia) Pty Ltd, which is consistent with the historical title documentation.

The contract document indicates that there was some equipment installed on the property which would *'remain at all times the property of the vendor'*. The equipment of most significance to this investigation, included:

- ◊ 5 x 455 to 900 litre tanks
- ◊ 1 x 5,400 litre underground tank
- ◊ 1 x 11,900 litre underground tank
- ◊ 1 x 16470 litre underground tank
- ◊ 1 x 20,140 litre underground tank

A plan showing the approximate location of the underground tanks was also provided as part of the contract of sale document. There are no records indicating that they were removed therefore GEE has assumed that they remain. A copy of the contract of sale document is provided in **Appendix D** and the approximate locations of the tanks are shown on **Figure 5**.

3.4 CANTERBURY MUNICIPAL COUNCIL RECORDS

GEE contacted the planning department of Canterbury Council to enquire about past development applications and approvals relating to the site which can provide an indication of past land-use activities. Unfortunately no information was available. GEE also contacted the Canterbury library to obtain some historical information about the site and again no relevant information was available.

3.5 WORKCOVER NSW

GEE conducted a search of dangerous good licences with WorkCover NSW to obtain additional information of the USTs in the south-western corner of the site and potentially if there were any other tanks or dangerous goods stores across the site. The search did not provide any information about the USTs in the south-western corner. However, the search did confirm that J. Robins & Sons Pty Ltd had (or still has) a licence to store flammable liquids and adhesives within a few cabinets throughout the factory and dichloromethane within a roof-store in the factory. GEE inspected these and there was no evidence of leakage or past spills. Additionally, some boreholes were placed near some of the stores (e.g. BH23, BH26, BH27 and BH28) to assess potential subsurface contamination areas.

Of most significance from the WorkCover search results was the confirmation of a UST beneath the loading dock in the north-eastern corner of the site (**Figure 2**). The tank is 2,200 L in capacity and was abandoned in-situ in September 1996 by filling it with a concrete slurry. The suction line was removed and the vent line, fill pipe, dip pipe and bowser line sealed. GEE notes that a boreholes BH20 was placed within close proximity to the former UST and a groundwater monitoring well installed within the same borehole. Considering the age of the tank and the associated bowser, it is likely that the tank contained diesel or leaded petrol.

The results of the search are provided in **Appendix E**

3.6 CONTAMINATED LAND DATABASE

A search of the contaminated land database, which is available on the Office of Environment and Heritage (OEH) website, was conducted and revealed there has been no past record of written notices issued on the site, by OEH, under the Contaminated Land Management Act 1997 (CLM Act), including preliminary investigation orders. Additionally, the site has never been notified to the OEH under Section 60 duty to report contaminated sites, of the CLM Act.

Beyond the subject site it is noted that there are no properties within the suburb of Belmore that has had notices issued on them by the EPA, however, there are two properties in Belmore which have been notified to the EPA under Section 60 of the CLM Act. One of these properties is a 7-Eleven service station located at

792-794 Canterbury Road which is approximately 650 metres to the west-southwest of the site, while the other property is State Rail land located at 348 Burwood Road which is approximately 1.1km to the north of the site. The contamination on each of these properties is considered by the NSW EPA to be not significant enough to warrant regulatory intervention under the Contaminated Land Management Act 1997. Considering their current status, distance from the subject site and regional topography, it is highly unlikely that these two properties have caused any impact on the subject site.

A copy of the list of NSW Contaminated Sites within the suburb of Belmore that have been notified to the EPA (as at 14 February 2014) is provided for reference in **Appendix F**.

3.7 SUMMARY OF SITE HISTORY INFORMATION

The existing single storey brick and metal building located in the south-western corner of the site was constructed prior to the earliest available site photograph taken in February 1930. The factory on Lots 1 and 2 was progressively developed between 1930 and 1961. The residential apartment building which currently occupies Lot A was constructed between 1970 and 1978 following demolition of a smaller residential dwelling. Lot 91 appears to have been vacant and largely undeveloped since 1930.

A review of the historical title information indicates that the site has been operating as a shoe factory since approximately 1979. Before 1979 the majority of the site (including lots 91, 1 and 2) was occupied by a clothing factory which commenced circa 1937.

Lot A, along the western boundary fronting Drummond Street, appears to have been used as a residential property since at least 1916 and this land-use has continued up until the time of this investigation. Lot B (in the south-western corner of the site) appeared to be a motor vehicle workshop and service station prior to being purchased by J. Robins & Sons Pty Ltd in circa 1980. The garage and/or service station was likely operated between approximately 1929 when Motor & Engineering Works Ltd purchased the allotment. The allotment was then owned by various individuals listed as being a '*garage proprietor*' before Caltex Oil (Australia) Pty Ltd owned the allotment between 1953 and 1979.

4 SITE CONDITION AND SURROUNDING ENVIRONMENT

This section describes the site and surrounding environment and is obtained from a review of any available maps and a site inspection conducted by GEE on the 23rd October 2013.

4.1 SITE IDENTIFICATION AND DESCRIPTION

The site is bounded by Canterbury Road to the south, Drummond Street to the west and Anderson Street to the east. To the north are low density residential properties.

At the time of the investigation the site was owned by WM Ritchie Properties Pty Ltd and leased to J. Robins & Sons Pty Ltd, a shoe manufacturing company which had previously owned the site from approximately 1979. Shoe manufacturing predominately took place within a factory (plate 1) occupying the central and eastern portion of the site (lots 1 and 2 of DP 533919). The factory was predominately set over one level with a mezzanine level along the western side and a basement in the northern portion. The eastern portion of the factory was where the polyurethane shoe soles were moulded and the cutting of shoe materials and final construction of the shoes was undertaken in the western portion of the factory. Based on information from J. Robins & Sons Pty Ltd, the main use of chemicals (apart from polyurethane for the soles) included glue (adhesives) for final construction of the shoes. Leather and other shoe materials were imported to site and not coloured or dyed on site.

An inspection of the factory revealed that the entire ground floor and basement level had a concrete floor slab which appeared to be in good condition with little evidence of cracking or staining from past use of chemicals. Chemicals were stored either in drums in the main manufacturing area or in raised cabinets. A vehicle loading dock was located in the north-western and north-eastern corners of the factory. Beneath the floor of the dock was a 2,200 litres underground storage tank which had been decommissioned using concrete slurry in 1996. The factory appeared to be steel framed with brick walls and a compressed fibro roof which was likely to contain asbestos.

Lot 91 in the north-western corner of the site was undeveloped land which was being used as a carpark and truck access to the shoe factory (plate 2). A concrete paved driveway linked the loading dock within the north-western corner of the factory with Drummond Street to the west. The remainder of this allotment was predominately paved with asphalt with the exception of a grass strip along the northern boundary.

Lot A (along Drummond Street) was occupied by a three level residential apartment building with grass lawns to the west and a concrete pavement on all remaining sides (plate 3). The building was constructed of brick and had a tiled roof.

Lot B, which is located in the south-western corner, was occupied by a single storey brick and metal building and detached single storey brick 'garage' building. The smaller, 'garage' building contained a backup generator for the adjoining factory which was understood to have not been required. This building was brick clad and had a steel roof.

The larger building on Lot B was in a state of disrepair and was being used for storage of old equipment from the main shoe factory. This building was steel framed with brick walls and a corrugated steel roof. GEE understands that this was once an operating part of the shoe factory, however, a downturn in the shoe business meant that this space was no longer required. There was a fibro and tile clad awning attached to the southern side of the larger building which covered a concrete paved area (adjacent to Canterbury Road). It is beneath this concrete where the former Underground storage Tanks (USTs) listed on the 'contract of sale document' in **Appendix D**.

Existing site features are shown on the site survey provided in **Appendix A** and also **Figure 2**. Photographs of the site, which were taken at the time of the site inspection on the 23rd October 2013, are provided for reference in Plates 1 to 6 below.

Plate 1 – View towards the east along the southern boundary showing the external factory wall

Plate 2 – View towards the north across Lot 91 showing the asphalt car parking area and concrete driveway in the background.

Plate 3 – View towards the east along the northern side of the residential apartment building.

Plate 4 – View towards the east where the former garage / service station was located.

Plate 5 – View towards the west where the former garage / service station was located.

Plate 6 – View towards the south across Lot B with the factory building to the left.

4.1.1 Tanks and Associated Services

During the inspection, GEE did not observe any evidence indicating the presence of under-ground, or above-ground, fuel or chemical, storage tanks on or beneath the site. However, it is known that four USTs are likely present in the south-western corner of the site which were associated with a former garage / service station. Based on a former contract of sale document associated with this parcel of land (**Appendix D**), the USTs range in size from 5,400 litres to 20, 140 litres and are owned by Caltex Oil (Australia) Pty Ltd.

The layout of the USTs is shown on a plan provided in **Appendix D** and **Figure 5**.

4.1.2 Fill

Based on the regional topography and site inspection it is considered unlikely that the site has been subjected to any substantial filling.

4.1.3 Odours and Staining

No unusual odours or surface staining that could be potentially associated with contamination were noted during the site inspection.

4.2 TOPOGRAPHY

According to the site survey plan (**Appendix A**), the site has an elevation of between 41m and 46m above Australian Height Datum (AHD). The highest ground is located at the southern end of the site (adjacent to Canterbury Road) and the ground slopes down towards the opposite boundary at a gentle grade of approximately 5%.

4.3 PROPOSED LAND-USE

GEE understands that the proposed development will be consistent with the existing land-use zoning of '*B6 – Enterprise Corridor & R3 Medium density residential'*.

4.4 REGIONAL GEOLOGY AND SOILS

A review of the Sydney 1:100 000 Geological Map (Reference 4) A review of the Sydney 1:100 000 Geological Map indicates that the site is underlain by the Ashfield Shale formation which typically comprises "...*black to dark-grey shale and laminate*" of the Wianamatta Group.

A review of the regional soils map (reference 5) indicates that the site is located within the Blacktown Soil Landscape Group which typically comprise heavy, highly reactive clays derived from the weathering process of shale bedrock, and have low fertility and are often strongly acidic.

4.5 REGIONAL HYDROGEOLOGY

The regional groundwater in the vicinity of the site is likely to be confined or partly confined, discrete, water-bearing zones within the Ashfield shale formation.

Generally, the permeability of the shale matrix is very low (between 10^{-13} and 10^{-9} m/sec – reference 6) and groundwater flow is dominated by water movement through fractures (or joints), where stress has caused partial loss of cohesion in the rock. Evidence of potential water bearing fractures is usually the presence of clay or iron-staining along face of the joints.

A search of registered groundwater bores within the vicinity of the site identified four monitoring bores installed on a property approximately 1.2km to the north-north-west of the site. The bores were installed for Caltex Oil (Australia) Pty Ltd and no other relevant information was recorded.

5 CONCEPTUAL SITE MODEL

The conceptual site model is a representation or summary of information obtained regarding potential contamination sources, receptors and exposure pathways between the sources and receptors.

Based on GEE's knowledge of the site, including review of the site's history and physical and environmental setting, the main sources of potential contamination include:

◊ Past use of Lot B in the south-western corner as a motor garage and/or service station, including the storage and use of fuel in underground tanks. The use of fuel and/or oils have the potential to cause soil and groundwater contamination although the concrete pavements would have minimised any migration of fuel and/or oil contaminants from the surface into the soil profile and the migration of fuels and oils below ground would be restricted by the fact that the local soils in this part of Sydney are typically heavy, low-permeable, clays.

◊ Past use of Lots 1 and 2 for shoe and clothing manufacturing which can include the use of chemicals such as polyurethane, glue and dyes. The use of chemicals on site may have resulted in a 'top down' spills or leaks in isolated locations across the site. Again, the concrete pavements would have restricted the migration of chemicals into the soil profile and further downward migration of chemicals would be restricted by the fact that the local clay soils. Also there was no obvious evidence of past spills or leaks from the cabinet and roof chemical stores.

◊ Past storage of fuel (likely diesel or petrol) in a 2,200 L UST beneath the loading dock in the north-eastern corner. Like the USTs in the south-western corner any spills or leaks from the UST or associated infrastructure would be restricted by the concrete slab and/or the local soils in this part of Sydney are typically heavy and low-permeable.

◊ Vehicle access to parts of the site (particularly Lots 91, A and B) which could have resulted in 'top down' spills or leaks of oil or fuel in isolated locations across the site. The concrete and/or asphalt pavements in these areas would have minimised any migration of contaminants into the soil profile and the local clay soils would have restricted any further downward migration of contaminants.

◊ Past development of the site. With any site development works there is a possibility that fill material was used to raise site levels, or to create a level building platform. When sourced from an unknown origin, the quality of the fill is also unknown and potentially contaminated. Based on the regional topography (which was relatively flat) and the historical aerial photographs, it is considered unlikely that the site has been subjected to any substantial filling and therefore the risk of contaminated fill being present beneath the site is considered to be very low.

Another potential for contamination, albeit minor, is the structures on site which are clad (in parts) with fibrous cement sheeting likely to contain asbestos.

A summary of the potential contaminating activities, their potential location on the site and the potential contaminants of concern attributed to these activities, are summarised below in **Table 1**.

Table 1: Summary of Potential Contamination

Area of Environmental Concern (AEC)	**Potential Contaminating Activity**	**Chemical of Potential Concern (COPC)**	**Likelihood of Soil / Groundwater Contamination**
Former Motor Garage / Service Station (Lot B)	Use and storage of fuel and oils	Total Recoverable Hydrocarbons (TRH), BTEX (Benzene, Ethylbenzene, Toluene and Xylenes), Polycyclic Aromatic Hydrocarbons (PAHs).	Medium to High (particularly with respect to the USTs)
Factory (Lots 1 and 2)	Use and storage of chemicals including polyurethane, glue (adhesives) and possibly dyes	TRH, Metals	Medium
Former UST beneath the NE corner loading dock	Use and storage of fuel	TRH,BTEX, Lead	Medium
Vehicle accessible Areas	Oil and/or fuel spills and leaks from vehicles	TRH, BTEX, Lead	Low
Entire Site	Potential past filling to create a level building platform or site	Metals, TRH, Polycyclic Aromatic Hydrocarbons (PAHs), Pesticides, PCBs and Asbestos[3]	Low
On Site Structures and Buildings (in particular the factory across lots 1 and 2 and the awning on Lot B.	Use of building materials containing asbestos	Asbestos	Very Low

Overall, the potential for soil contamination is considered to be moderate to high, particularly in the vicinity of the former fuel storage infrastructure and the potential for groundwater contamination is considered to be low because groundwater in this part of Sydney is likely to be confined or partly confined within the underlying, relatively low permeable, shale formation.

---

[3] These are common contaminants of concern for developed areas across Sydney.

6 SAMPLING AND ANALYSIS PROGRAM

The sampling and analysis program was designed with reference to the site's history and a recent site inspection. The purpose of the program was to characterise the soil conditions across the site in accordance with relevant EPA NSW guidelines to determine whether it would be suitable for the proposed land-use which includes residential with minimal access to soils.

In accordance with the NSW DEC *Contaminated Sites: Guidelines for NSW Site Auditor Scheme* (reference 7), the Data Quality Objectives (DQOs) process was used to define the type, quantity and quality of the data needed to support decisions relating to the environmental condition of a site. Details of the DQO process adopted for the soil sampling and analysis program is provided in **Appendix G**.

6.1 SAMPLING PROGRAM

The sampling program was undertaken by Stephen McCormack from GEE, an experienced environmental engineer, and comprised:

- ◊ Borehole drilling operations, including the installation of a groundwater monitoring wells within some boreholes,
- ◊ The collection of soil samples from each borehole for subsequent selective laboratory analysis, and
- ◊ The collection of a groundwater sample from the each groundwater monitoring well installed on the site, for subsequent laboratory analysis.

6.1.1 Borehole Drilling Operations and Logging

Twenty-eight boreholes (BH1 to BH28) were drilled in accessible areas across the site on the 16th December 2013, 17th December 2013 or 6th January 2014. The number of boreholes exceeds the minimum number of sampling points required for adequate site characterisation as defined by the EPA NSW and Australian Standards (reference 8 and 9).

Prior to commencement of the bores, a scan for potential underground services and utilities was completed and cross-checked with the results of a Dial Before you Dig (DBYD) search. Also a Ground Penetrating Radar (GPR) was used in the south-western corner to locate the USTs, however, the results were inconclusive.

Tankpits were visible, however, it could not determine if the USTs were in the tankpits.

The boreholes were positioned in accordance with a systematic sampling pattern to provide broadly even coverage across the site, subject to access and utility constraints. Although some areas, such as the USTs or chemical stores, were specifically targeted.

The boreholes were drilled using either a 85mm diameter stainless steel hand auger operated by Stephen McCormack of GEE, or with a mechanical Geoprobe 7822DT track mounted drilling rig which was owned and operated by Epoca Environmental Pty Ltd, using push tube technology and where necessary solid flight augers. The hand auger was used in areas where the mechanical rig could not access which were BH11, BH13, BH16 and BH21 to BH28.

The hand auger was decontaminated prior to use, by washing with laboratory grade, biodegradable and phosphate-free detergent, followed by rinsing with potable water. To check the adequacy of the decontamination a Rinsate sample was collected as required from the hand auger or solid flight auger (refer to section 7). Decontamination was not required for the remaining boreholes because they were drilled using dedicated, direct push, plastic sampling liners.

With the exception of boreholes BH16, BH21, BH22 and BH24, the bores were extended through any fill material before terminating in either natural clay soil profile or the underlying shale bedrock at depths of between 1.0m (BH11 & BH28) and 8.0m (BH2) below ground surface (bgs). BH16, BH21, BH22 and BH24 all refused on an obstruction within the upper fill layer at depths of between 0.3m (BH16) and 0.7m bgs (BH24). Overall, the target depth was either 0.5m into natural clay soil or, in the case of boreholes drilled adjacent to tanks, 1m beyond the likely depth of the adjoining tanks.

During drilling, the encountered fill and natural soils were geologically logged by an experienced environmental and geotechnical engineer taking care to describe the presence and depth of fill material / previously disturbed ground, the natural stratum, moisture, seeps or water baring zones, elevation of the water level/hydraulic head, and adverse aesthetics such as discolouration, odours or obvious evidence of contamination.

A summary of the subsurface conditions encountered is provided in Section 0, while a summary of the borehole information, including total depth, is provided in **Table 2** and their locations are shown on **Figures 3** and **4**.

Table 2: Summary of the Borehole Information

Borehole ID	**Date Completed**	**Drilling Method**	**Total Depth**	**Depth of Filling**	**Depth to Bedrock**	**Well Screen Interval**
			(m BGS)	(m BGS)	(m BGS)	(m BGS)
BH1	16 Dec 13	Push Tube	1.2	0.4	1.1	--
BH2	16 Dec 13	Push Tube / SFA	8.0	0.9	2.2	3.8 – 7.8
BH3	16 Dec 13	Push Tube / SFA	7.0	0.4	1.5	2.6 – 6.6
BH4	16 Dec 13	Push Tube / SFA	6.5	0.3	1.8	3.0 – 6.0
BH5	16 Dec 13	Push Tube / SFA	3.5	0.6	1.7	--
BH6	16 Dec 13	Push Tube / SFA	4.0	2.3	2.3	--
BH7	16 Dec 13	Push Tube / SFA	4.0	2.8	2.8	--
BH8	16 Dec 13	Push Tube / SFA	3.5	2.8	2.8	--
BH9	16 Dec 13	Push Tube / SFA	3.5	2.8	1.3	--
BH10	16 Dec 13	Push Tube / SFA	6.5	0.5	1.3	3.0 – 6.0
BH11	17 Dec 13	Hand Auger	1.0	0.5	1.6 [1]	--
BH12	17 Dec 13	Push Tube	1.5	0.6	1.4	--
BH13	17 Dec 13	Hand Auger	1.2	0.4	1.9 [1]	--
BH14	17 Dec 13	Push Tube / SFA	6.5	0.5	2.0	3.0 – 6.0
BH15	17 Dec 13	Push Tube	2.3	0.9	2.1	--
BH16	17 Dec 13	Hand Auger	0.3	>0.3	--	--
BH17	17 Dec 13	Push Tube	1.1	0.5	1.1 [1]	--
BH18	17 Dec 13	Push Tube	1.3	0.5	1.2	--
BH19	17 Dec 13	Push Tube	1.5	1.3	1.3	--
BH20	17 Dec 13	Push Tube / SFA	7.5	1.3	1.7	2.9 – 6.9
BH21	6-Jan-14	Hand Auger	0.45	>0.45	--	--
BH22	6-Jan-14	Hand Auger	0.5	>0.5	--	--
BH23	6-Jan-14	Hand Auger	1.4	0.9	1.85 [1]	--
BH24	6-Jan-14	Hand Auger	0.7	>0.7	--	--
BH25	6-Jan-14	Hand Auger	0.75	0.4	0.75	--
BH26	6-Jan-14	Hand Auger	1.2	0.6	1.55 [1]	--
BH27	6-Jan-14	Hand Auger	1.2	0.15	--	--
BH28	6-Jan-14	Hand Auger	1.0	0.3	1.5 [1]	--

m BGS = metres below ground surface
SFA – Solid Flight Auger
Note 1 – Inferred by the use of a Dynamic Cone Penetrometer (DCP)

6.1.2 Subsurface Conditions

The subsurface conditions, as observed in the boreholes, typically comprised some fill material over natural clay soil which graded into weathered shale bedrock. The depth of filling was typically between 0.15m and 1.3m bgs, although deeper sand fill was present in the vicinity of the USTs in the south-western corner of the site. The depth to shale bedrock ranged from 0.75m to 2.2m bgs.

Detailed descriptions of the subsurface conditions on site is provided in the borehole logs provided in **Appendix H**, while a summary of the subsurface conditions across the majority of the site and excluding the vicinity of the USTs, is provided in **Table 3**.

Table 3: Summary of Subsurface Conditions

Layer / Unit	Description	Depth to Base of Layer (m)[1]
FILL	CONCRETE or ASPHALT Pavements	0.05 – 0.2
	Mix of SAND, GRAVEL and CLAY across the majority of the site and SAND only in the vicinity of the UST tankpits.	0.15 – 1.3
NATURAL SOIL	Silty CLAY: dark-brown, red-brown, orange-brown and pale grey, moist, medium to high plasticity with some ironstone gravel content.	0.75 – 2.2
BEDROCK	SHALE: grey-brown, weathered.	--

Adverse aesthetics, specifically odours associated with potential contamination, were not noted during the fieldwork. Additionally, no potentially Asbestos Containing Materials (ACM) was observed in the bores during the drilling.

Permanent groundwater was not encountered during the drilling of each borehole. However, groundwater seepage did eventually occur in the monitoring wells installed within bores BH2, BH3, BH4, BH10, BH14 and BH20.

6.1.3 Soil Sampling

In accordance with NEPM (1999) Schedule B(2) *Guideline on Site Characterisation* (reference 2) samples were collected from boreholes immediately beneath the surface slab. At greater depths, samples were typically collected at approximately 0.5m intervals, or at changes in fill, or soil type, or at depths where the presence of contamination was indicated (*e.g*. based on odour, colour, unusual substances, liquids etc).

Soil samples were collected directly from either the push tube plastic liner or from the hand auger, using new latex or nitrile gloves and immediately placed in laboratory supplied, acid washed glass jars.

Care was taken to ensure that representative samples were obtained from the depth required and that sample integrity was maintained, particularly when dealing with potentially volatile and semi-volatile components. When collecting duplicates, samples to be analysed for volatiles were not mixed, rather they were split and placed directly into separate sample jars.

The samples were each labelled with a unique sample identification number, in addition to the date of collection and project number, before being placed on ice within an esky. The sample identification number was repeated on the borehole log (**Appendix H**) at the corresponding depth. At the end of sampling, the esky was returned to the GEE office and kept full of ice until collected by the laboratory courier (with a Chain of Custody (COC) form) on the next working day.

In accordance with AS4482.1 (reference 9), a series of Quality Assurance (QA) procedures were integrated within the sampling plan and included:

◊ The collection of Quality Control (QC) samples.

◊ The use of standardised field sampling forms developed by GEE.

◊ Documentation of calibration and use of field instruments.

QC samples were collected as appropriate including blind replicates and split duplicates at a frequency of 5 %, and the collection of trip blanks, trip spikes and rinsates. More detail about the QC sampling and analysis is provided in Section 7 and **Appendix I**.

At the completion of each borehole, including logging and the sampling of soils, each borehole, which was not converted into a groundwater monitoring well, was backfilled with soil cuttings and the concrete surface reinstated. The boreholes which were converted into a groundwater wells were completed using a lockable steel gatic cover installed with concrete so it was slightly higher than the surrounding pavement levels. This was done to prevent stormwater from ponding around the gatic cover.

As previously mentioned, the supervising engineer filled out a borehole log on which was noted sample details and depths, and any obvious signs of contamination such as discolouration and/or odour.

A summary of the samples collected and analysed during this investigation and the sampling depths are provided in **Table 4**.

6.1.4 Field Screening of Soil Samples

Field screening was carried out using a PID on all soil samples collected where there was sufficient sample available. The purpose of the screening process was to indicate areas potentially impacted by volatile compounds and to assist in the selection of samples for laboratory analysis. A re-sealable polyethylene bag was partly filled with part of the soil sample allowing volatile gases to accumulate in the headspace of the bag. The gas levels in the headspace were then investigated with a calibrated PID equipped with a 10.6eV lamp. The PID was calibrated using zero (ambient) air and isobutylene span gases by the equipment supplier prior to the sampling event and the calibration certificate provided in **Appendix J**.

GEE notes that the VOCs detected by the PID may be affected by humid atmospheric conditions and other organics in the soil, therefore is only used as a qualitative tool.

The PID results did not indicate the presence of VOCs. A copy of the GEE 'PID headspace test field sheet' is provided in **Appendix K**.

6.1.5 Monitoring Well Installation

A groundwater monitoring well was installed within boreholes BH2, BH3, BH4, BH10, BH14 and BH20 in accordance with the Land and Water Biodiversity Committee (2003) *Minimum Construction Requirements for Water Bores in Australia* (reference 10), using 50 mm diameter uPVC pipe, with a machine slotted screen section, 2 mm sand pack and a bentonite seal. The depths of the screened section of each well are provided in **Table 2**.

The purpose of the groundwater monitoring wells was to assess the presence and depth of stabilised groundwater at the site and facilitate the sampling of groundwater beneath the site and to assess potential contamination.

The groundwater well installation details are shown on the borehole logs in **Appendix H** and the location of the wells are shown on **Figures 3 and 4.**

6.1.6 Groundwater Monitoring and Sampling

Groundwater was sampled from each of the six monitoring wells following development and purging of the wells to remove stagnant water from the well casing and to ensure that the samples are representative of groundwater in the surrounding geological formation.

Development of the wells was undertaken on the 17th December 2013, using a Waterra foot valve and continued until dry, or at least 3 well volumes of water has been removed. The rate of re-charge for each well was relatively slow, therefore, each well went dry during development. Following development, the wells were allowed to recharge for a minimum of 5 days before purging and sampling.

Immediately prior to purging and sampling, the wells were dipped to determine the depth to stabilised water level and, using a clear disposable bailer, assessed for the presence of Light Non-Aqueous Phase Liquids (LNAPLs) which may be floating on the water. No LNAPLs were noted. Additionally, there was not hydrocarbon odour noted within the wells during purging or sampling. And no sheen or free-product observed on the surface of the water in each well.

Purging and sampling took place on the 6th January 2014. Each of the wells were within a low-transmissive formation, therefore, slow to re-charge and purging was undertaken using a dedicated Waterra foot valve until practically dry. Following purging, the wells were allowed to recharge to at least 80% before sampling. Sampling of these wells was carried out using dedicated disposable bailers equipped with a single check valve for transferring the sample into the sample containers, taking care not to agitate the water with the bailer. For volatile samples, a low flow VOC sampler was used.

A calibrated water quality meter was used during the sampling process to assess pH, redox potential (Eh), electrical conductivity (EC), dissolved oxygen (DO) and temperature.

For all samples, the groundwater was collected directly into laboratory supplied sample containers in order of volatility, with the most volatile substances collected first. Samples to be analysed for metals were collected last and filtered in the field using a new disposable 0.45micron filter and syringe. Samples to be analysed for volatile substances (*e.g.* BTEX), were filled to the container brim and capped, making sure that there were no bubbles / headspace.

All sample containers were immediately placed within an esky in which ice had been added. At the end of each sampling day the samples in the esky were transported to the GEE office where more ice was added and the samples delivered to the laboratory (within one working day).

All sample containers were labelled with the sample number, project number and date collected and the information repeated on a Chain-of-Custody (COC) form which accompanied the samples to the laboratory. The chain-of custody form (provided by the laboratory) demonstrates that the samples were properly received, documented, processed and stored.

While on site, the supervising engineer/scientist filled out a copy of the GEE "Groundwater Sampling Field Sheet" which documents, the sample identification, date of sampling, time of sampling, stabilised groundwater level, water quality field screening results, physical description of the water, presence or absence of odour, well condition and volumes purged. A copy of the "Groundwater Sampling Field Sheet" is provided in **Appendix K**.

Finally, it is noted that the purging and sampling equipment did not require decontamination because GEE used dedicated equipment for each well.

A summary of the groundwater samples collected and analysed during this investigation are provided in **Table 5**.

6.2 ANALYTICAL PROGRAM

In accordance with Section 5, selected soil samples were analysed for the following potential chemicals of concern:

- Metals (Arsenic, Cadmium, Chromium, Copper, Nickel, Lead and Zinc)
- TRH
- BTEX
- PAH
- OCPs
- PCBs
- Asbestos.

The groundwater samples collected from each well were analysed for dissolved metals, TRH, BTEX, PAH and VOC.

The primary soil and groundwater environmental samples were analysed by Envirolab Services Pty Ltd which is National Association of Testing Authorities (NATA) registered for the testing undertaken. The secondary samples (split duplicates) were sent to Eurofins / MGT Pty Ltd, which is also NATA accredited for the testing undertaken.

A summary of the soil analytical program, including which samples were selected for analysis and the chemicals analysed, is provided in **Table 4**, while a summary of the groundwater analytical program is provided in **Table 5**.

Table 4: Summary of the Soil Sampling and Analysis Program

Location	Sample Depth (m)	Sample Id	Material Type	Analytical Program					
				Metals	Lead only	TRH/BTEX	PAHs	OCPs / PCBs	Asbestos
				Primary Environmental Soil Samples					
BH1	0.1 - 0.4	SM161213-01	FILL	✓	—	—	—	✓	—
BH1	0.4 – 1.1	SM161213-02	CLAY	✓	—	—	—	—	—
BH2	0.1 – 0.25	SM161213-04	FILL	✓	—	✓	✓	—	—
BH2	0.7 – 0.8	SM161213-05	FILL	✓	—	—	✓	—	—
BH2	0.9 – 1.0	SM161213-06	CLAY	✓	—	—	✓	—	—
BH2	1.5 – 1.7	SM161213-07	CLAY	—	—	—	—	—	—
BH2	2.5 – 3.0	SM161213-08	SHALE	—	—	—	—	—	—
BH2	4.0 – 4.3	SM161213-09	SHALE	—	—	—	—	—	—
BH3	0.1-0.2	SM161213-10	FILL	✓	—	✓	✓	✓	✓
BH3	0.4-0.55	SM161213-11	CLAY	—	—	—	—	—	—
BH3	1.2-1.4	SM161213-12	CLAY	—	✓	✓	—	—	—
BH3	1.8-2.0	SM161213-13	SHALE	—	✓	✓	—	—	—
BH3	3.0-3.5	SM161213-14	SHALE	—	—	—	—	—	—
BH3	5.0-5.5	SM161213-15	SHALE	—	—	—	—	—	—
BH4	0.15-0.3	SM161213-22	FILL	✓	—	✓	✓	—	✓
BH4	0.4-0.6	SM161213-23	CLAY	✓	—	✓	—	—	—
BH4	1.0-1.2	SM161213-24	CLAY	—	—	—	—	—	—
BH4	2.0-2.5	SM161213-25	SHALE	—	✓	✓	—	—	—
BH4	4.0-4.5	SM161213-26	SHALE	—	—	—	—	—	—
BH5	0.14-0.2	SM161213-33	FILL	✓	—	—	—	—	—
BH5	0.2-0.6	SM161213-34	FILL	—	✓	✓	—	—	—
BH5	0.6-0.8	SM161213-35	CLAY	—	—	✓	—	—	—
BH5	1.0-1.2	SM161213-36	CLAY	—	—	—	—	—	—
BH5	1.8-2.0	SM161213-37	SHALE	—	—	—	—	—	—
BH5	3.3-3.5	SM161213-38	SHALE	—	—	—	—	—	—
BH6	0.2-0.35	SM161213-39	FILL	✓	—	✓	—	—	—
BH6	0.8-1.0	SM161213-40	FILL	—	—	—	—	—	—
BH6	1.3-1.5	SM161213-41	FILL	—	✓	✓	—	—	—
BH6	2.3-2.5	SM161213-42	SHALE	—	✓	✓	—	—	—
BH6	3.5-4.0	SM161213-43	SHALE	—	—	—	—	—	—
BH7	0.0-0.2	SM161213-44	FILL	✓	—	—	—	—	—
BH7	0.3-0.5	SM161213-45	FILL	—	✓	✓	—	—	—
BH7	1.1-1.3	SM161213-46	FILL	—	—	—	—	—	—
BH7	2.5-2.8	SM161213-47	FILL	✓	—	✓	✓	—	—
BH7	3.0-3.5	SM161213-49	SHALE	—	✓	✓	—	—	—
BH8	0.2-0.4	SM161213-16	FILL	✓	—	✓	✓	✓	✓
BH8	1.1-1.3	SM161213-18	FILL	—	—	—	—	—	—
BH8	1.5-1.6	SM161213-19	FILL	—	—	—	—	—	—
BH8	2.3-2.55	SM161213-20	FILL	✓	—	✓	—	—	—
BH8	2.8-3.0	SM161213-21	SHALE	—	—	—	—	—	—
BH9	0.15-0.2	SM161213-27	FILL	✓	—	✓	✓	—	✓
BH9	0.2-0.35	SM161213-28	FILL	✓	—	✓	—	—	—
BH9	0.5-0.7	SM161213-29	CLAY	—	—	—	—	—	—
BH9	1.1-1.2	SM161213-30	CLAY	—	✓	✓	—	—	—
BH9	2.0-2.5	SM161213-31	SHALE	—	—	—	—	—	—
BH9	3.5-4.0	SM161213-32	SHALE	—	—	—	—	—	—
BH10	0.2-0.3	SM161213-50	FILL	✓	—	✓	✓	✓	—
BH10	0.3-0.5	SM161213-51	FILL	✓	—	✓	✓	—	—
BH10	0.5-0.7	SM161213-52	CLAY	✓	—	—	—	—	—
BH10	1.3-1.5	SM161213-53	SHALE	—	—	—	—	—	—
BH10	2.5-3.0	SM161213-54	SHALE	—	—	—	—	—	—
BH10	4.5-5.0	SM161213-55	SHALE	✓	—	—	—	—	—
BH10	5.5-6.0	SM161213-56	SHALE	—	—	—	—	—	—
BH11	0.0-0.15	SM171213-81	FILL	✓	—	✓	✓	✓	—
BH11	0.5-1.0	SM171213-82	CLAY	—	—	—	—	—	—
BH12	0.1-0.15	SM171213-60	FILL	✓	—	—	—	—	—
BH12	0.3-0.4	SM171213-61	FILL	—	—	—	—	—	—
BH12	0.6-0.8	SM171213-62	CLAY	✓	—	✓	✓	—	✓
BH12	1.4-1.5	SM171213-63	SHALE	✓	—	—	—	—	—

Table 4 (Continued): Summary of the Soil Sampling and Analysis Program

Location	Sample Depth (m)	Sample Id	Material Type	Analytical Program					
				Metals	Lead only	TRH/BTEX	PAHs	OCPs / PCBs	Asbestos
Primary Environmental Soil Samples									
BH13	0.2-0.4	SM171213-64	FILL	✓	—	✓	✓	✓	—
BH13	0.4-0.6	SM171213-66	CLAY	—	—	—	—	—	—
BH13	1.0-1.2	SM171213-71	CLAY	—	—	—	—	—	—
BH14	0.25-0.4	SM171213-67	FILL	✓	—	✓	✓	—	✓
BH14	0.5-0.7	SM171213-68	CLAY	✓	—	—	✓	—	—
BH14	1.8-2.0	SM171213-69	CLAY	—	—	—	—	—	—
BH14	2.0-2.2	SM171213-70	SHALE	—	—	—	—	—	—
BH15	0.1-0.2	SM171213-74	FILL	✓	—	—	—	—	—
BH15	0.3-0.5	SM171213-75	FILL	✓	—	✓	✓	—	—
BH15	0.9-1.1	SM171213-76	CLAY	✓	—	—	✓	—	—
BH15	2.1-2.3	SM171213-77	SHALE	—	—	—	—	—	—
BH16	0.2-0.3	SM171213-72	FILL	✓	—	✓	✓	—	✓
BH17	0.15-0.3	SM171213-78	FILL	✓	—	—	—	—	—
BH17	0.5-0.7	SM171213-79	CLAY	✓	—	—	—	—	—
BH17	1.0-1.1	SM171213-80	CLAY	—	—	—	—	—	—
BH18	0.1-0.2	SM171213-83	FILL	✓	—	—	—	—	—
BH18	0.2-0.3	SM171213-84	FILL	✓	—	✓	✓	—	✓
BH18	0.5-0.7	SM171213-85	CLAY	—	—	—	—	—	—
BH18	1.2-1.3	SM171213-86	SHALE	—	—	—	—	—	—
BH19	0.2-0.3	SM171213-87	FILL	✓	—	✓	✓	✓	—
BH19	0.3-0.5	SM171213-89	FILL	✓	—	—	—	—	—
BH19	1.0-1.2	SM171213-90	FILL	✓	—	—	—	—	—
BH19	1.3-1.5	SM171213-91	SHALE	—	—	—	—	—	—
BH20	0.2-0.3	SM171213-92	FILL	✓	—	✓	✓	✓	—
BH20	0.35-0.5	SM171213-94	FILL	✓	—	—	—	—	—
BH20	1.0-1.1	SM171213-95	FILL	✓	—	—	—	—	—
BH20	1.3-1.45	SM171213-96	CLAY	✓	—	—	—	—	—
BH20	2.0-2.3	SM171213-97	SHALE	✓	—	—	—	—	—
BH20	3.5-4.0	SM171213-98	SHALE	—	—	—	—	—	—
BH20	4.5-5.0	SM171213-99	SHALE	—	—	—	—	—	—
BH21	0.2-0.4	SM060114-80	FILL	✓	—	✓	✓	—	—
BH22	0.2-0.4	SM060114-81	FILL	✓	—	✓	✓	✓	✓
BH23	0.2-0.4	SM060114-83	FILL	✓	—	—	—	—	—
BH23	0.6-0.8	SM060114-84	FILL	✓	—	✓	✓	—	—
BH23	0.9-1.1	SM060114-86	CLAY	✓	—	✓	✓	—	—
BH24	0.1-0.25	SM060114-87	FILL	✓	—	—	—	✓	—
BH24	0.3-0.5	SM060114-89	FILL	✓	—	✓	—	—	—
BH25	0.2-0.4	SM060114-90	FILL	✓	—	✓	✓	✓	✓
BH25	0.4-0.55	SM060114-92	CLAY	✓	—	—	—	—	—
BH26	0.15-0.3	SM060114-93	FILL	✓	—	✓	✓	—	—
BH26	0.5-0.6	SM060114-94	FILL	✓	—	—	—	—	—
BH26	0.6-0.8	SM060114-95	CLAY	✓	—	—	—	—	—
BH27	0.2-0.4	SM060114-96	CLAY	✓	—	✓	✓	—	✓
BH27	0.5-0.7	SM060114-98	CLAY	✓	—	✓	✓	—	—
BH28	0.2-0.3	SM060114-99	FILL	✓	—	✓	✓	✓	—
BH28	0.3-0.5	SM060114-100	CLAY	✓	—	—	—	—	—
			TOTALS	59	9	41	30	12	11

Table 4 (Continued): Summary of the Soil Sampling and Analysis Program

Location	Sample Depth (m)	Sample Id	Material Type	Analytical Program					
				Metals	Lead only	TRH/BTEX	PAHs	OCPs / PCBs	Asbestos
Soil Quality Control Samples – Batch 1									
BH1	0.4 – 1.1	SM161213-03	Blind Replicate of '02'	✓	—	—	—	—	—
BH7	2.5-2.8	SM161213-48	Split Duplicate of '47'	✓	—	✓	✓	—	—
BH8	0.2-0.4	SM161213-17	Blind Replicate of '16'	✓	—	✓	✓	✓	—
BH13	0.2-0.4	SM171213-65	Blind Replicate of '64'	✓	—	✓	—	—	—
BH16	0.2-0.3	SM171213-73	Split Duplicate of '72'	✓	—	—	—	—	—
BH19	0.2-0.3	SM171213-88	Split Duplicate of '87'	✓	—	✓	✓	✓	—
BH20	0.2-0.3	SM171213-93	Blind Replicate of '92'	✓	—	✓	✓	—	—
--	--	Trip Blank 16/12	Soil	—	—	✓[1]	—	—	—
--	--	Trip Spike 16/12	Soil	—	—	✓[1]	—	—	—
--	--	Trip Blank 17/12	Soil	—	—	✓[1]	—	—	—
--	--	Trip Spike 17/12	Soil	—	—	✓[1]	—	—	—
--	--	Rinsate 1	Rinsate from SFA	✓	—	✓	✓	—	—
--	--	Rinsate 2	Rinsate from hand auger	—	—	—	—	—	—
Soil Quality Control Samples – Batch 2									
BH22	0.2-0.4	SM060114-82	Blind Replicate of '81'	✓	—	✓	✓	—	—
BH23	0.6-0.8	SM060114-85	Split Duplicate of '84'						
BH24	0.1-0.25	SM060114-88	Blind Replicate of '87'	—	—	—	—	—	—
BH25	0.2-0.4	SM060114-91	Split Duplicate of '90'						
BH27	0.2-0.4	SM060114-97	Blind Replicate of '96'	—	—	—	—	—	—
--	--	Trip Blank 06/01	Soil	—	—	✓[1]	—	—	—
--	--	Trip Spike 06/01	Soil	—	—	✓[1]	—	—	—
--	--	R2	Rinsate from hand auger	✓	—	✓	—	—	—

Note 1: BTEX and TRH (C6-C9) only

Table 5: Summary of the Groundwater Sampling and Analysis Program

Location	Sample Id	Analytical Program			
		Metals	TRH/BTEX	PAHs	VOCs
Primary Groundwater Samples					
BH2	SM161213-104	✓	✓	✓	✓
BH3	SM161213-106	✓	✓	✓	✓
BH4	SM161213-107	✓	✓	✓	✓
BH10	SM161213-103	✓	✓	✓	✓
BH14	SM161213-105	✓	✓	✓	✓
BH20	SM161213-101	✓	✓	✓	✓
Quality Control Samples					
BH20	SM161213-102 (Blind Replicate)	✓	✓	✓	✓
--	Trip blank	—	✓[1]	—	—
--	Trip Spike	—	✓[1]	—	—

Note 1: BTEX and TRH (C6-C9) only

7 DATA QUALITY ASSESSMENT

A detailed Quality Assurance (QA) assessment, including the analysis of Quality Control (QC) samples, was carried out by GEE to determine the suitability and reliability of field procedures and analytical results. In accordance with NSW DEC (reference 7), the QA assessment used Data Quality Indicators (DQIs) which included:

◊ precision.

◊ accuracy (or bias).

◊ representativeness.

◊ completeness.

◊ comparability.

The detailed QA assessment report is provided in **Appendix I**, and concludes that the field procedures and analytical data presented herein are of suitable quality for making conclusions and recommendations regarding the contamination status of the site.

8 ASSESSMENT CRITERIA

To determine the significance of any contaminants detected in the soil and groundwater samples, appropriate Site Assessment Criteria (SAC) have been defined and are based on guidelines endorsed by the NSW OEH.

8.1 SOIL SAMPLES

For any environmental assessment, it is necessary to assess the human health and ecological risks associated with the presence of site contamination. In this regard, appropriate human health and ecological investigation and/or screening levels need to be defined and are referred herein as the Site Assessment Criteria (SAC).

Also, in accordance with Appendix I of DEC, 2006 guidelines (reference 4), residential sites need to address aesthetics such as highly malodorous soils. Aesthetics was continually assessed in the field during borehole drilling and logging and no significant and adverse observations were noted.

8.1.1 Ecological Investigation / Screening Levels

To address potential ecological risks, GEE has compared the soil analytical results against the Ecological Investigation Levels (EILs) and Ecological Screening Levels (ESLs) appropriate for the commercial/industrial land-use as detailed in NEPM (2013), *Schedule B(1) – Guidelines on Investigation Levels for Soil and Groundwater* (reference 11).

8.1.1.1 EILs

EILs were derived for common contaminants in soil (specifically Arsenic, Copper, Chromium (III), DDT, naphthalene, Nickel, Lead and Zinc) and are based on a species sensitivity distribution (SSD) model developed for Australian conditions. They consider the physicochemical properties of soil (e.g. Cation Exchange Capacity, pH and clay content), contaminants and the capacity of the local ecosystem to accommodate increases in contaminant levels (referred to as the 'added contaminant limit' or ACL) above ambient background. Also, EILs consider various land use scenarios and are generally only apply to the top 2m of soil which corresponds to the root zone and habitation zone of many species.

Finally, different EILs apply for 'fresh' contamination and 'aged' contamination. 'Fresh' contamination is usually associated with current activity and chemical spills, while a contaminant that has been incorporated into a soil for more than 2 years is considered to be 'aged'. For the purpose of this report ''aged' EILs have been adopted because any contamination present at the site is likely to have been present for more than 2 years.

To assist with determining appropriate EILs to screen the soil analytical results (particularly for Copper, Chromium -III, Nickel and Zinc), the CEC and pH of the soil was analysed for relevant soils samples. The CEC ranged from 1.3 to 106 meq/100g with an average of 16.3 meq/100g, and were slightly higher for samples comprising fill compared to natural soil and bedrock. The pH values ranged from 4.5 to 11.5 with an average of 6.9 meq/100g, and were also slightly higher for samples comprising fill material compared to natural soil and bedrock For the purpose of this report and to screen the analytical results, GEE has adopted the lower 10th percentile value for both CEC and pH which was a CEC of 5.1 meq/100g and pH of 5.0. Additionally, considering the soil profile (including any fill material) was predominately clay-based soil, a >10% clay composition has been adopted when determining the EIL for chromium (III). Also when determining an appropriate EIL for Copper a conservative % of organic carbon content of 1% has been adopted.

When determining the EILs for Copper, Nickel, Chromium and Zinc, ambient background concentrations can be used to increase the final EIL, however, for the purpose of this investigation zero ambient background concentrations have been adopted.

A summary of the EILs appropriate for the site is provided in **Table 6**.

8.1.1.2 ESLs

ESLs have been developed for selected petroleum hydrocarbon compounds (specifically TRH[4], BTEX and Benzo(a)pyrene) and are applicable for assessing risk to terrestrial ecosystems. ESLs broadly apply to coarse- and fine-grained soils and like EILs the ESLs consider various land use scenarios, only apply to the top 2m of soil and differ for 'fresh' contamination and 'aged' contamination. For the purpose of this report, coarse-grained soil and 'aged' ESLs have been

---

[4] ESLs for the various carbon fractions are based on TRH analysis with F1 (C6-C9) being obtained after subtraction of BTEX.

adopted. Coarse grained soil was adopted over fine grained soil because it provides the most conservative criteria and if an exceedance occurs then the criteria will be adjusted to suit the actual soil type.

A summary of the ESLs appropriate for the site is provided in **Table 6.** GEE notes that screening levels are the concentrations of a contaminant above which will require further evaluation and consideration.

8.1.2 Health Investigation Levels

To address potential health impacts at the site, GEE has compared the analytical results against Health Investigation Levels (HILs) provided in NEPM (2013), *Schedule B(1) – Guidelines on Investigation Levels for Soil and Groundwater* (reference 11) which are appropriate for the proposed land-use (*i*.e. residential with minimal access to soil, including apartment buildings) and the exposure scenario on which they are based (Exposure setting B).

For selected petroleum hydrocarbons, Health Screening Levels (HSLs), which were developed by the Cooperative Research Centre for Contamination Assessment and Remediation of the Environment (CRC CARE), have been adopted and are referenced in Schedule B(1) of NEPM (2013 – reference 11) and Friebel & Nadebaum (2011 – reference 12). Typically, the assessment of petroleum hydrocarbon contamination is driven by human health concerns relating to volatile components (e.g TRH C_6 – C_{10}, TRH >C_{10} – C_{16} and Benzene) which have the potential to cause health issues via vapour intrusion. For these components, different HSLs apply for different land use scenarios, for different soil types (i.e. sand silt and clay) and different depths. For the purpose of this investigation, criteria relevant for sand soil at a shallow depth (0m to 1m) have been adopted to screen the soil analytical results because they are most conservative (except for Xylene where fine soil criteria is the most conservative). If a sample exceedance occurs then the criteria will be adjusted to suit actual soil type and depth.

For TPH fractions, where there are no vapour intrusions HSLs available, management limits have been adopted (Table A4 – reference 11). The management limits are designed to avoid or minimise potential effects of petroleum hydrocarbons including:

- The formation of observable light non-aqueous phase liquids (LNAPL),
- Fire and explosive hazards, and
- The effects on buried infrastructure e.g. penetration of, or damage to, in-ground services by hydrocarbons.

Again, there is different management limits for the various land use scenarios and GEE has adopted the management limits appropriate for commercial / industrial sites.

A summary of the HILs/HSLs appropriate for the site is provided in **Table 6**.

Table 6: Soil Site Assessment Criteria (SAC)

Analyte	**Health Investigation/Screening Levels (HILs/HSLs)** (mg/kg)		**Ecological Investigation/Screening Levels (EILs/ESLs)** (mg/kg)	
	Exposure Setting B – Apartment Buildings	Reference	**Residential**	Reference
Total Metals				
Arsenic	500	Table 1A – Reference 11	100	Table 1B(5) – Reference 11
Cadmium	150	Table 1A – Reference 11	--	--
Chromium (VI)	500	Table 1A – Reference 11	--	--
Chromium (III)	--	--	410	Table 1B(3) – Reference 11
Copper	30,000	Table 1A – Reference 11	100	Table 1B(2) – Reference 11
Lead	1,200	Table 1A – Reference 11	1,100	Table 1B(5) – Reference 11
Mercury (inorganic)	120	Table 1A – Reference 11	--	--
Nickel	1,200	Table 1A – Reference 11	40	Table 1B(3) – Reference 11
Zinc	60,000	Table 1A – Reference 11	210	Table 1B(1) – Reference 11
Total Polychlorinated Biphenyls (PCBs)				
Total PCBs	1	Table 1A – Reference 11	--	--
Polycyclic Aromatic Hydrocarbons (PAHs)				
Naphthalene	3	Table 1A(3) – Reference 11	170	Table 1B(5) – Reference 11
Benzo(a)pyrene	--	--	0.7	Table 1B(6) – Reference 11
Benzo(a)pyrene TEQ	4	Table 1A – Reference 11	--	--
TOTAL PAHs	400	Table 1A – Reference 11	--	--
Organochlorine Pesticides (OCP)				
Heptachlor	10	Table 1A – Reference 11	--	--
Aldrin + Dieldrin	10	Table 1A – Reference 11	--	--
Endrin	20	Table 1A – Reference 11	--	--
Chlordane	90	Table 1A – Reference 11	--	--
Endosulfan	400	Table 1A – Reference 11	--	--
HCB	15	Table 1A – Reference 11	--	--
Methoxychlor	500	Table 1A – Reference 11	--	--
DDE + DDD + DDT	600	Table 1A – Reference 11	--	--
DDT	--	--	180	Table 1B(5) – Reference 11
BTEX				
Benzene	0.5	Table 1A(3) – Reference 11	50	Table 1B(6) – Reference 11
Toluene	160	Table 1A(3) – Reference 11	85	Table 1B(6) – Reference 11
Ethylbenzene	55	Table 1A(3) – Reference 11	70	Table 1B(6) – Reference 11
Xylenes	40	Table 1A(3) – Reference 11	45	Table 1B(6) – Reference 11
Total Recoverable Hydrocarbons (TRH)				
(F1) C6 – C10	45	Table 1A(3) – Reference 11	180	Table 1B(6) – Reference 11
(F2) >C10 - C16	110	Table 1A(3) – Reference 11	120	Table 1B(6) – Reference 11
(F3) >C16 – C34	2,500	Table 1B(7) – Reference 11	300	Table 1B(6) – Reference 11
(F4) >C34 – C40	10,000	Table 1B(7) – Reference 11	2,800	Table 1B(6) – Reference 11
Asbestos				
Surface Soil	No visible Asbestos	Table 7 – Reference 11	--	--
Buried Bonded	0.04%	Table 7 – Reference 11	--	--
Buried Friable	0.001%	Table 7 – Reference 11	--	--

8.2 WATER SAMPLES

Assessment criteria for groundwater were derived from the NEPM (2013), *Schedule B(1) – Guidelines on Investigation Levels for Soil and Groundwater* (reference 10) which are based on the ANZECC/ARMCANZ (2000) *water quality guidelines (reference 13)*.

Trigger values for marine water were adopted for this study rather than fresh water guidelines, on the basis that the receiving system for groundwater at the site is most likely to ultimately be the Cooks River then Botany Bay. Groundwater is unlikely to be extracted for potable water supply because of the low permeable soil and bedrock formation and the fact that the groundwater sampled from the site is relatively high in salinity (refer to Section 9.2). This is also supported by the search of registered groundwater bores in the vicinity of the site which only revealed a few monitoring bores within 1km of the site (refer section 4.5).

ANZECC/ARMCANZ (2000) specifies four sets of trigger values corresponding with different levels of protection for ecosystem conditions. Trigger values, derived using the statistical distribution method, relate to the protection of 99%, 95%, 90% and 80% of species in an aquatic ecosystem. Three "categories of ecosystem conditions" are developed in the guidelines and the level of protection afforded to a particular ecosystem should be determined following consideration of site conditions in consultation with key stakeholders. Additionally, for each chemical, ANZECC/ARMCANZ (2000) provides three grades of guideline trigger values: high, moderate or low reliability trigger values. The grade depends on the data available and hence the confidence or reliability of the final figures.

The groundwater investigation levels (GILs) in NEPM (2013) relate to "slightly to moderately disturbed" aquatic ecosystems and adopt trigger values with high or moderate reliability. In the absence of high or moderate reliable marine water criteria, GEE has adopted the high or moderate reliable criteria for fresh water. Then, in the absence of high or moderate trigger values, GEE has applied low reliability trigger levels from ANZECC/ ARMCANZ (2000) as 'first pass' criteria. It should be noted that low reliability trigger values were originally derived from insufficient data sets and should not be used as final guidelines but as indicative interim figures, which if exceeded, suggest the need to obtain further data.

In the case of TRH and BTEX, Health Screening Levels (HSLs) which were developed by the Cooperative Research Centre for Contamination Assessment and Remediation of the Environment (CRC CARE) have been adopted and are referenced in Schedule B(1) of NEPM (2013 – reference 11) and Friebel & Nadebaum (2011 – reference 12). Typically the assessment of petroleum hydrocarbon contamination is driven by human health concerns relating to volatile components (e.g TRH C_6 – C_{10}, TRH >C_{10} – C_{16} and Benzene) which have the potential to cause health issues via vapour intrusion. The criteria changes depending on the soil type and depth and for the purpose of this assessment GEE have adopted the most conservative criteria which relates to sand and a depth of between 2.0 to >4.0 metres. Also, considering that the site is proposed to be developed into residential apartments HSL-B criteria is appropriate for vapour intrusion criteria.

Finally, in all cases where the laboratory limit of reporting exceeds the ANZECC/ARMCANZ (2000) trigger value, the detection limit of that analyte is used as a trigger for further investigation.

A summary of the GILs adopted for this site is provided in **Table 7**.

Table 7: Groundwater Investigation Levels (GILs)

Analyte	Units	**GILs** [1]	**Source**
Metals			
Arsenic V	µg/L	13	Table 1C (fresh) - Reference 11
Cadmium	µg/L	0.7	Table 1C (marine)- Reference 11
Chromium IV	µg/L	4.4	Table 1C (marine)- Reference 11
Copper	µg/L	1.3	Table 1C (marine)- Reference 11
Lead	µg/L	4.4	Table 1C (marine)- Reference 11
Nickel	µg/L	7	Table 1C (marine)- Reference 11
Zinc	µg/L	15	Table 1C (marine)- Reference 11
Mercury (inorganic)	µg/L	0.1	Table 1C (marine)- Reference 11
Polycyclic Aromatic Hydrocarbons (PAHs)			
Naphthalene	µg/L	50	Table 1C (marine)- Reference 11
Anthracene	µg/L	*0.4*	Reference 13
Phenanthrene	µg/L	*2*	Reference 13
Fluoranthene	µg/L	*1.4*	Reference 13
Benzo(a)pyrene	µg/L	*0.2*	Reference 13
Total Petroleum Hydrocarbons (TPH)			
(F1) C6 – C10	µg/L	1,000 [2]	Table 1A(4) - Reference 11
(F2) >C10 - C16	µg/L	1,000 [2]	Table 1A(4) - Reference 11
(F3) >C16 – C34	µg/L	--	--
(F4) >C34 – C40	µg/L	--	--
VOC - BTEX			
Benzene	µg/L	500	Table 1C (marine)- Reference 11
Toluene	µg/L	*180*	Reference 13 (fresh)
Ethylbenzene	µg/L	*5*	Reference 13 (marine)
para-Xylene	µg/L	200	Table 1C (fresh) - Reference 11
ortho-Xylene	µg/L	350	Table 1C (fresh) - Reference 11
VOC - Sulfur Compounds			
Carbon disulfide	µg/L	*20*	Reference 13
VOC - Fumigants			
1.2-Dichloropropane	µg/L	*900*	Reference 13
VOC - Halogenated Aliphatic Compounds			
1.1.1-Trichloroethane	µg/L	*270*	Reference 13
Carbon Tetrachloride	µg/L	*240*	Reference 13
1.2-Dichloroethane	µg/L	*1900*	Reference 13
1.1.2-Trichloroethane	µg/L	1900	Table 1C (marine)- Reference 11
1.3-Dichloropropane	µg/L	*1100*	Reference 13
1.1.2.2-Tetrachloroethane	µg/L	*400*	Reference 13
Pentachloroethane	µg/L	*80*	Reference 13
VOC - Halogenated Aromatic Compounds			
1.2.3-Trichlorobenzene	µg/L	*3*	Reference 13
VOC - Trihalomethanes			
Chloroform	µg/L	*370*	Reference 13
VOC - Chlorinated Hydrocarbons			
1.2-Dichlorobenzene	µg/L	160	Table 1C (fresh) - Reference 11
1.3-Dichlorobenzene	µg/L	260	Table 1C (fresh) - Reference 11
1.4-Dichlorobenzene	µg/L	60	Table 1C (fresh) - Reference 11
1.2.3-Trichlorobenzene	µg/L	3	Table 1C (fresh)- Reference 11
1.2.4-Trichlorobenzene	µg/L	20	Table 1C (marine)- Reference 11
Hexachlorobutadiene	µg/L	*0.03*	Reference 13
Hexachlorocyclopentadiene	µg/L	*0.05*	Reference 13
Pentachlorobenzene	µg/L	*1.5*	Reference 13
Hexachlorobenzene (HCB)	µg/L	*0.05*	Reference 13

Notes:

[1] Criteria shown in italics are low reliability trigger values used a a first pass assessment in the absence of more reliable trigger values.

[2] Criteria depends on the type of soil and depth of sample. Criteria adopted is for sandy soil which is the most conservative and residential apartment buildings (HSL-B).

9 ANALYTICAL RESULTS

9.1 SOIL SAMPLES

GEE submitted a total of 69 soil samples from the 28 boreholes to Envirolab for laboratory analysis to facilitate assessment of site suitability. A copy of the laboratory reports is provided in **Appendix L**, while a summary of the results is provided in **Table 7** and discussed in the following sections.

9.1.1 Metals

A total of 59 samples were analysed during this investigation for arsenic, cadmium, chromium, copper, nickel, zinc and mercury while 68 samples were analysed for lead.

From all the metal analytical results there was one sample (SM060114-93 from BH26 between 0.15 and 0.3m depth) which contained a concentration of lead of 6000mg/kg which exceeds the health-based SAC of 1,200 mg/kg. Three separate sub-samples taken from the same sample jar were also analysed for lead and the results were 1700mg/kg, 2400mg/kg and 3900mg/kg which equates to an average lead concentration of 3500mg/kg.

Additionally, there were six samples (SM161213-04, SM161213-44, SM161213-81, SM171213-74, SM171213-90 and SM060114-93) containing concentrations of copper, nickel lead and/or zinc above the ecological SAC which are used to screen the analytical results. GEE notes that the ecological SAC provided in **Table 8** are considered to be 'first pass' values used for screening the analytical results. In the case of copper, nickel and zinc, the ecological criteria is dependent on the CEC and/or pH of each sample and a conservative number (based on a relatively low CEC and pH) was used as the 'first pass' criteria. When using the actual CEC and pH values for each of these samples the actual ecological SAC increases significantly as shown below:

Sample ID	Location	Depth	Sample Concentration	'First Pass' Ecological SAC	Actual Ecological SAC
SM161213-04	BH2	0.1 – 0.25	Nickel (110mg/kg)	40mg/kg	340mg/kg
SM161213-44	BH7	0.0 – 0.2	Zinc (270mg/kg)	210mg/kg	390mg/kg
SM161213-81	BH11	0.0 – 0.15	Zinc (280mg/kg)	210mg/kg	510mg/kg
SM171213-74	BH15	0.1 – 0.2	Copper (110mg/kg)	100mg/kg	220mg/kg
			Nickel (48mg/kg)	40mg/kg	240mg/kg
			Zinc (1500mg/kg)	210mg/kg	670mg/kg
SM171213-90	BH19	1.0 – 1.2	Zinc (230mg/kg)	210mg/kg	1,000mg/kg
SM060114-93	BH26	0.15 – 0.3	**Lead (6000mg/kg)**	1,200mg/kg	1,200mg/kg

As shown above only the lead concentration within sample SM060114-93 (BH26 between 0.15 and 0.3m depth) and the Zinc within sample SM1712-13-74 (BH15 between 0.1-0.2m depth) exceeded the actual ecological SAC. As previously mentioned the lead concentration within the same sample (SM060114-93) also exceeded the health-based SAC.

9.1.2 TRH and BTEX

A total of 41 samples were selected for TRH and BTEX analysis and each sample and the concentrations for each sample were less than the adopted health and ecological SAC. Additionally, BTEX were not detected above the laboratory Limit of Reporting (LOR[5]) and TRH was only detected above the laboratory LOR in one sample (SM060114-81 - TRH C16-C34 at 160mg/kg).

On the basis of the soil analytical results, and the fact that there was no obvious hydrocarbon odour noted during the fieldwork, GEE considers that TRH and BTEX does not to pose a widespread contamination issue at the site. However, assuming the USTs still exist in the south-western corner of the site, additional assessment is recommended as part of future re-development works when they are removed.

---

[5] Both the LOR and PQL are interchangeable terms used by laboratories and is defined as the lowest concentration that can be reliably achieved within specific limits of precision and accuracy during routine laboratory operating conditions (Popek, 2003 – reference 15).

9.1.3 PAHs

A total of 30 soil samples were analysed for PAHs and the concentrations of total PAHs and benzo(a)pyrene (herein refered to as 'B(a)P') in all samples were less than the health-based SAC. However, one sample (SM161213-22 - BH4 at 0.15-0.3m depth) contained a concentration of B(a)P of 1.3mg/kg which exceeded the ecological SAC of 0.7mg/kg.

9.1.4 OCPs and PCBs

Eleven near surface soil samples were analysed for OCPs and PCBs. The concentrations of all OCPs and PCBs were less than the adopted health and ecological SAC and the laboratory LOR. When combined with the site's history, these results indicate that OCPs and PCBs are not a contamination issue at the site.

9.1.5 Asbestos

The presence of asbestos fibres was inspected in eleven near-surface soil samples which are most likely to be impacted by asbestos. Asbestos fibres were not detected in each of the eleven samples. Combined with the fact that fragments of asbestos containing products, were not observed in the soils during the fieldwork, GEE considers that asbestos is not a soil contamination issue on the site. However, some buildings are clad with asbestos containing materials and should be managed appropriately during the demolition phase of the proposed redevelopment works.

Table 8: Summary of Analytical Results (BH1 to BH6)

Sample		SM161213-01	SM161213-02	SM161213-03	SM161213-04	SM161213-05	SM161213-06	SM161213-10	SM161213-12	SM161213-13	SM161213-22	SM161213-23	SM161213-25	SM161213-33	SM161213-34	SM161213-35	SM161213-39	SM161213-41	SM161213-42	**Site Acceptance Criteria**	
Analyte	Location	BH1	BH1	BH1	BH2	BH2	BH2	BH3	BH3	BH3	BH4	BH4	BH4	BH5	BH5	BH5	BH6	BH6	BH6	Health	Ecological
	Depth	0.1-0.4	0.4–1.1	Blind Rep. of '02'	0.1–0.25	0.7–0.8	0.9–1.0	0.1-0.2	1.2-1.4	1.8-2.0	0.15-0.3	0.4-0.6	2.0-2.5	0.14-0.2	0.2-0.6	0.6-0.8	0.2-0.35	1.3-1.5	2.3-2.5	Exposure Setting B (Residential)	Residential & Open Space
	Type	Fill	Clay		Fill	Fill	Clay	Fill	Clay	Shale	Fill	Clay	Shale	Fill	Fill	Clay	Fill	Fill	Shale		
Asbestos																					
Asbestos Detected	-	--	--	--	--	--	--	No	--	--	No	--	--	--	--	--	--	--	--	**0.04%**	--
Respirable Fibres	-	--	--	--	--	--	--	No	--	--	No	--	--	--	--	--	--	--	--	**0.001%**	--
Metals																					
Arsenic	mg/kg	5	7	<4	<4	<4	15	7	--	--	9	6	--	<4	--	--	7	--	--	**500**	**100**
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	--	--	<0.4	<0.4	--	<0.4	--	--	<0.4	--	--	**150**	**--**
Chromium	mg/kg	15	13	9	19	3	26	20	--	--	17	11	--	3	--	--	13	--	--	**500**	**410**
Copper	mg/kg	47	20	19	65	14	8	25	--	--	35	29	--	14	--	--	15	--	--	**30,000**	**100**
Lead	mg/kg	39	13	14	4	5	27	48	11	26	60	12	24	180	78	--	59	22	10	**1,200**	**1,100**
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	--	--	<0.1	<0.1	--	<0.1	--	--	<0.1	--	--	**120**	**--**
Nickel	mg/kg	32	2	1	**110**	12	2	7	--	--	6	3	--	1	--	--	2	--	--	**1,200**	**40**
Zinc	mg/kg	72	10	9	40	16	36	33	--	--	42	22	--	140	--	--	120	--	--	**60,000**	**210**
PAHs	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**--**	**--**
Naphthalene	mg/kg	--	--	--	<0.1	<0.1	<0.1	<0.1	--	--	<0.1	--	--	--	--	--	--	--	--	**3**	**170**
Benzo(a)pyrene	mg/kg	--	--	--	<0.05	<0.05	<0.05	0.19	--	--	**1.3**	--	--	--	--	--	--	--	--	**--**	**0.7**
Benzo(a)pyrene TEQ	mg/kg	--	--	--	<0.5	<0.5	<0.5	<0.5	--	--	2	--	--	--	--	--	--	--	--	**4**	**--**
Total PAHs	mg/kg	--	--	--	<0.2	<0.2	<0.2	1.5	--	--	12	--	--	--	--	--	--	--	--	**400**	**--**
BTEX	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**--**	**--**
Benzene	mg/kg	--	--	--	<0.2	--	--	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	--	<0.2	<0.2	<0.2	<0.2	<0.2	**0.5**	**50**
Toluene	mg/kg	--	--	--	<0.5	--	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	<0.5	<0.5	<0.5	<0.5	<0.5	**160**	**85**
Ethylbenzene	mg/kg	--	--	--	<1	--	--	<1	<1	<1	<1	<1	<1	--	<1	<1	<1	<1	<1	**55**	**70**
Total Xylenes	mg/kg	--	--	--	<2	--	--	<2	<2	<2	<2	<2	<2	--	<2	<2	<2	<2	<2	**40**	**45**
TRH	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**--**	**--**
vTPH C_6 - C_{10} (F1)	mg/kg	--	--	--	<25	--	--	<25	<25	<25	<25	<25	<25	--	<25	<25	<25	<25	<25	**45**	**180**
TRH >C_{10} - C_{16}	mg/kg	--	--	--	<50	--	--	<50	<50	<50	<50	<50	<50	--	<50	<50	<50	<50	<50	**110**	**120**
TRH >C_{16}-C_{34}	mg/kg	--	--	--	<100	--	--	<100	<100	<100	<100	<100	<100	--	<100	<100	<100	<100	<100	**2,500**	**300**
TRH >C_{34}-C_{40}	mg/kg	--	--	--	<100	--	--	<100	<100	<100	<100	<100	<100	--	<100	<100	<100	<100	<100	**10,000**	**2,800**

TABLE 8 NOTEs:

Analytical results which exceed any of the Health-based Investigation Levels (HILs) are shown **bold** text. No exceedances found

Analytical results which exceed any of the Ecological-based Investigation Levels (PILs) are shown as shaded text. No exceedances found

1 – Total Chromium analytical result includes chromium (III) and (VI).

Table 8 (Continued): Summary of Analytical Results (BH1 to BH6)

Sample		SM161213-01	SM161213-02	SM161213-03	SM161213-04	SM161213-05	SM161213-06	SM161213-10	SM161213-12	SM161213-13	SM161213-22	SM161213-23	SM161213-25	SM161213-33	SM161213-34	SM161213-35	SM161213-39	SM161213-41	SM161213-42	Site Acceptance Criteria	
																				Health	Ecological
Analyte	Location	BH1	BH1	BH1	BH2	BH2	BH2	BH3	BH3	BH3	BH4	BH4	BH4	BH5	BH5	BH5	BH6	BH6	BH6	Exposure Setting B (Residential)	Residential & Open Space
	Depth	0.1-0.4	0.4–1.1	Blind Rep. of '02'	0.1–0.25	0.7–0.8	0.9–1.0	0.1-0.2	1.2-1.4	1.8-2.0	0.15-0.3	0.4-0.6	2.0-2.5	0.14-0.2	0.2-0.6	0.6-0.8	0.2-0.35	1.3-1.5	2.3-2.5		
	Type	Fill	Clay		Fill	Fill	Clay	Fill	Clay	Shale	Fill	Clay	Shale	Fill	Fill	Clay	Fill	Fill	Shale		
OCPs																					
Heptachlor	mg/kg	<0.1	--	--	--	--	--	<0.1	--	--	--	--	--	--	--	--	--	--	--	**10**	--
Aldrin	mg/kg	<0.1	--	--	--	--	--	<0.1	--	--	--	--	--	--	--	--	--	--	--	**10**	--
Dieldrin	mg/kg	<0.1	--	--	--	--	--	<0.1	--	--	--	--	--	--	--	--	--	--	--		
Endrin	mg/kg	<0.1	--	--	--	--	--	<0.1	--	--	--	--	--	--	--	--	--	--	--	**20**	--
gamma-Chlordane	mg/kg	<0.1	--	--	--	--	--	<0.1	--	--	--	--	--	--	--	--	--	--	--	**90**	--
alpha-chlordane	mg/kg	<0.1	--	--	--	--	--	<0.1	--	--	--	--	--	--	--	--	--	--	--		--
Endosulfan I	mg/kg	<0.1	--	--	--	--	--	<0.1	--	--	--	--	--	--	--	--	--	--	--	**400**	--
Endosulfan II	mg/kg	<0.1	--	--	--	--	--	<0.1	--	--	--	--	--	--	--	--	--	--	--		--
HCB	mg/kg	<0.1	--	--	--	--	--	<0.1	--	--	--	--	--	--	--	--	--	--	--	**15**	--
Methoxychlor	mg/kg	<0.1	--	--	--	--	--	<0.1	--	--	--	--	--	--	--	--	--	--	--	**500**	--
pp-DDE	mg/kg	<0.1	--	--	--	--	--	<0.1	--	--	--	--	--	--	--	--	--	--	--	**600**	--
pp-DDD	mg/kg	<0.1	--	--	--	--	--	<0.1	--	--	--	--	--	--	--	--	--	--	--		**180**
pp-DDT	mg/kg	<0.1	--	--	--	--	--	<0.1	--	--	--	--	--	--	--	--	--	--	--		--
Total PCBs																					
PCBs	mg/kg	<0.1	--	--	--	--	--	<0.1	--	--	--	--	--	--	--	--	--	--	--	**1**	**--**

TABLE 8 NOTEs:

Analytical results which exceed any of the Health-based Investigation Levels (HILs) are shown **bold** text. No exceedances found

Analytical results which exceed any of the Ecological-based Investigation Levels (PILs) are shown as shaded text. No exceedances found

1 – Total Chromium analytical result includes chromium (III) and (VI).

Table 8 (Continued): Summary of Analytical Results (BH7 to BH13)

Sample		SM161213-44	SM161213-45	SM161213-47	SM161213-48	SM161213-49	SM161213-16	SM161213-17	SM161213-20	SM161213-27	SM161213-28	SM161213-30	SM161213-50	SM161213-51	SM161213-52	SM161213-55	SM171213-81	SM171213-60	SM171213-62	SM171213-63	SM171213-64	SM171213-65	Site Acceptance Criteria	
																							Health	Ecological
Analyte	Location	BH7	BH7	BH7	BH7	BH7	BH8	BH8	BH8	BH9	BH9	BH9	BH10	BH10	BH10	BH10	BH11	BH12	BH12	BH12	BH13	BH13	Exposure Setting B (Residential)	Residential
	Depth	0.0-0.2	0.3-0.5	2.5-2.8	Split Dupl. of ‘47’	3.0-3.5	0.2-0.4	Blind Replicate of ‘16’	2.3-2.55	0.15-0.2	0.2-0.35	1.1-1.2	0.2-0.3	0.3-0.5	0.5-0.7	4.5-5.0	0.0-0.15	0.1-0.15	0.6-0.8	1.4-1.5	0.2-0.4	Blind Replicate of ‘64’		
	Type	Fill	Fill	Fill		Shale	Fill		Fill	Fill	Fill	Clay	Fill	Fill	Clay	Shale	Fill	Fill	Clay	Shale	Fill			
Asbestos																								
Asbestos Detected	-	--	--	--	--	--	No	--	--	No	--	--	--	--	--	--	--	--	No	--	--	--	**0.04%**	--
Respirable Fibres	-	--	--	--	--	--	No	--	--	No	--	--	--	--	--	--	--	--	No	--	--	--	**0.001%**	--
Metals																								
Arsenic	mg/kg	<4	--	<4	3.5	--	5	5	7	<4	9	--	<4	10	8	7	23	<4	7	8	<4	4	**500**	**100**
Cadmium	mg/kg	<0.4	--	<0.4	<0.4	--	<0.4	<0.4	<0.4	<0.4	<0.4	--	<0.4	<0.4	<0.4	0.9	0.8	<0.4	<0.4	<0.4	<0.4	<0.4	**150**	**--**
Chromium	mg/kg	21	--	5	<5	--	3	2	9	2	20	--	2	19	23	9	17	30	8	9	2	3	**500**	**410**
Copper	mg/kg	56	--	7	<5	--	<1	<1	40	29	77	--	3	17	22	37	170	38	15	30	22	32	**30,000**	**100**
Lead	mg/kg	310	14	35	39	17	3	2	13	3	110	17	9	43	17	15	450	72	22	15	1	2	**1,200**	**1,100**
Mercury	mg/kg	<0.1	--	<0.1	<0.05	--	<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	**120**	**--**
Nickel	mg/kg	10	--	3	<5	--	1	1	12	1	7	--	<1	4	2	30	15	51	6	2	1	2	**1,200**	**40**
Zinc	mg/kg	**270**	--	85	89	--	6	4	84	5	66	--	79	74	9	180	**280**	69	28	12	5	6	**60,000**	**210**
PAHs																								
Naphthalene	mg/kg	--	--	<0.1	<0.5	--	<0.1	<0.1	--	<0.1	--	--	<0.1	<0.1	--	--	<0.1	--	<0.1	--	<0.1	--	**3**	**170**
Benzo(a)pyrene	mg/kg	--	--	<0.05	<0.5	--	<0.05	<0.05	--	<0.05	--	--	<0.05	<0.05	--	--	0.34	--	<0.05	--	<0.05	--	**--**	**0.7**
Benzo(a)pyrene TEQ	mg/kg	--	--	<0.5	<0.5	--	<0.5	<0.5	--	<0.5	--	--	<0.5	<0.5	--	--	<0.5	--	<0.5	--	<0.5	--	**4**	**--**
Total PAHs	mg/kg	--	--	<0.2	<0.5	--	<0.2	<0.2	--	<0.2	--	--	0.4	<0.2	--	--	3.1	--	<0.2	--	<0.2	--	**400**	**--**
BTEX																								
Benzene	mg/kg	--	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	--	--	<0.2	--	<0.2	--	<0.2	<0.2	**0.5**	**50**
Toluene	mg/kg	--	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	<0.5	--	<0.5	--	<0.5	<0.5	**160**	**85**
Ethylbenzene	mg/kg	--	<1	<1	<0.1	<1	<1	<1	<1	<1	<1	<1	<1	<1	--	--	<1	--	<1	--	<1	<1	**55**	**70**
Total Xylenes	mg/kg	--	<2	<2	<0.3	<2	<2	<2	<2	<2	<2	<2	<2	<2	--	--	<2	--	<2	--	<2	<2	**40**	**45**
TRH																								
vTPH C_6 - C_{10} (F1)	mg/kg	--	<25	<25	<20	<25	<25	<25	<25	<25	<25	<25	<25	<25	--	--	<25	--	<25	--	<25	<25	**45**	**180**
TRH >C_{10} - C_{16}	mg/kg	--	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	--	--	<50	--	<50	--	<50	<50	**110**	**120**
TRH >C_{16}-C_{34}	mg/kg	--	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	--	--	<100	--	<100	--	<100	<100	**2,500**	**300**
TRH >C_{34}-C_{40}	mg/kg	--	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	--	--	<100	--	<100	--	<100	<100	**10,000**	**2,800**

TABLE 8 NOTEs:

Analytical results which exceed any of the Health-based Investigation Levels (HILs) are shown **bold** text. No exceedances found

Analytical results which exceed any of the Ecological-based Investigation Levels (PILs) are shown as shaded text. No exceedances found

1 – Total Chromium analytical result includes chromium (III) and (VI).

Table 8 (Continued): Summary of Analytical Results (BH7 to BH13)

Sample		SM161213-44	SM161213-45	SM161213-47	SM161213-48	SM161213-49	SM161213-16	SM161213-17	SM161213-20	SM161213-27	SM161213-28	SM161213-30	SM161213-50	SM161213-51	SM161213-52	SM161213-55	SM171213-81	SM171213-60	SM171213-62	SM171213-63	SM171213-64	SM171213-65	Site Acceptance Criteria	
Analyte	Location	BH7	BH7	BH7	BH7	BH7	BH8	BH8	BH8	BH9	BH9	BH9	BH10	BH10	BH10	BH10	BH11	BH12	BH12	BH12	BH13	BH13	Health	Ecological
	Depth	0.0-0.2	0.3-0.5	2.5-2.8	Split Dupl. of ‘47’	3.0-3.5	0.2-0.4	Blind Replicate of ‘16’	2.3-2.55	0.15-0.2	0.2-0.35	1.1-1.2	0.2-0.3	0.3-0.5	0.5-0.7	4.5-5.0	0.0-0.15	0.1-0.15	0.6-0.8	1.4-1.5	0.2-0.4	Blind Replicate of ‘64’	Exposure Setting B (Residential)	Residential
	Type	Fill	Fill	Fill		Shale	Fill		Fill	Fill	Fill	Clay	Fill	Fill	Clay	Shale	Fill	Fill	Clay	Shale	Fill			
OCPs																								
Heptachlor	mg/kg	--	--	--	--	--	<0.1	<0.1	--	--	--	--	<0.1	--	--	--	<0.1	--	--	--	<0.1	--	**10**	--
Aldrin	mg/kg	--	--	--	--	--	<0.1	<0.1	--	--	--	--	<0.1	--	--	--	<0.1	--	--	--	<0.1	--	**10**	--
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	--	**20**	--
gamma-Chlordane	mg/kg	--	--	--	--	--	<0.1	<0.1	--	--	--	--	<0.1	--	--	--	<0.1	--	--	--	<0.1	--	**90**	--
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	--	**400**	--
Endosulfan II	mg/kg	--	--	--	--	--	<0.1	<0.1	--	--	--	--	<0.1	--	--	--	<0.1	--	--	--	<0.1	--		--
HCB	mg/kg	--	--	--	--	--	<0.1	<0.1	--	--	--	--	<0.1	--	--	--	<0.1	--	--	--	<0.1	--	**15**	--
Methoxychlor	mg/kg	--	--	--	--	--	<0.1	<0.1	--	--	--	--	<0.1	--	--	--	<0.1	--	--	--	<0.1	--	**500**	--
pp-DDE	mg/kg	--	--	--	--	--	<0.1	<0.1	--	--	--	--	<0.1	--	--	--	<0.1	--	--	--	<0.1	--	**600**	--
pp-DDD	mg/kg	--	--	--	--	--	<0.1	<0.1	--	--	--	--	<0.1	--	--	--	<0.1	--	--	--	<0.1	--		**180**
pp-DDT	mg/kg	--	--	--	--	--	<0.1	<0.1	--	--	--	--	<0.1	--	--	--	<0.1	--	--	--	<0.1	--		--
Total PCBs																								
PCBs	mg/kg	--	--	--	--	--	<0.1	<0.1	--	--	--	--	<0.1	--	--	--	<0.1	--	--	--	<0.1	--	**1**	**--**

TABLE 8 NOTEs:

Analytical results which exceed any of the Health-based Investigation Levels (HILs) are shown **bold** text. No exceedances found

Analytical results which exceed any of the Ecological-based Investigation Levels (PILs) are shown as shaded text. No exceedances found

1 – Total Chromium analytical result includes chromium (III) and (VI).

Table 8 (Continued): Summary of Analytical Results (BH14 to BH20)

Sample		SM171213-67	SM171213-68	SM171213-74	SM171213-75	SM171213-76	SM171213-72	SM171213-73	SM171213-78	SM171213-79	SM171213-83	SM171213-84	SM171213-87	SM171213-88	SM171213-89	SM171213-90	SM171213-92	SM171213-93	SM171213-94	SM171213-95	SM171213-96	SM171213-97	Site Acceptance Criteria Health	Site Acceptance Criteria Ecological
Analyte	Location	BH14	BH14	BH15	BH15	BH15	BH16	BH16	BH17	BH17	BH18	BH18	BH19	BH19	BH19	BH19	BH19	BH20	BH20	BH20	BH20	BH20	Exposure Setting B (Residential)	Residential
	Depth	0.25-0.4	0.5-0.7	0.1-0.2	0.3-0.5	0.9-1.1	0.2-0.3	Split Dupl. of '72'	0.15-0.3	0.5-0.7	0.1-0.2	0.2-0.3	0.2-0.3	Split Dupl. of '87'	0.3-0.5	1.0-1.2	1.3-1.5	Blind Repl. of '92'	0.35-0.5	1.0-1.1	1.3-1.45	2.0-2.3		
	Type	Fill	Clay	Fill	Fill	Clay	Fill		Fill	Clay	Fill	Fill	Fill		Fill	Fill	Shale		Fill	Fill	Clay	Shale		
Asbestos																								
Asbestos Detected	-	No	--	--	--	--	No	--	--	--	--	No	--	--	--	--	--	--	--	--	--	--	**0.04%**	--
Respirable Fibres	-	No	--	--	--	--	No	--	--	--	--	No	--	--	--	--	--	--	--	--	--	--	**0.001%**	--
Metals																								
Arsenic	mg/kg	7	<4	8	6	5	<4	4	<4	9	<4	11	5	5.2	6	8	<4	<4	6	7	<4	6	**500**	**100**
Cadmium	mg/kg	<0.4	<0.4	4.3	<0.4	<0.4	<0.4	<0.4	0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	**150**	**--**
Chromium	mg/kg	15	8	50	21	9	17	24	12	24	3	21	3	<5	47	18	2	2	12	15	6	10	**500**	**410**
Copper	mg/kg	15	18	**110**	29	22	4	<5	32	22	21	35	4	<5	25	20	1	<1	41	27	16	31	**30,000**	**100**
Lead	mg/kg	26	11	590	22	27	130	230	43	18	19	160	<1	<5	320	520	4	4	230	75	8	11	**1,200**	**1,100**
Mercury	mg/kg	<0.1	<0.1	0.3	<0.1	<0.1	<0.1	0.07	0.1	<0.1	<0.1	0.6	<0.1	<0.05	0.2	0.2	<0.1	<0.1	0.4	0.1	0.2	<0.1	**120**	**--**
Nickel	mg/kg	3	2	**48**	3	2	1	<5	6	4	2	5	1	<5	32	6	1	1	9	6	3	5	**1,200**	**40**
Zinc	mg/kg	28	13	**1500**	19	20	25	39	66	15	93	100	2	<5	190	**230**	7	5	200	91	25	44	**60,000**	**210**
PAHs																								
Naphthalene	mg/kg	<0.1	<0.1	--	<0.1	<0.1	<0.1	--	--	--	--	<0.1	<0.1	<0.5	--	--	<0.1	<0.1	--	--	--	--	**3**	**170**
Benzo(a)pyrene	mg/kg	0.1	<0.05	--	<0.05	<0.05	<0.05	--	--	--	--	0.39	<0.05	<0.5	--	--	<0.05	<0.05	--	--	--	--	**--**	**0.7**
Benzo(a)pyrene TEQ	mg/kg	<0.5	<0.5	--	<0.5	<0.5	<0.5	--	--	--	--	1	<0.5	<0.5	--	--	<0.5	<0.5	--	--	--	--	**4**	**--**
Total PAHs	mg/kg	0.44	<0.2	--	<0.2	<0.2	<0.2	--	--	--	--	3.4	<0.2	<0.5	--	--	0.35	<0.2	--	--	--	--	**400**	**--**
BTEX																								
Benzene	mg/kg	<0.2	--	--	<0.2	--	<0.2	--	--	--	--	<0.2	<0.2	<0.1	--	--	<0.2	<0.2	--	--	--	--	**0.5**	**50**
Toluene	mg/kg	<0.5	--	--	<0.5	--	<0.5	--	--	--	--	<0.5	<0.5	<0.1	--	--	<0.5	<0.5	--	--	--	--	**160**	**85**
Ethylbenzene	mg/kg	<1	--	--	<1	--	<1	--	--	--	--	<1	<1	<0.1	--	--	<1	<1	--	--	--	--	**55**	**70**
Total Xylenes	mg/kg	<2	--	--	<2	--	<2	--	--	--	--	<2	<2	<0.3	--	--	<2	<2	--	--	--	--	**40**	**45**
TRH																								
vTPH C_6 - C_{10} (F1)	mg/kg	<25	--	--	<25	--	<25	--	--	--	--	<25	<25	<20	--	--	<25	<25	--	--	--	--	**45**	**180**
TRH $>C_{10}$ - C_{16}	mg/kg	<50	--	--	<50	--	<50	--	--	--	--	<50	<50	<50	--	--	<50	<50	--	--	--	--	**110**	**120**
TRH $>C_{16}$-C_{34}	mg/kg	<100	--	--	<100	--	<100	--	--	--	--	<100	<100	<100	--	--	<100	<100	--	--	--	--	**2,500**	**300**
TRH $>C_{34}$-C_{40}	mg/kg	<100	--	--	<100	--	<100	--	--	--	--	<100	<100	<100	--	--	<100	<100	--	--	--	--	**10,000**	**2,800**

TABLE 8 NOTEs:

Analytical results which exceed any of the Health-based Investigation Levels (HILs) are shown **bold** text. No exceedances found

Analytical results which exceed any of the Ecological-based Investigation Levels (PILs) are shown as shaded text. No exceedances found

1 – Total Chromium analytical result includes chromium (III) and (VI).

Table 8 (Continued): Summary of Analytical Results (BH14 to BH20)

Sample		SM171213-67	SM171213-68	SM171213-74	SM171213-75	SM171213-76	SM171213-72	SM171213-73	SM171213-78	SM171213-79	SM171213-83	SM171213-84	SM171213-87	SM171213-88	SM171213-89	SM171213-90	SM171213-92	SM171213-93	SM171213-94	SM171213-95	SM171213-96	SM171213-97	Site Acceptance Criteria	
																							Health	Ecological
																							Exposure Setting B (Residential)	Residential
Analyte	Location	BH14	BH14	BH15	BH15	BH15	BH16	BH16	BH17	BH17	BH18	BH18	BH19	BH19	BH19	BH19	BH19	BH20	BH20	BH20	BH20	BH20		
	Depth	0.25-0.4	0.5-0.7	0.1-0.2	0.3-0.5	0.9-1.1	0.2-0.3	Split Dup. of '72'	0.15-0.3	0.5-0.7	0.1-0.2	0.2-0.3	0.2-0.3	Split Dup. of '87'	0.3-0.5	1.0-1.2	1.3-1.5	Blind Rep. of '92'	0.35-0.5	1.0-1.1	1.3-1.45	2.0-2.3		
	Type	Fill	Clay	Fill	Fill	Clay	Fill		Fill	Clay	Fill	Fill	Fill		Fill	Fill	Shale		Fill	Fill	Clay	Shale		
OCPs																								
Heptachlor	mg/kg	--	--	--	--	--	--	--	--	--	--	--	<0.1	<0.05	--	--	<0.1	--	--	--	--	--	**10**	--
Aldrin	mg/kg	--	--	--	--	--	--	--	--	--	--	--	<0.1	<0.05	--	--	<0.1	--	--	--	--	--	**10**	--
Dieldrin	mg/kg	--	--	--	--	--	--	--	--	--	--	--	<0.1	<0.05	--	--	<0.1	--	--	--	--	--		
Endrin	mg/kg	--	--	--	--	--	--	--	--	--	--	--	<0.1	<0.05	--	--	<0.1	--	--	--	--	--	**20**	--
gamma-Chlordane	mg/kg	--	--	--	--	--	--	--	--	--	--	--	<0.1	<0.1	--	--	<0.1	--	--	--	--	--	**90**	--
alpha-chlordane	mg/kg	--	--	--	--	--	--	--	--	--	--	--	<0.1	--	--	--	<0.1	--	--	--	--	--		--
Endosulfan I	mg/kg	--	--	--	--	--	--	--	--	--	--	--	<0.1	<0.05	--	--	<0.1	--	--	--	--	--	**400**	--
Endosulfan II	mg/kg	--	--	--	--	--	--	--	--	--	--	--	<0.1	<0.05	--	--	<0.1	--	--	--	--	--		--
HCB	mg/kg	--	--	--	--	--	--	--	--	--	--	--	<0.1	<0.05	--	--	<0.1	--	--	--	--	--	**15**	--
Methoxychlor	mg/kg	--	--	--	--	--	--	--	--	--	--	--	<0.1	<0.05	--	--	<0.1	--	--	--	--	--	**500**	--
pp-DDE	mg/kg	--	--	--	--	--	--	--	--	--	--	--	<0.1	<0.05	--	--	<0.1	--	--	--	--	--	**600**	--
pp-DDD	mg/kg	--	--	--	--	--	--	--	--	--	--	--	<0.1	<0.05	--	--	<0.1	--	--	--	--	--		**180**
pp-DDT	mg/kg	--	--	--	--	--	--	--	--	--	--	--	<0.1	<0.05	--	--	<0.1	--	--	--	--	--		--
Total PCBs																								
PCBs	mg/kg	--	--	--	--	--	--	--	--	--	--	--	<0.1	<0.5	--	--	<0.1	--	--	--	--	--	**1**	**--**

TABLE 8 NOTEs:

Analytical results which exceed any of the Health-based Investigation Levels (HILs) are shown **bold** text. No exceedances found

Analytical results which exceed any of the Ecological-based Investigation Levels (PILs) are shown as shaded text. No exceedances found

1 – Total Chromium analytical result includes chromium (III) and (VI).

Table 8 (Continued): Summary of Analytical Results (BH21 to BH28)

Sample		SM060114-80	SM060114-81	SM060114-82	SM060114-83	SM060114-84	SM060114-85	SM060114-86	SM060114-87	SM060114-89	SM060114-90	SM060114-91	SM060114-92	SM060114-93	SM060114-94	SM060114-95	SM060114-96	SM060114-98	SM060114-99	SM060114-100	Site Acceptance Criteria Health	Site Acceptance Criteria Ecological
Analyte	Location	BH21	BH22	BH22	BH23	BH23	BH23	BH23	BH24	BH24	BH25	BH25	BH25	BH26	BH26	BH26	BH27	BH27	BH28	BH28	Exposure Setting B (Residential)	Residential
	Depth	0.2-0.4	0.2-0.4	Blind Rep. of '81'	0.2-0.4	0.6-0.8	Split Dup. of '84'	0.9-1.1	0.1-0.25	0.3-0.5	0.2-0.4	Split Dup. of '90'	0.4-0.55	0.15-0.3	0.5-0.6	0.6-0.8	0.2-0.4	0.5-0.7	0.2-0.3	0.3-0.5		
	Type	Fill	Fill		Fill	Fill		Clay	Fill	Fill	Fill		Clay	Fill	Fill	Clay	Clay	Clay	Fill	Clay		
Asbestos																						
Asbestos Detected	-	--	No	--	--	--	--	--	--	--	No	--	--	--	--	--	No	--	--	--	0.04%	--
Respirable Fibres	-	--	No	--	--	--	--	--	--	--	No	--	--	--	--	--	No	--	--	--	0.001%	--
Metals		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
Arsenic	mg/kg	4	<4	<4	<4	8	4.6	9	5	5	7	6.2	<4	<4	7	9	<4	6	7	6	**500**	**100**
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	**150**	**--**
Chromium	mg/kg	50	5	4	6	18	15	20	2	10	5	6.1	5	180	29	21	9	16	11	11	**500**	**410**
Copper	mg/kg	15	33	49	18	23	23	19	5	12	18	18	13	45	29	20	13	23	26	32	**30,000**	**100**
Lead	mg/kg	11	220	180	10	45	31	14	<1	320	14	14	6	**6000**	350	35	16	16	14	13	**1,200**	**1,100**
Mercury	mg/kg	<0.1	<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	**120**	**--**
Nickel	mg/kg	37	3	3	1	5	<5	2	<1	4	1	<5	2	7	6	3	4	3	2	2	**1,200**	**40**
Zinc	mg/kg	27	10	16	17	120	100	15	2	150	11	15	13	120	110	15	11	21	24	26	**60,000**	**210**
PAHs																						
Naphthalene	mg/kg	<1	<1	<1	--	<1	<0.5	<1	--	<1	<1	--	--	<1	--	--	<1	<1	<1	--	**3**	**170**
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	--	0.22	<0.5	<0.05	--	--	<0.05	--	--	0.45	--	--	<0.05	<0.05	<0.05	--	**--**	**0.7**
Benzo(a)pyrene TEQ	mg/kg	<0.5	<0.5	<0.5	--	<0.5	<0.5	<0.5	--	--	<0.5	--	--	1	--	--	<0.5	<0.5	<0.5	--	**4**	**--**
Total PAHs	mg/kg	<0.2	<0.2	<0.2	--	2.3	<0.5	<0.2	--	--	<0.2	--	--	4.8	--	--	<0.2	<0.2	<0.2	--	**400**	**--**
BTEX																						
Benzene	mg/kg	<0.2	<0.2	<0.2	--	<0.2	<0.1	<0.2	--	<0.2	<0.2	--	--	<0.2	--	--	<0.2	<0.2	<0.2	--	**0.5**	**50**
Toluene	mg/kg	<0.5	<0.5	<0.5	--	<0.5	<0.1	<0.5	--	<0.5	<0.5	--	--	<0.5	--	--	<0.5	<0.5	<0.5	--	**160**	**85**
Ethylbenzene	mg/kg	<1	<1	<1	--	<1	<0.1	<1	--	<1	<1	--	--	<1	--	--	<1	<1	<1	--	**55**	**70**
Total Xylenes	mg/kg	<2	<2	<2	--	<2	<0.3	<2	--	<2	<2	--	--	<2	--	--	<2	<2	<2	--	**40**	**45**
TRH																						
vTPH C_6 - C_{10} (F1)	mg/kg	<25	<25	<25	--	<25	<20	<25	--	<25	<25	--	--	<25	--	--	<25	<25	<25	--	**45**	**180**
TRH >C_{10} - C_{16}	mg/kg	<50	<50	<50	--	<50	<50	<50	--	<50	<50	--	--	<50	--	--	<50	<50	<50	--	**110**	**120**
TRH >C_{16}-C_{34}	mg/kg	<100	160	110	--	<100	<100	<100	--	<100	<100	--	--	<100	--	--	<100	<100	<100	--	**2,500**	**300**
TRH >C_{34}-C_{40}	mg/kg	<100	<100	<100	--	<100	<100	<100	--	<100	<100	--	--	<100	--	--	<100	<100	<100	--	**10,000**	**2,800**

TABLE 8 NOTEs:

Analytical results which exceed any of the Health-based Investigation Levels (HILs) are shown **bold** text. No exceedances found

Analytical results which exceed any of the Ecological-based Investigation Levels (PILs) are shown as shaded text. No exceedances found

1 – Total Chromium analytical result includes chromium (III) and (VI).

Table 8 (Continued): Summary of Analytical Results (BH21 to BH28)

Sample		SM060114-80	SM060114-81	SM060114-82	SM060114-83	SM060114-84	SM060114-85	SM060114-86	SM060114-87	SM060114-89	SM060114-90	SM060114-91	SM060114-92	SM060114-93	SM060114-94	SM060114-95	SM060114-96	SM060114-98	SM060114-99	SM060114-100	**Site Acceptance Criteria**	
																					Health	Ecological
																					Exposure Setting B (Residential)	Residential
Analyte	Location	BH21	BH22	BH22	BH23	BH23	BH23	BH23	BH24	BH24	BH25	BH25	BH25	BH26	BH26	BH26	BH27	BH27	BH28	BH28		
	Depth	0.2-0.4	0.2-0.4	Blind Rep. of '81'	0.2-0.4	0.6-0.8	Split Duplicate of ‘84’	0.9-1.1	0.1-0.25	0.3-0.5	0.2-0.4	Split Duplicate of ‘90’	0.4-0.55	0.15-0.3	0.5-0.6	0.6-0.8	0.2-0.4	0.5-0.7	0.2-0.3	0.3-0.5		
	Type	Fill	Fill		Fill	Fill		Clay	Fill	Fill	Fill		Clay	Fill	Fill	Clay	Clay	Clay	Fill	Clay		
OCPs																						
Heptachlor	mg/kg	--	<0.1	--	--	--	--	--	<0.1	--	<0.1	--	--	--	--	--	--	--	<0.1	--	**10**	--
Aldrin	mg/kg	--	<0.1	--	--	--	--	--	<0.1	--	<0.1	--	--	--	--	--	--	--	<0.1	--	**10**	--
Dieldrin	mg/kg	--	<0.1	--	--	--	--	--	<0.1	--	<0.1	--	--	--	--	--	--	--	<0.1	--		
Endrin	mg/kg	--	<0.1	--	--	--	--	--	<0.1	--	<0.1	--	--	--	--	--	--	--	<0.1	--	**20**	--
gamma-Chlordane	mg/kg	--	<0.1	--	--	--	--	--	<0.1	--	<0.1	--	--	--	--	--	--	--	<0.1	--	**90**	--
alpha-chlordane	mg/kg	--	<0.1	--	--	--	--	--	<0.1	--	<0.1	--	--	--	--	--	--	--	<0.1	--		--
Endosulfan I	mg/kg	--	<0.1	--	--	--	--	--	<0.1	--	<0.1	--	--	--	--	--	--	--	<0.1	--	**400**	--
Endosulfan II	mg/kg	--	<0.1	--	--	--	--	--	<0.1	--	<0.1	--	--	--	--	--	--	--	<0.1	--		--
HCB	mg/kg	--	<0.1	--	--	--	--	--	<0.1	--	<0.1	--	--	--	--	--	--	--	<0.1	--	**15**	--
Methoxychlor	mg/kg	--	<0.1	--	--	--	--	--	<0.1	--	<0.1	--	--	--	--	--	--	--	<0.1	--	**500**	--
pp-DDE	mg/kg	--	<0.1	--	--	--	--	--	<0.1	--	<0.1	--	--	--	--	--	--	--	<0.1	--	**600**	--
pp-DDD	mg/kg	--	<0.1	--	--	--	--	--	<0.1	--	<0.1	--	--	--	--	--	--	--	<0.1	--		**180**
pp-DDT	mg/kg	--	<0.1	--	--	--	--	--	<0.1	--	<0.1	--	--	--	--	--	--	--	<0.1	--		--
Total PCBs																						
PCBs	mg/kg	--	<0.1	--	--	--	--	--	<0.1	--	<0.1	--	--	--	--	--	--	--	<0.1	--	**1**	**--**

TABLE 8 NOTEs:

Analytical results which exceed any of the Health-based Investigation Levels (HILs) are shown **bold** text. No exceedances found

Analytical results which exceed any of the Ecological-based Investigation Levels (PILs) are shown as shaded text. No exceedances found

1 – Total Chromium analytical result includes chromium (III) and (VI).

9.2 WATER FIELD PARAMETERS

The standing (or stabilised) water level was recorded in each well prior to purging and sampling and when compared to the surface elevations it was determined that groundwater is flowing in a north-westerly direction which is commensurate with the topography.

Field parameters (*i*.e. pH, electrical conductivity, dissolved oxygen, redox potential, temperature, odour and other notable observations) were recorded during the sampling of groundwater within each well.

A summary of the field parameter information, along with the standing water level readings, is provided in **Table 9**.

In each well the pH was approximately neutral and the electrical conductivity values were all relatively high, indicating brackish / saline water. The dissolved oxygen results were relatively low, which is common for groundwater.

TABLE 9: Groundwater Field Data Results

		Sample Date	6/01/2014	6/01/2014	6/01/2014	6/01/2014	6/01/2014	6/01/2014
		Sample Identification	SM060114-104	SM060114-106	SM060114-107	SM060114-103	SM060114-105	SM060114-101/102
Analyte	Units	LOR	BH2	BH3	BH4	BH10	BH14	BH20
Standing Water Level	m BTOC	0.01	3.47	3.81	3.77	3.37	3.93	3.87
	m BGS	0.01	3.37	3.71	3.67	3.27	3.83	3.77
	m AHD	0.01	40.13	40.99	40.77	38.63	40.47	40.83
pH	pH units	0.01	7.75	6.37	6.87	6.85	6.17	6.82
Electrical Conductivity	µS/cm	0.01	18443	13701	14485	6520	13150	7510
Temperature	^{o}C	0.1	21.5	21.7	21.8	22.7	23.0	21.4
Redox Potential	mV	1	65	60	62	63	63	64
Dissolved Oxygen	mg/L	0.01	2.78	1.81	1.75	2.19	2.8	2.4

9.3 WATER ANALYTICAL RESULTS

Groundwater that was collected from each well was analysed for dissolved metals, TRH, BTEX, PAHs and VOCs. The laboratory results are provided in the laboratory reports in **Appendix L**, while the tabulated results are provided in **Table 10** and summarised below.

9.3.1 Metals

With the exception of cadmium, chromium, copper, nickel and zinc, the concentration of dissolved metals in all samples was below the GILs. The concentrations of dissolved cadmium, chromium, copper, nickel and zinc were slightly higher than the GILs in some wells. GEE notes that the GILs presented in Table 7 are for soft water (<60 mg/L CaCo3) and the water in the wells was considered to be extremely hard (>240 mg/L). When adjusting the GILs for hardness (reference 11 and 13) only nickel and zinc in some wells exceeded the GILs. Further discussion about the significance of these exceedances is provided in Section 10.3.

9.3.2 TRH and BTEX

The concentration of TRH and BTEX in all wells was less than the laboratory LOR / PQL. This suggests that the groundwater is not a groundwater contamination issue at the site.

9.3.3 PAHs

PAH compounds were not detected in the groundwater indicating that PAHs are not a contamination issue for groundwater beneath the site.

9.3.4 VOCs (including BTEX)

VOCs were in the water sampled from each well were all less than the laboratory LOR / PQL. These results suggest that VOCs do not pose a contamination issue for groundwater beneath the site.

TABLE 10: Groundwater Analytical Results - Metals, PAHs TRH and VOC/BTEX

Sample Date			6-Jan	6-Jan	6-Jan	6-Jan	6-Jan	6-Jan	6-Jan	**Groundwater Investigation Levels (GILs)** ^{1}
Sample Identification			SM060114-104	SM060114-106	SM060114-107	SM060114-103	SM060114-105	SM060114-101	SM060114-102	
Analyte	Units	LOR	BH2	BH3	BH4	BH10	BH14	BH20	Duplicate of 101	
Dissolved Metals										
Arsenic	µg/L	1	3	<1	1	2	1	1	1	13
Cadmium	µg/L	0.1	2.6	5.6	1.7	0.7	5	1.3	1.3	0.7 / 7*
Chromium	µg/L	1	1	6	2	3	1	1	<1	4.4 / 37*
Copper	µg/L	1	4	2	5	6	2	1	1	1.3 / 11.7*
Lead	µg/L	1	2	<1	1	<1	<1	<1	<1	4.4 / 117*
Mercury	µg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.1
Nickel	µg/L	1	**330**	**93**	52	61	**200**	**75**	**74**	7 / 63*
Zinc	µg/L	1	**850**	**320**	**140**	**210**	**190**	**150**	**150**	15 / 135*
Polycyclic Aromatic Hydrocarbons										
Naphthalene	µg/L	1	<1	<1	<1	<1	<1	<1	<1	50
Phenanthrene	µg/L	1	<1	<1	<1	<1	<1	<1	<1	*2*
Anthracene	µg/L	1	<1	<1	<1	<1	<1	<1	<1	*0.4*
Fluoranthene	µg/L	1	<1	<1	<1	<1	<1	<1	<1	*1.4*
Benzo(a)pyrene	µg/L	1	<1	<1	<1	<1	<1	<1	<1	*0.2*
Benzo(a)pyrene TEQ	µg/L	5	<5	<5	<5	<5	<5	<5	<5	--
Total (+VE) PAHs	µg/L	--	Nil	Nil	Nil	Nil	Nil	Nil	Nil	--
BTEX										
Benzene	µg/L	1	<1	<1	<1	<1	<1	<1	<1	500
Toluene	µg/L	1	<1	<1	<1	<1	<1	<1	<1	*180*
Ethylbenzene	µg/L	1	<1	<1	<1	<1	<1	<1	<1	*5*
m+p-xylene	µg/L	2	<2	<2	<2	<2	<2	<2	<2	200
o-xylene	µg/L	1	<1	<1	<1	<1	<1	<1	<1	350
Total Petroleum Hydrocarbons										
TRH C6 - C9	µg/L	10	<10	<10	<10	<10	<10	<10	<10	1,000
TRH C10 - C14	µg/L	50	<50	<50	<50	<50	<50	<50	<50	1,000
TRH C15 - C28	µg/L	100	<100	<100	<100	<100	<100	<100	<100	--
TRH C29 - C36	µg/L	100	<100	<100	<100	<100	<100	<100	<100	--
VOCs										
1,2-dichloroethane	µg/L	1	<1	<1	<1	<1	<1	<1	<1	*1900*
1,1,1-trichloroethane	µg/L	1	<1	<1	<1	<1	<1	<1	<1	*270*
Carbon tetrachloride	µg/L	1	<1	<1	<1	<1	<1	<1	<1	*240*
Benzene	µg/L	1	<1	<1	<1	<1	<1	<1	<1	500
Trichloroethene	µg/L	1	<1	<1	<1	<1	<1	<1	<1	*900*
1,1,2-trichloroethane	µg/L	1	<1	<1	<1	<1	<1	<1	<1	1900
Toluene	µg/L	1	<1	<1	<1	<1	<1	<1	<1	*1000*
Ethylbenzene	µg/L	1	<1	<1	<1	<1	<1	<1	<1	*5*
m+p-xylene	µg/L	2	<2	<2	<2	<2	<2	<2	<2	200
1,1,2,2-tetrachloroethane	µg/L	1	<1	<1	<1	<1	<1	<1	<1	*400*
o-xylene	µg/L	1	<1	<1	<1	<1	<1	<1	<1	350
1,3-dichlorobenzene	µg/L	1	<1	<1	<1	<1	<1	<1	<1	*260*
1,4-dichlorobenzene	µg/L	1	<1	<1	<1	<1	<1	<1	<1	*60*
1,2-dichlorobenzene	µg/L	1	<1	<1	<1	<1	<1	<1	<1	*160*
1,2,4-trichlorobenzene	µg/L	1	<1	<1	<1	<1	<1	<1	<1	20
Hexachlorobutadiene	µg/L	1	<1	<1	<1	<1	<1	<1	<1	*0.03*
1,2,3-trichlorobenzene	µg/L	1	<1	<1	<1	<1	<1	<1	<1	*3*
Remaining VOCs	µg/L	--	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	--
Other										
Hardness	Mg/L	1	--	--	1,200	260	--	1,600	--	

Notes:

Note 1: Criteria shown in *italics* are low reliable trigger values which were adopted as a first pass criteria in the absence of more reliable values

--- No Criteria Established

* The second number is the GIL when adjusted for the extremely hard water present (> 240mg CaCo3/L)

Results exceeding this criteria are shown in **bold** text

10 SITE CHARACTERISATION

A summary of the information obtained and results of this assessment is presented below.

10.1 SITE HISTORY AND POTENTIAL FOR CONTAMINATION

A review of the historical information indicates that the site has been operating as a shoe factory since approximately 1979. Before 1979 the majority of the site (*i,e*. lots 91, 1 and 2) was occupied by a clothing factory which commenced circa 1937.

Lot A, along the western boundary fronting Drummond Street, appears to have been used as a residential property since at least 1916 and this land-use has continued up until the time of this investigation. The final allotment which makes up the site (Lot B - in the south-western corner of the site) appeared to be a motor vehicle workshop and service station prior to being purchased by J. Robins & Sons Pty Ltd in circa 1980. The garage and/or service station was likely operated between approximately 1929 when Motor & Engineering Works Ltd purchased the allotment. The allotment was then owned by various individuals listed as being a '*garage proprietor'* before Caltex Oil (Australia) Pty Ltd owned the allotment between 1953 and 1979.

Based on GEE's knowledge of the site, including review of the site's history and physical and environmental setting, the main sources of potential contamination include:

◊ Past use of Lot B in the south-western corner as a motor garage and/or service station, including the storage and use of fuel in underground tanks. The use of fuel and/or oils have the potential to cause soil and groundwater contamination although the concrete pavements would have minimised any migration of fuel and/or oil contaminants from the surface into the soil profile and the migration of fuels and oils below ground would be restricted by the fact that the local soils in this part of Sydney are typically heavy, low-permeable, clays.

◊ Past use of Lots 1 and 2 for shoe and clothing manufacturing which can include the use of chemicals such as polyurethane, glue and dyes. The use of chemicals on site may have resulted in a 'top down' spills or leaks in isolated locations across the site. Again, the concrete pavements would have restricted the migration of chemicals into the soil profile and further downward migration of chemicals would be restricted by the fact that the local clay soils.

- ◊ Past storage of fuel (likely diesel or petrol) in a 2,200 L UST beneath the loading dock in the north-eastern corner. Like the USTs in the south-western corner any spills or leaks from the UST or associated infrastructure would be restricted by the concrete slab and/or the local soils in this part of Sydney are typically heavy and low-permeable.
- ◊ Vehicle access to parts of the site (particularly Lots 91, A and B) which could have resulted in 'top down' spills or leaks of oil or fuel in isolated locations across the site. The concrete and/or asphalt pavements in these areas would have minimised any migration of contaminants into the soil profile and the local clay soils would have restricted any further downward migration of contaminants.
- ◊ Past development of the site. With any site development works there is a possibility that fill material was used to raise site levels, or to create a level building platform. When sourced from an unknown origin, the quality of the fill is also unknown and potentially contaminated. Based on the regional topography (which was relatively flat) and the historical aerial photographs, it is considered unlikely that the site has been subjected to any substantial filling and therefore the risk of contaminated fill being present beneath the site is considered to be very low.

Overall, the potential for soil contamination is considered to be moderate to high, particularly in the vicinity of the former fuel storage infrastructure and the potential for groundwater contamination is considered to be low because groundwater in this part of Sydney is likely to be confined or partly confined within the underlying, relatively low permeable, shale formation.

10.2 SOIL ASSESSMENT

Soil conditions across the site were assessed at twenty eight borehole locations (BH1 to BH28) positioned across the site and targeting areas of potential contamination (in particular the service station in the south-western corner). The number of boreholes exceeds the minimum number of sampling points required for adequate site characterisation as defined by the EPA NSW and Australian Standards (reference 8 and 9).

The subsurface conditions encountered during the field investigations comprised a layer of fill material which was underlain by a natural clay soil which graded into shale bedrock. The depth of filling was typically between 0.15m and 1.3m bgs, although deeper sand fill was present in the vicinity of the USTs in the south-western corner of the site. The depth to shale bedrock ranged from 0.75m to 2.2m bgs.

During the drilling of boreholes, there were no unusual odours (that could be potentially associated with contamination) noted. Additionally, no potentially Asbestos Containing Materials (ACM) was observed below ground during sampling and logging. Permanent groundwater was not encountered during the drilling of each borehole, however, groundwater seepage did eventually occur in the monitoring wells installed within bores BH2, BH3, BH4, BH10, BH14 and BH20.

GEE submitted a total of 69 soil samples from the 28 boreholes to Envirolab for NATA accredited laboratory analysis of metals (arsenic, cadmium, chromium, copper, nickel, lead, mercury and zinc), TRH, BTEX, PAHs, OCPs, PCBs and asbestos and the analytical results were compared against relevant set of SAC appropriate for the proposed residential land-use with minimal access to soil.

In summary, the only analytes to exceed the health and/or ecological SAC was:

- ◊ Lead within the fill layer at BH26 (sample SM060114-93 – 6000mg/kg) which exceeded the ecological and health based SAC. BH26 was 17m from the eastern boundary and 15m from the northern boundary of the factory, and
- ◊ B(a)P within the fill at BH4 (sample SM161213-22 – 1.3mg/kg) which exceeded the ecological SAC of 0.7mg/kg. BH4 was 2m from the western boundary and 4m from the southern boundary.

The lead concentration in sample SM060114-93 was re-analysed three times using new sub-samples from the same sample jar and the results were 1700mg/kg, 2400mg/kg and 3900mg/kg which equates to an average lead concentration of 3500mg/kg. The average concentration of lead was more than 2.5 times the health and ecological SAC and therefore is considered to be a 'hot-spot' of contamination which will need to be remediated and/or managed as part of the proposed redevelopment works.

The concentration of B(a)P in sample SM161213-22 only marginally exceeded the ecological SAC. The ecological SAC for B(a)P is a screening level, above which will require further evaluation and consideration. Considering the urban environment in which the site lies, the existing land-use and the extent and type of the proposed development (particularly the fact that the site will be excavated to form a basement level), GEE considers that the elevated B(a)P concentration does not require specific remediation and can be managed appropriately as part of the proposed redevelopment work. This should include provision of a waste classification for the fill layer and disposal to an appropriately licenced landfill facility.

10.2.1 Waste Classification Estimates

At the request of the client and considering that it is proposed to excavate across the majority of the site to facilitate the construction of a basement, GEE has compared the analytical results from this investigation with the NSW EPA waste guidelines (reference 16) to provide an estimate of the waste classifications for the fill and natural soil profile. GEE stresses that these waste classifications are only estimates to allow earthworks contractors some confidence when quoting on the project and further testing of the fill layer will be necessary including leachate analysis using the Toxicity Characteristic Leaching Procedure (TCLP).

Based on the analytical results and findings from the fieldwork, the following waste classifications are likely to apply:

◊ Fill layer in the vicinity of BH23 which is impacted with lead up to 6000mg/kg. This portion of fill is expected to have a waste classification of 'Restricted Solid Waste' and GEE estimates a volume of waste of approximately 100m^3.

◊ The remaining portion of the fill layer is likely to be classified as General solid waste (non-putrescible).

◊ The natural soil profile (including shale bedrock) is free of any contamination and is likely to have a classification of virgin excavated natural material (VENM) which is a sub-class of general solid waste (non-putrescible) which and can be re-used, rather than be disposed at a landfill. To ensure VENM classification the natural soil / bedrock must not be mixed with any fill material or other deleterious material. GEE recommends that all remediation work including removal of any USTs, the lead impacted soil at BH26 and remaining fill layer be removed from site before excavation and disposal of VENM.

10.3 GROUNDWATER ASSESSMENT

Groundwater conditions beneath the site were assessed using six monitoring wells installed within boreholes BH2, BH3, BH4, BH10, BH14 and BH20. Water within the wells was generally neutral in pH and high in conductivity indicating brackish / saline water. The standing (or stabilised) water level was recorded in each well prior to purging and sampling and when compared to the surface elevations it was determined that groundwater is flowing in a north-westerly direction which is commensurate with the topography.

To assess the presence of contamination within the groundwater beneath the site, water from each well was submitted to Envirolab for NATA accredited analysis of dissolved metals (arsenic, cadmium, chromium, copper, nickel, lead, zinc and mercury), TRH, BTEX, PAHs and VOCs. The analytical results were then compared against a set of groundwater investigation Levels (GILs) considered appropriate for the environmental setting of the site.

The concentrations of arsenic, cadmium, chromium, copper, lead, mercury, TRH, BTEX and PAHs conformed to the adopted GILs, while the concentrations of nickel and zinc in some wells exceeded the SAC. The metal exceedances are not considered to be significant because:

◊ The groundwater from the site was collected from a stratigraphy comprising shale and according Hem (1989 – reference 13), the concentrations of nickel and zinc are commensurate with naturally occurring background concentrations.

◊ The concentrations are consistent across the site (including the up-hydraulic gradient wells).

◊ No source of metal contamination was identified in the fill and natural soils across the site.

◊ The concentrations detected are commensurate with metal concentrations within the groundwater across the Sydney region.

11 CONCLUSION

Geo-Environmental Engineering Pty Ltd (GEE) was commissioned by City Alliance Property Pty Ltd, on behalf of WM Ritchie Properties Pty Ltd & Belmore 677 Pty Ltd, to undertake an assessment of potential site contamination at 677 - 687 Canterbury Road, Belmore, NSW. The assessment was required to support a development application with Canterbury City Council which relates to a multi-storey, mixed-use (commercial / residential), building with basement level(s).

The investigation comprised a:

- ◊ Review of the site's history to provide an understanding of past and present site activities which in turn may indicate sources and areas of potential contamination as well as potential chemicals of concern,
- ◊ Review of the environmental and physical setting in which the site lies,
- ◊ Detailed site inspection for potential sources of contamination, and
- ◊ Detailed soil and groundwater sampling and analysis program to characterise potential contamination across the site.

Based on observations made during the field investigations, the sampling and analysis program conducted at the site and with respect to the proposed land-use, GEE conclude that there exists some localised soil contamination relating to lead. It is the opinion of GEE that the site can be made can be made fit for the intended use of residential development, by undertaking convention remediation measures. In this regard, and in accordance with local and State planning procedures, a Remedial Action Plan (RAP) will be required (references 1 and 17).

With respect to the presence of underground tanks and associated infrastructure, GEE recommends that they are removed in accordance with the following relevant publications:

- ◊ Protection of the Environment Operations (Underground Recoverable Storage Systems) Regulation 2008, and
- ◊ AS 4976 (2008): The Removal and Disposal of Underground Recoverable Storage Tanks.

Additionally, following the removal of the tanks and in conjunction with the remediation works, the resulting UST tankpits and fuel lines should be validated in accordance with the NSW OEH endorsed guidelines. GEE notes that these matters would normally be addressed as conditions of approval as any consent granted by Council relating to the removal of existing tanks and infrastructure.

Finally, considering that it is proposed to excavate across the majority of the site to facilitate the construction of a basement, the report provides an estimates of waste classification of the existing fill and natural soil profile to assist earthworks contractors in quoting for the proposed works. However, the classifications provided herein are only estimates and further testing will be necessary including leachate analysis using the Toxicity Characteristic Leaching Procedure (TCLP).

13 GENERAL LIMITATIONS OF THIS REPORT

This report has been prepared in general accordance with guidelines endorsed by the NSW Office of Environment and Heritage, and the conclusions of this report are based on a limited scope of work described herein, which was considered appropriate based on the same regulatory guidelines.

It is the intention of GEE that the report reflect actual subsurface site conditions, and the contamination status, of the entire site (within the depths investigated). However, regardless of the level of investigation undertaken, there will always be uncertainty when dealing with land contamination. For instance, the sampling points (boreholes and/or testpits) represent a relatively small portion of the site, and ground conditions may vary between sampling locations. The cause of such variation may include, but are not limited to, complex geological settings, the fate and transport characteristics of certain chemicals, the distribution of existing contamination, physical limitations imposed by the location of utilities and other man-made structures, and the limitations of assessment technologies.

Furthermore, the laboratory analytical results contained in this report, upon which conclusions are drawn, relate only to a discrete sample submitted for analysis. Also, not all chemicals have been assessed as part of this investigation. The chemical analytes targeted by this investigation are based on either the site's history, or represent a suite of common soil contaminants.

This report is based on site conditions which existed at the time of the field investigation and subsurface conditions may change over time, either through natural processes, or via ongoing activities on the site. Should additional information become available regarding conditions at the site (such as during construction), including evidence of previously unknown sources of contamination, then additional advice should be sought from GEE.

Finally, this report has been prepared for use by the client who has commissioned the works in accordance with the project brief only. Any reliance assumed by third parties on this report shall be at their own risk. This report should not be reproduced without prior approval by the client, or amended in any way without prior approval by GEE.

14 REFERENCES

1. NSW EPA, 1997: Environment Protection Authority 1997: *Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites*. EPA NSW.
2. NEPM, 2013: *National Environment Protection (Assessment of Site Contamination) Measure 1999 - Schedule B(2) Guideline of Site Characterisation.* As amended 16 May 2013.
3. DUAP (1998): *State Environmental Planning Policy 55 – Remediation of Land. (Department of Urban Affairs and Planning: Sydney).*
4. Department of Mineral Resources, 1983: Sydney 1:100,000 *Geological Series Map Sheet 9130 (Edition 1).*
5. Department of Land and Water Conservation (DLWC), 2004: Sydney 1:100 000 Soil Landscape Series Sheet 9130 (second edition).
6. Cook P.G., 2003: *A Guide to Regional Groundwater Flow in Fractured Rock Aquifers*. Seaview Press, Henley Beach (South Australia), 108pp.
7. DEC, 2006: Department of Environment and Conservation NSW (2006): *Contaminated Sites: Guidelines for the NSW Site Auditor Scheme (2nd edition)*.
8. NSW EPA, 1995: Environment Protection Authority NSW, 1995: *Contaminated Sites: Sampling Design Guidelines*, EPA NSW.
9. Australian Standard AS4482.1 – 2005 Guide to the sampling and investigation of potentially contaminated soil Part 1: Non-volatile and semi-volatile compounds.
10. Land and Water Biodiversity Committee (2003): *Minimum Construction Requirements for Water Bores in Australia.* Edition 2 Revised September 2003.
11. NEPC, 2013: National Environment Protection Council (1999*).* National Environment Protection (Assessment of Site Contamination) Measure. *Schedule B(1) Guideline on the Investigation Levels for Soil and Groundwater.*
12. Friebel & Nadebaum (2011): *Technical Report No. 10 - Health screening levels for petroleum hydrocarbons in soil and groundwater Part 1: Technical development document*. CRC for Contamination Assessment and Remediation of the Environment.

13. ANZECC/ARMCANZ, 2000: Australian and New Zealand Environment and Conservation Council and Agriculture and Resource Management Council of Australia and New Zealand, 2000: *Guidelines for Fresh and Marine Water Quality, National Water Quality Management Strategy*. October 2000.
14. Hem JD. 1989. *Study and interpretation of the chemical characteristics of natural water.* 3rd edition. U.S. Geological Survey, Water-Supply Paper 2255, 263 pp.
15. Popek (2003). *Sampling and Analysis of Environmental Chemical Pollutants*. Academic Press.
16. DECC, 2009: Department of Environment and Climate Change (DECC), 2009: *Waste classification guidelines – Part 1 classifying waste.*
17. Canterbury City Council, 2006: *Contaminated Lands Policy No. 53-057*. First adopted 10 June 199 and modified 10 August 2006.

FIGURES

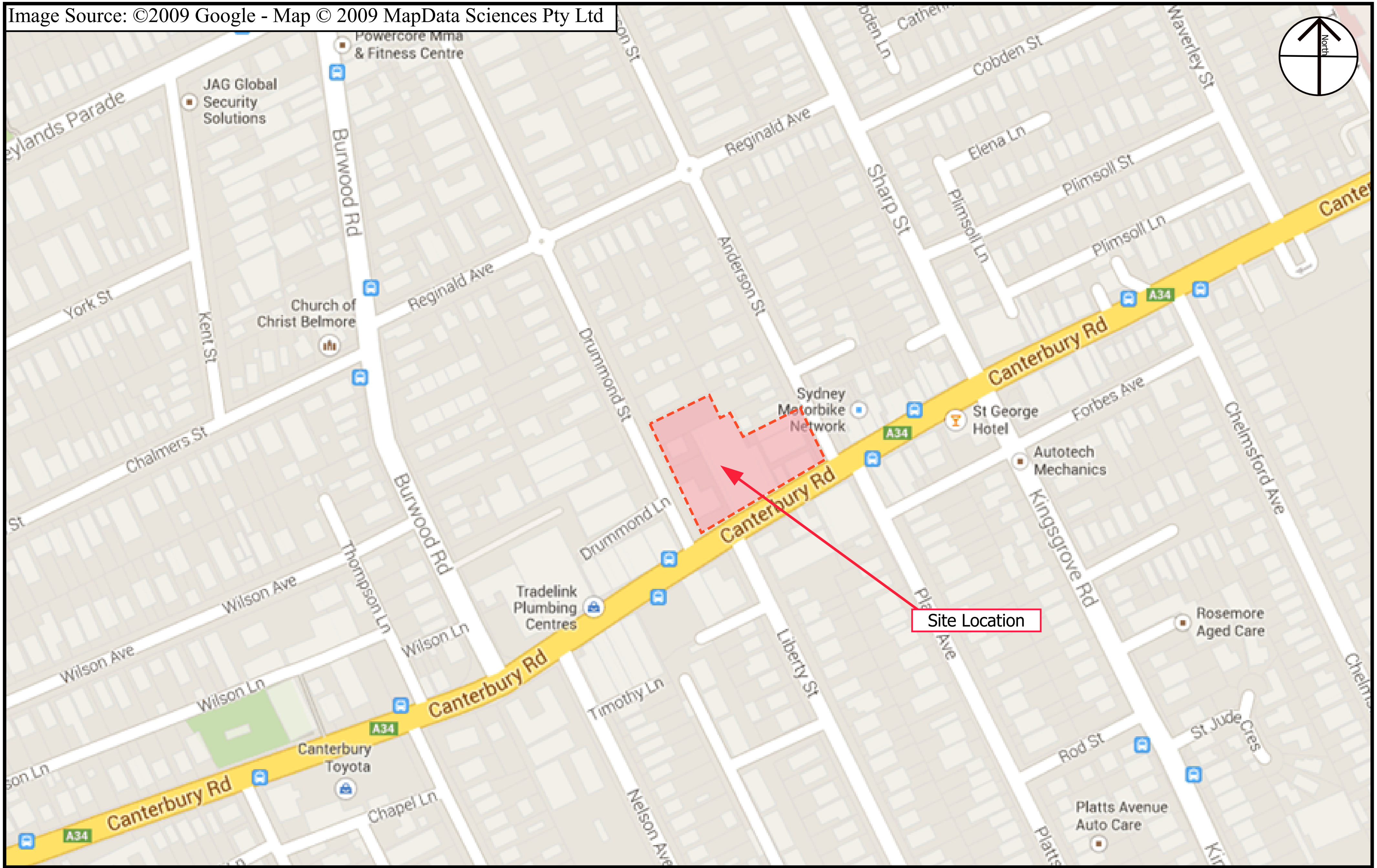


Image Source: ©2009 Google - Map © 2009 MapData Sciences Pty Ltd

geo-environmental
ENGINEERING

82 BRIDGE STREET
LANE COVE NSW 2066
P - 61 (2) 8964 6045
E - info@geoenvironmental.com.au
www.geoenvironmental.com.au

TITLE:
SITE LOCATION MAP
677 - 687 Canterbury Road, Belmore NSW

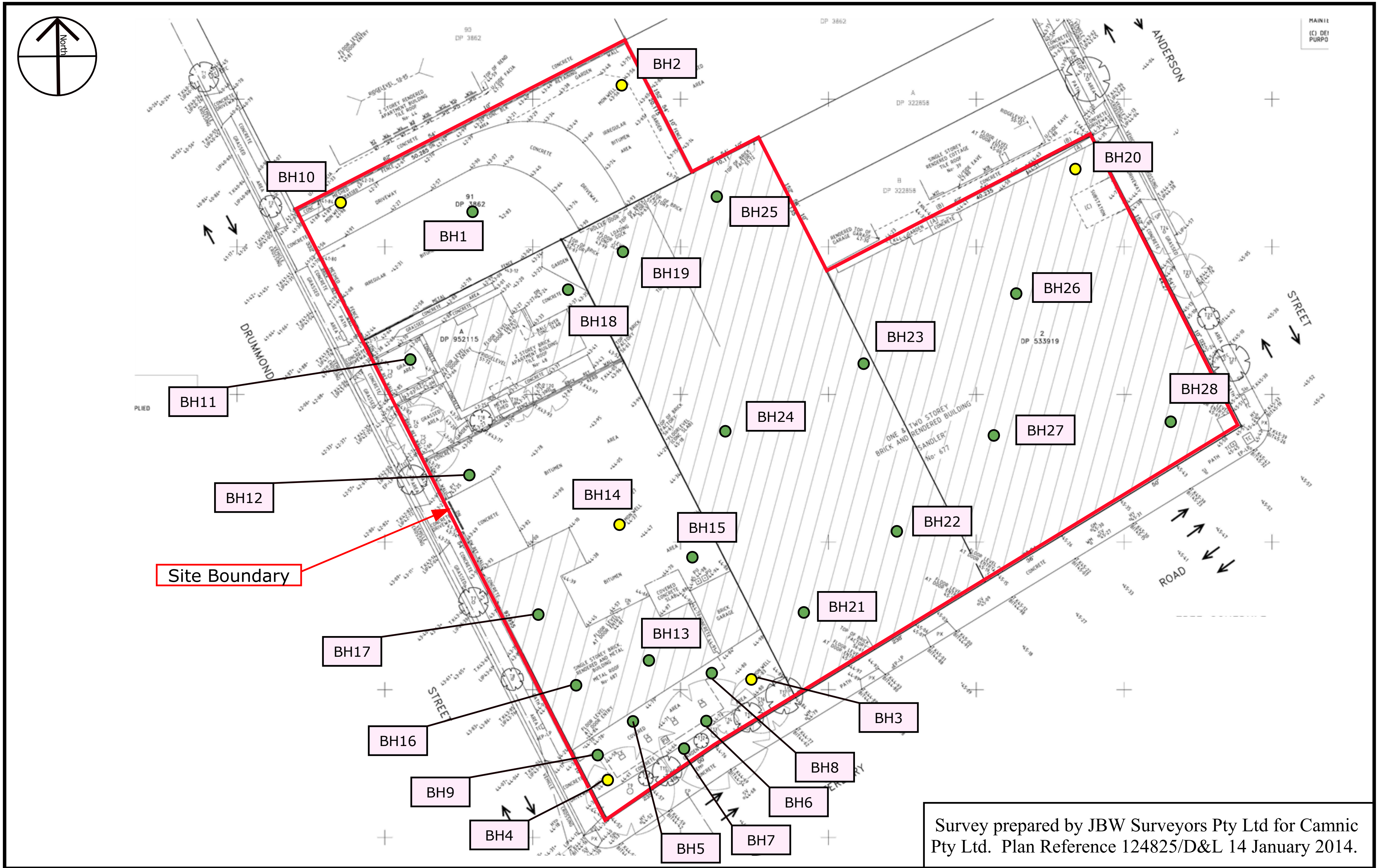
SCALE: **N.T.S**
DRAWN: **SMc**
DATE: **20 Feb 2014**
JOB No.: **E13017BEL**
FIGURE No. **1**
REVISION: **A**

Survey prepared by JBW Surveyors Pty Ltd for Camnic Pty Ltd. Plan Reference 124825/D&L 14 January 2014.

geo-environmental
ENGINEERING

82 BRIDGE STREET
LANE COVE NSW 2066
P - 61 (2) 8964 6045
E - info@geoenvironmental.com.au
www.geoenvironmental.com.au

TITLE: SITE DETAILS 677 - 687 Canterbury Road, Belmore NSW	SCALE: N.T.S	DATE: 4 Feb 2014	FIGURE No. 2
	DRAWN: SMc	JOB No.: E13017BEL	REVISION: A



Survey prepared by JBW Surveyors Pty Ltd for Camnic Pty Ltd. Plan Reference 124825/D&L 14 January 2014.

geo-environmental ENGINEERING

82 BRIDGE STREET
LANE COVE NSW 2066
P - 61 (2) 8964 6045
E - info@geoenvironmental.com.au
www.geoenvironmental.com.au

TITLE: SITE PLAN 677 - 687 Canterbury Road, Belmore NSW	SCALE: **N.T.S**	DATE: **4 Feb 2014**	FIGURE No. **3**
	DRAWN: **SMc**	JOB No.: **E13017BEL**	REVISION: **A**

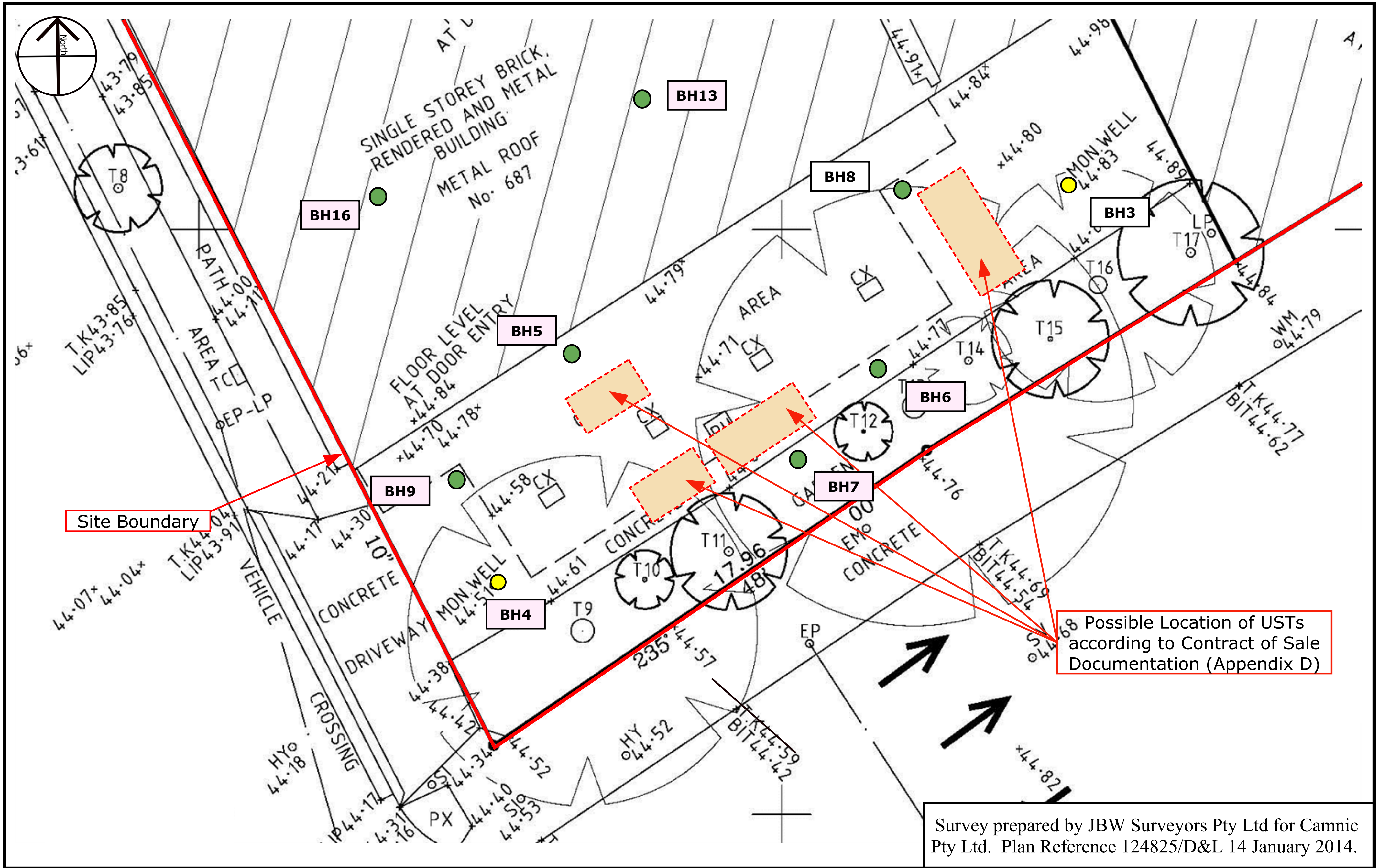
Aerial Image Source: The Spatial Information eXchange ("SIX") provided and administered by the NSW Land and Property Information ("LPI") - Image Date May 2011

geo-environmental
ENGINEERING

82 BRIDGE STREET
LANE COVE NSW 2066
P - 61 (2) 8964 6045
E - info@geoenvironmental.com.au
www.geoenvironmental.com.au

TITLE:
SITE PLAN (Aerial Photograph)
677 - 687 Canterbury Road, Belmore NSW

SCALE: **N.T.S**
DRAWN: **SMc**
DATE: **4 Feb 2014**
JOB No.: **E13017BEL**
FIGURE No. **4**
REVISION: **A**



Survey prepared by JBW Surveyors Pty Ltd for Camnic Pty Ltd. Plan Reference 124825/D&L 14 January 2014.

geo-environmental ENGINEERING

82 BRIDGE STREET
LANE COVE NSW 2066
P - 61 (2) 8964 6045
E - info@geoenvironmental.com.au
www.geoenvironmental.com.au

TITLE:
SITE PLAN SHOWING SERVICE STATION
677 - 687 Canterbury Road, Belmore NSW

SCALE: **N.T.S**	DATE: **4 Feb 2014**	FIGURE No. **5**
DRAWN: **SMc**	JOB No.: **E13017BEL**	REVISION: **A**

APPENDIX A

Site Survey

(A) DENOTES: RIGHT OF CARRIAGEWAY 1·025 WIDE AND VARIABLE WIDTH VIDE DP1045527

(B) DENOTES: EASEMENT FOR ACCESS AND MAINTENANCE VARIABLE WIDTH VIDE DP1045527

(C) DENOTES: EASEMENT FOR ELECTRICITY SUBSTATION PURPOSES 4·76 WIDE VIDE DEALING NO.8392706

GENERAL NOTES

THE INFORMATION SUPPLIED IN THIS DATA FILE IS SUPPLIED ON THE CONDITION THAT THESE GENERAL NOTES ARE ALWAYS STORED WITH THE SUPPLIED CAD DRAWING, & IF THE DATA IS PROVIDED TO ANY PARTY ON ANY FORM OF HARD COPY OR COMPUTER MEDIA THEN THESE GENERAL NOTES WILL ALSO BE A PART OF THAT HARD MEDIA COPY OR COMPUTER MEDIA DATA.

INFORMATION SHOWN ON THE SUPPLIED HARD COPIES TAKES PRECEDENCE OVER ANY DIGITAL OR ELECTRONIC DATA

LEVELS ARE BASED ON AUSTRALIAN HEIGHT DATUM (AHD) THE ORIGIN OF WHICH IS SSM 133718, RL 45·589 AHD CLASS LB, ORDER L2 AS SUPPLIED BY SCIMS DATED 20/12/2013

BOUNDARY DIMENSIONS SHOWN HAVE BEEN OBTAINED FROM FIELD SURVEY AND ARE SUBJECT TO THE REGISTRATION AT THE LPI OF A PLAN OF REDEFINITION.

THE BOUNDARIES SHOULD BE SURVEYED AND MARKED PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION WORK

REFER TO THE SUBJECT CERTIFICATES OF TITLE AND DEPOSITED PLANS FOR THE LOCATION & NATURE OF ANY EASEMENTS, RESTRICTIONS OR COVENANTS

THE RECORDS OF THE SERVICE AUTHORITIES HAVE NOT BEEN INVESTIGATED. ONLY THOSE SERVICES VISIBLE AT THE TIME OF SURVEY HAVE BEEN SHOWN

THE RECORDS OF THE SERVICE AUTHORITIES SHOULD BE INVESTIGATED AS TO THE LOCATION OF SERVICES PRIOR TO THE COMMENCEMENT OF ANY DETAILED DESIGN OR CONSTRUCTION WORKS

THE POSITION OF IMPROVEMENTS AND FEATURES HAVE BEEN LOCATED FOR PLOTTING PURPOSES ONLY

IMPROVEMENTS AND FEATURES SHOWN ON OR NEAR THE BOUNDARIES ARE INDICATIVE ONLY

THE GRID SYSTEM SHOWN RELATES TO THE MGA

THE GRID SYSTEM HAS BEEN SHOWN TO INDICATE THE DRAWING SCALE AND ENABLE ADJOINING SHEETS TO BE MATCHED

SYMBOLS:-

EP DENOTES ELECTRICITY POLE
GM DENOTES GAS MAIN
HY DENOTES HYDRANT
LP DENOTES LIGHT POLE
SI DENOTES SIGN
SV DENOTES STOPVALVE
TC DENOTES TELECOMMUNICATIONS SERVICE
WM DENOTES WATER METER
DN DENOTES GRATED DRAIN
PX DENOTES PRAM CROSSING
EM DENOTES ELECTRICAL MAIN
CX DENOTES BUILDING COLUMN
PU DENOTES PIT UNKNOWN
PT DENOTES GRATED PIT
SM DENOTES SEWER MAIN
T.K DENOTES TOP OF CONCRETE KERB
LIP DENOTES GUTTER LIP
BIT DENOTES ROAD BITUMEN
MON. WELL DENOTES CORED MONITORING WELL

DENOTES THE APPROXIMATE SPREAD & TRUNK LOCATION OF A TREE

TREE SCHEDULE

TREE N°	TRUNK DIA.	SPREAD	APPROX. HEIGHT
T1	0.35	4.0	4.0
T2	0.25	3.0	4.0
T3	0.5	10.0	6.0
T4	0.4	8.0	4.0
T5	0.6	10.0	6.0
T6	0.25	4.0	4.0
T7	0.4	4.0	4.0
T8	0.3	3.0	4.0
T9	0.8	12.0	15.0
T10	0.15	2.0	3.0
T11	0.3	4.0	5.0
T12	0.1	2.0	3.0
T13	0.8	15.0	17.0
T14	0.25	3.0	4.0
T15	0.15	4.0	3.0
T16	0.6	8.0	15.0
T17	0.3	5.0	5.0
T18	0.15	3.0	4.0
T19	0.4	5.0	6.0
T20	0.5	6.0	7.0
T21	0.3	5.0	6.0
T22	0.25	3.0	4.0
T23	0.4	6.0	5.0
T24	0.35	6.0	8.0
T25	0.4	6.0	7.0
T26	0.4	6.0	8.0

WINDOW SCHEDULE

N°	SILL RL	HEAD RL	WIDTH
W1	43.75	44.69	0.57
W2	46.42	47.33	0.57
W3	43.76	44.68	1.17
W4	46.41	47.33	1.17
W5	42.74	44.68	2.11
W6	45.40	47.33	2.12
W7	43.76	44.69	0.58
W8	46.43	47.33	0.57
W9	43.76	44.69	1.16
W10	46.42	47.33	1.16
W11	42.74	44.69	2.10
W12	45.40	47.33	2.12
W13	43.76	44.69	0.57
W14	46.41	47.33	0.57
W15	43.43	44.70	1.65
W16	43.47	47.33	1.64
W17	45.84	46.84	1.89
W18	45.84	46.84	1.07

DATE	REVISION	AUTH.

COUNCIL REF:
SUB'D. APP.:
ENGIN. APP.:

JBW Surveyors Pty Ltd.
ACN 001149373
Level 7, 376 Bay Street Brighton-Le-Sands NSW 2216
Phone: (02) 9335 9700 Fax: (02) 9556 3100
www.jbwsurveyors.com.au
Liability limited by a scheme approved under Professional Standards Legislation.

CLIENT
CAMNIC PTY LTD

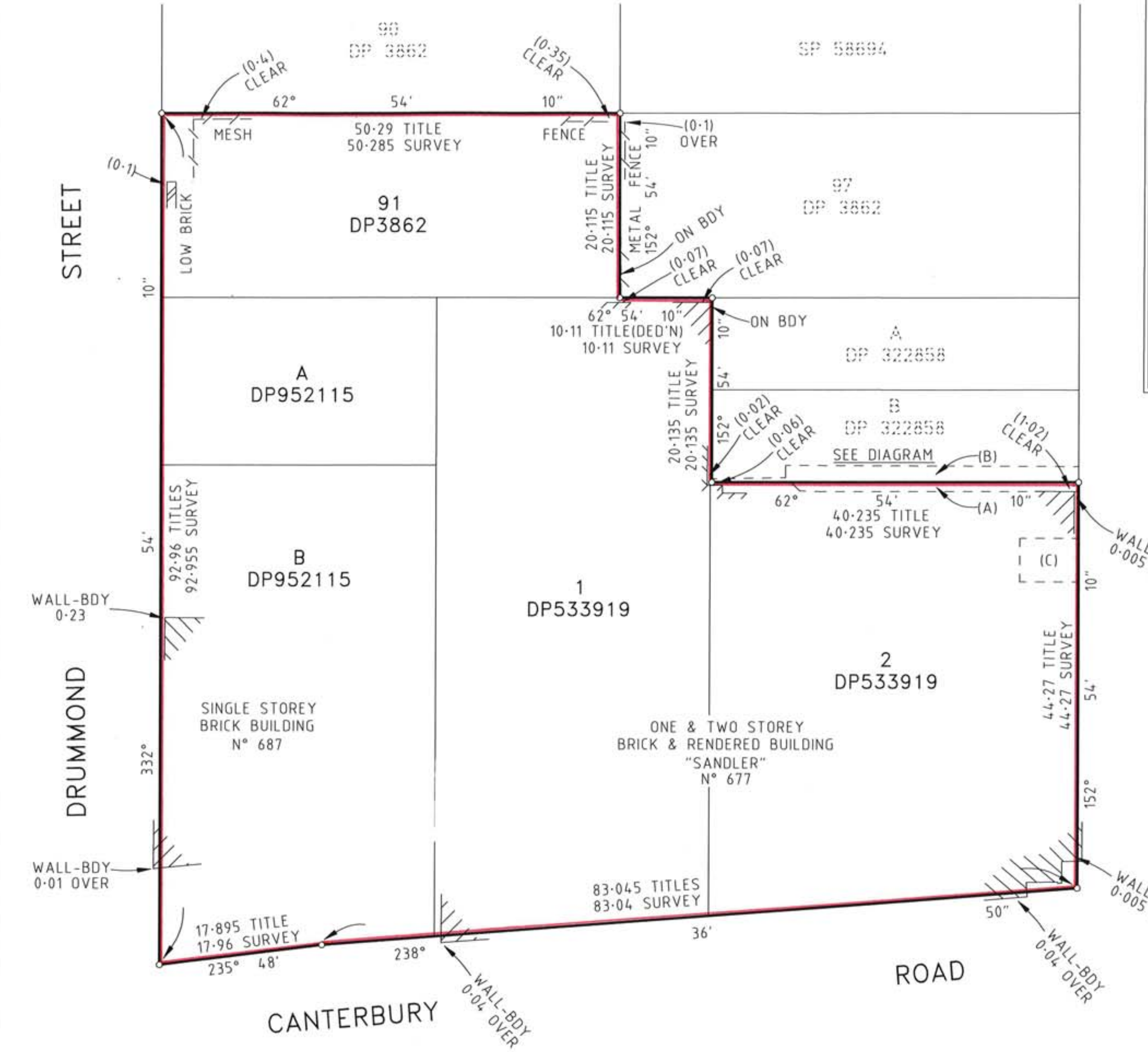
PLAN SHOWING SELECTED DETAIL AND LEVELS OVER LOT 91 DP3862,
LOTS 1&2 DP533919 & LOTS A&B DP952115 KNOWN AS NO'S 677,
687 CANTERBURY ROAD & 48 DRUMMOND ST, BELMORE

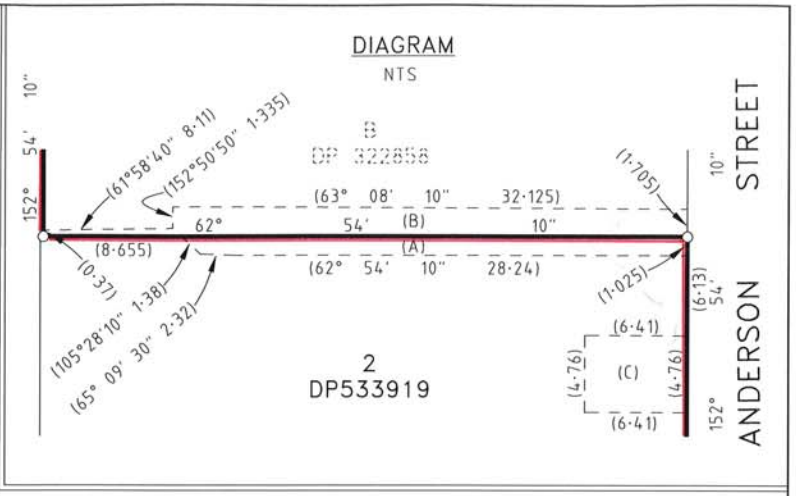
LOCALITY: BELMORE
LOCAL GOVERNMENT AREA: CANTERBURY

SCALE: 1:200
DATUM: AHD
DATE: 14/01/14
AREA: 7070m² (TOT. BY SURVEY)

PLAN REF.
124825/D&L

DESIGNED:
DRAWN: JSS





MGA

(A) DENOTES: RIGHT OF CARRIAGEWAY 1·025 WIDE AND VARIABLE WIDTH VIDE DP1045527

(B) DENOTES: EASEMENT FOR ACCESS AND MAINTENANCE VARIABLE WIDTH VIDE DP1045527

(C) DENOTES: EASEMENT FOR ELECTRICITY SUBSTATION PURPOSES 4·76WIDE VIDE DEALING NO·8392706

DISCRETIONARY NOTE:–

This survey has been made for identification purposes. If it is intended to erect any improvements on or near the boundaries of the subject land, those boundaries should be marked

This is the plan referred to in my report dated
letter

Registered Surveyor

JBW Surveyors Pty Ltd.

ACN 001149373
Level 7, 376 Bay Street Brighton-Le-Sands NSW 2216
Phone: (02) 9335 9700 Fax: (02) 9556 3100
www.jbwsurveyors.com.au

CLIENT CAMNIC PTY LTD

TITLE PLAN SHOWING THE BUILDING/S LOCATION TO THE SURVEYED BOUNDARIES OVER LOT 91 DP3862, LOTS 1&2 DP533919 & LOTS A&B DP952115 KNOWN AS NO'S 677, 687 CANTERBURY ROAD & 48 DRUMMOND ST, BELMORE

LGA:- CANTERBURY

SHEET NO	1	NO SHEETS	1
SCALES	1:500 (A3)	DRAWN	BG
DATE	14/01/2014	DRAFTED	BG
AREA OF SITE		CHECKED	BG
		QUOTE	124825/IDENT

APPENDIX B

Historical Aerial Photographs

May 2011 (Source: Land and Property Information – SIX Maps**)**

June 2009 (Source: Google Earth Pro**)**

March 2007 (Source: Google Earth Pro**)**

September 2003 (Source: Google Earth Pro**)**

October 2001 Aerial (Source: Land and Property Information**)**

September 1998 Aerial (Source: Land and Property Information**)**

August 1986 Aerial (Source: Land and Property Information**)**

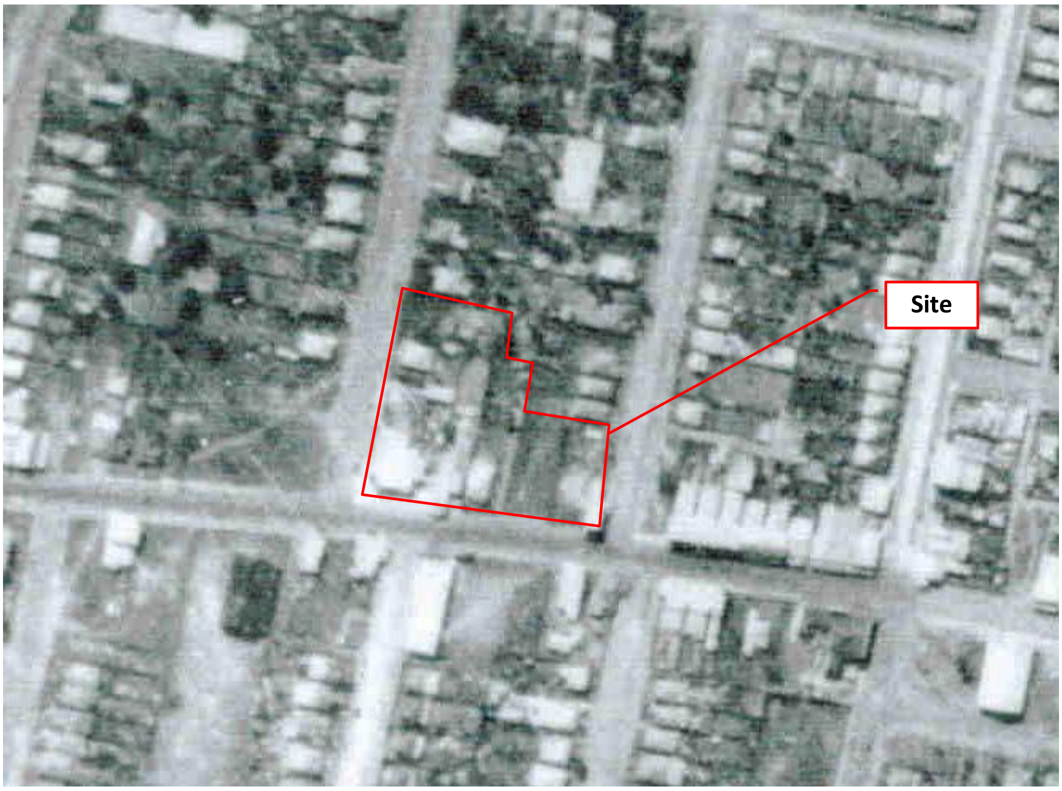
May 1978 Aerial (Source: Land and Property Information**)**

July 1970 Aerial (Source: Land and Property Information**)**

1961 Aerial (Source: Land and Property Information**)**

May 1951 Aerial (Source: Land and Property Information**)**

1943 RTA Aerial Photograph



May 1930 Aerial (Source: Land and Property Information**)**

APPENDIX C

Historical Title Search Results

APPENDIX C - SUMMARY OF LAND TITLE INFORMATION

YEAR	Registered Proprietor / Owner	Date	Land-use	Registered Proprietor / Owner	Date	Land-use	Registered Proprietor / Owner	Date	Land-use	Registered Proprietor / Owner	Date	Land-use	Registered Proprietor / Owner	Date	Land-use
	Lot 91			*Lot A*			*Lot B (Formerly Lots 92 and 93)*			*Lot 1*			*Lot 2*		
	Sarah Hyde	Sep-07	Land-use unknown although likely residential	--	--	--	James Judd	Sep-1907	Land-use not known	Margaret Anne Barker	Sep-1905	Land-use unknown although possibly part of the allotment was a green grocers and/or newsagents	--	--	--
										Robert Heron	Mar-1905				
							George Druie	Sep-1907							
1910															
										Charles McPherson	Dec-1913				
				Marion Hair	Feb-1916	Land-use assumed to have been residential which has continued untill the present day. Originally there was a single dwelling on the allotment and then between 1961 and 1970 this was replaced with an apartment building which still exists.	Marion Druie	Sep-1907		Edward Chamberlain / Charles McPherson	Apr-1913		George Drurie Jnr	Apr-1914	Land-use unknown
										William Irlan (?) - plumber	Jun-1914				
							Eva Gillespie	Feb-1920		Johanna Castles - spinster	Oct-1918				
1920															
							Philip Lotye	Feb-1921		Isabella Murray (grocer)	Apr-1920		William Ferguson	Aug-1923	
										Lease to Andrew Lennox and Arun Costa (Newsagents)	Oct-1924				
							Motor & Engineering Works Ltd	Jul-1929	It is assumed that this is when the site was developed into a service station / vehicle garage						
							Alfred Charles Eden	Nov-1930							
1930															
							Australian Bank of Commerce then Leased by bank to a Charles Meredith (?) & Kelvin Goodwin both listed as proprietors of a motor garage	Nov-1932		Adrian Taylor and part of site owned by John Cole (Newsagents)	Oct 1934 & Nov 1934		Adrian Taylor	Dec-1935	
										Celestine Taylor (Widow) / Lionel Buthner (newsagents)	Dec-1937		Celestine Taylor (Widow)	Dec-1937	
							Kelvin Goodwin (Motor Garage Proprietor). Leased in 1938 to Erro Espert (garage proprietor)	Nov-1936							
							William Booth (Engineer) & Leased in 1943 and again in 1948 to Errol Espert (garage proprietor)	May-1938		David Chrystal (manufacturer)	Dec-1937	Assumed to have been used as a clothing warehouse / manufacture	David Chrystal (manufacturer)	Jan-1938	Assumed to have been used as a clothing warehouse / manufacture
1940															
										Crystal Clothing Industries Pty Ltd	Mar-1947		Crystal Clothing Industries Pty Ltd	Mar-1948	
1950							Edith Booth (Widow)	Oct-1950							
							Sydney Stafford Pty Ltd	Jan-1951							
							Caltex Oil (Australia) Pty Ltd	Dec-1953							
	Harold & Charles Hyde	May-1958					Leased to Stephen Bailey (garage proprietor)	Jan-1955							
	Crystal Clothing Industries Ltd	Apr-1959	Assumed to have been used as a clothing warehouse / manufacture												
				Grace Bothwell	Oct-1960										
1960															
				Jonray Pty Ltd	Jun-1968										
1970															
				Patrick Mortini	Feb-1971										
	J. Robins & Sons Pty Ltd	Oct-1979	Shoe manufacturing and these activities continue until at least the time of this investigation							J. Robins & Sons Pty Ltd	Oct-1979	Shoe manufacturing and these activities continue until at least the time of this investigation	J. Robins & Sons Pty Ltd	Oct-1979	Shoe manufacturing and these activities continue until at least the time of this investigation
							J. Robins & Sons Pty Ltd	Mar-1980	Shoe manufacturing and these activities continue until at least the time of this investigation						
1980															
				John Halter	Jul-1981										
				J. Robins & Sons Pty Ltd	Dec-1987										
1990															
2000															
	WM Ritchie Properties Pty Ltd (Current Owners and Property Investors)	Feb-2005		WM Ritchie Properties Pty Ltd (Current Owners and Property Investors)	Jul-2004		WM Ritchie Properties Pty Ltd (Current Owners and Property Investors)	Jul-2004		WM Ritchie Properties Pty Ltd (Current Owners and Property Investors)	Jul-2004		WM Ritchie Properties Pty Ltd (Current Owners and Property Investors)	Feb-2005	
	Leased to J.Robins & Sons Pty Ltd			Leased to J.Robins & Sons Pty Ltd			Leased to J.Robins & Sons Pty Ltd			Leased to J.Robins & Sons Pty Ltd			Leased to J.Robins & Sons Pty Ltd		
2010															
Present Day															

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: 1/533919

SEARCH DATE	TIME	EDITION NO	DATE
21/10/2013	11:12 AM	4	2/11/2009

LAND

LOT 1 IN DEPOSITED PLAN 533919
AT BELMORE
LOCAL GOVERNMENT AREA CANTERBURY
PARISH OF ST GEORGE   COUNTY OF CUMBERLAND
TITLE DIAGRAM DP533919

FIRST SCHEDULE

W M RITCHIE PROPERTIES PTY LIMITED (T AF86020)

SECOND SCHEDULE (2 NOTIFICATIONS)

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
2 AF38626 LEASE TO J. ROBINS & SONS PTY LTD EXPIRES: 30/6/2010.

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

HAZ-DANIEL- PRINTED ON 21/10/2013

Any entries preceded by an asterix do not appear on the current edition of the certificate of title.
Warning: the information appearing under notations has not been formally recorded on 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.
Level 4, 122 Castlereagh Street, Sydney 2000 - DX 1078 SYDNEY
PHONE: (02) 9261 5211 FAX: (02) 9264 7752
www.hazlett.com.au

```
     LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH
     -----------------------------------------------------------------

                                               SEARCH DATE
                                               -----------
                                               21/10/2013 11:14AM

FOLIO: 1/533919
------

       First Title(s): SEE PRIOR TITLE(S)
       Prior Title(s): VOL 11098 FOL 218

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

 1/3/1994              AMENDMENT: LOCAL GOVT AREA

16/2/2005   AB292070   TRANSFER                        EDITION 1

 5/9/2005   AB745183   CHANGE OF NAME                  EDITION 2

12/10/2009   AF38626   LEASE                           EDITION 3

 2/11/2009  AF86020    TRANSFER                        EDITION 4

                  ***  END OF SEARCH  ***
```

```
      LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH
      ------------------------------------------------------------


FOLIO: 2/533919
------

           SEARCH DATE       TIME             EDITION NO    DATE
           -----------       ----             ----------    ----
           21/10/2013       11:12 AM              7       2/11/2009


LAND
----
LOT 2 IN DEPOSITED PLAN 533919
   AT BELMORE
   LOCAL GOVERNMENT AREA CANTERBURY
   PARISH OF ST GEORGE   COUNTY OF CUMBERLAND
   TITLE DIAGRAM DP533919

FIRST SCHEDULE
--------------
W M RITCHIE PROPERTIES PTY LIMITED                      (T AF86020)

SECOND SCHEDULE (5 NOTIFICATIONS)
---------------
1   RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
2   8392706   EASEMENT FOR ELECTRICITY SUBSTATION PURPOSES 4.76
              WIDE AFFECTING THE SITE DESIGNATED (S) IN PLAN (PAGE 4)
              WITH 8392706
3   DP1045527 RIGHT OF CARRIAGEWAY 1.025 METRE(S) WIDE AND VARIABLE
              AFFECTING THE PART(S) SHOWN SO BURDENED IN DP1045527
4   DP1045527 EASEMENT FOR ACCESS AND MAINTENANCE VARIABLE WIDTH.
              APPURTENANT TO THE LAND ABOVE DESCRIBED
5   AF38626   LEASE TO J. ROBINS & SONS PTY LTD EXPIRES:
              30/6/2010.

NOTATIONS
---------
UNREGISTERED DEALINGS: NIL

        ***  END OF SEARCH  ***
```

```
     LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH
     -----------------------------------------------------------------

                                               SEARCH DATE
                                               -----------
                                               21/10/2013 11:13AM

FOLIO: 2/533919
------

       First Title(s): SEE PRIOR TITLE(S)
       Prior Title(s): VOL 11098 FOL 219

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

 1/3/1994              AMENDMENT: LOCAL GOVT AREA

 6/3/2001   7456620    APPLICATION FOR REPLACEMENT    EDITION 1
                       CERTIFICATE OF TITLE

 9/4/2002   8392706    TRANSFER GRANTING EASEMENT     EDITION 2

4/10/2002   DP1045527  DEPOSITED PLAN                 EDITION 3

16/2/2005   AB292070   TRANSFER                       EDITION 4

 5/9/2005   AB745183   CHANGE OF NAME                 EDITION 5

12/10/2009  AF38626    LEASE                          EDITION 6

2/11/2009   AF86020    TRANSFER                       EDITION 7

                   ***  END OF SEARCH  ***





  HAZ-DANIEL-                                PRINTED ON 21/10/2013
```

64109

CERTIFICATE OF TITLE.

54 907

(C.)

New South Wales.

[App^n. No. 5373]
[Reference to Last Certificate]
[Vol. 1911 Folio 230]

REGISTER BOOK,
Vol. 2430 Folio 111
CANCELLED

Charles McPherson of Belmore, Dairyman, Transferee under Instrument of Transfer from Robert Heron No A 69907 is now the proprietor of an Estate in Fee Simple, subject nevertheless to the reservations and conditions, if any, contained in the Grant hereinafter referred to, and also subject to such encumbrances, liens, and interests as are notified hereon, in That piece of land situated in the Municipality of Canterbury, Parish of St George, and County of Cumberland containing One rood eight and one quarter perches, or thereabouts, as shown on the Plan hereon, and therein edged red, being part of Lot 94 on a Plan deposited in the Land Titles Office, Sydney, No. 3862 and part of Thirty acres (Portion 83 of Parish) delineated in the Public map of the said Parish deposited in the Department of Lands originally granted to Francis Wilde by Crown Grant dated the thirtieth day of June one thousand eight hundred and twenty three

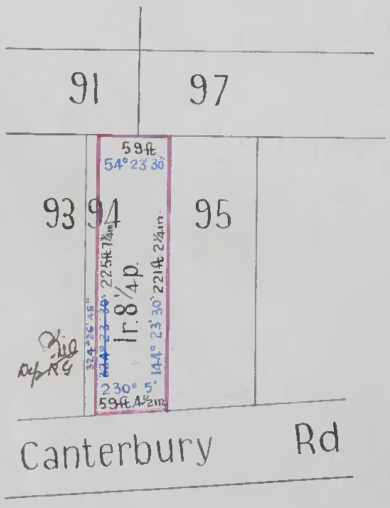
In witness whereof, I have hereunto signed my name and affixed my Seal, this Thirteenth day of December one thousand nine hundred and thirteen

Signed the 13th day of December 1913,
in the presence of

Deputy Registrar General.

REGISTRAR GENERAL NEW SOUTH WALES

NOTIFICATION REFERRED TO.



SCALE-120ft. to an inch.

No. C286783 TRANSFER dated 8th October 1934
from the said Charles McPherson To Adrian Cecil Taylor of Darling Point Gentleman
of the land within described
Produced and entered 10th October 1934
at 45 mts past 2 o'clock in the after noon.
Roy W. Willis
REGISTRAR GENERAL.

No. C441233 MORTGAGE dated 21st May 1935
from the said Adrian Cecil Taylor
to BANK OF NEW SOUTH WALES
Produced and entered 1st June 1936
at 58 mts pt 12 o'clock in the after noon.
Roy W. Willis
REGISTRAR GENERAL.

A69907

M.D.

No. C 600810 APPLICATION BY TRANSMISSION Celestine Louise Taylor of Randwick, Widow is now the registered Proprietor of the Land within described in pursuance of the above Application Produced 25th November 1937 and entered 3rd December 1937 at 12 o'clock ~~in the~~ noon.

Roy W Willis
REGISTRAR GENERAL.

No. C 600811 CAVEAT dated 25th November 1937 by the Registrar General.
Produced 25th November 1937
entered 3rd December 1937
at 12 o'clock ~~in the~~ noon.

Roy W Willis
REGISTRAR GENERAL

No. C 612393 DISCHARGE of within mortgage No C 441233 dated 24th December 1937
Produced 30th December 1937 and entered 13th January 1938
at 2 o'clock in the after noon.

Roy W Willis
REGISTRAR GENERAL.

The within Caveat No. C600811 is hereby withdrawn.
Dated 13th January 1938

Roy W Willis
REGISTRAR GENERAL

No. C 612394 TRANSFER dated 18th December 1937 from the said Celestine Louise Taylor to David Chrystal of Punchbowl Manufacturer of the land within described
Produced 30th December 1937 and entered 13th January 1938
at 2 o'clock in the after noon.

Roy W Willis
REGISTRAR GENERAL.

No. C 612395 MORTGAGE dated 18th December 1937 from the said David Chrystal to BANK OF NEW SOUTH WALES
Produced 30th December 1937 and entered 13th January 1938
at 2 o'clock in the after noon.

Roy W Willis
REGISTRAR GENERAL.

No. D639924 DISCHARGE of within mortgage No. C612395 dated 10th March 1947
Produced and entered 17th March 1947
at 7mts pt 11 o'clock in the fore noon.

J. Wells
REGISTRAR GENERAL.

No. D639925 TRANSFER dated 6th January 1947 from the said David Chrystal to Crystal Clothing Industries Pty Limited of the land within described
Produced and entered 17th March 1947
at 7mts pt 11 o'clock in the fore noon.

J. Wells
REGISTRAR GENERAL.

No. D639926 MORTGAGE dated 21st February 1947 from the said Crystal Clothing Industries Pty Limited to Bank of New ~~South~~ South Wales
Produced and entered 17th March 1947
at 7mts pt 11 o'clock in the fore noon.

J. Wells
REGISTRAR GENERAL.

No. F590001 DISCHARGE of within mortgage No. D639926 dated ~~14th~~ 14th September 1951
Produced 18th December 1951 and entered 18th December 1951
at 20mts. pt. 11 o'clock in the fore noon.

J. Wells
REGISTRAR GENERAL

No. F590002 MORTGAGE dated 3rd December 1951 from the said Crystal Clothing Industries Limited (formerly styled Crystal Clothing Industries Pty. Limited) to Australia and New Zealand Bank Limited
Produced and entered 18th December 1951
at 20mts pt. 11 o'clock in the fore noon.

J. Wells
REGISTRAR GENERAL.

No. F777930 DISCHARGE of within mortgage F590002 dated 4th December 1952
Produced 12th December 1952 and entered 12th December 1952
at 49mts pt 12 o'clock in the after noon.

J. Wells
REGISTRAR GENERAL

No. F777931 MORTGAGE dated 30th October 1952 from the said Crystal Clothing Industries Limited to The Mutual Life and Citizens' Assurance Company Limited
Produced and entered 12th December 1952
at 49mts pt 12 o'clock in the after noon.

J. Wells
REGISTRAR GENERAL.

No. K691689 MORTGAGE dated 26th April 1967.
to The M.L.C. Nominees Limited.
Entered 26th July 1967.

J. Watson
REGISTRAR GENERAL

MORTGAGE No. K 691689 has been discharged.
See L71589 Entered 16th July 1968

J. Watson
REGISTRAR GENERAL

~~The name of the registered proprietor is now~~
The name of the registered proprietor is now Crystal Clothing Industries Pty Limited.
See L71589. Entered 16th July 19

J. Watson
REGISTRAR GENERAL

New C.T. to issue on DP533919 No dealings to be regd without ref to S.D.B.

This deed is cancelled as to WHOLE
New Certificates of Title have issued on 22-7-1969
for lots in DEPOSITED Plan No. 533919 as follows:-
Lots 1-2 Vol. 11098 Fol. 218-219 respectively.

J. Watson
REGISTRAR GENERAL

G981532 VMR
H574196 VMR
K691689 M
L71588 VMR change of name
L71590 VMR
DP533919 C.T.
Prog. prod on DP533919 (create)

202

Primary Appn. No. 5373
Reference to Last Title
Vol. 2361 Fol. 163

New South Wales.

[CERTIFICATE OF TITLE.]

REGISTER BOOK.
VOL. 6907 FOL. 70
CANCELLED W
Issued on Transfer No. G148170

50985—2 8.53 K 2006—1 A. H. PETTIFER, GOVERNMENT PRINTER.

STEPHEN LESLIE BAILEY, of Belmore, Garage Proprietor, is now the proprietor of an Estate in Fee Simple, subject nevertheless to the reservations and conditions, if any, contained in the Grant hereinafter referred to, and also subject to such encumbrances, liens, and interests as are notified hereon, in That piece of land situated in the Municipality of Canterbury Parish of St. George, and County of Cumberland shown in the plan hereon and therein edged red being part of Lots 93 and 94 in Deposited Plan No. 3862 and being also part of Portion 83 granted to Francis Wilde on 30th June 1823.

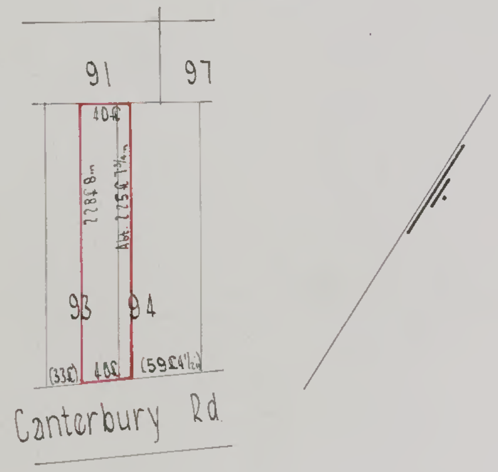
In witness whereof I have hereunto signed my name and affixed my Seal, this Fourth day of January, 1955.

Signed in the presence of G.W. Moss }

J. Wells
Registrar-General.

Persons are cautioned against altering or adding to this Certificate or any notification thereon.

G148170



Area: 33 ¼ per.
Scale: 120 feet to one inch

Gioff.
BB

WX
RL

~~NOTIFICATION~~ ete REFERRED TO

Perpetual Trustee Company Limited
now the registered proprietor of the land within described.
See Section 94 Application No. H106694
Entered 30th December 1958.
J. Watson
REGISTRAR GENERAL

TA
H106694

No. H106695 CAVEAT by the Registrar General.
Entered 30th December 1958.
J. Watson
REGISTRAR GENERAL.

H 106694
RA

The within Caveat No. H106695 is hereby withdrawn.
Dated 11th October 1960.
J. Watson
REGISTRAR GENERAL.

WX
RL

Te
283461

Catherine Mary Bailey of North Stoneham, United Kingdom, widow, is
now the registered proprietor of the land within described.
See TRANSFER No. H283461 dated 18th June 1959
Entered 11th October 1960.
J. Watson
REGISTRAR GENERAL

Te
298726

Crystal Clothing Industries Limited
is
now the registered proprietor of the land within described.
See TRANSFER No. H298726 dated 2nd July 1959
Entered 11th October 1960.
J. Watson
REGISTRAR GENERAL

574

No. H574195 MORTGAGE dated 10th August 1960.
to The Mutual Life and Citizens' Assurance Company Limited
Entered 11th October 1960
J. Watson
REGISTRAR GENERAL.

H283461
H298726
H574195

(over)

No. K691689 MORTGAGE dated 26th April 1967
to The M.L.C. Nominees Limited.

Entered 26th July 1967

J. Watson

REGISTRAR GENERAL

MORTGAGE No. K691689 has been discharged.
See L71588 Entered 16th July 1968

J. Watson

REGISTRAR GENERAL

The name of the registered proprietor is now Crystal Clothing Industries Pty Limited.

Entered 16th July 1968

See L71589.

J. Watson

REGISTRAR GENERAL

New C.T. to issue on DP 533919. No dealings to be regd. without ref. to S.D.B.

This deed is cancelled as to whole
New Certificates of Title have issued on 22-7-1969
for lots in Deposited Plan No. 533919 as follows:-
Lots 1—2 Vol. 11098 Fol. 218-219 respectively.

J. Watson

REGISTRAR GENERAL

K691689M R

L71592 V/M

L71589 [illegible]

L71592 V/M R.

DP533919 [illegible] 9/7

Regd. prepd on DP533919 [illegible]

N562990 V/M n/c

84803

CERTIFICATE OF TITLE.

(C.)

New South Wales.

[Appⁿ No. 5373]
[Reference to last Certificate]
[Vol. 1636 Folio 37]

REGISTER BOOK,
Vol. 2464 Folio 59
CANCELLED

George Durie Junior of Teralba mine manager. Transferee under Instrument of Transfer from Margaret Ann Barker Nº A 91271 is now the proprietor of an Estate in Fee Simple, subject nevertheless to the reservations and conditions, if any, contained in the Grant hereinafter referred to, and also subject to such encumbrances, liens, and interests as are notified hereon, in That piece of land situated in the Municipality of Canterbury, Parish of St George, and County of Cumberland containing Thirty five and three quarters perches, or thereabouts, as shown in the Plan hereon, and therein edged red, being part of Lot 96 on a Plan deposited in the Land Titles Office, Sydney, No. 3862 and also part of Thirty acres (Portion 83 of Parish) delineated in the Public map of the said Parish in the Department of Lands originally granted to Francis Wilde by Crown Grant dated the thirtieth day of June one thousand eight hundred and twenty three

In witness whereof, I have hereunto signed my name and affixed my Seal, this Eighth day of April one thousand nine hundred and fourteen

Signed the 8th day of April 1914,
in the presence of J. M. Riley

Deputy Registrar General.

Scale - 120 ft to an inch

NOTIFICATION REFERRED TO.

No. A 985377 TRANSFER dated 13th August 1923 from the said George Durie (Junior) to William McLean Derrin of Lakemba Storekeeper of the land within described
Produced and entered 28th August 1923
at 2 mts past 3 o'clock in the after noon.
REGISTRAR GENERAL

No. A 985378 MORTGAGE dated 13th August 1923 from the said William McLean Derrin to the said George Durie (Junior)
Produced and entered 28th August 1923
at 2 mts past 3 o'clock in the after noon.
REGISTRAR GENERAL

A 91271

No. B 706921 DISCHARGE of within Mortgage A985348 dated 16th August 1928
Produced 20th August 1928 and entered 20th August 1928
at 18 mts pt 11 o'clock in the fore noon.
E. H. Clayton
REGISTRAR GENERAL

No. B 706922 MORTGAGE dated 17th August 1928
from the said William McLean Derrin to William Henry Austin, James Clarke and Ernest Williams
Produced and entered 20th August 1928
at 18 mts pt 11 o'clock in the fore noon.
E. H. Clayton
REGISTRAR GENERAL

No. C 397858 TRANSFER dated 12th December 1935
from the said William McLean Derrin to Adrian Cecil Taylor of ~~Balmain~~ Belmore Manufacturer
of the land within described
Produced and entered 19th December 1935
at 42 mts pt 12 o'clock in the after noon.
Roy W. Willis
REGISTRAR GENERAL.

No. D451680 TRANSFER dated 26th November 1945
from ~~the said~~ David Spring Harold Victor Gibbons and Luke Halley Smith (present mortgagees exercising power of sale) to George Brett of Thirlstone Park Railway Employee of the land within described
Produced 17th January 1946 and entered 19th March 1946
at 12 o'clock ~~in the~~ noon.
J. Wells
REGISTRAR GENERAL.

No. D451681 MORTGAGE dated 13th November 1945
from the said George Brett to David Spring, Harold Victor Gibbons and Luke Halley Smith
Produced 17th January 1946 and entered 19th March 1946
at 12 o'clock ~~in the~~ noon.
J. Wells
REGISTRAR GENERAL.

No. D803047 DISCHARGE of within mortgage
No. D451681 dated 25th February 1948
Produced and entered 3rd March 1948
at 35 mts pt 2 o'clock in the after noon.
J. Wells
REGISTRAR GENERAL.

No. D803048 TRANSFER dated 24th February 1948
from the said George Brett to Crystal Clothing Industries Pty Limited
of the land within described
Produced and entered 3rd March 1948
at 35 mts pt 2 o'clock in the after noon.
J. Wells
REGISTRAR GENERAL.

No. F590002 MORTGAGE dated 5th December 1951
from the said Crystal Clothing Industries Limited (formerly styled Crystal Clothing Industries Pty. Limited) to Australia and New Zealand Bank Limited
Produced and entered 5th December 1951
at 20 mts pt 11 o'clock in the fore noon.
J. Wells
REGISTRAR GENERAL.

D451680

No. F777930 DISCHARGE of within mortgage F590002 dated 4th December 1952
Produced 12th December 1952 and entered 12th December 1952
at 49 mts pt 12 o'clock in the after noon.
J. Wells
REGISTRAR GENERAL

No. F777931 MORTGAGE dated 30th October 1952
from the said Crystal Clothing Industries Limited to The Mutual Life and Citizens Assurance Company Limited
Produced and entered 12th December 1952
at 49 mts pt 12 o'clock in the after noon.
J. Wells
REGISTRAR GENERAL.

No. K691689 MORTGAGE dated 26th April 1967
to The M.L.C. Nominees Limited
Entered 26th July 1967.
J. Watson
REGISTRAR GENERAL

MORTGAGE No. K691689 has been discharged.
See L71588 Entered 16th July 1968
J. Watson
REGISTRAR GENERAL

The name of the registered proprietor is now Crystal Clothing Industries Pty Limited.
See L71589 Entered 16th July 1968
J. Watson
REGISTRAR GENERAL

New C.T. to issue on DP533919. No dealings to be reg'd. without ref. to S.D.B.

This deed is cancelled as to whole
New Certificates of Title have issued on 22-7-1969
for lots in Deposited Plan No. 533919 as follows:-
Lots 1-2 Vol. 11098 Fol. 218-219 respectively.
J. Watson
REGISTRAR GENERAL

H574196 V/M R
K691689 M
L71588 AMR
L71590 AMR
DP 533919
9/7

CERTIFICATE OF TITLE

25522 (a)

2/10

(C.)

New South Wales.

[Appⁿ. No. 5373.]
[Reference to last Certificate]
[Vol. 1833 Folio 127]

REGISTER BOOK,
Vol. 1911 Folio 230

CANCELLED

W

Robert Heron of North Sydney Master Mariner, Transferee under Instrument of Transfer from Perpetual Trustee Company Limited, numbered 504664 is now the proprietor of an Estate in Fee Simple, subject nevertheless to the reservations and conditions, if any, contained in the Grant hereinafter referred to, and also subject to such encumbrances, liens, and interests as are notified hereon, in That piece of land situated in the Municipality of Canterbury, Parish of St. George, and County of Cumberland containing Two roods one and one half perches, or thereabouts, as shown on the Plan hereon, and therein edged red, being Lot 94 and part of Lot 93 on a plan deposited in the Land Titles Office Sydney numbered 3862 and part of Thirty acres (Portion 83 of Parish) delineated in the Public Map of the said Parish deposited in the Department of Lands originally granted to Francis Wilde by Crown Grant dated the thirtieth day of June one thousand eight hundred and twenty three.

In witness whereof, I have hereunto signed my name and affixed my Seal, this thirtieth day of September one thousand nine hundred and eight

Signed the 30th day of September 1908, in the presence of A Bromby

EDeane
Deputy Registrar General.

REGISTRAR GENERAL NEW SOUTH WALES

NOTIFICATION REFERRED TO.

No. A 19518 TRANSFER dated 1st March 1913
from the said Robert Heron to Edward Chamberlain
of part of the land within described
Produced and entered ~~12th April 1913~~ 22nd April 1913
at 4 o'clock in the after noon
Cancelled & Certificate of Title issued
Vol. 2361 Fol. 163
BPKelliams
REGISTRAR GENERAL

No. A 69907 TRANSFER dated 28 November 1913.
from the said Robert Heron to Charles McPherson
of the Residue of the land within described
Produced and entered 5 December 1913
at 22 mpt 3 o'clock in the afternoon
Cancelled & Certificate of Title issued
Vol. 2630 Fol. 111
BPKelliams
REGISTRAR GENERAL

A 19518

47123

CERTIFICATE OF TITLE.

St 907

(C.)

New South Wales.

[*App*^n^ *No.* 5373]
[*Reference to* last Certificate]
[*Vol.* 1911 *Folio* 230]

REGISTER BOOK,
Vol. 2361 Folio 163

CANCELLED W

Edward Chamberlain of Belmore Saddler Transferee under Instrument of Transfer from Robert Heron No A 19518 is now the proprietor of an Estate in Fee Simple, subject nevertheless to the reservations and conditions, if any, contained in the Grant hereinafter referred to, and also subject to such encumbrances, liens, and interests as are notified hereon, in That piece of land situated in the Municipality of Canterbury, Parish of St George, and County of Cumberland containing Thirty three and one quarter perches, or thereabouts, as shown on the Plan hereon, and therein edged red, being part of Lots 93 and 94 on a Plan deposited in the Land Titles Office, Sydney, No. 3862 and also part of Thirty acres (Portion 83 of Parish) delineated in the Public map of the said parish deposited in the Department of Lands originally granted to Francis Wilde by Crown Grant dated the thirtieth day of June one thousand eight hundred and twenty three

In witness whereof, I have hereunto signed my name and affixed my Seal, this First day of May one thousand nine hundred and thirteen

Signed the 1st day of May 1913,
in the presence of J R Riley

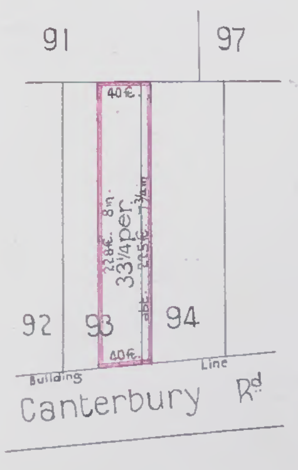
J. C. Oakes
Deputy Registrar General.

REGISTRAR GENERAL NEW SOUTH W

NOTIFICATION REFERRED TO.

No. A 111933 TRANSFER dated 11 June 1914
from the said Edward Chamberlain to William Islam of Croydon Plumber
of the land within described
Produced and entered 17 June 1914
19 mts pt 3 o'clock in the after noon
H.R. Colbourne
Acting REGISTRAR GENERAL.

No. A 128727 MORTGAGE dated 19th August 1914
from the said William Islam To Susanna Ann Talbot of Dulwich Hill, Spinster
Produced and entered 24th August 1914
at 21 mts pt. 3 o'clock in the after noon
H.R. Colbourne
Acting REGISTRAR GENERAL.



SCALE: 120ft. to an inch.

No. A 418624 TRANSFER dated 26th October 1918 from the said William Irlam To Johannah Castles, of North Sydney. Spinster of the land within described.
Produced and entered 28th October 1918 at 51 mts pt 1 o'clock in the after noon.
R. K. Williams
REGISTRAR GENERAL.

No. A 562772 TRANSFER dated 16th April 1920 from the said Johannah Castles to Isabella Murray wife of Thomas Murray of Leichhardt Grocer of the land within described.
Produced and entered 22nd April 1920 at 9 mts pt 11 o'clock in the fore noon.
R. K. Williams
REGISTRAR GENERAL.

No B 131543 Lease dated 21st July 1924 from the said Isabella (otherwise Elizabeth) Murray to Andrew Lennox and Avangelo Costa both of Lewisham Newsagents as joint tenants
~~(without evidence of consent of the mortgagee) 25th September 1924~~
Produced and entered 21st October 1924 at 10 o'clock in the fore noon.
R. K. Williams
REGISTRAR GENERAL.

No. B 429183 DISCHARGE of within Mortgage A. 128727 dated 25th October 1926.
Produced 4th November 1926 and entered 4th November 1926 at 5 mts pt 3 o'clock in the After noon.
R. K. Williams
REGISTRAR GENERAL.

No. B 429184 MORTGAGE dated 25th October 1926. from ~~the said~~ Elizabeth Deane wife of Oliver Deane (formerly Elizabeth Murray) to Amy Watson Lowe wife of George Walter Allerton Lowe of Manly Insurance Officer
Produced and entered 4th November 1926 at 5 mts pt 3 o'clock in the after noon.
R. K. Williams
REGISTRAR GENERAL.

The within mentioned LEASE No. B131543 has expired by effluxion of time
Dated 12th November 1929 Vide B.885479
REGISTRAR GENERAL

No. B 885471 Lease dated 18th September 1929 from the said Elizabeth Deane (with consent of Mortgagee) to Frederick James Cole and John Reynolds Charles Cole of Belmore Newsagents
Produced 30th September 1929 and entered 13th November 1929 at 3 o'clock in the after noon.
REGISTRAR GENERAL.

No. C 293347 B 429184 DISCHARGE of within mortgage. Dated 29th October 1934.
Produced and entered 6th November 1934 at 39 mts pt 2 o'clock in the after noon.
Roy W. Willis
REGISTRAR GENERAL.

T. 293349

The within mentioned LEASE No. B 885471 has expired by effluxion of time.
Dated 6th November 1934 Vide C 293348
Roy W. Willis
REGISTRAR GENERAL

No. C 293349 TRANSFER dated 29th October 1934 from the said Elizabeth Deane to John Reynolds Charles Cole of Belmore Newsagent of the land within described
Produced and entered 6th November 1934 at 39 mts pt 2 o'clock in the after noon.
Roy W. Willis
REGISTRAR GENERAL.

No. C 517108 TRANSFER dated 24th February 1937 from the said John Reynolds Charles Cole to Lionel Joseph Sutch Bonner of Belmore Newsagent of the land within described
Produced and entered 3rd March 1937 at 3 mts pt 2 o'clock in the after noon.
Roy W. Willis
REGISTRAR GENERAL.

No. C 517109 MORTGAGE dated 24th February 1937 from the said Lionel Joseph Sutch Bonner to Commonwealth Bank of Australia
Produced and entered 3rd March 1937 at 3 mts pt 2 o'clock in the after noon.
Roy W. Willis
REGISTRAR GENERAL.

No. F834243 DISCHARGE of within mortgage C 517109 dated 24th March 1953
Produced 7th April 1953 and entered 7th April 1953 at 31 mts pt 10 o'clock in the fore noon.
T. Wells
REGISTRAR GENERAL.

No. F834244 TRANSFER dated 27th March 1953 from the said Lionel Joseph Sutch Bonner to Alroy Herbert Holgate of Belmore Newsagent and Beryl Josephine Holgate his wife as joint tenants of the land within described
Produced and entered 7th April 1953 at 31 mts pt 10 o'clock in the fore noon.
T. Wells
REGISTRAR GENERAL.

No. F834245 MORTGAGE dated 1st April 1953 from the said Alroy Herbert Holgate and Beryl Josephine Holgate to Bank of New South Wales
Produced and entered 7th April 1953 at 31 mts pt 10 o'clock in the fore noon.
T. Wells
REGISTRAR GENERAL.

G 148169 Discharge of within Mortgage F834245 dated 22nd June, 1954. Produced 8th September 1954 and entered 17th September, 1954 at 12 o'clock noon.
T. Wells
Registrar General.

G 148170 Transfer dated 6th July, 1954 From the said Alroy Herbert Holgate and Beryl Josephine Holgate to Stephen Leslie Bailey of the land within described.
Produced 8th September, 1954 and entered 17th September, 1954 at 12 o'clock noon.
T. Wells
Registrar General

As to land in this transfer ~~this certificate~~ is cancelled and new certificate issued Vol. 6907 Fol. 70

54317

CERTIFICATE OF TITLE.

(C.)

New South Wales.

[Appⁿ. No. 5373]
[Reference to last Certificate]
[Vol. 1486 Folio 124]

REGISTER BOOK,
VOL. 1636 FOLIO 37
St 907

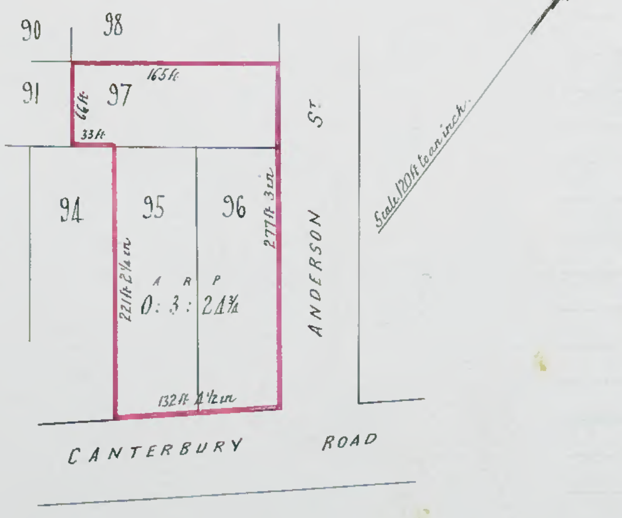
CANCELLED

Margaret Ann Barker wife of Joseph William Barker of Marrickville Tailor transferee under Instrument of transfer from Perpetual Trustee Company Limited Numbered 414440 is now the proprietor of an Estate in Fee Simple, subject nevertheless to the reservations and conditions, if any, contained in the Grant hereinafter referred to, and also subject to such encumbrances, liens, and interests as are notified hereon, in That piece of land situated in the Municipal District of Canterbury Parish of St George, and County of Cumberland containing Three roods twenty four and three quarters perches, or thereabouts, as shown on the Plan hereon, and therein edged red, being Lots 95, 96, and 97 on a Plan deposited in the Land Titles Office, Sydney, numbered 3862 and part of Thirty acres (portion 83 of parish) delineated in the public Map of the said parish deposited in the Department of Lands originally granted to Frances Webb by Crown Grant dated the thirtieth day of June one thousand eight hundred and twenty three

IN witness whereof, I have hereunto signed my name and affixed my Seal, this Sixteenth day of September one thousand nine hundred and five

Signed the 16th day of September 1905,
in the presence of J H Armstrong

Deputy Registrar General.



NOTIFICATION REFERRED TO.

No. 684691 TRANSFER dated 16 October 1912
from the said Margaret Ann Barker to Giacomo Costa of Lot 97 Dep Plan 3862.
of the land within described
Produced and entered 22 October 1912
at 1 o'clock in the after noon
Cancelled & Certificate of Title issued
Vol. 2309 Fol. 195
Registrar General

No. A 91270 TRANSFER dated 18th March 1914
from the said Margaret Ann Barker to George Dwie (Senior) pt Lot 95 Dep Plan 3862
20th March 1914 of the land within described
Produced and entered 8th april 1914
at 4 o'clock in the after noon.
Cancelled & Certificate of Title issued
Vol. Fol.
H.R. Colbourne
acting REGISTRAR GENERAL

A91270
A91271

No. A91271 TRANSFER dated 18th March 1914
from the said Margaret-Ann Barker to
George Davis (Junior)
of the Residue
20th March 1914 of the land within described
Produced and entered 8th April 1914
at 4 o'clock in the after noon.

Cancelled & Certificate of Title issued
Vol. 2464 Fol. 58.59

H.R. Colborne
REGISTRAR GENERAL

(Page 1) Vol. 11098 Fol. 218

NEW SOUTH WALES

[redacted]FICATE OF TITLE

ROPERTY ACT, 1900, as amended.

Application No. 5373

Prior Titles Volume 2430 Folio 111
Volume 6907 Folio 70

Vol. 11098 Fol. 218

Edition issued 22-7-1969

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.

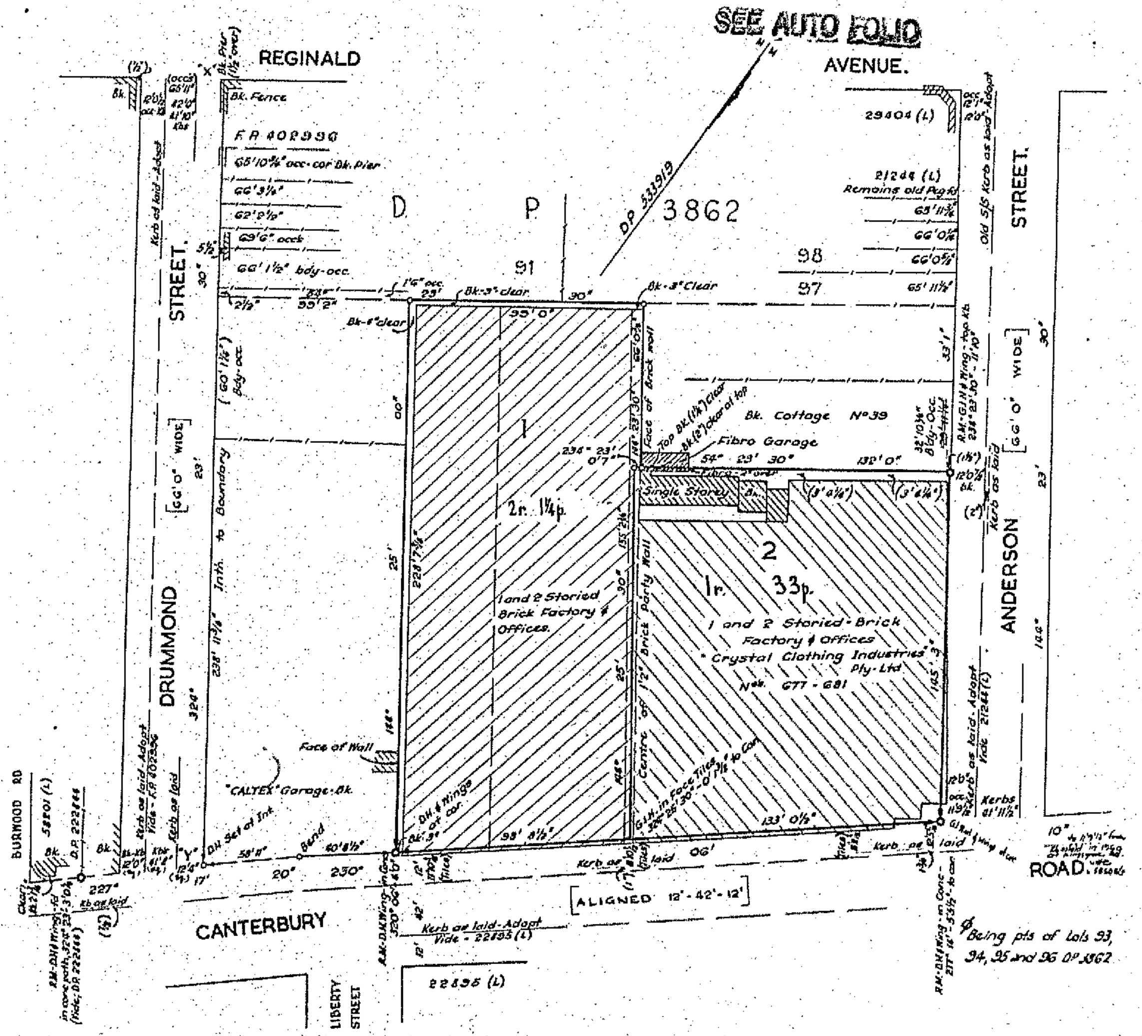
Witness *L. Collier*

CANCELLED

Registrar General.

PLAN SHOWING LOCATION OF LAND

SEE AUTO FOLIO



ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 1 in Deposited Plan 533919 at Belmore in the Municipality of Canterbury Parish of St.George and County of Cumberland being part of Portion 83 granted to Francis Wilde on 30-6-1823.

S

FIRST SCHEDULE

~~CRYSTAL CLOTHING INDUSTRIES PTY. LIMITED.~~

SECOND SCHEDULE

GRY 1. Reservations and conditions, if any, contained in the Crown Grant above referred to.

~~2. Mortgage No. F777931 affecting the part of the land above described formerly comprised in Certificate of Title Volume 2430 Folio 111 to The Mutual Life and Citizens' Assurance Company Limited. Entered 12-12-1952.~~ Discharged R433319

~~3. Mortgage No. [illegible]195 affecting the part of the land above described formerly comprised in Certificate of Title Volume 6907 Folio 70 to The Mutual Life and Citizens' Assurance Company Limited. Entered 11-10-1960.~~ Discharged R433320

Registrar General.

NOTE: ENTRIES RULED THROUGH 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.

Vol. 11098 Fol 218

N250021
R433321
R433320
2107/
23/

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	ENTERED	Signature of Registrar General
J. Robins & Sons Pty Limited	Transfer	R433323	—	5-10-1979	
CANCELLED					
SEE AUTO FOLIO					

SECOND SCHEDULE (continued)

INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	PARTICULARS	ENTERED	Signature of Registrar General	CANCELLATION		
~~Mortgage~~	~~N250021~~	~~16.3.1973~~	~~to Australia and New Zealand Banking Group Limited~~	~~29.5.1973~~		Discharged	R433321	

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

NEW SOUTH WALES

[redacted]FICATE OF TITLE

[redacted]ROPERTY ACT, 1900, as amended.

Application No. 5373

Prior Titles Volume 2430 Folio 111
Volume 2464 Folio 59
Volume 10589 Folio 75

Vol. 11098 Fol. 219

Edition issued 22-7-1969

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.

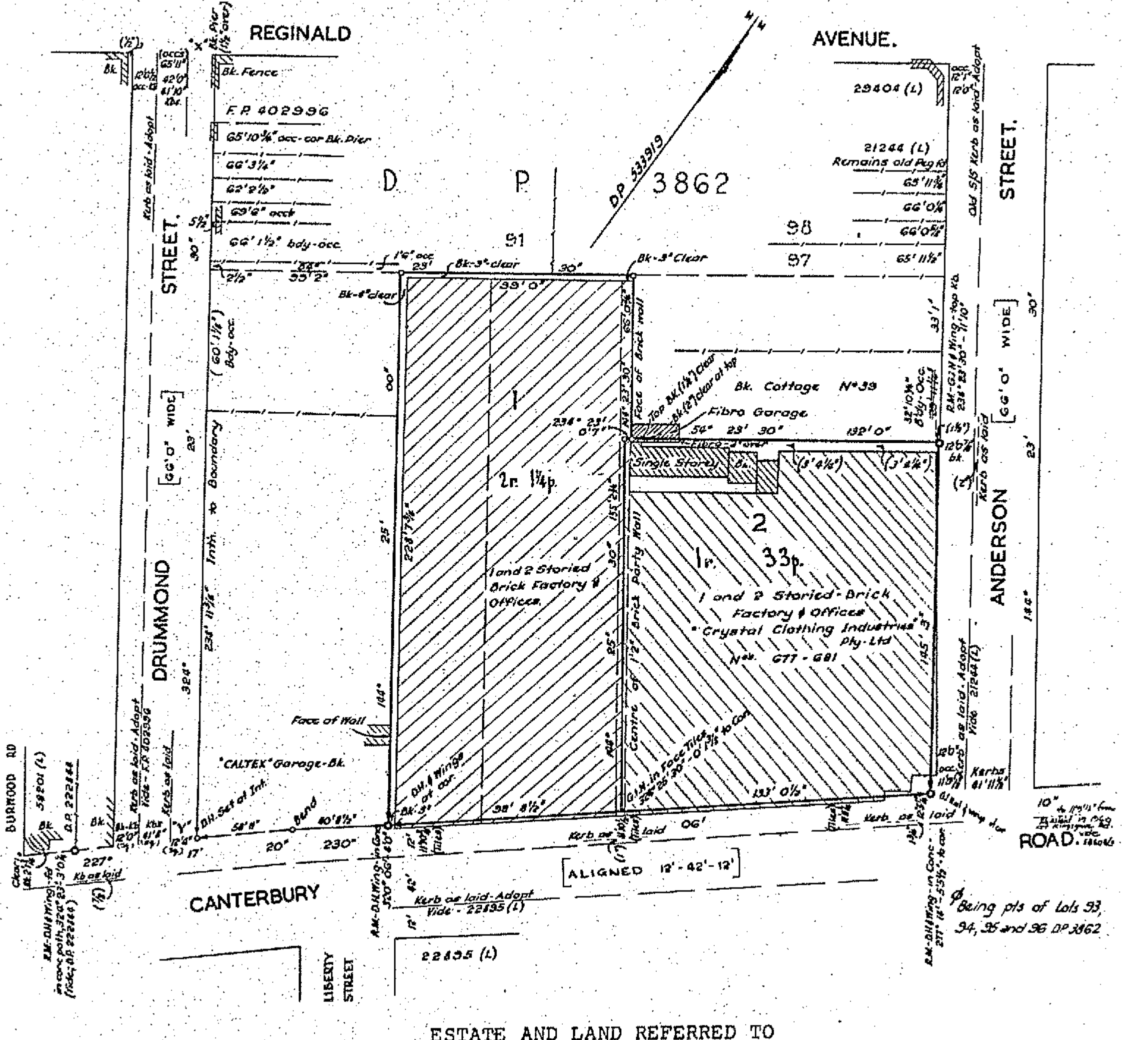
Witness L. Colliver

CANCELLED

Registrar General.

PLAN SHOWING LOCATION OF LAND

SEE AUTO FOLIO



ESTATE AND LAND REFERRED TO

S

Estate in Fee Simple in Lot 2 in Deposited Plan 533919 at Belmore in the Municipality of Canterbury Parish of St.George and County of Cumberland being part of Portion 83 granted to Francis Wilde on 30-6-1823.

FIRST SCHEDULE

~~CRYSTAL CLOTHING IND[illegible]ES PTY. LIMITED.~~

SECOND SCHEDULE

GRY 1. Reservations and conditions, if any, contained in the Crown Grant above referred to.

~~2. Mortgage No.F7779[illegible] The Mutual Life and Citizens' Assurance Company Limited. Entered [illegible]12-1952.~~ Discharged R432319

J. Watson

Registrar General.

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

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	ENTERED	Signature of Registrar General
J. Robins & Sons Pty Limited	Transfer	R433323	—	5-10-1979	

CANCELLED

SEE AUTO FOLIO

SECOND SCHEDULE (continued)

INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	PARTICULARS	ENTERED	Signature of Registrar General	CANCELLATION		
~~Mortgage~~	~~N250021~~	~~16.3.1973~~	~~to Australia and New Zealand Banking Group Limi~~	~~29.5.1973~~		Discharged	R433321	

N25Ø21M

R433319 D/m

R433321 D/m
-23Te

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

10589075

NEW SOUTH WALES

[redacted]IFICATE OF TITLE
ERTY ACT, 1900, as amended.

Appln. No.5373

Prior Title Vol.2464 Fol. 57

Vol. 10589 Fol. 75

CANCELLED

Edition issued 27-6-1967

AS K700743

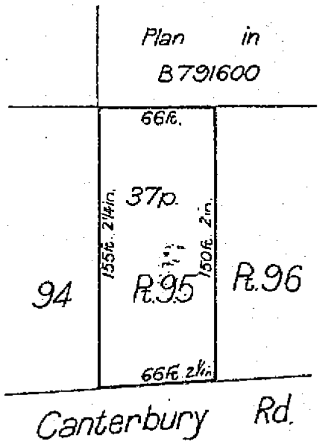
(Page 1) Vol. 10589 Fol. 75

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 Mw Salter

Jawatson
Registrar General.

PLAN SHOWING LOCATION OF LAND



K700743. L.G.
KR.

Scale: 80 feet to one inch.

ESTATE AND LAND REFERRED TO

Estate in Fee Simple in the part of Lot 95 in Deposited Plan 3862 shown in the plan hereon in the Municipality of Canterbury Parish of St.George and County of Cumberland being part Portion 83 granted to Francis Wilde on 30-6-1823.

FIRST SCHEDULE (continued overleaf)

CRYSTAL CLOTHING INDUSTRIES LIMITED.

SECOND SCHEDULE (continued overleaf)

1. Reservations and conditions, if any, contained in the Crown Grant above referred to.
2. Mortgage No.F777931 to The Mutual Life and Citizens Assurance Company Limited. Entered 12-12-1952.

Jawatson
Registrar General

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	INSTRUMENT			ENTERED	Signature of Registrar-General
	NATURE	NUMBER	DATE		
The name of the registered proprietor is now [illegible] Industries Pty Limited	Change of Name	L 115?9		16.7.1968	[illegible]
This deed is cancelled as to whole New Certificates of Title have issued on 22-7-1969 for lots in Deposited Plan No. 533919 as follows:- Lots 1-2 Vol. 11098 Fol. 218-219 respectively. J Watson					

[illegible]
~~[illegible]~~
L 7'59 VMR
DP 533919 C.T.

SECOND SCHEDULE (continued)

INSTRUMENT			PARTICULARS	ENTERED	Signature of Registrar-General	CANCELLATION		
NATURE	NUMBER	DATE						
~~Mortgage~~	~~K691689.~~	~~26.4.1967.~~	~~to The M.L.C. Nominees Limited~~	~~26.7.1967~~	J Watson	Discharged	L21589	[illegible]

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

```
      LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH
      ------------------------------------------------------------


FOLIO: 91/3862
------

           SEARCH DATE       TIME              EDITION NO    DATE
           -----------       ----              ----------    ----
           21/10/2013       11:15 AM               4       2/11/2009


LAND
----
LOT 91 IN DEPOSITED PLAN 3862
   LOCAL GOVERNMENT AREA CANTERBURY
   PARISH OF ST GEORGE   COUNTY OF CUMBERLAND
   TITLE DIAGRAM DP3862

FIRST SCHEDULE
--------------
W M RITCHIE PROPERTIES PTY LIMITED                     (T AF86020)

SECOND SCHEDULE (2 NOTIFICATIONS)
---------------
1   RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
2   AF38626   LEASE TO J. ROBINS & SONS PTY LTD EXPIRES:
              30/6/2010.

NOTATIONS
---------
UNREGISTERED DEALINGS: NIL

        ***  END OF SEARCH  ***
```

202

New South Wales

[CERTIFICATE OF TITLE.]

Primary Appn. No. 5373
Reference to Last Title s
Vol. 7496 Fol.s. 62 and 63

REGISTER BOOK.
VOL. 7700 FOL. 222
DW Issued on Transfer No. H203460

CANCELLED W
ON ISSUE OF NEW FOLIO 91/3862

S
GRY

CRYSTAL CLOTHING INDUSTRIES LIMITED, is now the proprietor of an Estate in Fee Simple, subject nevertheless to the reservations and conditions, if any, contained in the Grant hereinafter referred to, and also subject to such encumbrances, liens, and interests as are notified hereon, in that piece of land in the Municipality of Canterbury Parish of St. George, and County of Cumberland being Lot 91 in Deposited Plan No.3862 and being part of Portion 83 granted to Francis Wilde on 30th June 1823.

In witness whereof I have hereunto signed my name and affixed my Seal, this Second day of June, 19 59

Signed in the presence of B J Mortimer

J. Watson
Registrar-General.

NOTIFICATION

No. H574195 MORTGAGE dated 10th August 19 60
to The Mutual Life and Citizens' Assurance Company Limited.
Entered 11th October 19 60.
J. Watson
REGISTRAR GENERAL.
Discharged
R433320
5-10-1979

No. K691689 MORTGAGE dated 26th April 19 67
to The M.L.C. Nominees Limited.
Entered 26th July 19 67.
J. Watson
REGISTRAR GENERAL

MORTGAGE No. K691689 has been discharged.
See L71588 Entered 16th July 19 68
J. Watson
REGISTRAR GENERAL

The name of the registered proprietor is now Crystal Clothing Industries Pty Limited
See L71589 Entered 16th July 1968
J. Watson
REGISTRAR GENERAL

MORTGAGE No. Q961798 to Australia and New Zealand Banking Group Limited
Q961798.
Registered 22-11-1978
REGISTRAR GENERAL
Discharged
R433322
5-10-1979

TRANSFER NO. R433323 J. Robins & Sons Pty Limited is
now the registered proprietor of the land within described
Registered 5-10-1979
REGISTRAR GENERAL

R4333

COMPUTER FOLIO CREATED. NO FURTHER DEALINGS TO BE REGISTERED.

H574195 MR
K691689 MR
L71592 V/MR
L71588
L71592 V/MR
N502590 U/M
CT 3/11/78
Q961798 M/R.
R433320 D/M
-22 D/M
-23 Te
R

Persons are cautioned against altering or adding to this Certificate or any notification thereon.

50745 12.58 K 2006—1 V. C. N. Blight, Government Printer

202

New South Wales.

[CERTIFICATE OF TITLE.]

TENANCY IN COMMON

CANCELLED W

REGISTER BOOK.

VOL. 7496 FOL. 62

MA Issued on Transmission Application No.G910147

Primary Appn. No. 5373

Reference to Last Title

Vol. 2001 Fol. 70

HAROLD EDWARD HYDE, of Belmore, Shearer, is now the proprietor of an Estate in Fee Simple in an undivided one half share,

subject nevertheless to the reservations and conditions, if any, contained in the Grant hereinafter referred to, and also subject to such encumbrances, liens, and interests as are notified hereon, in that piece of land in the Municipality of Canterbury Parish of St.George , and County of Cumberland being Lot 91 in Deposited Plan No.3862 and being part of Portion 83 granted to Francis Wilde on 30th June 1823.

In witness whereof I have hereunto signed my name and affixed my Seal, this Sixteenth day of May , 1958

Signed in the presence of B.J. Mortimer }

T. Wells
Registrar-General.

NOTIFICATION REFERRED TO

No. H203460 TRANSFER dated 30th April 1959.
to Crystal Clothing Industries Limited
of the land within described.

Entered 18th May 1959.
As to land in this transfer this deed is cancelled and new certificate issued Vol. 7700 Fol. 222

J. Watson
REGISTRAR GENERAL

Persons are cautioned against altering or adding to this Certificate or any notification thereon.

9327 12 57 K 1036—2 A. H. Pettifer, Government Printer

202

Primary Appn. No. 5373

Reference to Last Title

Vol. 2001 Fol. 70

New South Wales.

[CERTIFICATE OF TITLE.]

TENANCY IN COMMON

CANCELLED ✓

REGISTER BOOK.

VOL. 7496 FOL. 63

MA Issued on Transmission Application No.G910147.

9327 12 57 K 2036—2 A. H. Pettifer, Government Printer.

CHARLES HYDE, of Belmore, P.M.G. Linesman, is now the proprietor of an Estate in Fee Simple in an undivided one half share,

subject nevertheless to the reservations and conditions, if any, contained in the Grant hereinafter referred to, and also subject to such encumbrances, liens, and interests as are notified hereon, in that piece of land in the Municipality of Canterbury Parish of St.George , and County of Cumberland being Lot 91 in Deposited Plan No.3862 and being part of Portion 83 granted to Francis Wilde on 30th June 1823.

In witness whereof I have hereunto signed my name and affixed my Seal, this Sixteenth day of May , 1958

Signed in the presence of P.J. Mortimer }

T. Wells
Registrar-General.

Persons are cautioned against altering or adding to this Certificate or any notification thereon.

NOTIFICATION REFERRED TO

No. H 203460 TRANSFER dated 30th April 1959.
to Crystal Clothing Industries Limited
of the land within described.

Entered 18th May 1959.
As to land in this transfer this deed is cancelled and new certificate issued Vol. 4400 Fol. 222
J. Watson
REGISTRAR GENERAL

77321

CERTIFICATE OF TITLE.

St 907

(C.)

New South Wales.

CANCELLED W

REGISTER BOOK,

Vol. 2464 Folio 57

[Appⁿ No. 5373]
[Reference to last Certificate]
[Vol. 1636 Folio 37]

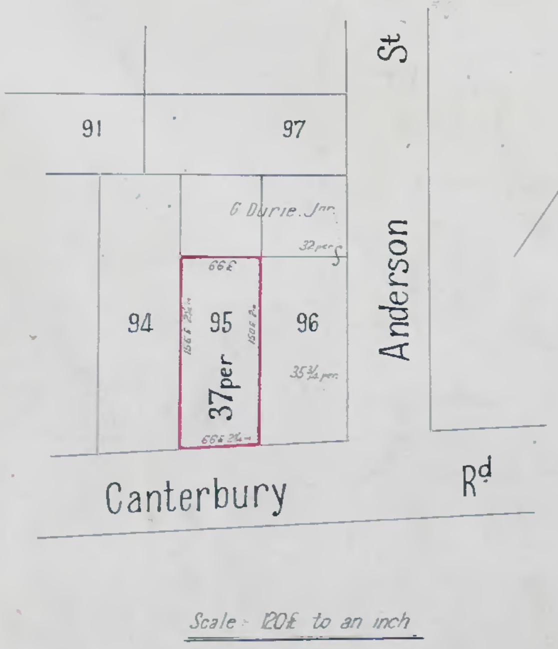
George Durie Senior of Belmore Mine Manager Transferee under Instrument of Transfer from Margaret Ann Barker Nº A 91270 is now the proprietor of an Estate in Fee Simple, subject nevertheless to the reservations and conditions, if any, contained in the Grant hereinafter referred to and also subject to such encumbrances, liens, and interests as are notified hereon, in That piece of land situated in the Municipality of Canterbury, Parish of St George, and County of Cumberland containing Thirty seven perches, or thereabouts, as shown on the Plan hereon, and therein edged red, being part of Lot 95 on a Plan deposited in the Land Titles Office, Sydney, No. 3862 and also part of Thirty acres (Portion 83 of Parish) delineated in the Public map of the said Parish ~~deposited~~ in the Department of Lands originally granted to Francis Wilde by Crown Grant dated the thirtieth day of June One thousand eight hundred and twenty three

In witness whereof, I have hereunto signed my name and affixed my Seal, this Eighth day of April one thousand nine hundred and fourteen

Signed the 8th day of April 1914, in the presence of

Deputy Registrar General.

REGISTRAR GENERAL NEW SOUTH WALES



A 91270

NOTIFICATION REFERRED TO.

No. A 908332 TRANSFER dated 3 February 1923
from the said ~~George Durie Senior~~
~~to Andrew Ferguson of~~
~~Sydney architect.~~
of the land within described
Produced and entered 13 February 1923
at 48 mins p/12 o'clock in the after noon.
REGISTRAR GENERAL.

No. C 88513 MORTGAGE dated 22 February 1923
from the said Andrew Ferguson to
The Union Bank of Australia
Limited
Produced and entered 1st September 1931
at 18 past 2 o'clock in the after noon.
Acting REGISTRAR GENERAL.

D 286781

No. C286781 DISCHARGE of within mortgage C88513 Dated 5th October 1934
Produced and entered 10th October 1934
at 45mts pt 2 o'clock in the after noon.
Roy W. Willis
REGISTRAR GENERAL.

T.286782

No. C286782. TRANSFER dated 29th September 1934
from the said Andrew Ferguson To Adrian Cecil Taylor of Darling Point Gentleman
of the land within described
Produced and entered 10th October 1934
at 45 mts pt 2 o'clock in the after noon.
Roy W. Willis
REGISTRAR GENERAL.

No C 441233 MORTGAGE dated 21st May 1935
from the said Adrian Cecil Taylor
to BANK OF NEW SOUTH WALES
Produced and entered 1st June 1936
at 58 mts pt 12 o'clock in the after noon.
Roy W. Willis
REGISTRAR GENERAL.

No. C 600810 APPLICATION BY TRANSMISSION
Celestine Louise Taylor of Randwick, Widow
is now the registered
Proprietors of the Land within described in pursuance of the above Application Produced 25th November 1937 and entered 3rd December 1937
at 12 o'clock ~~in the~~ noon.
Roy W. Willis
REGISTRAR GENERAL.

No. C600811 CAVEAT dated 25th November 1937
by the Registrar General.
Produced 25th November 1937
entered 3rd December 1937
at 12 o'clock ~~in the~~ noon.
Roy W. Willis
REGISTRAR GENERAL

No. C 612393 DISCHARGE of within mortgage
No C441233 dated 24th December 1937
Produced 30th December 1937 and entered 13th January 1938
at 2 o'clock in the after noon.
Roy W. Willis
REGISTRAR GENERAL.

The within Caveat No C600811 is hereby withdrawn.
Dated 13th January 1938
Roy W. Willis
REGISTRAR GENERAL

No. C 612394 TRANSFER dated 18th December 1937
from the said Celestine Louise Taylor to David Chrystal of Punchbowl Manufacturer
of the land within described
Produced 30th December 1937 and entered 13th January 1938
at 2 o'clock in the after noon.
Roy W. Willis
REGISTRAR GENERAL.

Th[illegible] and Certificate of Title issued.
Vol. 10589 Fol 75 dated 27-6-67
Vide OK 780743
J. Watson
REGISTRAR GENERAL

No. C 612395 MORTGAGE dated 18th December 1937
from the said David Chrystal
to BANK OF NEW SOUTH WALES
Produced 30th December 1937 and entered 13th January 1938
at 2 o'clock in the after noon.
Roy W. Willis
REGISTRAR GENERAL.

No. D639924 DISCHARGE of within mortgage
No. C612395 dated 10th March 1947
Produced and entered 17th March 1947
at 7mts pt 11 o'clock in the fore noon.
T. Wells
REGISTRAR GENERAL.

No. D639925 TRANSFER dated 6th January 1947
from the said David Chrystal to Crystal Clothing Industries Pty Limited
of the land within described
Produced and entered 17th March 1947
at 7mts pt 11 o'clock in the fore noon.
T. Wells
REGISTRAR GENERAL.

No. D639926 MORTGAGE dated 21st February 1947
from the said Crystal Clothing Industries Pty Limited to Bank of New South Wales
Produced and entered 17th March 1947
at 7mts pt 11 o'clock in the fore noon.
T. Wells
REGISTRAR GENERAL.

No. F590001 DISCHARGE of within mortgage
No D639926 dated 14th September 1951
Produced 18th December 1951 and entered 18th December 1951
at 20 mts pt. 11 o'clock in the fore noon.
T. Wells
REGISTRAR GENERAL

No. F590002 MORTGAGE dated 5th December 1951
from the said Crystal Clothing Industries Limited (formerly styled Crystal Clothing Industries Pty Limited) to Australia and New Zealand Bank Limited
Produced and entered 18th December 1951
at 20 mts. pt. 11 o'clock in the fore noon.
T. Wells
REGISTRAR GENERAL.

No. F777930 DISCHARGE of within mortgage
F590002 dated 4th December 1952
Produced 12th December 1952 and entered 12th December 1952
at 49 mts pt 12 o'clock in the after noon.
T. Wells
REGISTRAR GENERAL

No. F777931 MORTGAGE dated 30th October 1952
from the said Crystal Clothing Industries Limited to The Mutual Life and Citizens' Assurance Company Limited
Produced and entered 12th December 1852
at 49 mts pt 12 o'clock in the after noon.
T. Wells
REGISTRAR GENERAL.

OK 780743

K691689 M

H574196

CERTIFICATE OF TITLE.

50034

New South Wales.

(C.)

[Appⁿ. No. 5373]
[*Reference to* Last Certificate]
[*Vol.* 1537 *Folio* 24]

REGISTER BOOK,
Vol. 2001 Folio 70

CANCELLED W

Sarah Hyde wife of Edward Hyde of Belmore, Railway Employee, Transferee under Instrument of Transfer from Ann Flight No. 538131 is now the proprietor of an Estate in Fee Simple, subject nevertheless to the reservations and conditions, if any, contained in the Grant hereinafter referred to, and also subject to such encumbrances, liens, and interests as are notified hereon, in That piece of land situated in the Municipality of Canterbury, Parish of St. George, and County of Cumberland containing One rood, or thereabouts, as shown on the Plan hereon, and therein edged red, being Lot 91 on a plan deposited in the Land Titles Office Sydney No. 3862 and part of Thirty acres (Portion 83 of Parish) delineated in the Public Map of the said Parish deposited in the Department of Lands originally granted to Francis Wilde by Crown Grant dated the thirtieth day of June one thousand eight hundred and twenty three

In witness whereof, I have hereunto signed my name and affixed my Seal, this Eighteenth day of September one thousand nine hundred and nine

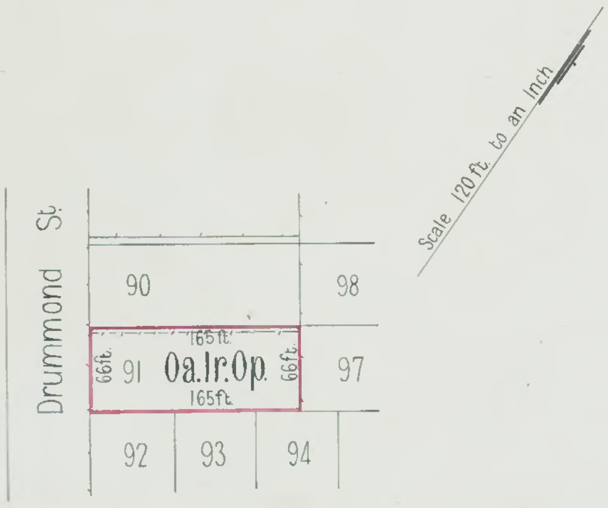
Signed the 18th day of September 1909,
in the presence of J Brogden

Deputy Registrar General.

NOTIFICATION REFERRED TO

Application by transmission No. G910147 The within deed is cancelled and a Certificate of Title issued. Vol 7496 Fol.'s 62 and 63. in favor of Charles Hyde and Harold Edward Hyde as tenants in common.
in pursuance of the above application

J. Wells
REGISTRAR GENERAL.



G910147 TA

```
      LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH
      ------------------------------------------------------------


   FOLIO: A/952115
   ------

              SEARCH DATE       TIME              EDITION NO    DATE
              -----------       ----              ----------    ----
              21/10/2013       11:18 AM               4       2/11/2009


   LAND
   ----
   LOT A IN DEPOSITED PLAN 952115
      LOCAL GOVERNMENT AREA CANTERBURY
      PARISH OF ST GEORGE   COUNTY OF CUMBERLAND
      TITLE DIAGRAM DP952115

   FIRST SCHEDULE
   --------------
   W M RITCHIE PROPERTIES PTY LIMITED                      (T AF86020)

   SECOND SCHEDULE (2 NOTIFICATIONS)
   ---------------
   1   RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
   2   AF38626   LEASE TO J. ROBINS & SONS PTY LTD EXPIRES:
                 30/6/2010.

   NOTATIONS
   ---------
   UNREGISTERED DEALINGS: NIL

           ***  END OF SEARCH  ***
```

```
   HAZ-DANIEL2-                             PRINTED ON 21/10/2013
```

```
     LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH
     -----------------------------------------------------------------

                                               SEARCH DATE
                                               -----------
                                               21/10/2013 11:20AM

FOLIO: A/952115
------

       First Title(s): SEE PRIOR TITLE(S)
       Prior Title(s): VOL 14501 FOL 229

Recorded    Number     Type of Instrument              C.T. Issue
--------    ------     ------------------              ----------
29/7/1989              TITLE AUTOMATION PROJECT        LOT RECORDED
                                                       FOLIO NOT CREATED

22/9/1989              CONVERTED TO COMPUTER FOLIO     FOLIO CREATED
                                                       CT NOT ISSUED

16/2/2005   AB292070   TRANSFER                        EDITION 1

 5/9/2005   AB745183   CHANGE OF NAME                  EDITION 2

12/10/2009  AF38626    LEASE                           EDITION 3

 2/11/2009  AF86020    TRANSFER                        EDITION 4

                     ***  END OF SEARCH  ***




  HAZ-DANIEL2-                              PRINTED ON 21/10/2013
```

```
      LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH
      ------------------------------------------------------------


FOLIO: B/952115
------

           SEARCH DATE       TIME              EDITION NO    DATE
           -----------       ----              ----------    ----
           21/10/2013       11:23 AM               4       2/11/2009


LAND
----
LOT B IN DEPOSITED PLAN 952115
   LOCAL GOVERNMENT AREA CANTERBURY
   PARISH OF ST GEORGE   COUNTY OF CUMBERLAND
   TITLE DIAGRAM DP952115

FIRST SCHEDULE
--------------
W M RITCHIE PROPERTIES PTY LIMITED                      (T AF86020)

SECOND SCHEDULE (2 NOTIFICATIONS)
---------------
1   RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
2   AF38626   LEASE TO J. ROBINS & SONS PTY LTD EXPIRES:
              30/6/2010.

NOTATIONS
---------
UNREGISTERED DEALINGS: NIL

        ***  END OF SEARCH  ***
```

```
     LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH
     -----------------------------------------------------------------

                                                SEARCH DATE
                                                -----------
                                                21/10/2013 11:23AM

FOLIO: B/952115
------

       First Title(s): OLD SYSTEM
       Prior Title(s): VOL 4817 FOL 19

Recorded    Number     Type of Instrument             C.T. Issue
--------    ------     ------------------             ----------
21/8/1998              CONVERTED TO COMPUTER FOLIO    FOLIO CREATED
                                                      CT NOT ISSUED

16/2/2005   AB292070   TRANSFER                       EDITION 1

 5/9/2005   AB745183   CHANGE OF NAME                 EDITION 2

12/10/2009  AF38626    LEASE                          EDITION 3

2/11/2009   AF86020    TRANSFER                       EDITION 4

                  ***  END OF SEARCH  ***
```

Appn. No. 5373
Reference to last Certificate
Vol. 2646 Fol. 33

New South Wales.

61619 5.28
[CERTIFICATE OF TITLE.]

Register Book.
Vol. 4817 Fol. 19

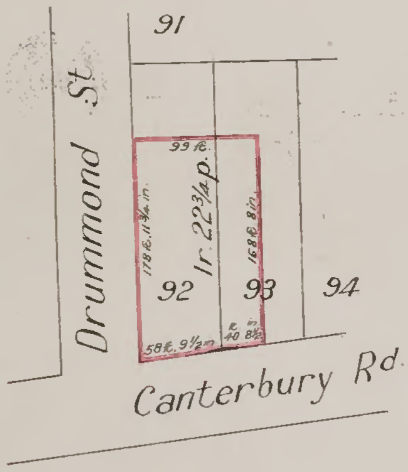
CANCELLED W
ON ISSUE OF NEW FOLIO B/952115.

Kelvin Clive Goodwin of Belmore Garage Proprietor Transferee under Instrument of Transfer No C 493108 is now the proprietor of an estate in fee simple subject nevertheless to the reservations and conditions, if any, contained in the Grant hereinafter referred to, and also subject to such encumbrances, liens, and interests as are notified hereon, in That piece of land situated in the Municipality of Canterbury Parish of St George, and County of Cumberland containing One rood twenty two and three quarters perches or thereabouts as shown in the plan hereon and thereon edged red being part of Lots 92 and 93 in deposited plan No 3862 and being also part of 30 acres (Portion 83 of Parish) originally granted to Francis Wilde by Crown Grant dated the 30th day of June 1823.

In witness whereof I have hereunto signed my name and affixed my Seal, this Eighteenth day of January 1937.

Signed in the presence of J.H. Edgard

Roy W. Willis
Registrar General



Scale:- 120 ft. to one inch

LAND WITHIN DESCRIBED IS LOT B IN D.P. 952115

C493108

Notification referred to

No C 493109 MORTGAGE dated 16th November 1936
from the said Kelvin Clive Goodwin
to BANK OF NEW SOUTH WALES
Produced 30th November 1936 and entered 22nd January 1937
at 4 o'clock in the after noon.
Roy W. Willis
REGISTRAR GENERAL.

No C 493111 MORTGAGE dated 23rd November 1936
from the said Kelvin Clive Goodwin to Heather Joyce Goodwin of Chatswood Spinster
Produced 30th November 1936 and entered 22nd January 1937
at 4 o'clock in the after noon.
Roy W. Willis
REGISTRAR GENERAL.

No. C 660605 Lease dated 9th February 1938
from the said Kelvin Clive Goodwin (with consent of mortgagees) to Errol Espert Muir of Belmore Garage Proprietor
Produced and entered 24th May 1938
at 42 mts pt 11 o'clock in the fore noon.
Roy W. Willis
REGISTRAR GENERAL

No. C 660606 DISCHARGE of within mortgage
No. C 493109 dated 13th May 1938
Produced and entered 24th May 1938
at 42 mts pt 11 o'clock in the fore noon.
Roy W. Willis
REGISTRAR GENERAL

No. C 660607 DISCHARGE of within mortgage
No. C 493111 dated 16th May 1938
Produced and entered 24th May 1938
at 42 mts pt 11 o'clock in the fore noon.
Roy W. Willis
REGISTRAR GENERAL

No. C 660608 TRANSFER dated 16th May 1938
from the said Kelvin Clive Goodwin to William John Booth of Stanmore Engineer.
of the land within described
Produced and entered 24th May 1938
at 42 mts pt 11 o'clock in the fore noon.
Roy W. Willis
REGISTRAR GENERAL.

No. C660609 MORTGAGE dated 16th May, 1938
from the said William John Booth to
Commonwealth Bank of Australia

Produced and entered 24th May 1938
at 42 mts to 11 o'clock in the fore noon.

REGISTRAR GENERAL.

The within mentioned LEASE No. C660605
has expired by effluxion of time.
Dated 4th June 1943 Vide D207064

REGISTRAR GENERAL

No. D203649 Lease dated 1st February 1943
from the said William John Booth to
Errol Expert Muir of Belmore
Garage Proprietor (with consent of
Mortgagee)
Produced 14th May 1943 and entered 4th June 1943
at 10 o'clock in the fore noon.

REGISTRAR GENERAL

No. D762990 DISCHARGE of within mortgage
No. C660609 dated 2nd December 1947
Produced and entered 2nd December 1947
at 11 o'clock in the fore noon.

T. Wells
REGISTRAR GENERAL.

The within mentioned LEASE No. D203649
has expired by effluxion of time.
Dated 23rd February 1948 Vide D796128

T. Wells
REGISTRAR GENERAL.

No. D780514 Lease dated 24th November 1947
from the said William John Booth to Errol
Expert Muir of Belmore, Garage Proprietor

Produced 13th ~~February~~ January 1948 and entered 23rd February 1948
at 12 o'clock ~~in the~~ noon.

T. Wells
REGISTRAR GENERAL.

No. F320148 APPLICATION BY TRANSMISSION
Edith Marjorie Booth, of Taren Point, widow

is now the registered
Proprietors of the land within described in pursuance of the above
Application Produced 6th October 1950 and
entered 14th November 1950
at 12 o'clock ~~in the~~ noon

T. Wells
REGISTRAR GENERAL.

No. F330066 SURRENDER of the within Lease
No. D780514 dated 30th March 1950
Produced 20th October 1950 and entered 20th October 1950
at 30 mts pt 12 o'clock in the after noon.

T. Wells
REGISTRAR GENERAL.

No. F376332 TRANSFER dated 3rd January 1951
from the said Edith Marjorie Booth to
Sydney Stafford Pty Limited

of the land within described
Produced and entered 11th January 1951
at 46 mts pt 10 o'clock in the fore noon.

T. Wells
REGISTRAR GENERAL.

No. F982868 TRANSFER dated 2nd October 1953
from the said Sydney Stafford Pty Limited to Caltex Oil
(Australia) Pty Limited

of the land within described
Produced 7th December 1953 and entered 17th December 1953
at 12 o'clock ~~in the~~ noon.

T. Wells
REGISTRAR GENERAL.

TRANSFER NO. R731929 J. Robins & Sons Pty Limited is

now the registered proprietor of the land within described

Registered 28 - 3 - 1980

REGISTRAR GENERAL

COMPUTER FOLIO NO FURTHER
DEALINGS TO BE REGISTERED.

D203649 ✓ R
D780514 ✓
F320148
F330066 Sur. L.H
F982868
R731929 te R

CERTIFICATE OF TITLE.

Et 107

(C.)

(Order Nº A 218992)
(Residue after Transfer Nº A 218991.)

New South Wales.

[Appⁿ No. 5373
[Reference to last Certificate
[Vol. 1587 — Folio 174

REGISTER BOOK,
VOL. 2646 FOLIO 33

CANCELLED

W

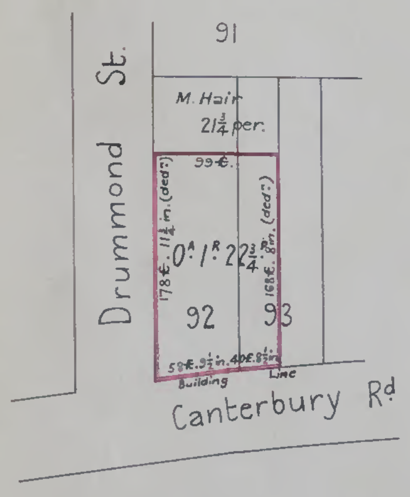
Marion Durie wife of George Durie of Belmore Mining Manager by virtue of Certificate of Title Volume 1587 Folio 174 now surrendered as to residue after transfer Nº A 218991. is now the proprietor of an Estate in Fee Simple, subject nevertheless to the reservations and conditions, if any, contained in the Grant hereinafter referred to, and also subject to such encumbrances, liens, and interest as are notified hereon, in That piece of land situated in the Municipality of Canterbury, Parish of St George, and County of Cumberland containing One rood twenty two and three quarters perches, or thereabouts, as shown on the Plan hereon, and therein edged red, being part of Lots 92 and 93 on a Plan deposited in the Land Titles Office, Sydney, No. 3862 and also part of Thirty acres (Portion 83 of Parish) delineated in the Public Map of the said parish in the Department of Lands originally granted to Francis Wilde by Crown Grant dated the thirtieth day of June one thousand eight hundred and twenty three

In witness whereof, I have hereunto signed my name and affixed my Seal, this nineteenth day of February one thousand nine hundred and Sixteen

Signed the 19th day of February 1916,
in the presence of

Deputy Registrar General.

REGISTRAR GENERAL NEW SOUTH WALES



Scale:- 120 ft. to 1 inch.

A. 218992.
Rwb.
Am

NOTIFICATION REFERRED TO

No. A551595 TRANSFER dated 26th February 1920 from the said Marion Durie To Eva Rae Rowlandson Gillespie Wife of Thomas Robert James Gillespie of Belmore Real estate agent of the land within described.
Produced and entered 22nd March 1920 at 32 mts pt 10 o'clock in the fore noon.
REGISTRAR GENERAL.

No. A551596 MORTGAGE dated 26th February 1920 from the said Eva Rae Rowlandson Gillespie To the said Marian Durie
Produced and entered 22nd March 1920 at 32 mts pt 10 o'clock in the fore noon.
REGISTRAR GENERAL.

No. A668666 TRANSFER dated 24th January 1921
from the said Eva Rae Rowlandson (Gillespie) To. Philip Allan Lotze of Hurlstone Park Lithographer
of the land within described.
Produced and entered 22nd February 1921
at 6 mts pt 3 o'clock in the after noon.
REGISTRAR GENERAL.

No A668667 MORTGAGE dated 24th January 1921
from the said Philip Allan Lotze To Emma McGregor wife of John McGregor of Melbourne in the State of Victoria Commercial Traveller
Produced and entered 22nd February 1921
at 6 mts pt 3 o'clock in the after noon.
REGISTRAR GENERAL.

No. A 845828 DISCHARGE of within Mortgage
A 668667 dated 9th August 1922
Produced 16th August 1922 and entered
16th August 1922
at 52 mts pt 2 o'clock in the after noon.
REGISTRAR GENERAL.

No. A 915561 DISCHARGE of within Mortgage
No A551596. dated 1st March 1923
Produced 5th March 1923 and entered
5th March 1923
at 15 mts pt 2 o'clock in the after noon.
REGISTRAR GENERAL

No. A 915562. MORTGAGE dated 1st March 1923
from the said Philip Allan Lotze To the said Marion Durie
Produced and entered 5th March 1923
at 15 mts pt 2 o'clock in the after noon.
REGISTRAR GENERAL.

No. B 205143. DISCHARGE of within Mortgage
A915562. dated 16th April 1925
Produced 23rd April 1925 and entered
23rd April 1925
at 13 mts pt 2 o'clock in the after noon.
REGISTRAR GENERAL.

No. B595258 MORTGAGE dated 23rd November 1927.
from the said Philip Allan Lotze to the Australian Bank of Commerce Limited.
Produced and entered 1st December 1927.
at 32 mts pt 3 o'clock in the after noon.
Acting REGISTRAR GENERAL.

No. B 881643 TRANSFER dated 18th July 1929.
from the said Philip Allan Lotze to The Belmore Motor & Engineering Works Limited
of the land within described
Produced and entered 20th September 1929
at 55 mts pt 2 o'clock in the after noon.
REGISTRAR GENERAL.

No. B 881644 MORTGAGE dated 16th September 1929.
from the said The Belmore Motor & Engineering Works Limited to the Australian Bank of Commerce Limited
Produced and entered 20th September 1929
at 55 mts pt 2 o'clock in the after noon.
REGISTRAR GENERAL.

No. C32743 DISCHARGE of within mortgage
B595258 dated 20th November 1930
Produced 27th November 1930 and entered
27th November 1930
at 20 mts pt 10 o'clock in the fore noon.
REGISTRAR GENERAL.

No. C32744 TRANSFER dated 20th November 1930
from the said The Australian Bank of Commerce Limited (mortgagees exercising power of sale) to Alfred Charles Eden of Belmore, Builder
of the Land within described
Produced and entered 27th November 1930
at 20 mts pt 10 o'clock in the fore noon.
REGISTRAR GENERAL.

No. C32745 MORTGAGE dated 20th November 1930
from the said Alfred Charles Eden to the said The Australian Bank of Commerce Limited
Produced and entered 27th November 1930
at 20 mts pt 10 o'clock in the fore noon.
REGISTRAR GENERAL.

No C150247. Appointment of Receiver dated 11th November 1932 by The Australian Bank of Commerce Limited (in liquidation) of Milton Forbes Major Johnson of Sydney Chartered Accountant in respect of the within Mortgage No. C32745. Produced 15th November 1932 and entered 22nd November 1932 at 12 oclock noon.

Roy W. Willis
Registrar General

No. C187477 Lease dated 12th June 1933
from the said The Australian Bank of Commerce Limited (in Liquidation) (mortgagee exercising power of leasing) to Charles Robert Macintosh of Belmore and Kelvin Clive Goodwin of Willoughby, Motor Garage Proprietors, as tenants in common
Produced 26th June 1933 and
entered 14th August 1933
at 11 o'clock in the fore noon.
Roy W. Willis
REGISTRAR GENERAL.

The within mentioned LEASE No. C187477
has expired by effluxion of time.
Dated 31st December 1936 Vide C493107
Roy W. Willis
REGISTRAR GENERAL.

No. C493108 TRANSFER dated 16th November 1936
from the said The Australian Bank of Commerce Limited (in Liquidation) (mortgagee exercising power of sale) To Kelvin Clive Goodwin
of the land within described
Produced 30th November 1936 and
entered 31st December 1936
at 12 o'clock ~~in the~~ noon.
As to land in this transfer
this Certificate is cancelled
and new Certificate issued
Vol. 4817 Fol. 19
Roy W. Willis
REGISTRAR GENERAL.

CERTIFICATE OF TITLE.

(C.)

New South Wales.

CANCELLED W

[Appⁿ No. 5373]
[Reference to Last Certificate]
[Vol. 1587 Folio 174]

REGISTER BOOK,
VOL. 2646 FOLIO 26

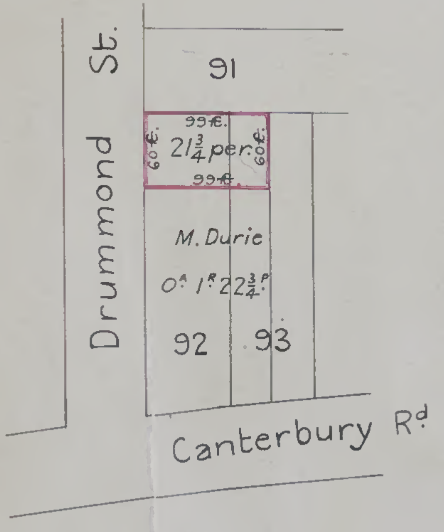
Marion Hair of Belmore, Spinster Transferee under Instrument of Transfer from Marion Durie No A. 218991 is now the proprietor of an Estate in Fee Simple, subject nevertheless to the reservations and conditions, if any, contained in the Grant hereinafter referred to, and also subject to such encumbrances, liens, and interest as are notified hereon, in That piece of land situated in the Municipality of Canterbury, Parish of St George, and County of Cumberland containing Twenty one and three quarters perches, or thereabouts, as shown on the Plan hereon, and therein edged red, being part of Lots 92 and 93 on a Plan deposited in the Land Titles Office, Sydney, No. 3862 and also part of Thirty acres (Portion 83 of Parish) delineated in the Public Map of the said Parish in the Department of Lands originally granted to Francis Wilde by Crown Grant dated the thirtieth day of June one thousand eight hundred and twenty three

In witness whereof, I have hereunto signed my name and affixed my Seal, this nineteenth day of February one thousand nine hundred and sixteen

Signed the 19th day of February 1916,
in the presence of A Weer

Deputy Registrar General.

REGISTRAR GENERAL NEW SOUTH WALES



Scale:- 120 ℓ. to 1 inch.

A. 218991.

NOTIFICATION REFERRED TO

Grace Bothwell of Belmore married woman

is now the registered proprietor of the land within described.
See Section 94 Application No H608986
Entered 24th October 1960.

REGISTRAR GENERAL.

(26)

H608986TA

V 1306871R

X d
L130687

Fontay Pty Limited is
now the registered proprietor of the land within described
See TRANSFER No. L130687 dated 24th June 1968
Entered 8th August 1968
J Watson
REGISTRAR GENERAL

(26)

M
L184156

No. L184156 MORTGAGE dated 16th September 1968
to Mustafa Nuri of Sydney, Packer
Entered 10th October 1968
J Watson
REGISTRAR GENERAL

DM
L748640

MORTGAGE No. L184156 has been discharged.
See L748640 Entered 26th February 1970
J Watson
REGISTRAR GENERAL

M

No. L748641 MORTGAGE dated 3rd February 1970
to The Commercial Bank of Australia Limited
Entered 26th February 1970
J Watson
REGISTRAR GENERAL

Pte X
M1421

M1421 Caveat dated 18th September 1970
Registered 30th September 1970
J Watson
Registrar General

Pte +
M9157

No. M9157 Caveat dated 24th September, 1970.
Registered 8th October, 1970.
J Watson
Registrar General.

W/PteX
M191064

CAVEAT No M9157. has been withdrawn
See M191064 Entered 22nd March 1971
J Watson
REGISTRAR GENERAL

* Caveat No. Q559567 by Council of the Municipality of Canterbury
Registered 16-2-1978
Pte +
Q559567
Withdrawn
S569079
9-7-1981
Registrar General

⊗ Caveat No Q654949 by Timothy Evangelinidis and Nisveca Augentos
Registered 10-5-1978
Withdrawn
S569080
9-7-1981
Q559567 Pte
Registrar General.

W/PteX
M191065

CAVEAT No. M1421 has been withdrawn
See M191065. Entered 22nd March 1971
J Watson
REGISTRAR GENERAL

D/M
M191066

MORTGAGE No. L748641 has been discharged.
See M191066. Entered 22nd March 1971.
J Watson
REGISTRAR GENERAL

Te
M191067

Patrick Enrico Martini of Canterbury, Builder
is
now the registered proprietor of the land within described.
See TRANSFER No. M191067 dated 19th February 1971
Entered 22nd March 1971
J Watson
REGISTRAR GENERAL

M
M191068

No. ~~M191063~~ M191068 MORTGAGE dated 19th February 1971
to Esanda Limited
Entered 22nd March 1971
J Watson
REGISTRAR GENERAL

Reg Gen
13-4-1971

D/M
M498210.

MORTGAGE No. M191068 has been discharged.
See M498210 Entered 22nd November 1971
J Watson
REGISTRAR GENERAL

No. M498211 MORTGAGE dated 16th September 1971
to The Commercial Bank of Australia Limited
Entered 22nd November 1971
Cancelled
S569083
9-7-1981
J Watson
REGISTRAR GENERAL

NO. P803262 CAVEAT DATED 30TH JUNE 1976.
REGISTERED 13TH JULY 1976.
J Watson
Withdrawn
S569076
8-9-1981 REGISTRAR GENERAL.

Q173176 Caveat
By AGC (Advances) Limited
Registered 28.4.1977
Withdrawn
S569077
9-7-1981
Registrar General

Q358273 - Caveat by Stephanos Anfantas
Registered 12-9-1977
* Withdrawn
S569078
9-7-1981
See across.
Registrar

PTEX
Q173176
R338046 Rev

PteX
Q358273

⊗

PteXX
Q173176 PteX
Q358273 Pte +
Q654949 Pte +

2646-26

~~Caveat No. R338048 by The Official Receiver in Bankruptcy.~~
~~Registered 3-10-1979~~

R 338048

~~Registrar General.~~

Withdrawn
S569081
9-7-1981

~~CAVEAT R922456 by Her Most Gracious Majesty Queen Elizabeth the Second.~~
~~Registered 14-7-1980~~

Withdrawn
S569082
9-7-1981

REGISTRAR GENERAL

REGISTERED PROPRIETOR John Martin Halter by
Transfer by Power of Sale S569083 Registered 9-7-1981

RP 569083

The land in this dealing is now comprised in Vol. 14501 Fol. 229

REGISTRAR GENERAL

R338048 ptx R

ANNEXURE OF EXTRA SHEET FOR CAVEATS & WRITS ONLY.

R922456 ptx R

S569076 w/t
7 -/-
8 -/-
9 -/-
80 -/-
1 -/-
2 -/-
3 -/- (P/s)
R

CERTIFICATE OF TITLE.

(C.)

New South Wales.

[Appⁿ. No. 5373]
[Reference to last Certificate]
[Vol. 1486 Folio 184]

REGISTER BOOK,
Vol. 1587 Folio 174

CANCELLED

James Judd of Woollahra Jeweller Transferee under Instrument of Transfer from Perpetual Trustee Company Limited numbered 400487 is now the proprietor of an Estate in Fee Simple, subject nevertheless to the reservations and conditions, if any, contained in the Grant hereinafter referred to, and also subject to such encumbrances, liens, and interests as are notified hereon, in That piece of land situated in the Municipal District of Canterbury, Parish of St George, and County of Cumberland containing Two roods four and one half perches, or thereabouts, as shown on the Plan hereon, and therein edged red, being Lot 92 and part of Lot 93 on a Plan deposited in the Land Titles Office, Sydney, numbered 3862 and also part of Thirty acres (Portion 83 of Parish) delineated in the Public Map of the said Parish deposited in the Department of Lands originally granted to Francis Wilde by Crown Grant dated the Thirtieth day of June One thousand eight hundred and twenty three

In witness whereof, I have hereunto signed my name and affixed my Seal, this Tenth day of February one thousand nine hundred and five

Signed the 10th day of February 1905,
in the presence of R. Barton

Deputy Registrar General.

NOTIFICATION REFERRED TO.

NO. 577825 TRANSFER DATED 7 September 1910
FROM THE SAID James Judd to Marion Durie wife of George Durie of Hamilton Mining Manager
OF THE LAND within DESCRIBED
PRODUCED & ENTERED 13 September 1910 AT 22 mins after 3 O'CLOCK IN THE after NOON
E. MacDermott
DEPUTY ~~REGISTRAR~~ GENERAL.

No. A 218991 TRANSFER dated 13th December 1915
from the said Marion Durie To Marion Hair Spinster
of part of the land within described
20th December 1915
Produced and entered 18th February 1916
at 12 o'clock in the noon
Cancelled & Certificate of Title issued Vol. 2646 Fol. 26
B. Williams
REGISTRAR GENERAL

No.
1794

This Deed is Cancelled and Certificate of Title issued
Vol 2646 Fol 33 for residue

Registrar General.

Or A218992

Form: 10CN
Release: 1
www.lpi.nsw.com.au

CHANGE OF NAME

New South Wales
Real Property Act 1900

AB745183F

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

(A) **LAND**
Torrens Title
91/3862, 1/533919, 2/533919, A/952115, B/952115

(B) **REGISTERED DEALING**

Number	Torrens Title

(C) **LODGED BY**

Delivery Box	Name, Address or DX and Telephone	CODE
406T	HOLMAN WEBB DX 233 SYDNEY 123279L (02) 9390 8000 Reference: LJJ.LUT383/1	CN

(D) **REGISTERED PROPRIETOR**
SANDLER OF BOSTON PTY LTD ACN 000 126 787

(E) **NEW NAME**
LUTMAR HOLDINGS PTY LIMITED ACN 000 126 787

(F) I, the registered proprietor referred to above, apply to have my new name recorded in the Register in respect of the above land

(G) **STATUTORY DECLARATION BY THE APPLICANT**

I GRAEME FREDERICK SELDEN

solemnly and sincerely declare that—

1. I am a Director of the registered proprietor
2. Attached is a certified copy of the Certificate of Registration on Change of Name dated 1 August 2005

and I certify this application to be correct for the purposes of the Real Property Act 1900.

Made and subscribed at Rosebery in New South Wales

on in the presence of—

Signature of witness:

Signature of applicant:

Name of witness: ELIZABETH BARTH

Address of witness: 21A HAIG STREET BEXLEY NSW 2207

Qualification of witness: Justice of the Peace

Y THIS TO BE A TRUE COPY OF THE CERTIFICATE OF REGISTRATION ON CHANGE OF NAME AS REFERRED TO IN FORM 10CN DATED 30 AUGUST 2005

Lee John Jackson
a solicitor holding a current
practising certificate under Part 3
of the Legal Profession Act, 1987
Level 17, 123 Pitt Street, Sydney 2000

GRANT THORNTON ATTN: ANDREW ARCHER
LOCKED BAG Q800
QUEEN VICTORIA BUILDING NSW 1230

Remove this top section if desired before framing

Certificate of Registration on Change of Name

This is to certify that

SANDLER OF BOSTON PTY LTD

Australian Company Number 000 126 787

did on the first day of August 2005 change its name to

LUTMAR HOLDINGS PTY LIMITED

Australian Company Number 000 126 787

The company is a proprietary company.

The company is limited by shares.

The company is taken to be registered under the Corporations Act 2001 in New South Wales and the date of commencement of registration is the fourth day of January, 1954.

Issued by the
Australian Securities and Investments Commission
on this first day of August, 2005.

Jeffrey Lucy
Chairman

Pge 2 of 2.

Form: 01T
Release: 2.1
www.lpi.nsw.gov.au

(5)

TRANSFER

New South Wales
Real Property Act 1900

AB292070R

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

STAMP DUTY

Office of State Revenue use only

Office of State Revenue
NSW Treasury
YEAR
2000 - 2005 P24
Duty: V/D – NIL
Asst details: 162Y
ID: 2453890

NEW SOUTH WALES DUTY
03-02-2005 0002453890-005
SECTION 281-ORIGINAL
NO DUTY PAYABLE

(A) **TORRENS TITLE** 91/3862, 1/533919, 2/533919, A/952115, B/952115 (formerly Vol 7700 Fol 222, Vol 11098 Fol 218 & 219, Vol 14501 Fol 229 & Vol 4817 Fol 19)

(B) **LODGED BY**

Delivery Box	Name, Address or DX and Telephone	CODES
406T	123279L HOLMAN WEBB DX 233 SYDNEY (02) 9390 8000 Reference: LJJ.RIT792/6	T TW (Sheriff)

(C) **TRANSFEROR** J ROBINS & SONS PTY LTD ACN 000 005 005

(D) **CONSIDERATION** The transferor acknowledges receipt of the consideration of $ 1.00 and as regards

(E) **ESTATE** the land specified above transfers to the transferee an estate in fee simple

(F) **SHARE TRANSFERRED**

(G) Encumbrances (if applicable):

NSW Treasury Office of State Revenue
2000 - 2005 P24
ALTERATION NOTED

(H) **TRANSFEREE** SANDLER OF BOSTON PTY LTD ACN 000 126 787

(I) **TENANCY:**

(J) **DATE** 1 JULY 2004

Certified correct for the purposes of the Real Property Act 1900 and executed on behalf of the corporation named below by the authorised person(s) whose signature(s) appear(s) below pursuant to the authority specified.

Corporation: J ROBINS & SONS PTY LTD ACN 000 005 005
Authority: section 127 of the Corporations Act 2001

Signature of authorised person:
Name of authorised person: PHIL BUTT PHILLIP BUTT
Office held: MANAGING DIRECTOR

Signature of authorised person:
Name of authorised person: CHRIS JOHNSTON CHRIS JOHNSTON
Office held: COMPANY SECRETARY

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

Signature:

Signatory's name: Lee John Jackson
Signatory's capacity: transferee's solicitor

Page 1 of 1
number additional pages sequentially

All handwriting must be in block capitals.

Land and Property Information NSW.

CT SIGHTED
CANC. & RET.

NEW SOUTH WALES

[redacted]ICATE OF TITLE

[redacted]AL PROPERTY ACT, 1900

14501229

Vol. 14501 Fol. 229

14501 Fol. 229 (Page 1) Vol.

Appln No. 5373

Prior Title Vol. 2646 Fol. 26

EDITION ISSUED

19 8 1981

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.

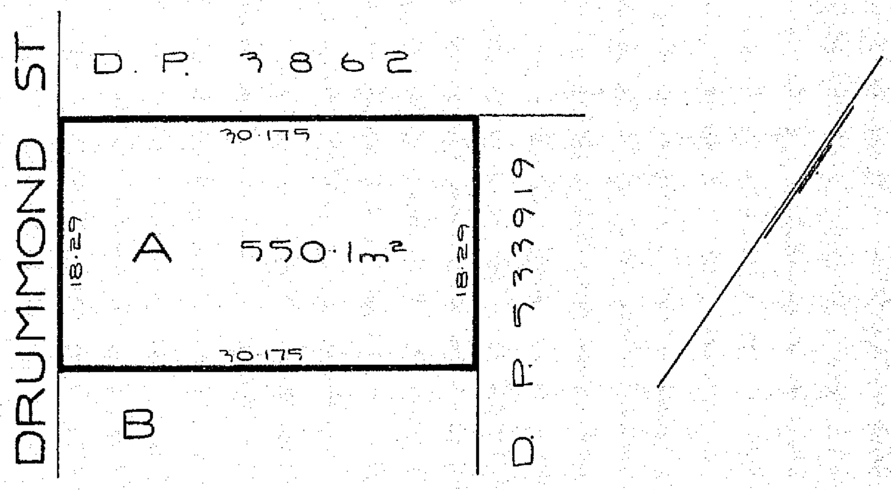
CANCELLED

Registrar General.

SEE AUTO FOLIO

PLAN SHOWING LOCATION OF LAND

LENGTHS ARE IN METRES



556908 7 dd.

S

ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot A in Deposited Plan 952115 in the Municipality of Canterbury Parish of St. George & County of Cumberland being part of Portion 83 granted to Francis Wilde on 30-6-1823.

FIRST SCHEDULE

JOHN ~~MARTEN WALTER~~.

GRY

SECOND SCHEDULE

1. Reservations and conditions, if any, contained in the Crown Grant above referred to.

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

WARNING: THIS DOCUMENT MUST NOT BE REMOVED FROM THE REGISTRAR GENERAL'S OFFICE.

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

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	Registrar General
~~Maycem Pty. Limited by Transfer S735295. Registered 23-10-1981.~~ J Robins & Sons Pty Limited by Transfer X241342. Registered 7-12-1987.	

CANCELLED

SEE AUTO FOLIO

SECOND SCHEDULE (continued)

PARTICULARS	Registrar General	CANCELLATION

NOTATIONS AND UNREGISTERED DEALINGS

S735295 TC X241348T		

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENE

Contract For Sale of Land

by

~~*Private Treaty~~ *Public Auction.

*Delete words not applicable

VENDOR'S AGENT.

L. J. HOOKER LIMITED
AUSTRALIA'S LEADER IN REAL ESTATE
Head Office: KING GEORGE TOWER, CNR. KING & GEORGE STS., SYDNEY

With Offices throughout Australia offering a complete Real Estate Service

DESCRIPTION OF PROPERTY

ALL THAT piece or parcel of land at the corner of Canterbury Road and Drummond Street, Belmore in the Municipality of Canterbury Parish of St. George County of Cumberland being part of Lots 92 & 93 in Deposited Plan 3862 being the whole of the land comprised in Certificate of Title Volume 4817 Folio 19 TOGETHER WITH all improvements erected thereon except such as are to be removed by the Vendor prior to completion.

AUCTION CONDITIONS – Upon a sale by auction:

(a) the highest bidder shall be the Purchaser. In case of any dispute the property shall be put up again at any former bidding and no bidding shall be retracted.

(b) the sale is subject to a reserve price and the right to bid is reserved on behalf of the Vendor.

(c) upon the fall of the hammer the Purchaser shall sign the following agreement the conditions of which, with these conditions, are the conditions of the sale by auction.

AGREEMENT made the day of 1979.

Vendor's full name, address and occupation.

BETWEEN CALTEX OIL (AUSTRALIA) PTY. LIMITED of 167-187 Kent Street, Sydney.

(herein called the Vendor) of the one part

AND

Purchaser's full name, address and occupation.

(herein called the Purchaser) of the other part

*Delete words not applicable

WHEREBY the Vendor agrees to sell and the Purchaser agrees to purchase, if more than one as *JOINT TENANTS/*TENANTS IN COMMON IN THE FOLLOWING SHARES:

with joint and several liability under this agreement, the property above described (herein referred to as "the property") for the sum of

($)

upon and subject to the following terms and conditions:–

1.– The Purchaser shall upon the signing of this agreement pay as a deposit to the Vendor's Agent herein named as stakeholder the sum of

($)

which shall vest in the Vendor upon and by virtue of completion and which shall be accounted for to the Vendor upon receipt of an order from the Purchaser or his Solicitor authorising such payment. The deposit may be paid by cheque but if the cheque is not honoured on presentation the Purchaser shall immediately and without notice be in default under this agreement.

The balance of the purchase price shall be paid as stipulated in the First Schedule hereto. Any moneys payable to the Vendor hereunder by the Purchaser or the Agent shall be paid to the Vendor's Solicitor or as he may direct in writing.

*Delete words not applicable

2.– The title to the land is under.

*THE REAL PROPERTY ACT, 1900, (not being Qualified Title or Strata Title)
*~~STRATA TITLE – (Strata Titles Act, 1973 (as amended))~~
~~*OLD SYSTEM~~
~~*QUALIFIED TITLE (Part IVA of the Real Property Act and Old System)~~
~~*CROWN LANDS (CONSOLIDATION) ACT, 1913~~
*~~OTHER ACT RELATING TO CROWN LANDS, namely~~

3.– After the date of this agreement and within a reasonable time after written request by the Purchaser or prior thereto if the Vendor so desires the Vendor shall furnish to the Purchaser a written statement of his title which shall comprise:–

(a) FOR LAND UNDER THE REAL PROPERTY ACT (including Strata Title): particulars of title and the form of any restrictive covenant easement or other interest to be created by the transfer sufficient to enable the Purchaser to prepare the transfer. The Purchaser shall not be entitled to an abstract of any document affecting the title. Any instrument in respect of which a caveat is entered on the register shall, if in the possession of the Vendor or of any mortgagee of the property, be produced to the Purchaser free of charge;

~~(b) FOR LAND UNDER OLD SYSTEM TITLE: a proper abstract of his title together with the form of any restrictive covenant easement or other interest to be created by the conveyance. For the purpose of this clause a proper abstract of the Vendor's title may as to relevant documents to be abstracted comprise or include photographic copies (being themselves legible) of such documents PROVIDED THAT where the abstract includes any photographic copy of a document the Vendor shall furnish as part of his abstract and in addition to the foregoing requirements a chronological index of all the facts events and documents which comprise his title stating as regards the documents to be so indexed brief particulars of –~~

~~(i) the date of the document; (ii) its general nature; (iii) the parties to the document; and (iv) its registration details.~~

such installations and services or on the ground that any water or sewerage main or any underground surface storm water drain or any gas or electric light installations and services pass through over or under the subject land or should any manhole or vent be on the subject land.

12. It is expressly agreed by both parties hereto that twenty-one (21) days shall be reasonable and adequate time for the insertion in any notice served by one party upon the other requiring completion of this Contract.

13. Without in any manner negating, limiting or restricting any rights or remedies which would have been available to the Vendor at Law or in Equity had this special condition not been included herein should the Purchaser prior to completion:-

(a) Die or become mentally ill, then the Vendor may rescind the within Contract by notice in writing to the Purchaser's solicitor named herein and thereupon the provisions of Clause 20 hereof shall apply; or

(b) Be declared bankrupt or enter into any scheme or make any assignment for the benefit of creditors, or being a company resolve to go into liquidation or have a petition for the winding-up of the Purchaser presented or enter into any scheme of arrangement with its creditors under Part 7 of the Companies Act, 1961, (as amended) or should any liquidator, receiver or official manager be appointed in respect of the Purchaser then the Purchaser shall be deemed to be in default hereunder.

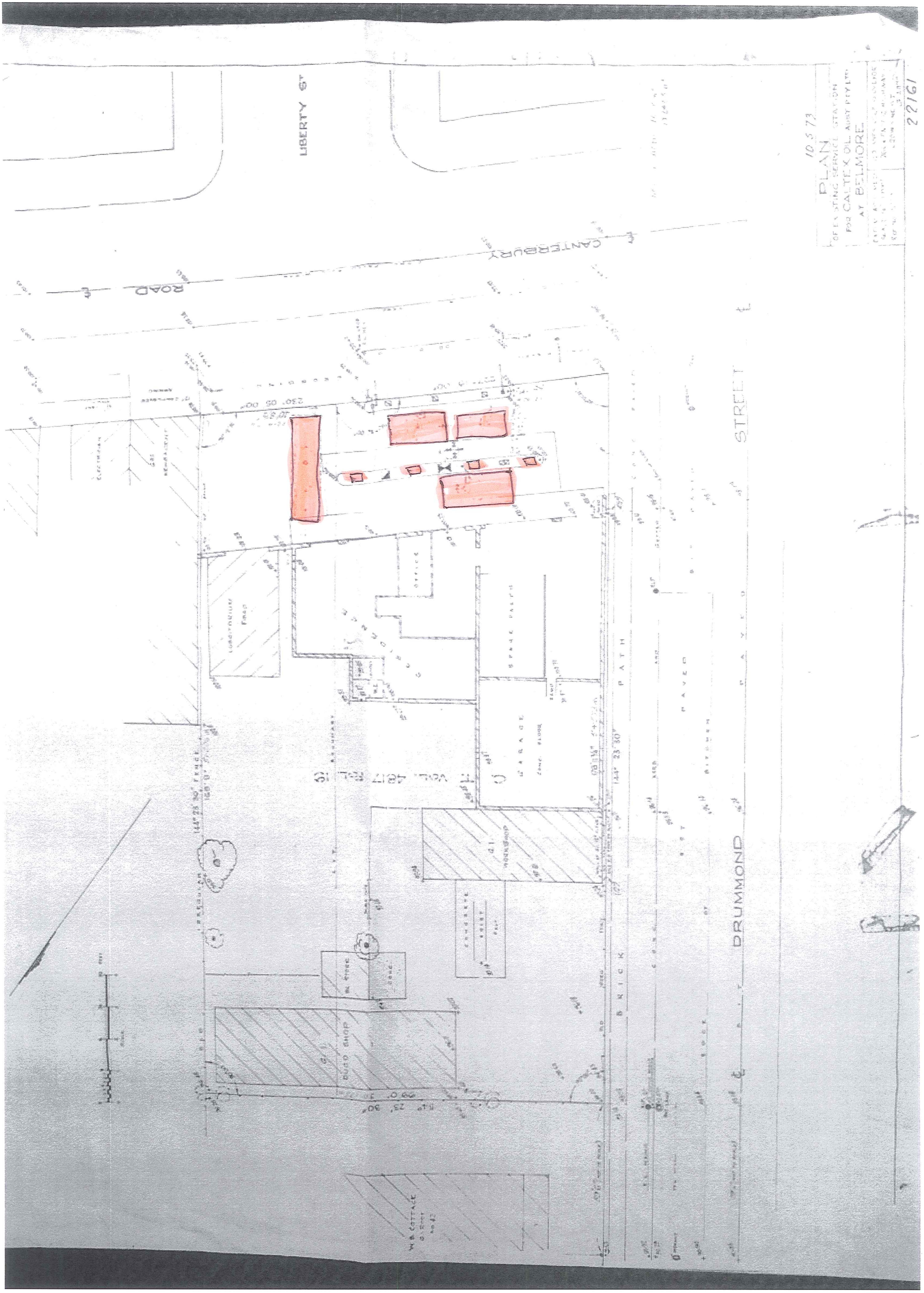
14. In addition to the modes of service referred to in Clause 22 hereof, service of any notice or document under or relating to this agreement shall be sufficient service on a party if served on its solicitor by delivering such notice or document to that solicitor's document exchange box.

15. It is hereby agreed and acknowledged that the property sold to the Purchaser pursuant to this Contract does not comprise or include the Equipment listed hereunder which Equipment is presently installed in and upon the property and which, notwithstanding any Rule of Law or Equity to the contrary, is and shall remain at all times the property of the Vendor who shall have the right to enter the property and remove, repair, replace and/or abandon any of such equipment at any time upon reasonable notice AND the Purchaser further acknowledges that until such Equipment is removed by the Vendor, it shall hold the Equipment as bailee for and on behalf of the Vendor. The rights conferred and the obligations imposed by this clause shall not merge on completion but shall enure for the benefit of the parties. The equipment referred to above comprises the following:-

** 1 x Hoist No. 2393
2 x Hoists (no numbers)
1 x Compression and Blower No. 7229
1 x Grease Pump
1 x Grease Reel
4 x Single Electric pumps Nos. 60099, 60307, 61371 and 63184

1 x Dual electric pump No. 60167/8
5 x 455 to 900 litre tanks
1 x 5,400 litre underground tank
1 x 11,900 litre underground tank
1 x 16,470 litre underground tank
1 x 20,140 litre underground tank
1 x Banjo sign complete
6 x 110 litre highbays
1 x 273 litre highboy
1 x Office safe No. 14293

16. The Purchaser acknowledges that use of the property by the Vendor, its servants, licensees or agents as a petrol service station and automotive workshop will cease on or prior to completion AND that the Vendor does not warrant or guarantee the continued use of the property after completion as a petrol service station and/or automotive workshop nor the supply from any source whatsoever of petrol and petroleum products either to the property or to the Purchaser.


10.5.73
PLAN
OF EXISTING SERVICE STATION
FOR CALTEX OIL AUST PTY LTD
AT BELMORE
22161
LIBERTY ST
CANTERBURY ROAD
DRUMMOND STREET
230° 05' 00"
144° 23' 30"
OFFICE
SPARE PARTS
GARAGE
CONC. FLOOR
G.I. WORKSHOP
DRUG SHOP
W.B. COTTAGE
BRICK PATH
PAVED
BITUMEN

APPENDIX D

Sale Contract provided by J. Robins & Sons Pty Ltd

Contract For Sale of Land

by

~~*Private Treaty~~ *Public Auction.

*Delete words not applicable

VENDOR'S AGENT.

L. J. HOOKER LIMITED
AUSTRALIA'S LEADER IN REAL ESTATE
Head Office: KING GEORGE TOWER, CNR. KING & GEORGE STS., SYDNEY

With Offices throughout Australia offering a complete Real Estate Service

DESCRIPTION OF PROPERTY

ALL THAT piece or parcel of land at the corner of Canterbury Road and Drummond Street, Belmore in the Municipality of Canterbury Parish of St. George County of Cumberland being part of Lots 92 & 93 in Deposited Plan 3862 being the whole of the land comprised in Certificate of Title Volume 4817 Folio 19 TOGETHER WITH all improvements erected thereon except such as are to be removed by the Vendor prior to completion.

AUCTION CONDITIONS – Upon a sale by auction:

(a) the highest bidder shall be the Purchaser. In case of any dispute the property shall be put up again at any former bidding and no bidding shall be retracted.

(b) the sale is subject to a reserve price and the right to bid is reserved on behalf of the Vendor.

(c) upon the fall of the hammer the Purchaser shall sign the following agreement the conditions of which, with these conditions, are the conditions of the sale by auction.

AGREEMENT made the day of 1979.

Vendor's full name, address and occupation.

BETWEEN CALTEX OIL (AUSTRALIA) PTY. LIMITED of 167-187 Kent Street, Sydney.

(herein called the Vendor) of the one part

AND

Purchaser's full name, address and occupation.

(herein called the Purchaser) of the other part

*Delete words not applicable

WHEREBY the Vendor agrees to sell and the Purchaser agrees to purchase, if more than one as *JOINT TENANTS/*TENANTS IN COMMON IN THE FOLLOWING SHARES:
with joint and several liability under this agreement, the property above described (herein referred to as "the property") for the sum of

($)

upon and subject to the following terms and conditions:–

1.– The Purchaser shall upon the signing of this agreement pay as a deposit to the Vendor's Agent herein named as stakeholder the sum of

($)

which shall vest in the Vendor upon and by virtue of completion and which shall be accounted for to the Vendor upon receipt of an order from the Purchaser or his Solicitor authorising such payment. The deposit may be paid by cheque but if the cheque is not honoured on presentation the Purchaser shall immediately and without notice be in default under this agreement.

The balance of the purchase price shall be paid as stipulated in the First Schedule hereto. Any moneys payable to the Vendor hereunder by the Purchaser or the Agent shall be paid to the Vendor's Solicitor or as he may direct in writing.

*Delete words not applicable

2.– The title to the land is under.

*THE REAL PROPERTY ACT, 1900, (not being Qualified Title or Strata Title)
*~~STRATA TITLE – (Strata Titles Act, 1973 (as amended))~~
~~*OLD SYSTEM~~
~~*QUALIFIED TITLE (Part IVA of the Real Property Act and Old System)~~
~~*CROWN LANDS (CONSOLIDATION) ACT, 1913~~
*~~OTHER ACT RELATING TO CROWN LANDS, namely~~

3.– After the date of this agreement and within a reasonable time after written request by the Purchaser or prior thereto if the Vendor so desires the Vendor shall furnish to the Purchaser a written statement of his title which shall comprise:–

(a) FOR LAND UNDER THE REAL PROPERTY ACT (including Strata Title): particulars of title and the form of any restrictive covenant easement or other interest to be created by the transfer sufficient to enable the Purchaser to prepare the transfer. The Purchaser shall not be entitled to an abstract of any document affecting the title. Any instrument in respect of which a caveat is entered on the register shall, if in the possession of the Vendor or of any mortgagee of the property, be produced to the Purchaser free of charge;

~~(b) FOR LAND UNDER OLD SYSTEM TITLE: a proper abstract of his title together with the form of any restrictive covenant easement or other interest to be created by the conveyance. For the purpose of this clause a proper abstract of the Vendor's title may as to relevant documents to be abstracted comprise or include photographic copies (being themselves legible) of such documents PROVIDED THAT where the abstract includes any photographic copy of a document the Vendor shall furnish as part of his abstract and in addition to the foregoing requirements a chronological index of all the facts events and documents which comprise his title stating as regards the documents to be so indexed brief particulars of –~~

~~(i) the date of the document; (ii) its general nature; (iii) the parties to the document; and (iv) its registration details.~~

such installations and services or on the ground that any water or sewerage main or any underground surface storm water drain or any gas or electric light installations and services pass through over or under the subject land or should any manhole or vent be on the subject land.

12. It is expressly agreed by both parties hereto that twenty-one (21) days shall be reasonable and adequate time for the insertion in any notice served by one party upon the other requiring completion of this Contract.

13. Without in any manner negating, limiting or restricting any rights or remedies which would have been available to the Vendor at Law or in Equity had this special condition not been included herein should the Purchaser prior to completion:-

(a) Die or become mentally ill, then the Vendor may rescind the within Contract by notice in writing to the Purchaser's solicitor named herein and thereupon the provisions of Clause 20 hereof shall apply; or

(b) Be declared bankrupt or enter into any scheme or make any assignment for the benefit of creditors, or being a company resolve to go into liquidation or have a petition for the winding-up of the Purchaser presented or enter into any scheme of arrangement with its creditors under Part 7 of the Companies Act, 1961, (as amended) or should any liquidator, receiver or official manager be appointed in respect of the Purchaser then the Purchaser shall be deemed to be in default hereunder.

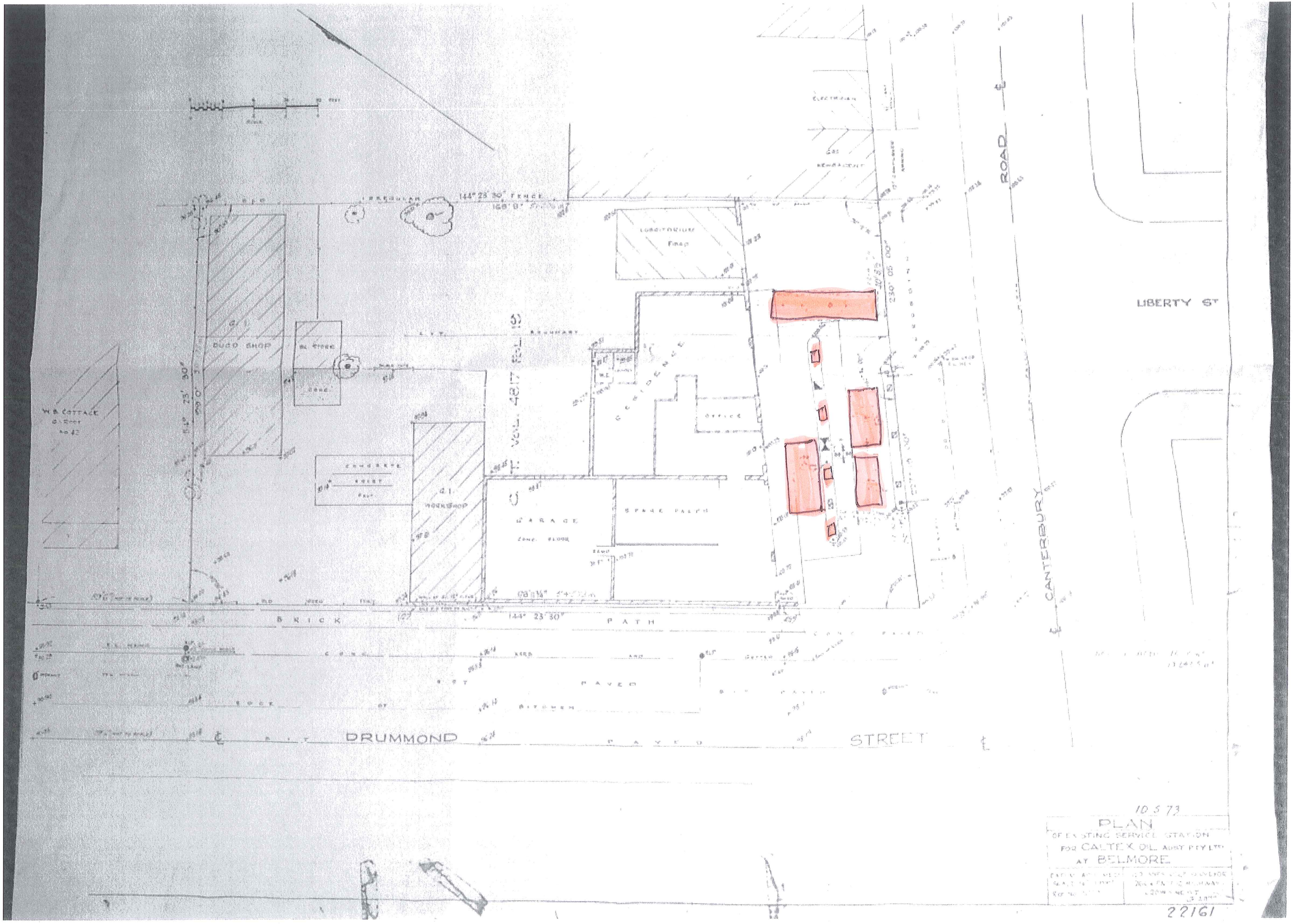
14. In addition to the modes of service referred to in Clause 22 hereof, service of any notice or document under or relating to this agreement shall be sufficient service on a party if served on its solicitor by delivering such notice or document to that solicitor's document exchange box.

15. It is hereby agreed and acknowledged that the property sold to the Purchaser pursuant to this Contract does not comprise or include the Equipment listed hereunder which Equipment is presently installed in and upon the property and which, notwithstanding any Rule of Law or Equity to the contrary, is and shall remain at all times the property of the Vendor who shall have the right to enter the property and remove, repair, replace and/or abandon any of such equipment at any time upon reasonable notice AND the Purchaser further acknowledges that until such Equipment is removed by the Vendor, it shall hold the Equipment as bailee for and on behalf of the Vendor. The rights conferred and the obligations imposed by this clause shall not merge on completion but shall enure for the benefit of the parties. The equipment referred to above comprises the following:-

** 1 x Hoist No. 2393
2 x Hoists (no numbers)
1 x Compression and Blower No. 7229
1 x Grease Pump
1 x Grease Reel
4 x Single Electric pumps Nos. 60099, 60307, 61371 and 63184

1 x Dual electric pump No. 60167/8
5 x 455 to 900 litre tanks
1 x 5,400 litre underground tank
1 x 11,900 litre underground tank
1 x 16,470 litre underground tank
1 x 20,140 litre underground tank
1 x Banjo sign complete
6 x 110 litre highbays
1 x 273 litre highboy
1 x Office safe No. 14293

16. The Purchaser acknowledges that use of the property by the Vendor, its servants, licensees or agents as a petrol service station and automotive workshop will cease on or prior to completion AND that the Vendor does not warrant or guarantee the continued use of the property after completion as a petrol service station and/or automotive workshop nor the supply from any source whatsoever of petrol and petroleum products either to the property or to the Purchaser.



ELECTRICIAN
NEWSAGENT
LUBRITORIUM
ROAD
LIBERTY ST
144° 23' 30" FENCE
IRREGULAR
W.B. COTTAGE
G.I. SHOP
No 42
BUDD SHOP
BL STORE
CONC
CONCRETE
G.I. WORKSHOP
RESIDENCE
OFFICE
GARAGE
CONC FLOOR
SPARE PARTS
VOL. 4817 FOL. 181
114° 23' 30"
230° 05' 00"
144° 23' 30"
BRICK PATH
KERB AND GUTTER
PAVED
EDGE OF BITUMEN
DRUMMOND STREET
PAVED
CANTERBURY
10.5.73
PLAN
OF EXISTING SERVICE STATION
FOR CALTEX OIL AUST PTY LTD
AT BELMORE
22161

APPENDIX E

WorkCover NSW Information

WorkCover New South Wales, 400 Kent Street, Sydney 2000. Tel: 9370 5000 Fax: 9370 5999 ALL MAIL TO G.P.O. BOX 5364 SYDNEY 2001

WorkCover NEW SOUTH WALES

Licence No. 35/018247

APPLICATION FOR RENEWAL
OF LICENCE TO KEEP DANGEROUS GOODS

ISSUED UNDER AND SUBJECT TO THE PROVISIONS OF THE DANGEROUS GOODS ACT, 1975 AND REGULATION THEREUNDER

DECLARATION: Please renew licence number 35/018247 to 6/02/2002 . I confirm that all the licence details shown below are correct (amend if necessary).

	TARA HELLWISH	2/4/01
(Signature)	*(Please print name)*	*(Date signed)*

for: ROBINS J & SONS P/L

*THIS **SIGNED** DECLARATION SHOULD BE **RETURNED TO:** **(please do not fax)***

WorkCover New South Wales
Dangerous Goods Licensing Section
GPO BOX 5364
SYDNEY 2001

Enquiries: ph (02) 9370 5187
fax (02) 9370 6104

Details of licence on 26 March 2001

Licence Number 35/018247 **Expiry Date** 6/02/2001

Licensee ROBINS J & SONS P/L ACN 000 005 005

Postal Address: 677 CANTERBURY RD BELMORE NSW 2192

Licensee Contact TARA S~~MALL~~IE HELLWISH Ph. 97~~89 1111~~ 9789 9854 Fax. 9718 2234

Premises Licensed to Keep Dangerous Goods
ROBINS J & SONS P/L
677 CANTERBURY RD BELMORE 2192

Nature of Site FOOTWEAR MANUFACTURING

Major Supplier of Dangerous Goods NOT APPLICABLE

Emergency Contact for this Site TARA S~~MALL~~IE HELLWISH Ph. 9789 1111

Site staffing 16 HRS 5 DAYS + HALF DAY 9789 9888

Details of Depots

Depot No.	Depot Type	Goods Stored in Depot	Qty
1	**ROOFED STORE**	**Class 6.1**	**2000 L**
		UN 1593 DICHLOROMETHANE	100 L
		UN 2498 1, 2, 3, 6-TETRAHYDRO, BENZALDEHYDE	1800 L
10	**FLAMMABLE LIQUIDS CABINET**	**Class 3**	**250 L**
		UN 1133 ADHESIVES	100 L
		UN 1993 FLAMMABLE LIQUID, , N.O.S.	150 L
11	**FLAMMABLE LIQUIDS CABINET**	**Class 3**	**100 L**
		UN 1133 ADHESIVES	50 L
		UN 1993 FLAMMABLE LIQUID, , N.O.S.	50 L
2	**FLAMMABLE LIQUIDS CABINET**	**Class 3**	**250 L**
		UN 1133 ADHESIVES	100 L
		UN 1993 FLAMMABLE LIQUID, , N.O.S.	150 L
3	**FLAMMABLE LIQUIDS CABINET**	**Class 3**	**250 L**
		UN 1133 ADHESIVES	100 L

Form DG10

Licence No. 35/018247

APPLICATION FOR RENEWAL
OF LICENCE TO KEEP DANGEROUS GOODS

ISSUED UNDER AND SUBJECT TO THE PROVISIONS OF THE DANGEROUS GOODS ACT, 1975 AND REGULATION THEREUNDER

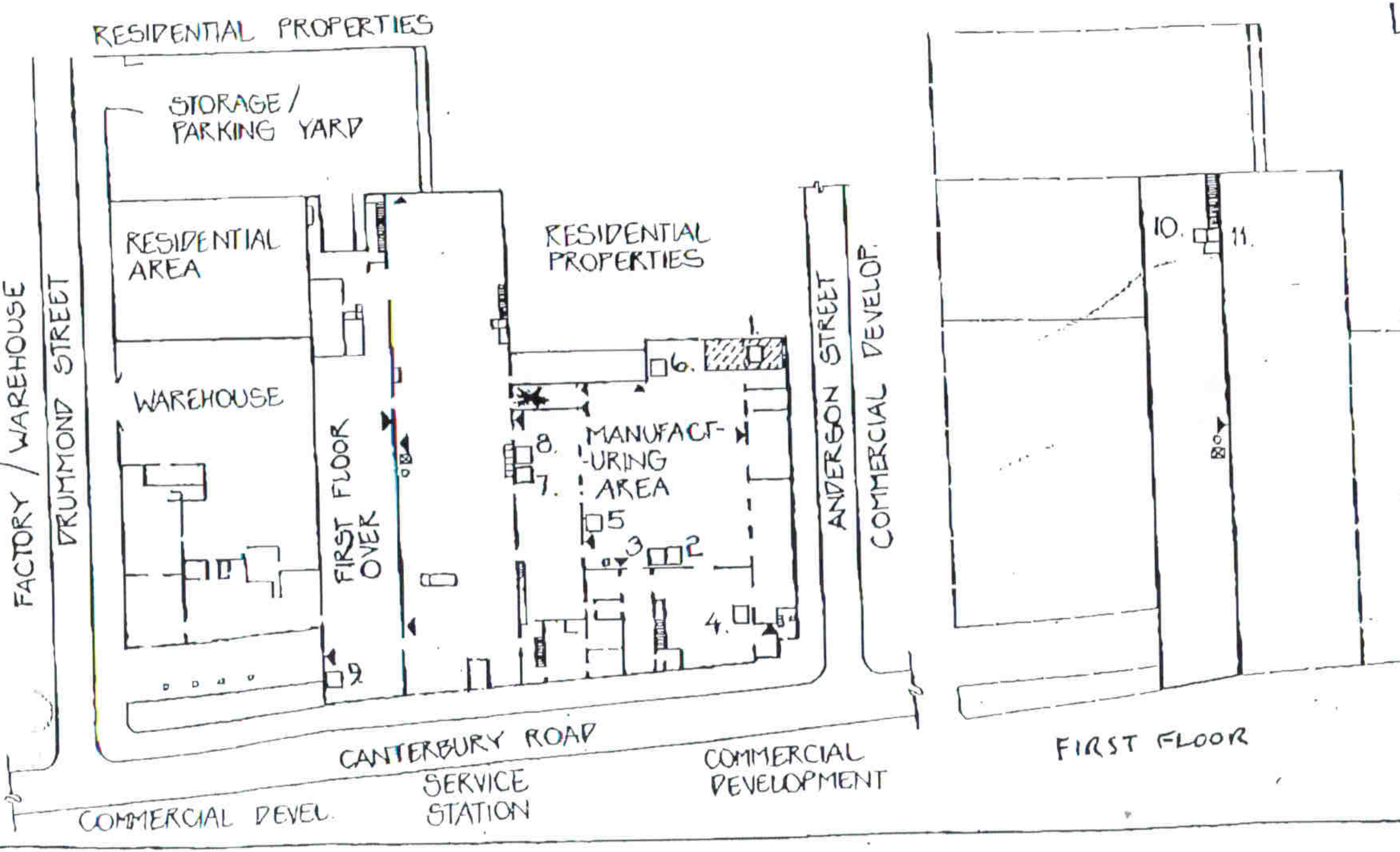
	UN 1993 FLAMMABLE LIQUID, , N.O.S.		150 L
4	**FLAMMABLE LIQUIDS CABINET**	**Class 3**	**850 L**
	UN 1133 ADHESIVES		150 L
	UN 1993 FLAMMABLE LIQUID, , N.O.S.		700 L
5	**FLAMMABLE LIQUIDS CABINET**	**Class 3**	**250 L**
	UN 1133 ADHESIVES		100 L
	UN 1993 FLAMMABLE LIQUID, , N.O.S.		150 L
6	**FLAMMABLE LIQUIDS CABINET**	**Class 3**	**250 L**
	UN 1133 ADHESIVES		100 L
	UN 1993 FLAMMABLE LIQUID, , N.O.S.		150 L
7	**FLAMMABLE LIQUIDS CABINET**	**Class 3**	**250 L**
	UN 1133 ADHESIVES		100 L
	UN 1993 FLAMMABLE LIQUID, , N.O.S.		150 L
8	**FLAMMABLE LIQUIDS CABINET**	**Class 3**	**100 L**
	UN 1133 ADHESIVES		50 L
	UN 1993 FLAMMABLE LIQUID, , N.O.S.		50 L
9	**FLAMMABLE LIQUIDS CABINET**	**Class 3**	**250 L**
	UN 1133 ADHESIVES		100 L
	UN 1993 FLAMMABLE LIQUID, , N.O.S.		150 L

35\018247

NOTES:

1. OVERHEAD FIRE SPRINKLERS INSTALLED IN ALL AREAS OF FACTORY.
2. CABINETS ARE SUPPLIED WITH BUNDING, SIGNS AND WORCOVER APPROVED.
3. ALL DEPOTS TO HAVE DEPOT NUMBER, PRODUCT CLASS & MIN. PRODUCT CAPACITY.
4. NO SOURCES OF IGNITION OR NON-FLAME PROOF ELECTRICAL EQUIPMENT WITHIN THREE (3) METRES OF CABINETS.
5. EMERGENCY PROCEDURES, CONTACT NUMBERS, LAYOUT DIAGRAM & MSDS'S TO BE MOUNTED IN A PROMINENT POSITION.

DPT	TYPE	PRODUCT	CLASS	P.G	LTRS
1	STORE	POISON	6.1	"	7KL
2	CABINET	FLAMMABLE	3	"	250 LTR
3	CABINET	FLAMMABLE	3	"	250 LTR
4	CABINET	FLAMMABLE	3	"	850 LTR
5	CABINET	FLAMMABLE	3	"	250 LTR
6	CABINET	FLAMMABLE	3	"	250 LTR
7	CABINET	FLAMMABLE	3	"	250 LTR
8	CABINET	FLAMMABLE	3	"	100 LTR
9	CABINET	FLAMMABLE	3	"	250 LTR
10	CABINET	FLAMMABLE	3	"	250 LTR
11	CABINET	FLAMMABLE	3	"	100 LTR



LEGEND

▲ FIRE EXTINGUISHER

☒ FIRE HYDRANT

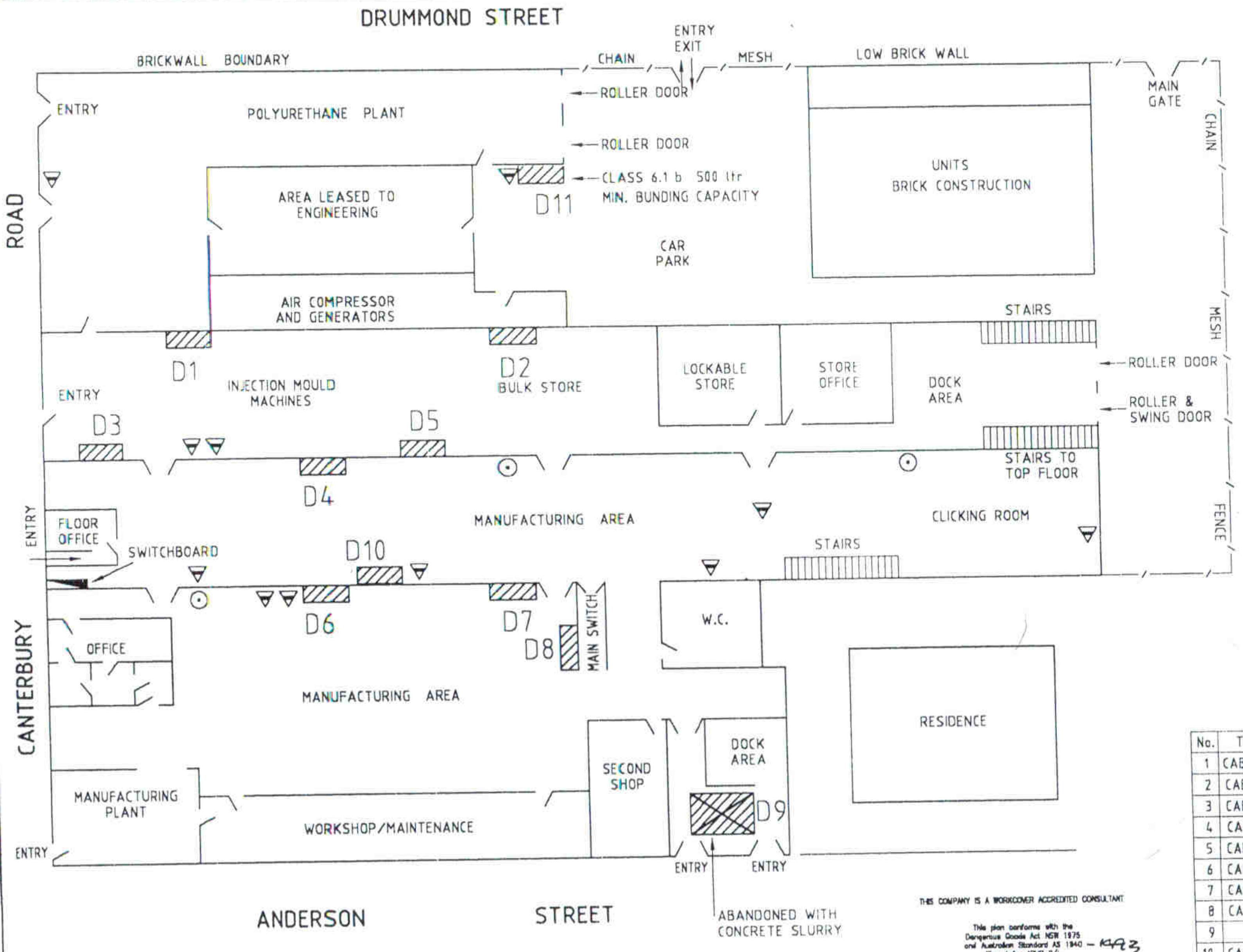
○ FIRE HOSE REEL

☐ DANGEROUS GOODS STORE

✳ Main power isolation board

JOHN F TAYLOR & SONS (NSW) P/L

DANGEROUS GOODS STORE
CANTERBURY RD,
BELMORE.



LEGEND

- ▽ FIRE EXTINGUISHER
- ⊙ FIRE HYDRANTS
- ▨ DANGEROUS GOODS STORE

D8

NOTE:

OVERHEAD FIRE SPRINKLERS INSTALLED IN ALL AREAS OF FACTORY

NOTES:

1. CABINETS ARE SUPPLIED WITH BUNDING, SIGNS AND WORKCOVER APPROVED.
2. ALL DEPOTS TO HAVE DEPOT NUMBER, PRODUCT CLASS AND MAXIMUM PRODUCT CAPACITY.
3. NO SOURCES OF IGNITION OR NON-FLAME PROOF ELECTRICAL EQUIPMENT WITH IN 3m OF CABINETS.
4. EMERGENCY PROCEDURES, CONTACT PHONE NUMBERS, THIS LAYOUT DIAGRAM AND MSDS's TO BE MOUNTED IN A PROMINENT POSITION.

DANGEROUS GOODS STORAGE

No.	TYPE	PRODUCT	CLASS	P.G.	SIZE,Ltr
1	CABINET	FLAMMABLE LIQUIDS	3	II	250
2	CABINET	FLAMMABLE LIQUIDS	3	II	250
3	CABINET	FLAMMABLE LIQUIDS	3	II	250
4	CABINET	FLAMMABLE LIQUIDS	3	II	250
5	CABINET	FLAMMABLE LIQUIDS	3	II	250
6	CABINET	FLAMMABLE LIQUIDS	3	II	250
7	CABINET	FLAMMABLE LIQUIDS	3	II	250
8	CABINET	FLAMMABLE LIQUIDS	3	II	250
9	TANK	ABANDONED			
10	CABINET	FLAMMABLE LIQUIDS	3	II	850
11	STORE	POISONS	6.16	II	2000

THIS COMPANY IS A WORKCOVER ACCREDITED CONSULTANT

This plan conforms with the
Dangerous Goods Act NSW 1975
and Australian Standard AS 1940 – 1993
Signed for ADUP P/L
2 Baker St, OATLEY 2223
(02) 5793804

Date 18.2.97

ACCREDITED FOR 2.1, 3, 6.1 + 8.

NO.	REVISION	BY	DATE
A	FOR ISSUE	ST	17.2.97

ADUP PTY. LTD.
Industrial systems design & project management
2 Baker Street, Oatley NSW 2223 P.O. Box 6, Oatley NSW 2223
Ph 579 3804 Fax 579 1804 Mob 0418 414243 Email adup@ozemail.com.au

DRAWN	P.S
DATE	JAN 97
CHECKED	S.T

NOT TO SCALE

PLOT SCALE A3 1:1

TITLE DANGEROUS GOODS STORAGE
J. ROBINS PTY LTD
677 CANTERBURY ROAD, BELMORE
LICENCE No 35/018247

DWG. NO. D507–1

REV. A

J. Robins & Sons pty. ltd.
A.C.N. 000 005 005
677 CANTERBURY ROAD, BELMORE NSW 2192, AUSTRALIA.
PO BOX 6006 LAKEMBA BUSINESS CENTRE 2195.

MANUFACTURERS OF THE
SANDLER
JANE DEBSTER
FASHION BRAND SHOES

TELEPHONE: (02) 9789-1111
FACSIMILE: (02) 9718-2234

27 September 1996

WorkCover Authority
Dangerous Goods Licensing Section
(Attention: Penelope Withers)
Senior Licensing Clerk, Dangerous Goods
Locked Bag 10
Post Office Clarence Street
SYDNEY NSW 2000

(paper at back of desk)

SUBJECT: ABANDONMENT OF UNDERGROUND STORAGE TANK.

RECEIVED
02 OCT 1996
SCIENTIFIC SERVICES BRANCH

Dear Ms Withers,

Please be advised of the following details:

1. Dangerous Goods Number = 35/018247
2. Address of the site = 677 Canterbury Road BELMORE 2192.
3. Company occupy the site = J. Robins & Sons Pty Ltd
4. Capacity of tanks abandoned = 1 x 2,200 litre underground storage tank
5. Method of locating tank = Refer sketch attached.
6. Method of abandonment = Underground tank top opened and filled with concrete slurry to Clause 9.8.13 in Australian Standards AS1940-1993 "The Storage and Handling of Flammable and Combustible Liquids"
7. Method for vent, fill dip, and bowser lines sealed = Removed and/or disconnected and plugged.
8. Contractor, who carried out work = Tank removal was carried by Pengrin Pty Ltd, 16 Arkley Street Bankstown, 2200. Refer to attached letter.
9. Name and telephone number of a contact on site = Mr Harry Rosenbrock phone 97891111.

Yours faithfully
J. ROBINS & SONS PTY LTD

H.D.ROSENBROCK
PERSONNEL MANAGER

RECEIVED
02 OCT 1996
SCIENTIFIC SERVICES BRANCH

PEGRIN PTY LTD
PETROLEUM SERVICING
ACN 002 973 051

16 ARKLEY STREET
BANKSTOWN 2200
PHONE: 790 3573
FAX: 790 7158
MOBILE: 018 618 142

9-7-96.

J.ROBINS PTY/LTD.
677 CANTERBURY RD.
BELMORE N.S.W. 2192.

SUBJECT: UNDERGROUND FUEL STORAGE TANK AT. J.ROBINS PTY/LTD. BELMORE.

ABONDONED UNDERGROUND TANK.

TANK CAPACITY. 2200 lts.

METHOD OF ABANDONMENT. SOLID FILL WITH CEMENT SLURRY.

VENT LINE. PLUGED LINE.

SUCTION LINE. REMOVED LINE.

FILL LINE. PLUGED LINE.

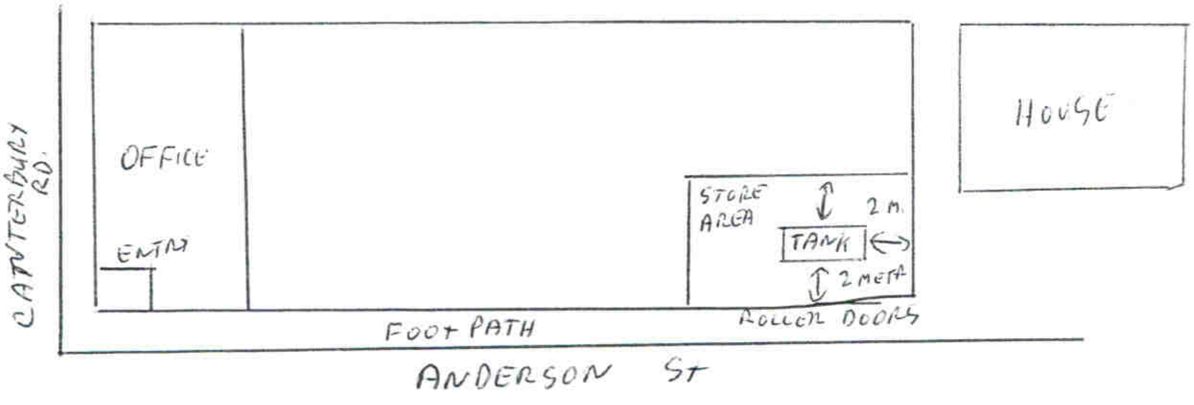
DIP PIPE. REMOVED PIPE.

WORK CARRIED OUT BY. PEGRIN PTY/LTD.

RECEIVED
02 [illegible]
SCIENTIFIC SERVICE
BRANCH

PUMP . REMOVED

TO LOCATE TANK AS/BELOW SKETCH.



REGARDS.

P.CAGGIANO. (director)

No [illegible]

Application is hereby made for— *a licence (or amendment of the licence) *the transfer of the licence for the keeping of dangerous goods in or on the premises described below.

(*delete whichever is not required)

FEE: $10.00 per Depot for new licence.
$10.00 for amendment or transfer.

Name of Applicant in full (see over)	J. ROBINS & SONS P/L 8753 24/02/81 03A
Trading name or occupier's name (if any)	—
Postal address	P O Box 21, BELMORE SOUTH Postcode 2192
Address of the premises including street number (if any)	677 CANTERBURY RD, BELMORE Postcode 2192
Nature of premises (see over)	factory
Telephone number of applicant	STD Code — Number 789-1111

Particulars of type of depots and maximum quantities of dangerous goods to be kept at any one time.

Depot number	Type of depot (see over)	Storage capacity LITRES	Dangerous goods	C & C Office use only
			Product being stored	DD001020 0
1	roofed package store	10000	solvents & thinners	6 020 23
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				

Has site plan been approved? Yes ~~No~~ If yes, no plans required. If no, please attach site plan.

Have premises previously been licensed? ~~Yes~~ No If yes, state name of previous occupier.

Name of company supplying flammable liquid (if any)

Signature of applicant X .... Date 25.11.82

For external explosives magazine(s), please fill in side 2.

FOR OFFICE USE ONLY

CERTIFICATE OF INSPECTION

I, PETER R. WILLIAMS being an Inspector under the Dangerous Goods Act, 1975, do hereby certify that the premises described above do comply with the requirements of the Dangerous Goods Act, 1975, and the Dangerous Goods Regulation with regard to their situation and construction for the keeping of dangerous goods of the nature and in the quantity specified.

Signature of Inspector P. Williams Date 25.11.82

Licence No. 35 018247 3 N/A

APPENDIX F

NSW EPA Database Information

List of NSW Contaminated Sites Notified to EPA as of 14 February 2014

Background

In response to 2008 amendments to the *Contaminated Land Management Act 1997* (CLM Act) clarifying the Section 60 duty to report contaminated sites, the Environment Protection Authority (EPA) has received 1,063 notifications (as 14 February 2014) from owners or occupiers of sites where they believe the site is contaminated.

A strategy to systematically assess, prioritise and respond to these notifications has been developed by the EPA. This strategy acknowledges the EPA's obligations to make information available to the public under *Government Information (Public Access) Act 2009*.

When a site is notified to the EPA, it may be accompanied by detailed site reports where the owner has been proactive in addressing the contamination and its source. However, often there is minimal information on the nature or extent of the contamination.

For some notifications, the information indicates the contamination is securely immobilised within the site, such as under a building or carpark, and is not currently causing any offsite consequences to the community or environment. Such sites would still need to be cleaned up, but this could be done in conjunction with any subsequent building or redevelopment of the land. These sites may not require intervention under the CLM Act, but could be dealt with through the planning and development consent process.

Where indications are that the nominated site is causing actual harm to the environment or an unacceptable offsite impact (i.e. it is a "significantly contaminated site"), the EPA would apply the regulatory provisions of the CLM Act to have the responsible polluter and/or landowner investigate and remediate the site.

As such, the sites notified to the EPA and presented in the following table are at various stages of the assessment and/or remediation process. Understanding the nature of the underlying contamination, its implications and implementing a remediation program where required, can take a considerable period of time. The tables provide an indication, in relation to each nominated site, as to the management status of that particular site. Further detailed information may be available from the EPA or the responsible landowner.

The following questions and answers may assist those interested in this issue:

Frequently asked questions

What is the difference between the "List of NSW Contaminated Sites Notified to the EPA" and the "Contaminated Land: Record of Notices"?

A site will be on the Contaminated Land: Record of Notices only if the EPA has issued a regulatory notice in relation to the site under the *Contaminated Land Management Act 1997*.

The sites appearing on this “List of NSW contaminated sites notified to the EPA” indicate that the notifiers consider that the sites are contaminated and warrant reporting to the EPA. However, the contamination may or may not be significant enough to warrant regulation by the EPA. The EPA needs to review and, if necessary, obtain more information before it can make a determination as to whether the site warrants regulation.

Why my site appears on the list?

Your site appears on the list because of one or more of the following reasons:

- The site owner and/or the person partly or fully responsible for causing the contamination notified to the EPA about the contamination under Section 60 of the *Contaminated Land Management Act 1997*. In other words, the site owner or the “polluter” believes the site is contaminated.
- The EPA has been notified via other means and is satisfied that the site is or was contaminated.

Does the list contain all contaminated sites in NSW?

No. The list only contains contaminated sites that the EPA is aware of, with regard to its regulatory role under the CLM Act. An absence of a site from the list does not necessarily imply the site is not contaminated.

The EPA relies upon responsible parties to notify contaminated sites.

How are these notified contaminated sites managed by the EPA?

There are different ways that the EPA manages these notified contaminated sites. First, an initial assessment is carried out by the EPA. At the completion of the initial assessment, the EPA may take one or more than one of the following management approaches:

- The contamination warrants the EPA’s direct regulatory intervention either under the *Contaminated Land Management Act 1997* or the *Protection of the Environment Operations Act 1997* (POEO Act), or both. Information about current or past regulatory action on this site can be found on EPA website.
- The contamination with respect to the current use or approved use of the site, as defined under the *Contaminated Land Management Act 1997,* is not significant enough that it warrants EPA regulation.
- The contamination does not require EPA regulation and can be managed by a planning approval process.
- The contamination is related to an operational Underground Petroleum Storage System, such as a service station or fuel depot. The contamination may be managed under the POEO Act and the Protection of the Environment Operation (Underground Petroleum Storage Systems) Regulation 2008.
- The contamination is being managed under a specifically tailored program operated by another agency (for example the Department of Industry and Investment’s *Derelict Mines Program*).

I am the owner of a site that appears on the list. What should I do?

First of all, you should ensure the current use of the site is compatible with the site contamination. Secondly, if the site is the subject of EPA regulation, make sure you comply with the regulatory requirements, and you have considered your obligations to notify other parties who may be affected.

If you have any concerns, contact us and we may be able to offer you general advice, or direct you to accredited professionals who can assist with specific issues.

I am a prospective buyer of a site that appears on the list. What should I do?

You should seek advice from the vendor to put the contamination issue into perspective. You may need to seek independent expert advice.

The information provided in the list, particularly the EPA Site Management Class, is meant to be indicative only, and a starting point for your own assessment. Site contamination as a legacy of past site uses is not uncommon, particularly in an urbanised environment. If the contamination on a site is properly remediated or managed, it may not materially impact upon the intended future use of the site. However, each site needs to be considered in context.

List of NSW Contaminated Sites Notified to the EPA

Disclaimer

The EPA has taken all reasonable care to ensure that the information in the list of contaminated sites notified to the EPA (the list) is complete and correct. The EPA does not, however, warrant or represent that the list is free from errors or omissions or that it is exhaustive.

The EPA may, without notice, change any or all of the information in the list at any time.

You should obtain independent advice before you make any decision based on the information in the list.

The list is made available on the understanding that the EPA, its servants and agents, to the extent permitted by law, accept no responsibility for any damage, cost, loss or expense incurred by you as a result of:

1. any information in the list; or
2. any error, omission or misrepresentation in the list; or
3. any malfunction or failure to function of the list;
4. without limiting (2) or (3) above, any delay, failure or error in recording, displaying or updating information.

THE EPA Site Management Class	Explanation
A	The contamination of this site is being assessed by the EPA. Sites which have yet to be determined as significant enough to warrant regulation may result in no further regulation under the *Contaminated Land Management Act 1997*.
B	The EPA is awaiting further information to progress its initial assessment of this site.
C	The contamination of this site is or was regulated under the *Contaminated Land Management Act 1997*. Information about current or past regulatory action on this site can be found on the EPA website (www.epa.nsw.gov.au) - Environmental Issues - Contaminated Land - Record of EPA notices.
D	The contamination of this site is or was regulated under the *Protection of the Environment Operations Act 1997*. Information about current or past regulatory action on this site can be found on the EPA website (www.epa.nsw.gov.au) - Environmental Issues - Environment Protection Licences - POEO public register.
E	This is a premises with an operational Underground Petroleum Storage System, such as a service station or fuel depot. The contamination of this site is managed under the *Protection of the Environment Operations Act 1997* and the Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2008.
F	The contamination of this site is managed by a planning approval process. The consent authority is either the local council or a government agency, such as the Department of Planning.
G	Based on the information made available to the EPA to date, the contamination of this site is considered by the EPA to be not significant enough to warrant regulatory intervention under the *Contaminated Land Management Act 1997*
H	Initial assessment completed. The contamination of this site is to be regulated by the EPA

Suburb/City	Site Description	Site Address	Activity that caused the contamination	s60 Form Received	EPA Initial Assessment	EPA Management Class
Bathurst	Former Police Station	Corner of William and Durham Streets	Other Petroleum	No	Completed	C G
Bathurst	Former Mobil Depot	Lower Russell Street	Other Petroleum	yes	Completed	G
Bathurst	Crago Mill site	Piper Street	Other Industry	Yes	Completed	G
Bathurst West	Shell Coles Express Service Station	298 Stewart Street (Cnr Stewart and Rocket Street)	Service Station	Yes	Completed	G
Baulkham Hills	Caltex Service Station	117 Seven Hills Rd	Service Station	Yes	In progress	B
Baulkham Hills	Caltex Service Station	130-132 Seven Hills Rd	Service Station	Yes	In Progress	A
Baulkham Hills	Shell Coles Express Service Station	363 Windsor Road	Service Station	Yes	Completed	E G
Beacon Hill	Caltex Service Station	176 Warringah Rd	Service Station	Yes	In progress	B
Bega	Former BP Service Station	100 - 102 Gipps Street	Service Station	Yes	In progress	A
Bega	Bega Gasworks	27 Upper Street	Gasworks	No	In Progress	B
Bega	Caltex Service Station	280 Carp Street	Service Station	Yes	In progress	B
Bega	Caltex Service Station	36-40 Lagoon St	Service Station	Yes	In progress	B
Belmont	Belmont Bus Depot	2 Floraville Road	Other Petroleum	yes	In Progress	B
Belmont	Former Ampol Service Station	467-469 Pacific Highway	Service Station	No	Completed	G
Belmont	Shell Coles Express Service Station	502 Pacific Highway	Service Station	Yes	In Progress	B
Belmont North	Woolworths Petrol	397 Pacific Highway	Service Station	Yes	In progress	A
Belmont North	Caltex Service Station	406 Pacific Hwy	Service Station	Yes	In progress	B
Belmore	SRA Land	348 Burwood Road	Unclassified	Yes	Completed	G
Belmore	7 Eleven Service Station	792-794 Canterbury Road	Service Station	Yes	Completed	G
Belrose	Caltex Service Station	157 Forest Way	Service Station	Yes	In progress	B
Belrose	Glenrose Shopping Centre	56-58 Glen Street	Unclassified	Yes	Completed	C
Belrose	Woolworths Petrol	60 Glen Street	Service Station	Yes	In progress	A
Beresfield	BP Beresfield Truckstop	Cnr Kinta and John Renshaw Drives	Service Station	Yes	In progress	A
Beresfiled	Former Koppers Timber Treatment Site	53 Weakleys Drive	Other Industry	Yes	In progress	A

APPENDIX G

Data Quality Objectives

INTRODUCTION

The Data Quality Objectives (DQOs) process was used to define the type, quantity and quality of the data needed to support decisions relating to the environmental condition of a site (reference G1). The process consists of seven steps, with the output from each step influencing the choices that will be made later in the process.

According to USEPA (reference G2), DQOs are qualitative and quantitative statements, derived from the first six steps of the process, that:

- Clarify the study objective;
- Define the most appropriate type of data to collect;
- Determine the most appropriate conditions from which to collect the data; and
- Specify tolerable limits on decision errors which will be used as the basis for establishing the quantity and quality of data needed to support the decision.

The DQOs are then used to develop a scientific and resource-effective data collection design.

STEP 1 - STATE THE PROBLEM

The problem is the potential for the site to be impacted by contamination caused by past activities undertaken on or adjacent to the site, at levels in excess of those permissible for the proposed residential land-use with minimal access to soil and which could impact upon anticipated receiving environments and the intended purchase of the property.

STEP 2 - IDENTIFY THE DECISION STATEMENT

Identify contamination at the site which would pose an unacceptable risk as defined by relevant guidelines endorsed by the NSW Office of Environment and Heritage (reference G3, G4, G5) for the proposed industrial land-use for the site and/or that would impact upon anticipated receiving environments.

STEP 3 - IDENTIFY INPUTS TO THE DECISION

The following information inputs are required to resolve the decision statement:

- ◊ Collection of environmental soil and groundwater samples using appropriate methods,
- ◊ Analysis of selected samples for the contaminants of concern,
- ◊ Comparison of the results with relevant soil Site Assessment Criteria (SAC) and Groundwater Investigation Levels (GILs) as defined in the main body of the report, and
- ◊ Accurate measurements of sample locations to allow for accurate mapping and contouring of contamination (if identified).

STEP 4 - DEFINE THE BOUNDARIES OF THE STUDY

The site is located at 677 – 687 Canterbury Road, Belmore and encompasses the following legal allotments:

- ◊ Lots 1 & 2 in DP 533919
- ◊ Lots A & B in DP952115, and
- ◊ Lot 91 in DP3862.

The lateral extent of the study is the boundaries of the site (as depicted on **Figure 2**) and the site survey in **Appendix A** of the main report. The horizontal extent of the study is approximately 2m below ground surface (bgs), 0.5m into natural soils or drilling / excavation method refusal.

STEP 5 - DEVELOP A DECISION RULE

The purpose of this step is to define the parameter of interest, specify the action level, and integrate previous DQO outputs into a single "if…then…" statement that describes a logical basis for choosing among alternative actions.

The parameters of interest (or contaminants of concern) are a broad group of common contaminant compounds known to occur within the Sydney area.

The action level or Site Assessment Criteria (SAC) will be used to decide if the parameter represents an unacceptable risk for industrial land-use and/or the receiving environment. If the measured concentration of a parameter or compound exceeds the action levels (SAC) in soils, then this is deemed to present an unacceptable risk if the site is developed for residential land-use or to environmental receptors.

If the concentrations of a parameter or compound, whichever is representative for of the site, are above the nominated action levels, then further sampling may be proposed to determine the extent of contamination.

STEP 6 - SPECIFY ACCEPTABLE LIMITS ON DECISION ERRORS

There are two types of errors:

1) Deciding that the site is acceptable for industrial land-use and that there is a low risk to receiving environments when it actually is not. The consequence of this error may be unacceptable health risk for current and future users of the sites.

2) Deciding that the site is unacceptable for industrial land-use and that there is a risk to receiving environments when it is acceptable. The consequence of this error is that the client will pay for further investigation / remediation that are not necessary.

The more severe consequences are with decision error (1) since the risk of jeopardising human health outweighs the consequences of paying more for remediation. It will not be possible to conduct statistical hypothesis tests as the proposed sampling programme consists of the collection of one round of samples only.

STEP 7 - OPTIMISING THE DESIGN FOR OBTAINING DATA

The purpose of this step is to identify a resource-effective data collection design for generating data that are expected to satisfy the DQOs.

The resource effective data collection design that is expected to satisfy the DQOs is described in detail in Section 7 of the report. To ensure the design satisfies the DQOs a comprehensive Quality Assurance and Quality Control Plan will be implemented.

References

G1. NSW DEC (2006) *Contaminated Sites: Guidelines for NSW Site Auditor Scheme, 2nd Edition.*

G2. USEPA, 2000: *Guidance for Data Quality Objectives Process*. EPA QA/G-4.

G3. NEPC, 2013: National Environment Protection Council (1999*).* National Environment Protection (Assessment of Site Contamination) Measure. *Schedule B(1) Guideline on the Investigation Levels for Soil and Groundwater.*

G4. Friebel & Nadebaum (2011): *Technical Report No. 10 - Health screening levels for petroleum hydrocarbons in soil and groundwater Part 1: Technical development document*. CRC for Contamination Assessment and Remediation of the Environment.

G5. ANZECC/ARMCANZ, 2000: Australian and New Zealand Environment and Conservation Council and Agriculture and Resource Management Council of Australia and New Zealand, 2000: *Guidelines for Fresh and Marine Water Quality, National Water Quality Management Strategy*. October 2000.

APPENDIX H

Borehole Logs

Borehole Log Report

Geo Environmental Engineering
82 Bridge Street
Lane Cove NSW 2066
M. 0431 480 980

Hole ID.	**BH1**
Hole Depth:	**1.20 m**
Sheet:	**1 of 1**

Project Name:	**Stage 2 Detailed Site Investigation**	Project Number:	**E13017BEL**
Location / Site:	**677-687 Canterbury Road, Sydney NSW**	Client:	**City Alliance Property**

Drilling Company:	**Epoca Environmental Pty Ltd**	Date Started:	**16/12/2013**	Ground Level:	**RL42.5m** (approx)
Drill Method:	**Push Tube**	Date Completed:	**16/12/2013**	Easting:	----------
Equipment:	**Geoprobe 7822DT**			Northing:	----------

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Consistency / Density	Moisture	Samp. / Tests ID No.	Observations / Comments
Push Tube				■		Fill	**ASPHALT**.				
				⊠			**FILL**- Sandy GRAVEL, dark brown, with some clay.	medium dense	dry to moist	SM161213-01 0.1-0.4	
		0.5 1.0	42	▨	CH	Natural	**Silty CLAY**- orange / brown, grey, medium to high plasticty.	firm to stiff	moist	SM161213-02/03 0.4-1.1	
				☰			**Extremely Weathered SHALE**- grey and orange / brown, estimated extremely low to very low strength.		dry		
		1.5	41				**End of Hole at 1.20m** Refusal.				
		2.0									
		2.5	40								
		3.0									
		3.5	39								
		4.0									
		4.5	38								

Additional Comments

Logged By:	**Stephen McCormack**	Date:	**16/12/2013**	Checked By:	**Stephen McCormack**	Date:	**5/03/2014**

Monitoring Well Log Report

Geo Environmental Engineering
82 Bridge Street
Lane Cove NSW 2066
M. 0431 480 980

Hole ID.	**BH2**
Hole Depth:	**8.00 m**
Sheet:	**1 of 2**

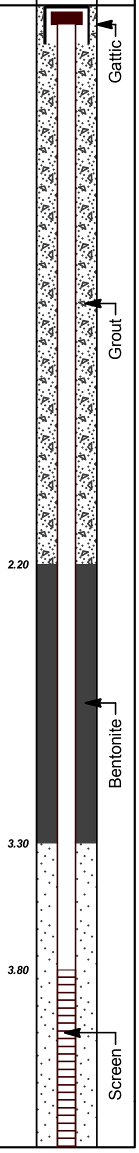
Project Name:	**Stage 2 Detailed Site Investigation**	Project Number:	**E13017BEL**
Location / Site:	**677-687 Canterbury Road, Sydney NSW**	Client:	**City Alliance Property**

Drilling Company:	**Epoca Environmental Pty Ltd**	Date Started:	**16/12/2013**	Ground Level:	**RL43.6m** (approx)
Drill Method:	**Push Tube / Solid Stem Auger**	Date Completed:	**16/12/2013**	Easting:	----------
Equipment:	**Geoprobe 7822DT**			Northing:	----------

Method	Water Level	Material Type	USCS Symbol	Material Description	Consistency / Density	Moisture	Samp. / Tests ID No.	Observations / Comments
Push Tube		Fill		**ASPHALT**.				
				FILL- Gravelly Clayey SAND, dark brown and brown, medium to coarse grained sand, fine to coarse gravel.	loose	moist	SM161213-04 0.1-0.25	
				FILL- Gravelly SAND with Silt (Ash), black and dark grey.	loose	moist	SM161213-05 0.7-0.8	
		Natural	CH	**Silty CLAY**- red brown and orange brown, medium to high plasticty.	firm to stiff	moist	SM161213-06 0.9-1.0	
							SM161213-07 1.5-1.7	
				Becoming pale grey with depth.				
Solid Stem Auger	3.47m BTOC 6/01/2014			**Extremely Weathered SHALE / SILTSTONE**- pale grey / brown, estimated extremely low to very low strength.		dry	SM161213-08 2.5-3.0	
							SM161213-09 4.0-4.3	

Depth (m): 0.5, 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5

RL (m): 43, 42, 41, 40



Additional Comments

Logged By:	**Stephen McCormack**	Date:	**16/12/2013**	Checked By:	**Stephen McCormack**	Date:	**5/03/2014**

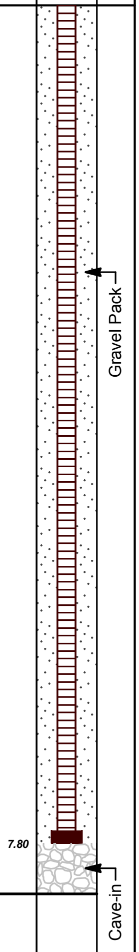
Monitoring Well Log Report

Geo Environmental Engineering
82 Bridge Street
Lane Cove NSW 2066
M. 0431 480 980

Hole ID.	**BH2**
Hole Depth:	**8.00 m**
Sheet:	**2 of 2**

Project Name:	**Stage 2 Detailed Site Investigation**	Project Number:	**E13017BEL**
Location / Site:	**677-687 Canterbury Road, Sydney NSW**	Client:	**City Alliance Property**

Drilling Company:	**Epoca Environmental Pty Ltd**	Date Started:	**16/12/2013**	Ground Level:	**RL43.6m** (approx)
Drill Method:	**Push Tube / Solid Stem Auger**	Date Completed:	**16/12/2013**	Easting:	**----------**
Equipment:	**Geoprobe 7822DT**			Northing:	**----------**

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Consistency / Density	Moisture	Samp. / Tests ID No.	Observations / Comments	Well Details	Well Construction
Solid Stem Auger		5.0 5.5 6.0 6.5	39 38 37			Natural	**Extremely Weathered SHALE / SILTSTONE-** pale grey / brown, estimated extremely low to very low strength.*(continued)*		dry				Gravel Pack
		7.0 7.5 8.0	36				Dark grey and grey from 7.0mbgl, increased hardness, estimate low to medium strength.						
		8.5 9.0	35				**Hole Terminated at 8.00m**						Cave-in

Additional Comments

Logged By:	**Stephen McCormack**	Date:	**16/12/2013**	Checked By:	**Stephen McCormack**	Date:	**5/03/2014**

Monitoring Well Log Report

Geo Environmental Engineering
82 Bridge Street
Lane Cove NSW 2066
M. 0431 480 980

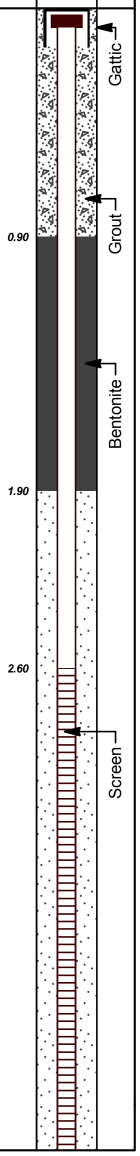
Hole ID. **BH3**
Hole Depth: **7.00 m**
Sheet: **1 of 2**

Project Name: **Stage 2 Detailed Site Investigation**
Project Number: **E13017BEL**
Location / Site: **677-687 Canterbury Road, Sydney NSW**
Client: **City Alliance Property**

Drilling Company: **Epoca Environmental Pty Ltd**
Drill Method: **Push Tube / Solid Stem Auger**
Equipment: **Geoprobe 7822DT**
Date Started: **16/12/2013**
Date Completed: **16/12/2013**
Ground Level: **RL44.8m** (approx)
Easting: **----------**
Northing: **----------**

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Consistency / Density	Moisture	Samp. / Tests ID No.	Observations / Comments
CC							**CONCRETE**.				
Push Tube						Fill	**FILL**- Silty Gravelly CLAY, dark brown, low to medium plasticity, fine to coarse gravel, some sand.	firm	dry to moist	SM161213-10 0.1-0.2	
		0.5 1.0 1.5	44		CH	Natural	**Silty CLAY**- dark brown, medium to high plasticity. Becoming red brown / orange brown from 0.6mbgl. Becoming pale grey and red brown from 1.0mbgl.	firm to stiff	moist	SM161213-11 0.4-0.55 SM161213-12 1.2-1.4	
Solid Stem Auger	3.81m BTOC 6/01/2014	2.0 2.5 3.0 3.5 4.0 4.5	43 42 41				**Completely to Extremely Weathered SHALE**- grey and red brown, estimated extremely low to very low strength. Becoming estimated very low to low strength Class IV rock from 2.8mbgl, some ironstone bands.		dry	SM161213-13 1.8-2.0 SM161213-14 3.0-3.5	

Well Details / Well Construction



Additional Comments

Logged By: **Stephen McCormack** Date: **16/12/2013**
Checked By: **Stephen McCormack** Date: **5/03/2014**

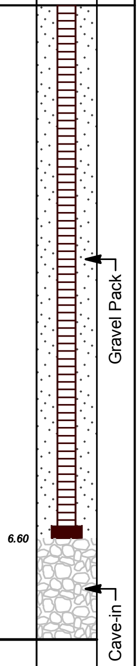
Monitoring Well Log Report

Geo Environmental Engineering
82 Bridge Street
Lane Cove NSW 2066
M. 0431 480 980

Hole ID.	**BH3**
Hole Depth:	**7.00 m**
Sheet:	**2 of 2**

Project Name:	**Stage 2 Detailed Site Investigation**	Project Number:	**E13017BEL**
Location / Site:	**677-687 Canterbury Road, Sydney NSW**	Client:	**City Alliance Property**

Drilling Company:	**Epoca Environmental Pty Ltd**	Date Started:	**16/12/2013**	Ground Level:	**RL44.8m** (approx)
Drill Method:	**Push Tube / Solid Stem Auger**	Date Completed:	**16/12/2013**	Easting:	**----------**
Equipment:	**Geoprobe 7822DT**			Northing:	**----------**

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Consistency / Density	Moisture	Samp. / Tests ID No.	Observations / Comments	Well Details	Well Construction
Solid Stem Auger		5.0 5.5 6.0	40 39			Natural	**Completely to Extremely Weathered SHALE**- grey and red brown, estimated extremely low to very low strength.*(continued)*		dry	SM161213-15 5.0-5.5			
		6.5 7.0	38				Dark grey from 6.5mbgl, increased hardness, estimated low to medium strength.						
		7.5 8.0 8.5 9.0	37 36				**Hole Terminated at 7.00m**						

Additional Comments

Logged By:	**Stephen McCormack**	Date:	**16/12/2013**	Checked By:	**Stephen McCormack**	Date:	**5/03/2014**

Monitoring Well Log Report

Geo Environmental Engineering
82 Bridge Street
Lane Cove NSW 2066
M. 0431 480 980

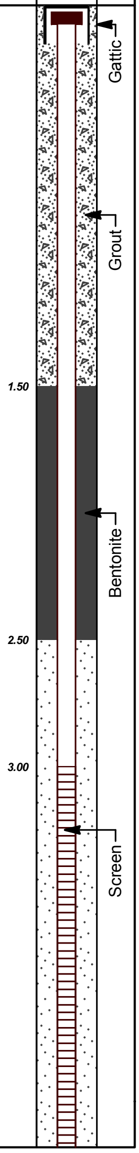
Hole ID.	**BH4**
Hole Depth:	**6.50 m**
Sheet:	**1 of 2**

Project Name:	**Stage 2 Detailed Site Investigation**	Project Number:	**E13017BEL**
Location / Site:	**677-687 Canterbury Road, Sydney NSW**	Client:	**City Alliance Property**

Drilling Company:	**Epoca Environmental Pty Ltd**	Date Started:	**16/12/2013**	Ground Level:	**RL44.5m** (approx)
Drill Method:	**Push Tube / Solid Stem Auger**	Date Completed:	**16/12/2013**	Easting:	**----------**
Equipment:	**Geoprobe 7822DT**			Northing:	**----------**

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Consistency / Density	Moisture	Samp. / Tests ID No.	Observations / Comments
CC						Fill	**CONCRETE**.				
Push Tube						Fill	**Silty Gravelly CLAY**- dark brown, low to medium plasticity, some roots.		moist	SM161213-22 0.15-0.3	
		0.5	44		CH	Natural	**Silty CLAY**- grey and orange brown, medium to high plasticty.	firm to stiff	moist	SM161213-23 0.4-0.6	
		1.0 1.5	43				Becoming predominantly grey with orange brown bands, ironstone gravel.	becoming stiff to very stiff		SM161213-24 1.0-1.2	
Solid Stem Auger		2.0 2.5 3.0	42				**Extremely Weathered SHALE / SILTSTONE**- grey and brown, estimated extremely low to very low strength.		dry	SM161213-25 2.0-2.5	
		3.5 4.0 4.5	41 40				Estimated very low to low strength from 3.2mbgl.			SM161213-26 4.0-4.5	

Well Details / Well Construction



Additional Comments

Logged By:	**Stephen McCormack**	Date:	**16/12/2013**	Checked By:	**Stephen McCormack**	Date:	**5/03/2014**

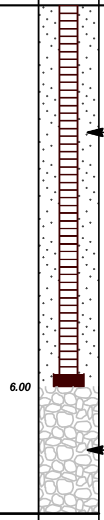
Monitoring Well Log Report

Geo Environmental Engineering
82 Bridge Street
Lane Cove NSW 2066
M. 0431 480 980

Hole ID.	**BH4**
Hole Depth:	**6.50 m**
Sheet:	**2 of 2**

Project Name:	**Stage 2 Detailed Site Investigation**	Project Number:	**E13017BEL**
Location / Site:	**677-687 Canterbury Road, Sydney NSW**	Client:	**City Alliance Property**

Drilling Company:	**Epoca Environmental Pty Ltd**	Date Started:	**16/12/2013**	Ground Level:	**RL44.5m** (approx)
Drill Method:	**Push Tube / Solid Stem Auger**	Date Completed:	**16/12/2013**	Easting:	**----------**
Equipment:	**Geoprobe 7822DT**			Northing:	**----------**

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Consistency / Density	Moisture	Samp. / Tests ID No.	Observations / Comments	Well Details	Well Construction
Solid Stem Auger		5.0 5.5 6.0 6.5	39 38			Natural	**Extremely Weathered SHALE / SILTSTONE-** grey and brown, estimated extremely low to very low strength.*(continued)* Estimated low to medium strength from 6.1mbgl.		dry				Gravel Pack Cave-in
		7.0 7.5 8.0 8.5 9.0	37 36				**Hole Terminated at 6.50m**						

Additional Comments

Logged By:	**Stephen McCormack**	Date:	**16/12/2013**	Checked By:	**Stephen McCormack**	Date:	**5/03/2014**

Borehole Log Report

Geo Environmental Engineering
82 Bridge Street
Lane Cove NSW 2066
M. 0431 480 980

Hole ID.	**BH5**
Hole Depth:	**3.50 m**
Sheet:	**1 of 1**

Project Name:	**Stage 2 Detailed Site Investigation**	Project Number:	**E13017BEL**
Location / Site:	**677-687 Canterbury Road, Sydney NSW**	Client:	**City Alliance Property**

Drilling Company:	**Epoca Environmental Pty Ltd**	Date Started:	**16/12/2013**	Ground Level:	**RL44.8m** (approx)
Drill Method:	**Push Tube / Solid Stem Auger**	Date Completed:	**16/12/2013**	Easting:	----------
Equipment:	**Geoprobe 7822DT**			Northing:	----------

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Consistency / Density	Moisture	Samp. / Tests ID No.	Observations / Comments
CC						Fill	**CONCRETE**.				
Push Tube							**FILL**- SAND, yellow / brown, fine to coarse grained.	firm	moist	SM161213-33 0.14-0.2	
		0.5					**FILL**- Silty CLAY, dark brown, some gravel.		slightly moist	SM161213-34 0.2-0.6	
		1.0	44		CH	Natural	**Silty CLAY**- red brown and orange brown, medium to high plasticty.	firm to stiff	moist	SM161213-35 0.6-0.8	
		1.5					Becoming predominantly grey and orange brown from 1.1mbgl.	very stiff		SM161213-36 1.0-1.2	
Solid Stem Auger		2.0 2.5 3.0 3.5	43 42				**Extremely Weathered SHALE**- grey brown, estimated very low strength.		dry	SM161213-37 1.8-2.0 SM161213-38 3.3-3.5	
		4.0 4.5	41				**Hole Terminated at 3.50m**				

Additional Comments

Logged By:	**Stephen McCormack**	Date:	**16/12/2013**	Checked By:	**Stephen McCormack**	Date:	**5/03/2014**

Borehole Log Report

Geo Environmental Engineering
82 Bridge Street
Lane Cove NSW 2066
M. 0431 480 980

Hole ID. **BH6**
Hole Depth: **4.00 m**
Sheet: **1 of 1**

Project Name: **Stage 2 Detailed Site Investigation**
Project Number: **E13017BEL**
Location / Site: **677-687 Canterbury Road, Sydney NSW**
Client: **City Alliance Property**

Drilling Company: **Epoca Environmental Pty Ltd**
Date Started: **16/12/2013**
Ground Level: **RL44.7m** (approx)
Drill Method: **Push Tube / Solid Stem Auger**
Date Completed: **16/12/2013**
Easting: **----------**
Equipment: **Geoprobe 7822DT**
Northing: **----------**

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Consistency / Density	Moisture	Samp. / Tests ID No.	Observations / Comments
CC							**CONCRETE.**				
Push Tube		0.5 1.0 1.5 2.0	44 43			Fill	**FILL**- SAND, yellow brown, fine to coarse grained, some fine to coarse gravel.	loose to very loose	moist	SM161213-39 0.2-0.35 SM161213-40 0.8-1.0 SM161213-41 1.3-1.5	Likely tankpit sands.
Solid Stem Auger		2.5 3.0 3.5 4.0	42 41			Natural	**Extremely Weathered SHALE**- brown / grey, estimated extremely low to very low strength.		dry	SM161213-42 2.3-2.5 SM161213-43 3.5-4.0	
		4.5					**Hole Terminated at 4.00m**				

Additional Comments

No obvious evidence of contamination, no adverse odour and no potential asbestos containing materiel (such as fibro) observed during drilling.

Logged By: **Stephen McCormack** Date: **16/12/2013**
Checked By: **Stephen McCormack** Date: **5/03/2014**

Borehole Log Report

Geo Environmental Engineering
82 Bridge Street
Lane Cove NSW 2066
M. 0431 480 980

Hole ID. **BH7**
Hole Depth: **4.00 m**
Sheet: **1 of 1**

Project Name:	**Stage 2 Detailed Site Investigation**	Project Number:	**E13017BEL**
Location / Site:	**677-687 Canterbury Road, Sydney NSW**	Client:	**City Alliance Property**

Drilling Company:	**Epoca Environmental Pty Ltd**	Date Started:	**16/12/2013**	Ground Level:	**RL44.7m** (approx)
Drill Method:	**Push Tube / Solid Stem Auger**	Date Completed:	**16/12/2013**	Easting:	----------
Equipment:	**Geoprobe 7822DT**			Northing:	----------

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Consistency / Density	Moisture	Samp. / Tests ID No.	Observations / Comments
Push Tube						Fill	**TOPSOIL / FILL**- Clayey SILT, dark brown, low plasticity, some roots.	firm	dry to moist	SM161213-44 0.0-0.2	
		0.5 1.0 1.5 2.0 2.5	44 43 42				**FILL**- SAND, yellow brown, fine to coarse grained, trace medium to coarse gravel.	loose to very loose	moist	SM161213-45 0.3-0.5 SM161213-46 1.1-1.3 SM161213-47/48 2.5-2.8	Likely tankpit sands.
Solid Stem Auger		3.0 3.5 4.0	41			Natural	**Extremely Weathered SHALE**- brown / grey, estimated extremely low to very low strength.		dry	SM161213-49 3.0-3.5	
		4.5					**Hole Terminated at 4.00m**				

Additional Comments

No obvious evidence of contamination, no adverse odour and no potential asbestos containing materiel (such as fibro) observed during drilling.

Logged By: **Stephen McCormack** Date: **16/12/2013**

Checked By: **Stephen McCormack** Date: **5/03/2014**

Borehole Log Report

Geo Environmental Engineering
82 Bridge Street
Lane Cove NSW 2066
M. 0431 480 980

Hole ID.	**BH8**
Hole Depth:	**3.50 m**
Sheet:	**1 of 1**

Project Name:	**Stage 2 Detailed Site Investigation**	Project Number:	**E13017BEL**
Location / Site:	**677-687 Canterbury Road, Sydney NSW**	Client:	**City Alliance Property**

Drilling Company:	**Epoca Environmental Pty Ltd**	Date Started:	**16/12/2013**	Ground Level:	**RL44.8m** (approx)
Drill Method:	**Push Tube / Solid Stem Auger**	Date Completed:	**16/12/2013**	Easting:	----------
Equipment:	**Geoprobe 7822DT**			Northing:	----------

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Consistency / Density	Moisture	Samp. / Tests ID No.	Observations / Comments
CC						Fill	**CONCRETE**.				
Push Tube		0.5 1.0	44				**FILL**- SAND, brown, fine to coarse grained.	very loose to loose	moist	SM161213-16/17 0.2-0.4	Likely tankpit sands.
		1.5					**FILL**- Gravelly SAND, brown, fine to coarse grained, some concrete fragments.	very loose to loose	moist	SM161213-18 1.1-1.3 SM161213-19 1.5-1.6	
Solid Stem Auger		2.0	43				**FILL**- CONCRETE.				Likely tank anchor.
		2.5	42				**FILL**- SAND, yellow brown, fine to coarse grained.	very loose to loose	moist	SM161213-20 2.3-2.55	Likely tankpit sands.
		3.0 3.5				Natural	**Extremely to Highly Weathered SHALE**- dark brown and red brown, estimated very low strength.		dry	SM161213-21 2.8-3.0	
		4.0 4.5	41				**Hole Terminated at 3.50m**				

Additional Comments

No obvious evidence of contamination, no adverse odour and no potential asbestos containing materiel (such as fibro) observed during drilling.

Logged By:	**Stephen McCormack**	Date:	**16/12/2013**	Checked By:	**Stephen McCormack**	Date:	**5/03/2014**

Borehole Log Report

Geo Environmental Engineering
82 Bridge Street
Lane Cove NSW 2066
M. 0431 480 980

Hole ID.	**BH9**
Hole Depth:	**4.00 m**
Sheet:	**1 of 1**

Project Name:	**Stage 2 Detailed Site Investigation**	Project Number:	**E13017BEL**
Location / Site:	**677-687 Canterbury Road, Sydney NSW**	Client:	**City Alliance Property**

Drilling Company:	**Epoca Environmental Pty Ltd**	Date Started:	**16/12/2013**	Ground Level:	**RL44.7m** (approx)
Drill Method:	**Push Tube / Solid Stem Auger**	Date Completed:	**16/12/2013**	Easting:	----------
Equipment:	**Geoprobe 7822DT**			Northing:	----------

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Consistency / Density	Moisture	Samp. / Tests ID No.	Observations / Comments
CC						Fill	**CONCRETE.**				
Push Tube							**FILL**- SAND, yellow / brown, fine to coarse grained.	firm	moist	SM161213-27 0.15-0.2	
		0.5					**FILL**- Silty Gravelly CLAY, dark brown, low to medium plasticity, fine to coarse gravel, some ash.		moist	SM161213-28 0.2-0.35	
		1.0	44		CH	Natural	**Silty CLAY**- red brown and orange brown, medium to high plasticity. Becoming grey and orange brown from 0.8m, some shale structure.	stiff	moist	SM161213-29 0.5-0.7 SM161213-30 1.1-1.2	
Solid Stem Auger		1.5 2.0 2.5 3.0 3.5 4.0	43 42 41				**Extremely Weathered SHALE**- grey brown, estimated extremely low to very low strength.		dry	SM161213-31 2.0-2.5 SM161213-32 3.5-4.0	
		4.5					**Hole Terminated at 4.00m**				

Additional Comments

No obvious evidence of contamination, no adverse odour and no potential asbestos containing materiel (such as fibro) observed during drilling.

Logged By:	**Stephen McCormack**	Date:	**16/12/2013**	Checked By:	**Stephen McCormack**	Date:	**5/03/2014**

Monitoring Well Log Report

Geo Environmental Engineering
82 Bridge Street
Lane Cove NSW 2066
M. 0431 480 980

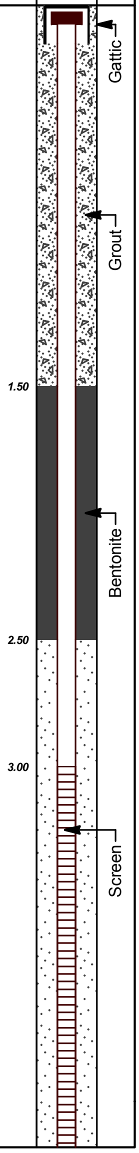
Hole ID.	**BH10**
Hole Depth:	**6.50 m**
Sheet:	**1 of 2**

Project Name:	**Stage 2 Detailed Site Investigation**	Project Number:	**E13017BEL**
Location / Site:	**677-687 Canterbury Road, Sydney NSW**	Client:	**City Alliance Property**

Drilling Company:	**Epoca Environmental Pty Ltd**	Date Started:	**16/12/2013**	Ground Level:	**RL42.0m** (approx)
Drill Method:	**Push Tube / Solid Stem Auger**	Date Completed:	**16/12/2013**	Easting:	**----------**
Equipment:	**Geoprobe 7822DT**			Northing:	**----------**

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Consistency / Density	Moisture	Samp. / Tests ID No.	Observations / Comments
CC						Fill	**CONCRETE**.				
Push Tube							**FILL**- SAND, yellow brown, fine to coarse grained.		moist	SM161213-50 0.2-0.3	
		0.5					**FILL**- Silty CLAY, dark brown, low plasticity, with fine to medium grained sand.	firm	very moist	SM161213-51 0.3-0.5	
		1.0	41		CH	Natural	**Silty CLAY**- red brown and orange brown, medium to high plasticty.	stiff	moist	SM161213-52 0.5-0.7	
Solid Stem Auger		1.5					**Extremely Weathered SHALE**- grey / brown, frequent clay bands, estimated extremely low to very low strength.		dry	SM161213-53 1.3-1.5	
		2.0	40								
		2.5								SM161213-54 2.5-3.0	
		3.0	39								
	3.37m BTOC 6/01/2014	3.5									
		4.0	38								
		4.5									

Well Details / Well Construction



Additional Comments

No obvious evidence of contamination, no adverse odour and no potential asbestos containing materiel (such as fibro) observed during drilling.

Logged By:	**Stephen McCormack**	Date:	**16/12/2013**	Checked By:	**Stephen McCormack**	Date:	**5/03/2014**

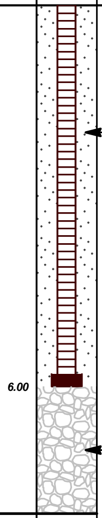
Monitoring Well Log Report

Geo Environmental Engineering
82 Bridge Street
Lane Cove NSW 2066
M. 0431 480 980

Hole ID.	**BH10**
Hole Depth:	**6.50 m**
Sheet:	**2 of 2**

Project Name:	**Stage 2 Detailed Site Investigation**	Project Number:	**E13017BEL**
Location / Site:	**677-687 Canterbury Road, Sydney NSW**	Client:	**City Alliance Property**

Drilling Company:	**Epoca Environmental Pty Ltd**	Date Started:	**16/12/2013**	Ground Level:	**RL42.0m** (approx)
Drill Method:	**Push Tube / Solid Stem Auger**	Date Completed:	**16/12/2013**	Easting:	----------
Equipment:	**Geoprobe 7822DT**			Northing:	----------

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Consistency / Density	Moisture	Samp. / Tests ID No.	Observations / Comments	Well Details	Well Construction
Solid Stem Auger		5.0 5.5 6.0 6.5	37 36			Natural	**Extremely Weathered SHALE**- grey / brown, frequent clay bands, estimated extremely low to very low strength.*(continued)* Becoming dark grey from 6.0mgl, estimated low to medium strength.		dry	SM161213-55 4.5-5.0 SM161213-56 5.5-6.0		 6.00	Gravel Pack Cave-in
		7.0 7.5 8.0 8.5 9.0	35 34 33				**Hole Terminated at 6.50m**						

Additional Comments

No obvious evidence of contamination, no adverse odour and no potential asbestos containing materiel (such as fibro) observed during drilling.

Logged By:	**Stephen McCormack**	Date:	**16/12/2013**	Checked By:	**Stephen McCormack**	Date:	**5/03/2014**

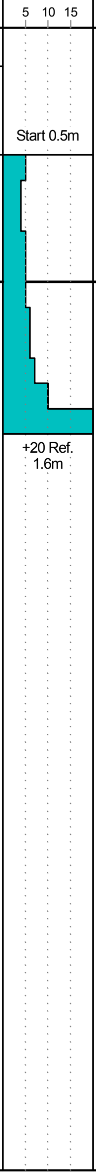
Borehole Log Report

Geo Environmental Engineering
82 Bridge Street
Lane Cove NSW 2066
M. 0431 480 980

Hole ID.	**BH11**
Hole Depth:	**1.00 m**
Sheet:	**1 of 1**

Project Name:	**Stage 2 Detailed Site Investigation**	Project Number:	**E13017BEL**
Location / Site:	**677-687 Canterbury Road, Sydney NSW**	Client:	**City Alliance Property**

Drilling Company:	**GEE**	Date Started:	**17/12/2013**	Ground Level:	**RL43.1m** (approx)
Drill Method:	**Manual**	Date Completed:	**17/12/2013**	Easting:	**----------**
Equipment:	**Hand Auger**			Northing:	**----------**

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Consistency / Density	Moisture	Samp. / Tests ID No.	DCP blows/100mm	Observations / Comments
												
Hand Auger		0.5	43			Fill	**TOPSOIL / FILL**- Silty Gravelly CLAY, dark brown, fine to coarse gravel.	stiff	moist	SM171213-81 0.0-0.15		
		1.0			CH	Natural	**Silty CLAY**- red brown and brown, medium to high plasticty, with fine to coarse ironstone gravel.	stiff	moist	SM171213-82 0.5-1.0		
		1.5 2.0 2.5 3.0 3.5 4.0 4.5	42 41 40 39				**Hole Terminated at 1.00m**					Likely depth to Shale Bedrock (1.6m).

Additional Comments

No obvious evidence of contamination, no adverse odour and no potential asbestos containing materiel (such as fibro) observed during drilling.

Logged By:	**Stephen McCormack**	Date:	**17/12/2013**	Checked By:	**Stephen McCormack**	Date:	**5/03/2014**

Borehole Log Report

Geo Environmental Engineering
82 Bridge Street
Lane Cove NSW 2066
M. 0431 480 980

Hole ID.	**BH12**
Hole Depth:	**1.50 m**
Sheet:	**1 of 1**

Project Name:	**Stage 2 Detailed Site Investigation**	Project Number:	**E13017BEL**
Location / Site:	**677-687 Canterbury Road, Sydney NSW**	Client:	**City Alliance Property**

Drilling Company:	**Epoca Environmental Pty Ltd**	Date Started:	**17/12/2013**	Ground Level:	**RL43.3m** (approx)
Drill Method:	**Push Tube**	Date Completed:	**17/12/2013**	Easting:	----------
Equipment:	**Geoprobe 7822DT**			Northing:	----------

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Consistency / Density	Moisture	Samp. / Tests ID No.	Observations / Comments
CC						Fill	**ASPHALT**.		dry	SM171213-60 0.1-0.15	
							ROADBASE- Sandy GRAVEL, grey / brown.				
			43				**CONCRETE**- not reinforced.	firm	moist	SM171213-61 0.3-0.4	
Push Tube		0.5					**FILL**- Silty Gravelly CLAY, dark grey, low plasticity.				
		1.0	42		CH	Natural	**Silty CLAY**- red brown and brown, medium plasticity.	firm	moist	SM171213-62 0.6-0.8	
		1.5					**Extremely Weathered SHALE**- grey brown, estimated extremely low to very low strength.		dry	SM171213-63 1.4-1.5	
							Hole Terminated at 1.50m				
		2.0	41								
		2.5									
		3.0	40								
		3.5									
		4.0	39								
		4.5									

Additional Comments

No obvious evidence of contamination, no adverse odour and no potential asbestos containing materiel (such as fibro) observed during drilling.

Logged By:	**Stephen McCormack**	Date:	**17/12/2013**	Checked By:	**Stephen McCormack**	Date:	**5/03/2014**

Borehole Log Report

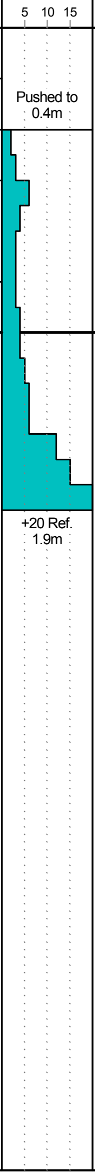
Geo Environmental Engineering
82 Bridge Street
Lane Cove NSW 2066
M. 0431 480 980

Hole ID. **BH13**
Hole Depth: **1.20 m**
Sheet: **1 of 1**

Project Name: **Stage 2 Detailed Site Investigation**
Project Number: **E13017BEL**
Location / Site: **677-687 Canterbury Road, Sydney NSW**
Client: **City Alliance Property**

Drilling Company: **GEE**
Drill Method: **Manual**
Equipment: **Hand Auger**
Date Started: **17/12/2013**
Date Completed: **17/12/2013**
Ground Level: **RL44.8m** (approx)
Easting: **----------**
Northing: **----------**

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Consistency / Density	Moisture	Samp. / Tests ID No.	Samp. / Tests DCP blows/100mm	Observations / Comments
											5 10 15	
CC							**CONCRETE**.					
Hand Auger						Fill	**FILL**- SAND, yellow brown, fine to coarse grained.	loose to very loose	moist	SM171213-64/65 0.2-0.4	Pushed to 0.4m	
		0.5 1.0	44		CH	Natural	**Silty CLAY**- dark brown, medium plasticity, with ironstone gravel. Becoming red brown and orange brown from 0.7mbgl.	firm to stiff	moist	SM171213-66 0.4-0.6 SM171213-71 1.0-1.2		
		1.5 2.0 2.5 3.0 3.5 4.0 4.5	43 42 41				**Hole Terminated at 1.20m**				+20 Ref. 1.9m	Likely depth to Shale Bedrock (1.9m).



Additional Comments

No obvious evidence of contamination, no adverse odour and no potential asbestos containing materiel (such as fibro) observed during drilling.

Logged By: **Stephen McCormack** Date: **17/12/2013**
Checked By: **Stephen McCormack** Date: **5/03/2014**

Monitoring Well Log Report

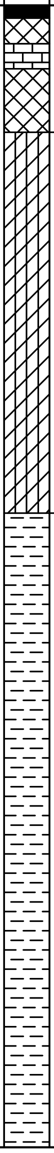
Geo Environmental Engineering
82 Bridge Street
Lane Cove NSW 2066
M. 0431 480 980

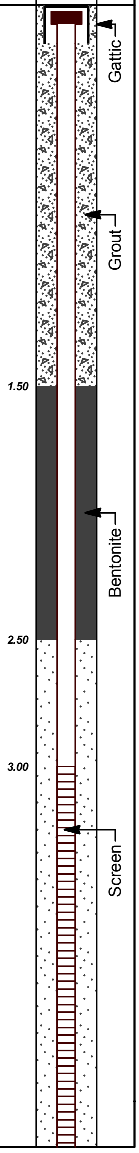
Hole ID.	**BH14**
Hole Depth:	**6.50 m**
Sheet:	**1 of 2**

Project Name:	**Stage 2 Detailed Site Investigation**	Project Number:	**E13017BEL**
Location / Site:	**677-687 Canterbury Road, Sydney NSW**	Client:	**City Alliance Property**

Drilling Company:	**Epoca Environmental Pty Ltd**	Date Started:	**17/12/2013**	Ground Level:	**RL44.4m** (approx)
Drill Method:	**Push Tube / Solid Stem Auger**	Date Completed:	**17/12/2013**	Easting:	----------
Equipment:	**Geoprobe 7822DT**			Northing:	----------

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Consistency / Density	Moisture	Samp. / Tests ID No.	Observations / Comments	Well Details	Well Construction
Push Tube						Fill	**ASPHALT**.		dry				Gattic
							ROADBASE- Sandy GRAVEL, grey / brown.						
			44				**BRICKS**.	firm	moist	SM171213-67 0.25-0.4			
		0.5					**FILL**- Silty Gravelly CLAY, dark brown.						
					CH	Natural	**Silty CLAY**- brown and grey, medium to high plasticty, some ironstone gravel.	firm to stiff		SM171213-68 0.5-0.7			
		1.0					Becoming grey and orange brown from 1.0mbgl.	becoming stiff to very stiff					Grout
		1.5	43									1.50	
		2.0								SM171213-69 1.8-2.0			
Solid Stem Auger							**Extremely Weathered SHALE**- grey brown, estimated extremely low to very low strength.		dry	SM171213-70 2.0-2.2			Bentonite
		2.5	42									2.50	
		3.0										3.00	
		3.5	41				Becoming estimated very low to low strength from 3.3mbgl.						Screen
		4.0											
		4.5	40										





Additional Comments

No obvious evidence of contamination, no adverse odour and no potential asbestos containing materiel (such as fibro) observed during drilling.

Logged By:	**Stephen McCormack**	Date:	**17/12/2013**	Checked By:	**Stephen McCormack**	Date:	**5/03/2014**

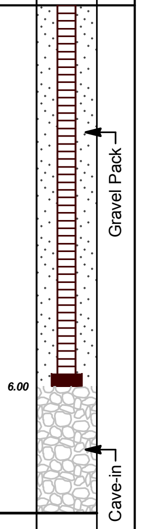
Monitoring Well Log Report

Geo Environmental Engineering
82 Bridge Street
Lane Cove NSW 2066
M. 0431 480 980

Hole ID.	**BH14**
Hole Depth:	**6.50 m**
Sheet:	**2 of 2**

Project Name:	**Stage 2 Detailed Site Investigation**	Project Number:	**E13017BEL**
Location / Site:	**677-687 Canterbury Road, Sydney NSW**	Client:	**City Alliance Property**

Drilling Company:	**Epoca Environmental Pty Ltd**	Date Started:	**17/12/2013**	Ground Level:	**RL44.4m** (approx)
Drill Method:	**Push Tube / Solid Stem Auger**	Date Completed:	**17/12/2013**	Easting:	----------
Equipment:	**Geoprobe 7822DT**			Northing:	----------

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Consistency / Density	Moisture	Samp. / Tests ID No.	Observations / Comments	Well Details	Well Construction
Solid Stem Auger		5.0 5.5 6.0 6.5	39 38			Natural	**Extremely Weathered SHALE**- grey brown, estimated extremely low to very low strength.*(continued)* Becoming estimated low to medium strength from 5.8mbgl.		dry				Gravel Pack Cave-in
		7.0 7.5 8.0 8.5 9.0	37 36				**Hole Terminated at 6.50m**						

Additional Comments

No obvious evidence of contamination, no adverse odour and no potential asbestos containing materiel (such as fibro) observed during drilling.

Logged By:	**Stephen McCormack**	Date:	**17/12/2013**	Checked By:	**Stephen McCormack**	Date:	**5/03/2014**

Borehole Log Report

Geo Environmental Engineering
82 Bridge Street
Lane Cove NSW 2066
M. 0431 480 980

Hole ID.	**BH15**
Hole Depth:	**2.30 m**
Sheet:	**1 of 1**

Project Name:	**Stage 2 Detailed Site Investigation**	Project Number:	**E13017BEL**
Location / Site:	**677-687 Canterbury Road, Sydney NSW**	Client:	**City Alliance Property**

Drilling Company:	**Epoca Environmental Pty Ltd**	Date Started:	**17/12/2013**	Ground Level:	**RL44.8m** (approx)
Drill Method:	**Push Tube / Solid Stem Auger**	Date Completed:	**17/12/2013**	Easting:	----------
Equipment:	**Geoprobe 7822DT**			Northing:	----------

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Consistency / Density	Moisture	Samp. / Tests ID No.	Observations / Comments
Push Tube						Fill	**ASPHALT**.				
							ROADBASE- Sandy GRAVEL, grey / brown.	medium dense	dry	SM171213-74 0.1-0.2	
		0.5	44				**FILL**- Silty CLAY, dark brown, low to medium plasticity, some black fragments (ash?).	firm	slightly moist	SM171213-75 0.3-0.5	
		1.0 1.5 2.0	43		CH	Natural	**Silty CLAY**- red brown and brown, medium to high plasticity.	stiff	moist	SM171213-76 0.9-1.1	
							Extremely Weathered SHALE- grey to orange brown, estimated extremely low to very low strength.		dry	SM171213-77 2.1-2.3	
		2.5 3.0 3.5 4.0 4.5	42 41				**Hole Terminated at 2.30m**				

Additional Comments

No obvious evidence of contamination, no adverse odour and no potential asbestos containing materiel (such as fibro) observed during drilling.

Logged By:	**Stephen McCormack**	Date:	**17/12/2013**	Checked By:	**Stephen McCormack**	Date:	**5/03/2014**

Borehole Log Report

Geo Environmental Engineering
82 Bridge Street
Lane Cove NSW 2066
M. 0431 480 980

Hole ID.	**BH16**
Hole Depth:	**0.30 m**
Sheet:	**1 of 1**

Project Name:	**Stage 2 Detailed Site Investigation**	Project Number:	**E13017BEL**
Location / Site:	**677-687 Canterbury Road, Sydney NSW**	Client:	**City Alliance Property**

Drilling Company:	**GEE**	Date Started:	**17/12/2013**	Ground Level:	**RL44.8m** (approx)
Drill Method:	**Manual**	Date Completed:	**17/12/2013**	Easting:	**----------**
Equipment:	**Hand Auger**			Northing:	**----------**

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Samp. / Tests ID No.	Observations / Comments
CC				▨		Fill	**CONCRETE**.			
HA				☒			**ROADBASE**- Sandy GRAVEL, grey / brown.	dry	SM171213-72/73 0.2-0.3	
		0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5	44 43 42 41				**Hole Terminated at 0.30m** Refusal on concrete slab.			

Additional Comments

No obvious evidence of contamination, no adverse odour and no potential asbestos containing materiel (such as fibro) observed during drilling.

Logged By:	**Stephen McCormack**	Date:	**17/12/2013**	Checked By:	**Stephen McCormack**	Date:	**5/03/2014**

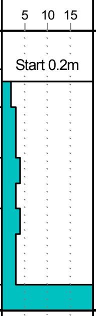
Borehole Log Report

Geo Environmental Engineering
82 Bridge Street
Lane Cove NSW 2066
M. 0431 480 980

Hole ID.	**BH17**
Hole Depth:	**1.10 m**
Sheet:	**1 of 1**

Project Name: **Stage 2 Detailed Site Investigation**
Project Number: **E13017BEL**
Location / Site: **677-687 Canterbury Road, Sydney NSW**
Client: **City Alliance Property**

Drilling Company: **GEE**
Date Started: **17/12/2013**
Ground Level: **RL44.5m** (approx)
Drill Method: **Manual**
Date Completed: **17/12/2013**
Easting: **----------**
Equipment: **Hand Auger**
Northing: **----------**

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Consistency / Density	Moisture	Samp. / Tests ID No.	DCP blows/100mm 5 10 15	Observations / Comments
CC							**CONCRETE**.				 Start 0.2m	
Push Tube		0.5	44			Fill	**FILL**- Silty Gravelly CLAY, dark brown, medium to high plasticity, fine to coarse gravel, some coal like fragments and ironstone.	firm to stiff	moist	SM171213-78 0.15-0.3		
		1.0			CH	Natural	**Silty CLAY**- red brown and brown, medium to high plasticity, with ironstone gravel. Becoming pale grey and orange brown from 1.0m.	stiff	moist	SM171213-79 0.5-0.7 SM171213-80 1.0-1.1		
							Hole Terminated at 1.10m Refusal, likely caused by Shale Bedrock.				+20 Bouncing Ref. 1.1m	
		1.5	43									
		2.0										
		2.5	42									
		3.0										
		3.5	41									
		4.0										
		4.5	40									

Additional Comments

No obvious evidence of contamination, no adverse odour and no potential asbestos containing materiel (such as fibro) observed during drilling.

Logged By: **Stephen McCormack** Date: **17/12/2013**
Checked By: **Stephen McCormack** Date: **5/03/2014**

Borehole Log Report

Geo Environmental Engineering
82 Bridge Street
Lane Cove NSW 2066
M. 0431 480 980

Hole ID. **BH18**
Hole Depth: **1.30 m**
Sheet: **1 of 1**

Project Name: **Stage 2 Detailed Site Investigation**
Project Number: **E13017BEL**
Location / Site: **677-687 Canterbury Road, Sydney NSW**
Client: **City Alliance Property**

Drilling Company: **Epoca Environmental Pty Ltd**
Date Started: **17/12/2013**
Ground Level: **RL43.3m** (approx)
Drill Method: **Push Tube**
Date Completed: **17/12/2013**
Easting: **----------**
Equipment: **Geoprobe 7822DT**
Northing: **----------**

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Consistency / Density	Moisture	Samp. / Tests ID No.	Observations / Comments
CC							**CONCRETE**.				
Push Tube			43			Fill	**FILL**- Gravelly SAND, yellow brown, medium to coarse grained, medium to coarse gravel.	loose	moist	SM171213-83 0.1-0.2	
		0.5				Fill	**FILL**- Silty CLAY, dark brown, medium to high plasticty, with gravel.	firm to stiff	moist	SM171213-84 0.2-0.3	
		1.0			CH	Natural	**Silty CLAY**- red brown and pale brown, medium to high plasticty.	stiff	moist	SM171213-85 0.5-0.7	
			42			Natural	**Extremely Weathered SHALE**- orange brown and grey, estimated extremely low to very low strength.		dry	SM171213-86 1.2-1.3	
							Hole Terminated at 1.30m				
		1.5									
		2.0									
			41								
		2.5									
		3.0									
			40								
		3.5									
		4.0									
			39								
		4.5									

Additional Comments

No obvious evidence of contamination, no adverse odour and no potential asbestos containing materiel (such as fibro) observed during drilling.

Logged By: **Stephen McCormack** Date: **17/12/2013**
Checked By: **Stephen McCormack** Date: **5/03/2014**

Borehole Log Report

Geo Environmental Engineering
82 Bridge Street
Lane Cove NSW 2066
M. 0431 480 980

Hole ID.	**BH19**
Hole Depth:	**1.50 m**
Sheet:	**1 of 1**

Project Name:	**Stage 2 Detailed Site Investigation**	Project Number:	**E13017BEL**
Location / Site:	**677-687 Canterbury Road, Sydney NSW**	Client:	**City Alliance Property**

Drilling Company:	**Epoca Environmental Pty Ltd**	Date Started:	**17/12/2013**	Ground Level:	**RL44.0m** (approx)
Drill Method:	**Push Tube**	Date Completed:	**17/12/2013**	Easting:	----------
Equipment:	**Geoprobe 7822DT**			Northing:	----------

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Consistency / Density	Moisture	Samp. / Tests ID No.	Observations / Comments
CC						Fill	**CONCRETE.**				
Push Tube							**FILL**- SAND, yellow brown, fine to coarse grained.	loose	moist	SM171213-87/88 0.2-0.3	
		0.5 1.0	43				**FILL**- Silty Gravelly CLAY, dark brown / dark grey, fine to coarse gravel.	firm to stiff	moist	SM171213-89 0.3-0.5 SM171213-90 1.0-1.2	
							CONCRETE.				
		1.5				Nat.	**Extremely Weathered SHALE**- brown and orange brown, estimated extremely low to very low strength.		dry	SM171213-91 1.3-1.5	
							Hole Terminated at 1.50m				
		2.0	42								
		2.5									
		3.0	41								
		3.5									
		4.0	40								
		4.5									

Additional Comments

No obvious evidence of contamination, no adverse odour and no potential asbestos containing materiel (such as fibro) observed during drilling.

Logged By:	**Stephen McCormack**	Date:	**17/12/2013**	Checked By:	**Stephen McCormack**	Date:	**5/03/2014**

Monitoring Well Log Report

Geo Environmental Engineering
82 Bridge Street
Lane Cove NSW 2066
M. 0431 480 980

Hole ID.	**BH20**
Hole Depth:	**7.50 m**
Sheet:	**1 of 2**

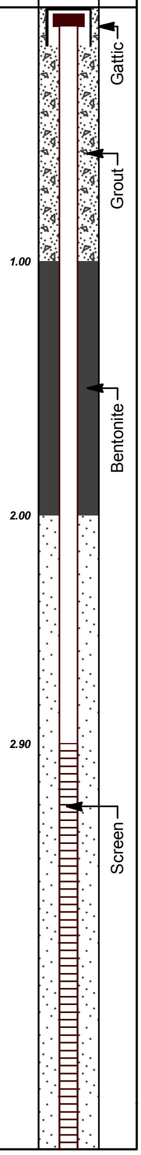
Project Name:	**Stage 2 Detailed Site Investigation**	Project Number:	**E13017BEL**
Location / Site:	**677-687 Canterbury Road, Sydney NSW**	Client:	**City Alliance Property**

Drilling Company:	**Epoca Environmental Pty Ltd**	Date Started:	**17/12/2013**	Ground Level:	**RL44.7m** (approx)
Drill Method:	**Push Tube / Solid Stem Auger**	Date Completed:	**17/12/2013**	Easting:	**----------**
Equipment:	**Geoprobe 7822DT**			Northing:	**----------**

Method	Material Type	Material Description	Consistency / Density	Moisture	Samp. / Tests ID No.	Observations / Comments
CC		**CONCRETE.**				
Push Tube	Fill	**FILL**- SAND, yellow brown, medium to coarse grained.		moist	SM171213-92/93 0.2-0.3	
		FILL- Silty Gravelly CLAY, dark brown, medium plasticity, fine to coarse gravel, coal-like fragments.	firm	moist	SM171213-94 0.35-0.5	
					SM171213-95 1.0-1.1	
		Some concrete present 1.2 to 1.3mbgl.				
	Natural	**Silty CLAY**- grey and red brown, medium to high plasticty, with fine to coarse ironstone gravel.	stiff	moist	SM171213-96 1.3-1.45	
Solid Stem Auger		**Extremely Weathered SHALE**- red brown and grey, estimated extremely low to very low strength.		dry		
					SM171213-97 2.0-2.3	
					SM171213-98 3.5-4.0	
		Becoming estimated very low to low strength from 3.7mbgl.				

Depth (m): 0.5, 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5
RL (m): 44, 43, 42, 41

Water Level: 3.96m BTOC 6/01/2014



Additional Comments

No obvious evidence of contamination, no adverse odour and no potential asbestos containing materiel (such as fibro) observed during drilling.

Logged By:	**Stephen McCormack**	Date:	**17/12/2013**	Checked By:	**Stephen McCormack**	Date:	**5/03/2014**

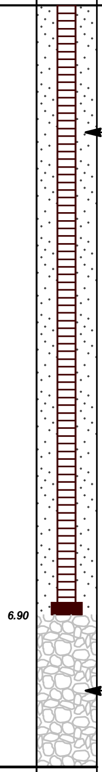
Monitoring Well Log Report

Geo Environmental Engineering
82 Bridge Street
Lane Cove NSW 2066
M. 0431 480 980

Hole ID. **BH20**
Hole Depth: **7.50 m**
Sheet: **2 of 2**

Project Name: **Stage 2 Detailed Site Investigation**
Project Number: **E13017BEL**
Location / Site: **677-687 Canterbury Road, Sydney NSW**
Client: **City Alliance Property**

Drilling Company: **Epoca Environmental Pty Ltd**
Date Started: **17/12/2013**
Ground Level: **RL44.7m** (approx)
Drill Method: **Push Tube / Solid Stem Auger**
Date Completed: **17/12/2013**
Easting: **----------**
Equipment: **Geoprobe 7822DT**
Northing: **----------**

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Consistency / Density	Moisture	Samp. / Tests ID No.	Observations / Comments	Well Details	Well Construction
Solid Stem Auger		5.0 5.5 6.0 6.5 7.0 7.5	40 39 38			Natural	**Extremely Weathered SHALE**- red brown and grey, estimated extremely low to very low strength.*(continued)* Becoming dark grey from 7.0mbgl, estimated low to medium strength.		dry	SM171213-99 4.5-5.0			Gravel Pack Cave-in
		8.0 8.5 9.0	37 36				**Hole Terminated at 7.50m**						

Additional Comments

No obvious evidence of contamination, no adverse odour and no potential asbestos containing materiel (such as fibro) observed during drilling.

Logged By: **Stephen McCormack** Date: **17/12/2013**
Checked By: **Stephen McCormack** Date: **5/03/2014**

Borehole Log Report

Geo Environmental Engineering
82 Bridge Street
Lane Cove NSW 2066
M. 0431 480 980

Hole ID. **BH21**
Hole Depth: **0.45 m**
Sheet: **1 of 1**

Project Name: **Stage 2 Detailed Site Investigation**
Project Number: **E13017BEL**
Location / Site: **677-687 Canterbury Road, Sydney NSW**
Client: **City Alliance Property**

Drilling Company: **GEE**
Date Started: **6/01/2014**
Ground Level: **RL45.2m** (approx)
Drill Method: **Manual**
Date Completed: **6/01/2014**
Easting: **----------**
Equipment: **Hand Auger / Crow Bar**
Northing: **----------**

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Samp. / Tests ID No.	Observations / Comments
CC							**CONCRETE**.			
HA / Crow Bar			45			Fill	**FILL**- Sandy GRAVEL with Bricks, fine to coarse grained sand, fine to coarse gravel.	moist	SM060114-80 0.2-0.4	
		0.5					**Hole Terminated at 0.45m** Refusal.			
		1.0	44							
		1.5								
		2.0	43							
		2.5								
		3.0	42							
		3.5								
		4.0	41							
		4.5								

Additional Comments

No obvious evidence of contamination, no adverse odour and no potential asbestos containing materiel (such as fibro) observed during drilling.

Logged By: **Stephen McCormack** Date: **6/01/2014**
Checked By: **Stephen McCormack** Date: **5/03/2014**

Borehole Log Report

Geo Environmental Engineering
82 Bridge Street
Lane Cove NSW 2066
M. 0431 480 980

Hole ID. **BH22**
Hole Depth: **0.50 m**
Sheet: **1 of 1**

Project Name: **Stage 2 Detailed Site Investigation**
Project Number: **E13017BEL**
Location / Site: **677-687 Canterbury Road, Sydney NSW**
Client: **City Alliance Property**

Drilling Company: **GEE**
Drill Method: **Manual**
Equipment: **Hand Auger / Crow Bar**
Date Started: **6/01/2014**
Date Completed: **6/01/2014**
Ground Level: **RL45.2m** (approx)
Easting: **----------**
Northing: **----------**

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Consistency / Density	Moisture	Samp. / Tests ID No.	Samp. / Tests DCP blows/100mm	Observations / Comments
											5 10 15	
CC						Fill	**CONCRETE.**					
HA / Crow Bar		0.5	45			Fill	**FILL**- Sandy GRAVEL, brown / grey, crushed concrete.	medium dense	moist	SM060114-81/82 0.2-0.4	Start 0.5m	
		1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5	44 43 42 41				**Hole Terminated at 0.50m** HA and DCP Refusal.				+20 Bouncing Ref. 0.6m	

Additional Comments

No obvious evidence of contamination, no adverse odour and no potential asbestos containing materiel (such as fibro) observed during drilling.

Logged By: **Stephen McCormack** Date: **6/01/2014**
Checked By: **Stephen McCormack** Date: **5/03/2014**

Borehole Log Report

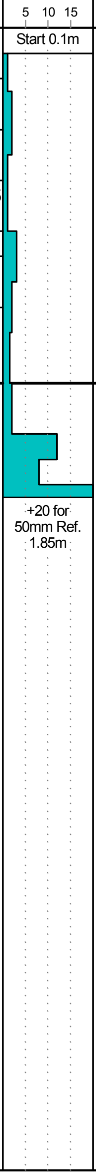
Geo Environmental Engineering
82 Bridge Street
Lane Cove NSW 2066
M. 0431 480 980

Hole ID. **BH23**
Hole Depth: **1.40 m**
Sheet: **1 of 1**

Project Name: **Stage 2 Detailed Site Investigation**
Project Number: **E13017BEL**
Location / Site: **677-687 Canterbury Road, Sydney NSW**
Client: **City Alliance Property**

Drilling Company: **GEE**
Drill Method: **Manual**
Equipment: **Hand Auger**
Date Started: **6/01/2014**
Date Completed: **6/01/2014**
Ground Level: **RL45.2m** (approx)
Easting: **----------**
Northing: **----------**

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Consistency / Density	Moisture	Samp. / Tests ID No.	DCP blows/100mm	Observations / Comments
											5 10 15	
CC							**CONCRETE**.				Start 0.1m	
Hand Auger		0.5	45			Fill	**FILL**- Silty CLAY, grey brown and red brown, medium plasticity, some ironstone gravel.	firm	moist	SM060114-83 0.2-0.4		
							FILL- Silty CLAY, dark brown, low to medium plasticity, with gravel.	firm	moist	SM060114-84/85 0.6-0.8		
		1.0	44		CH	Natural	**Silty CLAY**- red / brown, medium to high plasticity.	firm	moist	SM060114-86 0.9-1.1		
		1.5					**Hole Terminated at 1.40m**					
		2.0	43								+20 for 50mm Ref. 1.85m	Likely depth to Shale Bedrock (1.85m).
		2.5										
		3.0	42									
		3.5										
		4.0	41									
		4.5										



Additional Comments

No obvious evidence of contamination, no adverse odour and no potential asbestos containing materiel (such as fibro) observed during drilling.

Logged By: **Stephen McCormack** Date: **6/01/2014**
Checked By: **Stephen McCormack** Date: **5/03/2014**

Borehole Log Report

Geo Environmental Engineering
82 Bridge Street
Lane Cove NSW 2066
M. 0431 480 980

Hole ID.	**BH24**
Hole Depth:	**0.70 m**
Sheet:	**1 of 1**

Project Name:	**Stage 2 Detailed Site Investigation**	Project Number:	**E13017BEL**
Location / Site:	**677-687 Canterbury Road, Sydney NSW**	Client:	**City Alliance Property**

Drilling Company:	**GEE**	Date Started:	**6/01/2014**	Ground Level:	**RL45.2m** (approx)
Drill Method:	**Manual**	Date Completed:	**6/01/2014**	Easting:	**----------**
Equipment:	**Hand Auger / Crow Bar**			Northing:	**----------**

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Consistency / Density	Moisture	Samp. / Tests ID No.	Observations / Comments
CC			45	▨		Fill	**CONCRETE.**				
HA / Crow Bar				☒			**FILL**- SAND, yellow brown, medium to coarse grained.	loose	moist	SM060114-87/88 0.1-0.25	
		0.5		☒			**FILL**- Sandy GRAVEL / Gravelly SAND, dark brown and brown, some clay, fine to coarse gravel, some cobble sized rocks.	medium dense	moist	SM060114-89 0.3-0.5	
							Hole Terminated at 0.70m Refusal on Brick.				
		1.0									
			44								
		1.5									
		2.0									
			43								
		2.5									
		3.0									
			42								
		3.5									
		4.0									
			41								
		4.5									

Additional Comments

No obvious evidence of contamination, no adverse odour and no potential asbestos containing materiel (such as fibro) observed during drilling.

Logged By:	**Stephen McCormack**	Date:	**6/01/2014**	Checked By:	**Stephen McCormack**	Date:	**5/03/2014**

Borehole Log Report

Geo Environmental Engineering
82 Bridge Street
Lane Cove NSW 2066
M. 0431 480 980

Hole ID.	**BH25**
Hole Depth:	**0.75 m**
Sheet:	**1 of 1**

Project Name:	**Stage 2 Detailed Site Investigation**	Project Number:	**E13017BEL**
Location / Site:	**677-687 Canterbury Road, Sydney NSW**	Client:	**City Alliance Property**

Drilling Company:	**GEE**	Date Started:	**6/01/2014**	Ground Level:	**RL42.7m** (approx)
Drill Method:	**Manual**	Date Completed:	**6/01/2014**	Easting:	**----------**
Equipment:	**Hand Auger / Crow Bar**			Northing:	**----------**

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Consistency / Density	Moisture	Samp. / Tests ID No.	Observations / Comments
CC						Fill	**CONCRETE**.				
HA / Crow Bar							**FILL**- BRICKS.	firm	moist	SM060114-90/91 0.2-0.4	
							FILL- Silty CLAY, orange brown and grey, medium to high plasticity, with fine to coarse gravel.				
		0.5	42			Natural	**Silty CLAY**- pale grey, some orange brown, medium to high plasticity, with ironstone gravel.	firm to stiff	moist	SM060114-92 0.4-0.55	
		1.0					**Hole Terminated at 0.75m** Refusal on inferred Shale Bedrock.				
		1.5	41								
		2.0									
		2.5	40								
		3.0									
		3.5	39								
		4.0									
		4.5									

Additional Comments

No obvious evidence of contamination, no adverse odour and no potential asbestos containing materiel (such as fibro) observed during drilling.

Logged By:	**Stephen McCormack**	Date:	**6/01/2014**	Checked By:	**Stephen McCormack**	Date:	**5/03/2014**

Borehole Log Report

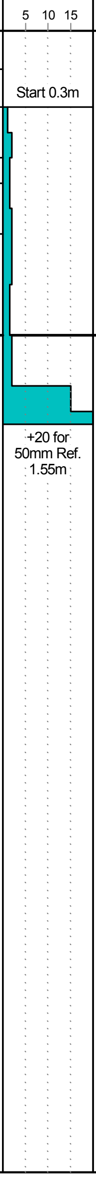
Geo Environmental Engineering
82 Bridge Street
Lane Cove NSW 2066
M. 0431 480 980

Hole ID.	**BH26**
Hole Depth:	**1.20 m**
Sheet:	**1 of 1**

Project Name:	**Stage 2 Detailed Site Investigation**	Project Number:	**E13017BEL**
Location / Site:	**677-687 Canterbury Road, Sydney NSW**	Client:	**City Alliance Property**

Drilling Company:	**GEE**	Date Started:	**6/01/2014**	Ground Level:	**RL45.2m** (approx)
Drill Method:	**Manual**	Date Completed:	**6/01/2014**	Easting:	**----------**
Equipment:	**Hand Auger / Crow Bar**			Northing:	**----------**

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Consistency / Density	Moisture	Samp. / Tests ID No.	DCP blows/100mm	Observations / Comments
CC			45				**CONCRETE.**					
HA / Crow Bar		0.5				Fill	**FILL**- SAND and CLAY, yellow brown and dark brown.	loose	moist	SM060114-93 0.15-0.3 SM060114-94 0.5-0.6	Start 0.3m	
		1.0	44			Natural	**Silty CLAY**- red brown, medium to high plasticty, with some fine to coarse ironstone gravel. Becoming pale grey and orange brown from 1.0mbgl.	firm	moist	SM060114-95 0.6-0.8		
		1.5					**Hole Terminated at 1.20m**				+20 for 50mm Ref. 1.55m	Likely depth to Shale Bedrock (1.55m).
		2.0	43									
		2.5										
		3.0	42									
		3.5										
		4.0	41									
		4.5										



Additional Comments

No obvious evidence of contamination, no adverse odour and no potential asbestos containing materiel (such as fibro) observed during drilling.

Logged By:	**Stephen McCormack**	Date:	**6/01/2014**	Checked By:	**Stephen McCormack**	Date:	**5/03/2014**

Borehole Log Report

Geo Environmental Engineering
82 Bridge Street
Lane Cove NSW 2066
M. 0431 480 980

Hole ID. **BH27**
Hole Depth: **1.20 m**
Sheet: **1 of 1**

Project Name: **Stage 2 Detailed Site Investigation**
Project Number: **E13017BEL**
Location / Site: **677-687 Canterbury Road, Sydney NSW**
Client: **City Alliance Property**

Drilling Company: **GEE**
Date Started: **6/01/2014**
Ground Level: **RL45.2m** (approx)
Drill Method: **Manual**
Date Completed: **6/01/2014**
Easting: **----------**
Equipment: **Hand Auger / Crow Bar**
Northing: **----------**

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Consistency / Density	Moisture	Samp. / Tests ID No.	Observations / Comments
CC			45			Fill	**CONCRETE**.				
HA / Crow Bar		0.5			CL		**FILL**- SAND. **Silty CLAY**- dark brown, low to medium plasticity.	firm	moist	SM060114-96/97 0.2-0.4	
		1.0	44		CH	Natural	**Silty CLAY**- red brown, medium to high plasticty. Becoming pale grey and orange brown from 1.0m.	firm to stiff	moist	SM060114-98 0.5-0.7	
		1.5 2.0 2.5 3.0 3.5 4.0 4.5	43 42 41				**Hole Terminated at 1.20m**				

Additional Comments

No obvious evidence of contamination, no adverse odour and no potential asbestos containing materiel (such as fibro) observed during drilling.

Logged By: **Stephen McCormack** Date: **6/01/2014**
Checked By: **Stephen McCormack** Date: **5/03/2014**

Borehole Log Report

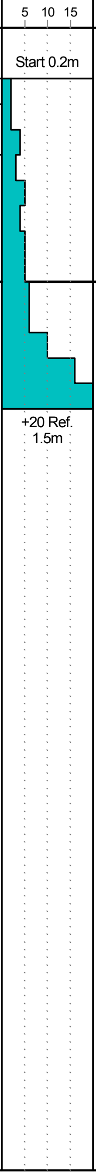
Geo Environmental Engineering
82 Bridge Street
Lane Cove NSW 2066
M. 0431 480 980

Hole ID.	**BH28**
Hole Depth:	**1.00 m**
Sheet:	**1 of 1**

Project Name:	**Stage 2 Detailed Site Investigation**	Project Number:	**E13017BEL**
Location / Site:	**677-687 Canterbury Road, Sydney NSW**	Client:	**City Alliance Property**

Drilling Company:	**GEE**	Date Started:	**6/01/2014**	Ground Level:	**RL45.2m** (approx)
Drill Method:	**Manual**	Date Completed:	**6/01/2014**	Easting:	----------
Equipment:	**Hand Auger / Crow Bar**			Northing:	----------

Method	Water Level	Depth (m)	RL (m)	Graphic Log	USCS Symbol	Material Type	Material Description	Consistency / Density	Moisture	Samp. / Tests ID No.	Samp. / Tests DCP blows/100mm	Observations / Comments
CC			45			Fill	**CONCRETE**.				Start 0.2m	
HA / Crow Bar		0.5					**FILL**- Silty Gravelly CLAY, dark brown.	firm	moist	SM060114-99 0.2-0.3		
		1.0			CH	Natural	**Silty CLAY**- grey and brown, medium to high plasticty, some fine to coarse ironstone gravel. Becoming pale grey and orange brown mottled from 0.7mbgl.	stiff	moist	SM060114-100 0.3-0.5		
		1.5 2.0 2.5 3.0 3.5 4.0 4.5	44 43 42 41				**Hole Terminated at 1.00m**				+20 Ref. 1.5m	Likely depth to Shale Bedrock (1.5m).



Additional Comments

No obvious evidence of contamination, no adverse odour and no potential asbestos containing materiel (such as fibro) observed during drilling.

Logged By:	**Stephen McCormack**	Date:	**6/01/2014**	Checked By:	**Stephen McCormack**	Date:	**5/03/2014**

APPENDIX I

Quality Assurance Assessment Report

I1. INTRODUCTION

A detailed Quality Assurance (QA) assessment, including the analysis of Quality Control (QC) samples, was carried out by GEE to determine the reliability of field procedures and analytical results.

I2. QUALITY ASSURANCE

Quality Assurance (QA) involves all of the actions, procedures, checks and decisions undertaken to ensure the representativeness and integrity of samples and accuracy and reliability of analysis results (reference I1).

In accordance with AS4482.1 (reference I2), a series of QA procedures were integrated within the sampling and analysis plan and included:

- The collection of Quality Control (QC) samples.
- The use of standardised field sampling forms developed by GEE.
- Documentation of calibration and use of field instruments.

To ensure QA in the field, samples were collected by experienced and trained personnel using appropriate methods detailed herein, including appropriate sample handling, containment and transport, and calibrated equipment. Additionally QC samples were collected and analysed as discussed in Section I3.

To ensure QA in the laboratory, GEE used laboratories that are NATA accredited for the analytical tests carried out, therefore it is reasonable for GEE to rely on the laboratories to be proficient in all tests conducted. This encompasses all actions, procedures, checks and decisions undertaken, to ensure the accuracy and reliability of the analysis results. As part of the laboratory QA, QC samples were analysed with each batch of samples as part of this investigation as required by NATA. A discussion of the laboratory QC samples analysed as part of this investigation is provided in Section I3.3.2.

I3. QUALITY CONTROL

QC involves those parts of QA which serve to monitor and measure the effectiveness of QA procedures. QC samples assess sample integrity, accuracy and precision and can be separated into field and laboratory QC.

I3.1 DEFINITIONS

Table I1 provides a description and objective of each of the field and laboratory QC samples used during this investigation.

Table I1: QC Sample Types, Descriptions and Recommended Frequency of Analysis

Type	Description	Purpose	Recommended Frequency
	FIELD QC SAMPLES		
Blind Replicate	A sample collected at the same time and from the same sampling point as the corresponding primary sample[1], and analysed at the same laboratory. Blind replicates are collected, preserved, stored, transported and analysed in the same manner as the primary sample, with the laboratory having no knowledge of the source of the replicate sample. The assessment of blind replicates samples is undertaken by calculating the Relative Percent Difference (RPD) which is defined as: $\text{RPD (\%)} = 100 \times \frac{\text{Result No. 1} - \text{Result No. 2}}{\text{Mean Result}}$	Used to evaluate total sampling and analysis precision and, in the case of soil samples, sample variability.	In accordance with AS4482.1 (reference I2) and NEPM (reference I3) it is recommended that 1 blind replicate sample is collected for every 20 primary samples.
Split Duplicate	A sample collected at the same time and from the same sampling point as the corresponding primary sample, and analysed at a separate laboratory. Split duplicates are collected, preserved, stored, transported and analysed in the same manner as the primary sample, with the laboratories having no knowledge of the purpose of the sample. The assessment of split duplicates samples is undertaken by calculating the Relative Percent Difference (RPD) which is defined as: $\text{RPD (\%)} = 100 \times \frac{\text{Result No. 1} - \text{Result No. 2}}{\text{Mean Result}}$	Used to provide a check on the analytical proficiency of the laboratories and hence precision and comparability.	In accordance with AS4482.1 (reference I2) and NEPM (reference I3) it is recommended that 1 split duplicate sample is collected for every 20 primary samples.
Rinsate	This is a sample of distilled or de-ionised water poured over the surface of a decontaminated piece of sampling equipment and collected in appropriate laboratory supplied sample containers. The sample is then analysed for contaminants of concern analysed as part of the investigation.	Provides an assessment of potential cross contamination of chemicals from sampling equipment caused by inadequate decontamination procedures.	In accordance with AS4482.1 – (reference I2) one rinsate sample should be collected each day per piece of sampling equipment and.

---

[1] Primary samples are the original representative samples of soil or groundwater collected for analysis to determine aspects of their chemical composition. Primary samples are the original sample taken from a particular location and other samples from the same location are duplicates, replicates or splits.

Table I1 Continued

Type	Description	Purpose	Recommended Frequency
Trip Blank	Trip blanks are laboratory supplied test samples of analyte-free media (either washed sand or de-ionised water) which remain in the sample storage eskies during sampling activities and returned to the laboratory unopened. For soil sampling programmes, the trip blank consists of acid-washed quartz sand that has been heated to 400ºC. For water sampling programs trip blanks comprise pre-washed glass vials containing distilled or de-ionised water with appropriate preservatives. The USEPA has shown that cross-contamination only occurs with volatile organics (reference I4), therefore, trip blanks are only analysed for volatile organics.	Used to measure cross-contamination during sampling, transport, sample preparation and analysis.	Industry standard is 1 trip blank per batch of primary samples.
Trip Spike	Trip spikes, like trip blanks, are supplied by the primary laboratory using analyte-free media (either washed sand or de-ionised water) and remain in the sample storage eskies during sampling activities and returned to the laboratory unopened. The sample media, however, is spiked with BTEX. For water sampling programmes the BTEX concentration is known and standardised by each laboratory, while for soil sampling programmes the exact spike concentration is not known, rather two identical jars of sand are spiked the same concentration with one sample becoming the trip-spike and the other becoming a control sample, which remains in a refrigerator at the laboratory. The trip spike is analysed after returning from the field and the % recovery of the known spike (for water sampling programs), or of the control sample (for soil sampling programs), is calculated.	Used to monitor VOC losses during transit.	Industry standard is 1 trip spike per batch of primary samples where volatile concentrations are being measured.

Table I1 Continued

Type	Description	Purpose	Recommended Frequency
LABORATORY QC SAMPLES			
Laboratory Duplicate	Laboratory duplicates are field samples which are prepared and analysed in the same manner twice. The assessment of laboratory duplicates is undertaken by calculating the (RPD) which is defined as: $\text{RPD (\%)} = 100 \text{ x } \frac{\text{Result No. 1 – Result No. 2}}{\text{Mean Result}}$	Determines analytical precision for a sample batch	NATA specifies 1 per 10 samples for trace element and inorganic analysis
Laboratory Control Sample (LCS)	Laboratory Control Samples (LCS) are analyte-free matrices (de-ionised water or clean sand) spiked with a known concentration of target analytes and carried through the entire preparation and analysis. Assessment of LCS is undertaken by calculating the percent recovery (%R) of the spike which is defined as: $\text{Percent Recovery (\%R)} = 100 \text{ x } \frac{\text{Spikes Sample Result (SSR) – Sample Result (SR)}}{\text{Concentration of Spike Added (SA)}}$	Determines analytical accuracy and precision for a batch of samples	NATA specifies 1 per batch of up to 20 samples
Surrogates	Surrogates are organic compounds added to field samples and laboratory QC samples prior to preparation. They are similar in chemical behaviour to the target analytes and are not expected to be present in samples.. form part of the laboratory QC for organic analyses, and are used to indicate the presence of sample specific interferences. The surrogate is added at the extraction stage then analysed with the batch of samples. Like LCSs, surrogates are assessed by calculating the percent recovery (%R), although the definition is slightly different as shown below: $\text{Percent Recovery (\%R)} = 100 \text{ x } \frac{\text{Spiked Sample Result (SSR)}}{\text{Concentration of Spike Added (SA)}}$	Used to demonstrate that the surrogate does not interfere with the target analytes, therefore determines analytical accuracy for each sample	Added to every blank, field and laboratory QC sample
Matrix Spikes	Field samples spiked with a known concentration of a target analytes and carried through the entire preparation and analysis. Matrix spike samples are assessed by calculating the percent recovery (%R) of the spike which is defined as: $\text{Percent Recovery (\%R)} = 100 \text{ x } \frac{\text{Spikes Sample Result (SSR) – Sample Result (SR)}}{\text{Concentration of Spike Added (SA)}}$	Determine the effects of matrix interferences on analytical accuracy of a sample.	Performed at least 1 per batch of up to 20 samples.
Method Blank	Method blanks are an analyte-free matrices (reagent water or clean sand) that is carried through the entire preparation and analysis.	Establishes that laboratory contamination does not cause false positives.	Prepared with every batch of up to 20 samples for all organic and inorganic analyses.

I3.2 CRITERIA / ACCEPTABLE RANGE

The QC Acceptance Criteria adopted for this investigation is provided in Table I2 and is in general accordance with the Table 4 of AS4482.1 (reference I2) and NEPM (reference I3).

Table I2: QC Sample Acceptance Criteria

QC Sample	Criteria / Acceptable Range
FIELD QC SAMPLES	
Blind Replicate & Split Duplicate	RPD < 50 % When average concentration is > 10 x LOR/PQL[2] RPD < 75 % When average concentration is 5 to 10 x LOR/PQL RPD < 100 % When average concentration is< 5 x LOR/PQL
Rinsate	Analytical Result < LOR/PQL
Trip Blank	Analytical Result < LOR/PQL
Trip Spike	± 30%
LABORATORY QC SAMPLES	
Laboratory Duplicates	RPD < 30 % When average concentration is > 10 x LOR/PQL RPD < 50 % When average concentration is 4 to 10 x LOR/PQL RPD < 100 % When average concentration is< 4 x LOR/PQL
Laboratory Control Samples	%R of 70 – 130% (General analytes) %R of 50 – 130% (Phenols) %R of 60 – 130% (OCP/OPPs) %R of 62 – 130% (Chromium)
Surrogates	%R of 70 – 130% (General analytes) %R of 50 – 130% (Phenols) %R of 60 – 130% (OCP/OPPs)
Matrix Spikes	%R of 70 – 130% (General analytes) %R of 50 – 130% (Phenols) %R of 60 – 130% (OCP/OPPs) %R of 62 – 130% (Chromium)
Method Blanks	Analytical Results < LOR/PQL

If data do not meet the QC Acceptance Criteria then a judgement is made as to whether the exceedance is critical in relation to the suitability of the data set. Otherwise the following steps will be taken:

◊ Request that the laboratory re-check or even re-analyse the sample.

◊ Inspect the sample for anomalies which may be causing the failure.

◊ If necessary, undertake additional sampling and analyses.

---

[2] Both the LOR and PQL are interchangeable terms used by laboratories and is defined as the lowest concentration that can be reliably achieved within specific limits of precision and accuracy during routine laboratory operating conditions (reference I5).

I3.3 RESULTS

I3.3.1 Field QC Samples

Field QC samples collected and analysed as part of this investigation comprised:

Soil Sampling

- ◊ Five blind replicates (SM161213-03, SM161213-17, SM171213-65, SM171213-93 and SM060114-82)
- ◊ Five split duplicates (SM161213-48, SM171213-73, SM171213-88, SM060114-85 and SM060114-91)
- ◊ Three trip blanks (labelled 'trip blank') and dated 16 Dec 2013, 17 Dec 2013 & 6 Jan 2014
- ◊ Three trip spikes (labelled 'trip spikes') and dated 16 Dec 2013, 17 Dec 2013 & 6 Jan 2014
- ◊ Two rinsate blanks (each from the hand auger used during each group of sampling).

Water Sampling

- ◊ One blind replicate (SM060114-102)
- ◊ One trip blank (labelled 'trip blank')
- ◊ One trip spike (labelled 'trip spike')

A split duplicate sample was not collected during the groundwater sampling event due to the small number of samples analysed.

Tabulated results are presented at the conclusion of this Appendix. Table I3 and I4 provides a summary of the frequency of QC samples and lists results which do not meet the criteria established in Table I2.

Table I3: QC Sample Acceptance Criteria - Soil

Type	Frequency Conducted	Results Not Meeting the Criteria
Blind Replicates	Lead - 5 per 68 samples (7.3%)	--
	Other Metals - 5 per 59 samples (8.5%)	--
	TRH/BTEX - 4 per 41 samples (9.7%)	--
	PAHs - 3 per 30 samples (10.0%)	--
	OCP/PCB - 1 per 12 samples (8.3%)	--
Split Duplicates	Lead - 5 per 68 samples (7.3%)	--
	Other Metals - 5 per 59 samples (8.5%)	--
	TRH/BTEX - 3 per 41 samples (7.3%)	--
	PAHs - 3 per 30 samples (10.0%)	--
	OCP/PCB - 1 per 12 samples (8.3%)	--
Trip Blank	1 per sample batch	--
Trip Spike	1 per sample batch	Recoveries of between 62% and 63% for the trip spike dated 16 Dec 2013.
Rinsate	1 from the hand auger taken on 17 Dec 2013 then the 6 Jan 2014	--

Table I4: QC Sample Acceptance Criteria - Water

Type	Frequency Conducted	Results Not Meeting the Criteria
Blind Replicate	1 per 6 samples (16.7%)	--
Trip Blank	1 per sample batch	--
Trip Spike	1 per sample batch	--

The elevated low recoveries in the trip spike dated 16 Dec 2013 are attributed to the fact that the trip spike was obtained at least 24hours before sampling. Although low, which indicates a partial loss of volatiles in the samples, volatiles were not detected in the samples collected on this day.

I3.3.2 Laboratory QC

Laboratory QC results are provided in the laboratory reports while a summary of the results which exceeded the acceptance criteria is provided in Table I5.

Table I5: QC Sample Acceptance Criteria

Type	Results Exceeding Criteria
Laboratory Duplicates	--
Laboratory Control Samples	--
Surrogates	--
Matrix Spikes	--
Method Blanks	--

I4. DATA QUALITY ASSESSMENT

In accordance with reference I6, Data Quality Indicators (DQIs), specifically, precision, accuracy, representativeness, completeness and comparability, were used to assess the reliability of field procedures and analytical results.

I4.1 PRECISION

This is the measure of the variability (or reproducibility) of the data. In the field precision is achieved by using standard operating procedures which were adopted by GEE during this investigation. For laboratory analysis precision is assessed using blind replicates and trip spikes. The measured RPDs for the blind replicate samples and split samples were considered acceptable as were the analytical results for the trip spike.

I4.2 ACCURACY

Accuracy is a measure of the closeness of a measurement to the true parameter value. In the field, accuracy is achieved by using standard operating procedures which were adopted by GEE. For laboratory analysis, accuracy is assessed using tip blanks, rinsate blanks, method blanks, matrix spikes, surrogates and laboratory control samples. Considering that these QC samples were of an acceptable standard, GEE considers the laboratory data set to be accurate.

I4.3 REPRESENTATIVENESS

This is the confidence (expressed qualitatively) that the data are representative of each media present on the site. This is achieved in the field and laboratory by using an adequate number of sampling points to characterise the site and ensuring that the samples collected were representative of the media from which they were collected. Additionally, samples should be analysed within necessary holding times depending on the analyte.

Environmental samples were collected from each borehole in general accordance with techniques described in Australian Standards AS4482.1 (reference I2) AS4482.2 (reference I7) and NEPM (reference I1), to maintain the representativeness and integrity of the samples. The number of sampling points exceeded the minimum required sampling density as defined by NSW EPA (reference I8), however, were considered sufficient for the purpose of this investigation.

Finally all samples were analysed within holding times.

I4.4 COMPLETENESS

This is a measure of whether all the data necessary to meet the project objectives, were collected. In the field and laboratory, this is achieved by sampling all critical locations and depths using acceptable methods and ensuring samples are analysed for appropriate chemicals.

GEE selected sufficient a sufficient number of sample points for the purpose of the investigation as defined by the NSW EPA (reference I8). Additionally, samples were analysed for chemicals of concern based on appropriate field screening measures and logging of unusual aesthetics which may indicate contamination. Combined with the fact that standard operating procedures were adopted by GEE, the investigation is assessed as being complete.

I4.5 COMPARABILITY

This is a measure of confidence that data may be considered to be equivalent for each sampling and analysis event. Soil samples were collected by experienced GEE personnel using standard operating procedures and analysed in accordance with NATA accredited laboratory methods. The comparability of the data should be consistent as sampling protocols were employed throughout the duration of the fieldwork and analysis was undertaken by NATA registered laboratories using accredited analytical methods.

I5. CONCLUSION

A review of the DQIs indicates that the field procedures and analytical results adopted for this investigation are able to be relied upon for making conclusions and recommendations regarding the contamination status of the site.

References

I1. *NEPC, 1999: National Environment Protection Council (1999). National Environment Protection (Assessment of Site Contamination) Measure. Schedule B(2) Data Collection, Sample Design and Reporting.*

I2. *Australian Standard AS4482.1 – 2005: Guide to the sampling and investigation of potentially contaminated soil Part 1: Non-volatile and semi-volatile compounds.*

I3. *NEPC, 1999: National Environment Protection Council (1999). National Environment Protection (Assessment of Site Contamination) Measure. Schedule B(3) Guideline of Laboratory Analysis of Potentially contaminated Soils.*

I4. *Keith, 1991: Environmental sampling and Analysis, A practical guide. Lewis Publishers.*

I5. *Popek (2003). Sampling and Analysis of Environmental Chemical Pollutants. Academic Press.*

I6. *NSW DEC (2006) Contaminated Sites: Guidelines for NSW Site Auditor Scheme, 2nd Edition.*

I7. *Australian Standard AS4482.2 – 1999: Guide to the sampling and investigation of potentially contaminated soil Part 2: Volatile substances.*

I8. *NSW EPA, 1995: Environment Protection Authority NSW, 1995: Contaminated Sites: Sampling Design Guidelines, EPA NSW.*

SOIL - Blind Replicate Results

		Sample Date	16/12/2014	16/12/2014	**RPD**	16/12/2014	16/12/2014	**RPD**	17/12/2013	17/12/2013	**RPD**	17/12/2013	17/12/2013	**RPD**	6/01/2014	6/01/2014	**RPD**
		Sample Identification	**SM161213-02**	**SM161213-03**		**SM161213-16**	**SM161213-17**		**SM171213-64**	**SM171213-65**		**SM171213-92**	**SM171213-93**		**SM060114-81**	**SM060114-82**	
Analyte	Units	LOR															
Total Metals			Envirolab	Envirolab		Envirolab	Envirolab		Envirolab	Envirolab		Envirolab	Envirolab		Envirolab	Envirolab	
Arsenic	mg/kg	4	7	<4	--	5	5	0%	<4	<4	--	<4	<4	--	<4	<4	--
Cadmium	mg/kg	0.5	<0.4	<0.4	--	<0.4	<0.4	--	<0.4	<0.4	--	<0.4	<0.4	--	<0.4	<0.4	--
Chromium	mg/kg	1	13	9	36%	3	2	40%	2	3	40%	2	2	0%	5	4	22%
Copper	mg/kg	1	20	19	5%	<1	<1	--	22	32	37%	1	<1	--	33	49	39%
Lead	mg/kg	1	13	14	7%	3	2	40%	1	2	67%	4	4	0%	220	180	20%
Mercury	mg/kg	0.1	<0.1	<0.1	--	<0.1	<0.1	--	<0.1	<0.1	--	<0.1	<0.1	--	<0.1	<0.1	--
Nickel	mg/kg	1	2	<1	--	1	1	0%	1	2	67%	1	1	0%	3	3	0%
Zinc	mg/kg	1	10	9	11%	6	4	40%	5	6	18%	7	5	33%	10	16	46%
Total Polychlorinated biphenyls																	
Total PCBs	mg/kg	0.1	--	--	--	<0.1	<0.1	--	<0.1	<0.1	--	<0.1	<0.1	--	<0.1	<0.1	--
Organochlorine Pesticides (OCP)																	
HCB	mg/kg	0.1	--	--	--	<0.1	<0.1	--	<0.1	--	--	<0.1	--	--	<0.1	--	--
alpha-BHC	mg/kg	0.1	--	--	--	<0.1	<0.1	--	<0.1	--	--	<0.1	--	--	<0.1	--	--
gamma-BHC	mg/kg	0.1	--	--	--	<0.1	<0.1	--	<0.1	--	--	<0.1	--	--	<0.1	--	--
beta-BHC	mg/kg	0.1	--	--	--	<0.1	<0.1	--	<0.1	--	--	<0.1	--	--	<0.1	--	--
Heptachlor	mg/kg	0.1	--	--	--	<0.1	<0.1	--	<0.1	--	--	<0.1	--	--	<0.1	--	--
delta-BHC	mg/kg	0.1	--	--	--	<0.1	<0.1	--	<0.1	--	--	<0.1	--	--	<0.1	--	--
Aldrin	mg/kg	0.1	--	--	--	<0.1	<0.1	**--**	<0.1	--	--	<0.1	--	--	<0.1	--	--
Heptachlor Epoxide	mg/kg	0.1	--	--	--	<0.1	<0.1	--	<0.1	--	--	<0.1	--	--	<0.1	--	--
gamma-Chlordane	mg/kg	0.1	--	--	--	<0.1	<0.1	**--**	<0.1	--	--	<0.1	--	--	<0.1	--	--
alpha-chlordane	mg/kg	0.1	--	--	--	<0.1	<0.1	--	<0.1	--	--	<0.1	--	--	<0.1	--	--
Endosulfan I	mg/kg	0.1	--	--	--	<0.1	<0.1	**--**	<0.1	--	--	<0.1	--	--	<0.1	--	--
pp-DDE	mg/kg	0.1	--	--	--	<0.1	<0.1	**--**	<0.1	--	--	<0.1	--	--	<0.1	--	--
Dieldrin	mg/kg	0.1	--	--	--	<0.1	<0.1	--	<0.1	--	--	<0.1	--	--	<0.1	--	--
Endrin	mg/kg	0.1	--	--	--	<0.1	<0.1	--	<0.1	--	--	<0.1	--	--	<0.1	--	--
pp-DDD	mg/kg	0.1	--	--	--	<0.1	<0.1	--	<0.1	--	--	<0.1	--	--	<0.1	--	--
Endosulfan II	mg/kg	0.1	--	--	--	<0.1	<0.1	--	<0.1	--	--	<0.1	--	--	<0.1	--	--
pp-DDT	mg/kg	0.1	--	--	--	<0.1	<0.1	--	<0.1	--	--	<0.1	--	--	<0.1	--	--
Endrin Aldehyde	mg/kg	0.1	--	--	--	<0.1	<0.1	--	<0.1	--	--	<0.1	--	--	<0.1	--	--
Endosulfan Sulphate	mg/kg	0.1	--	--	--	<0.1	<0.1	--	<0.1	--	--	<0.1	--	--	<0.1	--	--
Methoxychlor	mg/kg	0.1	--	--	--	<0.1	<0.1	--	<0.1	--	--	<0.1	--	--	<0.1	--	--
Polycyclic Aromatic Hydrocarbons																	
Naphthalene	mg/kg	0.1	--	--	--	<0.1	<0.1	--	<0.1	--	--	<0.1	<0.1	--	<0.1	<0.1	--
Acenaphthylene	mg/kg	0.1	--	--	--	<0.1	<0.1	--	<0.1	--	--	<0.1	<0.1	--	<0.1	<0.1	--
Acenaphthene	mg/kg	0.1	--	--	--	<0.1	<0.1	--	<0.1	--	--	<0.1	<0.1	--	<0.1	<0.1	--
Fluorene	mg/kg	0.1	--	--	--	<0.1	<0.1	--	<0.1	--	--	<0.1	<0.1	--	<0.1	<0.1	--
Phenanthrene	mg/kg	0.1	--	--	--	<0.1	<0.1	**--**	<0.1	--	--	<0.1	<0.1	--	<0.1	<0.1	--
Anthracene	mg/kg	0.1	--	--	--	<0.1	<0.1	**--**	<0.1	--	--	<0.1	<0.1	--	<0.1	<0.1	--
Fluoranthene	mg/kg	0.1	--	--	--	<0.1	<0.1	--	<0.1	--	--	<0.1	<0.1	--	<0.1	<0.1	--
Pyrene	mg/kg	0.1	--	--	--	<0.1	<0.1	--	<0.1	--	--	<0.1	<0.1	--	<0.1	<0.1	--
Benz(a)anthracene	mg/kg	0.1	--	--	--	<0.1	<0.1	--	<0.1	--	--	<0.1	<0.1	--	<0.1	<0.1	--
Chrysene	mg/kg	0.1	--	--	--	<0.1	<0.1	--	<0.1	--	--	<0.1	<0.1	--	<0.1	<0.1	--
Benzo(b&k)fluoranthene	mg/kg	0.2	--	--	--	<0.2	<0.2	--	<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	<0.05	--	<0.05	<0.05	--
Indeno(1.2.3.cd)pyrene	mg/kg	0.1	--	--	--	<0.1	<0.1	--	<0.1	--	--	<0.1	<0.1	--	<0.1	<0.1	--
Dibenz(a.h)anthracene	mg/kg	0.1	--	--	--	<0.1	<0.1	--	<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	<0.1	--	<0.1	<0.1	--
TOTAL PAHs	mg/kg	0.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
BTEX																	
Benzene	mg/kg	0.2	--	--	--	<0.2	<0.2	--	<0.2	<0.2	--	<0.2	<0.2	--	<0.2	<0.2	--
Toluene	mg/kg	0.5	--	--	--	<0.5	<0.5	--	<0.5	<0.5	--	<0.5	<0.5	--	<0.5	<0.5	--
Ethylbenzene	mg/kg	0.5	--	--	--	<1	<1	--	<1	<1	--	<1	<1	--	<1	<1	--
meta- & para-Xylene	mg/kg	0.5	--	--	--	<2	<2	--	<2	<2	--	<2	<2	--	<2	<2	--
ortho-Xylene	mg/kg	0.5	--	--	--	<1	<1	--	<1	<1	--	<1	<1	--	<1	<1	--
Total Petroleum Hydrocarbons																	
C6 - C9 Fraction	mg/kg	10	--	--	--	<25	<25	--	<25	<25	--	<25	<25	--	<25	<25	--
C10 - C14 Fraction	mg/kg	50	--	--	--	<50	<50	--	<50	<50	--	<50	<50	--	<50	<50	--
C15 - C28 Fraction	mg/kg	100	--	--	--	<100	<100	--	<100	<100	--	<100	<100	--	<100	<100	--
C29 - C36 Fraction	mg/kg	100	--	--	--	<100	<100	--	<100	<100	--	<100	<100	--	<100	<100	--

Values in Bold Indicate: RPD > 50 % When average concentration is > 10 x LOR
RPD > 75 % When average concentration is 5 to 10 x LOR
RPD > 100 % When average concentration is< 5 x LOR

SOIL - Split Duplicate Results

		Sample Date	16/12/2014	16/12/2014	RPD	17/12/2013	17/12/2013	RPD	17/12/2013	17/12/2013	RPD	6/01/2014	6/01/2014	RPD	6/01/2014	6/01/2014	RPD
		Sample Identification	**SM161213-47**	**SM161213-48**		**SM171213-72**	**SM171213-73**		**SM171213-87**	**SM171213-88**		**SM060114-84**	**SM060114-85**		**SM060114-90**	**SM060114-91**	
Analyte	Units	LOR															
Total Metals			Envirolab	MGT		Envirolab	MGT		Envirolab	MGT		Envirolab	MGT		Envirolab	MGT	
Arsenic	mg/kg	4	<4	3.5	--	<4	4	--	5	5.2	4%	8	4.6	54%	7	6.2	12%
Cadmium	mg/kg	0.5	<0.4	<0.4	--	<0.4	<0.4	--	<0.4	<0.4	--	<0.4	<0.4	--	<0.4	<0.4	--
Chromium	mg/kg	1	5	<5	--	17	24	34%	3	<5	--	18	15	18%	5	6.1	20%
Copper	mg/kg	1	7	<5	--	4	<5	--	4	<5	--	23	23	0%	18	18	0%
Lead	mg/kg	1	35	39	11%	130	230	56%	<1	<5	--	45	31	37%	14	14	0%
Mercury	mg/kg	0.1	<0.1	<0.05	--	<0.1	0.07	--	<0.1	<0.05	--	0.1	<0.1	--	<0.1	<0.1	--
Nickel	mg/kg	1	3	<5	--	1	<5	--	1	<5	--	5	<5	--	1	<5	--
Zinc	mg/kg	1	85	89	5%	25	39	44%	2	<5	--	120	100	18%	11	15	31%
Total Polychlorinated biphenyls																	
Total PCBs	mg/kg	0.1	--	--	--	--	--	--	<0.1	<0.5	--	--	--	--	<0.1	--	--
Organochlorine Pesticides (OCP)																	
HCB	mg/kg	0.1	--	--	--	--	--	--	<0.1	<0.05	--	--	--	--	<0.1	--	--
alpha-BHC	mg/kg	0.1	--	--	--	--	--	--	<0.1	<0.05	--	--	--	--	<0.1	--	--
gamma-BHC	mg/kg	0.1	--	--	--	--	--	--	<0.1	<0.05	--	--	--	--	<0.1	--	--
beta-BHC	mg/kg	0.1	--	--	--	--	--	--	<0.1	<0.05	--	--	--	--	<0.1	--	--
Heptachlor	mg/kg	0.1	--	--	--	--	--	--	<0.1	<0.05	--	--	--	--	<0.1	--	--
delta-BHC	mg/kg	0.1	--	--	--	--	--	--	<0.1	<0.05	--	--	--	--	<0.1	--	--
Aldrin	mg/kg	0.1	--	--	--	--	--	--	<0.1	<0.05	--	--	--	--	<0.1	--	--
Heptachlor Epoxide	mg/kg	0.1	--	--	--	--	--	--	<0.1	<0.05	--	--	--	--	<0.1	--	--
gamma-Chlordane	mg/kg	0.1	--	--	--	--	--	--	<0.1	<0.05	--	--	--	--	<0.1	--	--
alpha-chlordane	mg/kg	0.1	--	--	--	--	--	--	<0.1	<0.05	--	--	--	--	<0.1	--	--
Endosulfan I	mg/kg	0.1	--	--	--	--	--	--	<0.1	<0.05	--	--	--	--	<0.1	--	--
pp-DDE	mg/kg	0.1	--	--	--	--	--	--	<0.1	<0.05	--	--	--	--	<0.1	--	--
Dieldrin	mg/kg	0.1	--	--	--	--	--	--	<0.1	<0.05	--	--	--	--	<0.1	--	--
Endrin	mg/kg	0.1	--	--	--	--	--	--	<0.1	<0.05	--	--	--	--	<0.1	--	--
pp-DDD	mg/kg	0.1	--	--	--	--	--	--	<0.1	<0.05	--	--	--	--	<0.1	--	--
Endosulfan II	mg/kg	0.1	--	--	--	--	--	--	<0.1	<0.05	--	--	--	--	<0.1	--	--
pp-DDT	mg/kg	0.1	--	--	--	--	--	--	<0.1	<0.2	--	--	--	--	<0.1	--	--
Endrin Aldehyde	mg/kg	0.1	--	--	--	--	--	--	<0.1	<0.05	--	--	--	--	<0.1	--	--
Endosulfan Sulphate	mg/kg	0.1	--	--	--	--	--	--	<0.1	<0.05	--	--	--	--	<0.1	--	--
Methoxychlor	mg/kg	0.1	--	--	--	--	--	--	<0.1	<0.05	--	--	--	--	<0.1	--	--
Polycyclic Aromatic Hydrocarbons																	
Naphthalene	mg/kg	0.1	<0.1	<0.5	--	<0.1	--	--	<0.1	<0.5	--	<0.1	<0.5	--	<0.1	--	--
Acenaphthylene	mg/kg	0.1	<0.1	<0.5	--	<0.1	--	--	<0.1	<0.5	--	<0.1	<0.5	--	<0.1	--	--
Acenaphthene	mg/kg	0.1	<0.1	<0.5	--	<0.1	--	--	<0.1	<0.5	--	<0.1	<0.5	--	<0.1	--	--
Fluorene	mg/kg	0.1	<0.1	<0.5	--	<0.1	--	--	<0.1	<0.5	--	<0.1	<0.5	--	<0.1	--	--
Phenanthrene	mg/kg	0.1	<0.1	<0.5	--	<0.1	--	--	<0.1	<0.5	--	<0.1	<0.5	--	<0.1	--	--
Anthracene	mg/kg	0.1	<0.1	<0.5	--	<0.1	--	--	<0.1	<0.5	--	<0.1	<0.5	--	<0.1	--	--
Fluoranthene	mg/kg	0.1	<0.1	<0.5	--	0.1	--	**--**	0.1	<0.5	**--**	0.4	<0.5	**--**	0.1	--	**--**
Pyrene	mg/kg	0.1	<0.1	<0.5	--	0.1	--	**--**	0.1	<0.5	**--**	0.4	<0.5	**--**	0.1	--	**--**
Benz(a)anthracene	mg/kg	0.1	<0.1	<0.5	--	<0.1	--	--	<0.1	<0.5	--	0.2	<0.5	--	<0.1	--	--
Chrysene	mg/kg	0.1	<0.1	<0.5	--	<0.1	--	--	<0.1	<0.5	--	0.3	<0.5	--	<0.1	--	--
Benzo(b&k)fluoranthene	mg/kg	0.2	<0.2	<1	--	<0.2	--	--	<0.2	<1	--	0.4	<0.5	--	<0.2	--	--
Benzo(a)pyrene	mg/kg	0.05	<0.05	<0.5	--	<0.05	--	--	<0.05	<0.5	--	0.22	<0.5	--	<0.05	--	--
Indeno(1.2.3.cd)pyrene	mg/kg	0.1	<0.1	<0.5	--	<0.1	--	--	<0.1	<0.5	--	0.1	<0.5	--	<0.1	--	--
Dibenz(a.h)anthracene	mg/kg	0.1	<0.1	<0.5	--	<0.1	--	--	<0.1	<0.5	--	<0.1	<0.5	--	<0.1	--	--
Benzo(g.h.i)perylene	mg/kg	0.1	<0.1	<0.5	--	<0.1	--	--	<0.1	<0.5	--	0.1	<0.5	--	<0.1	--	--
TOTAL PAHs	mg/kg	0.1	<0.1	<1.0	--	0.2	--	**--**	0.2	<1.0	**--**	2.3	<0.5	**--**	0.2	--	**--**
BTEX																	
Benzene	mg/kg	0.2	<0.2	<0.1	--	<0.2	--	--	<0.2	<0.5	--	<0.2	<0.5	--	<0.2	--	--
Toluene	mg/kg	0.5	<0.5	<0.1	--	<0.5	--	--	<0.5	<0.5	--	<0.5	<0.5	--	<0.5	--	--
Ethylbenzene	mg/kg	0.5	<1	<0.1	--	<1	--	--	<1	<0.5	--	<1	<0.5	--	<1	--	--
meta- & para-Xylene	mg/kg	0.5	<2	<2	--	<2	--	--	<2	<1	--	<2	<1	--	<2	--	--
ortho-Xylene	mg/kg	0.5	<1	<1	--	<1	--	--	<1	<0.5	--	<1	<0.5	--	<1	--	--
Total Petroleum Hydrocarbons																	
C6 - C9 Fraction	mg/kg	10	<25	<10	--	<25	--	--	<25	<10	--	<25	<10	--	<25	-	--
C10 - C14 Fraction	mg/kg	50	<50	<50	--	<50	--	--	<50	<50	--	<50	<50	--	<50	--	--
C15 - C28 Fraction	mg/kg	100	<100	<100	--	<100	--	--	<100	<100	--	<100	<100	--	<100	--	--
C29 - C36 Fraction	mg/kg	100	<100	<100	--	<100	--	--	<100	<100	--	<100	<100	--	<100	--	--

Values in Bold Indicate: RPD > 50 % When average concentration is > 10 x LOR
RPD > 75 % When average concentration is 5 to 10 x LOR
RPD > 100 % When average concentration is< 5 x LOR

SOIL - Trip Blank Results

Laboratory:		Envirolab 102886	Envirolab 102886	Envirolab 103178
Date		16-Dec-13	17-Dec-13	6-Jan-14
Sample ID		**Trip blank 1**	**Trip Blank 2**	**Trip Blank 2**
Analyte	Units			
BTEX				
Benzene	mg/kg	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1
meta- & para-Xylene	mg/kg	<2	<2	<2
ortho-Xylene	mg/kg	<1	<1	<1
Total Petroleum Hydrocarbons				
C6 - C9 Fraction	mg/kg	<25	<25	<25
C10 - C14 Fraction	mg/kg	---	--	--
C15 - C28 Fraction	mg/kg	---	--	--
C29 - C36 Fraction	mg/kg	---	--	--

Notes:

--- Not Analysed

SOIL - Trip Spike Results

Laboratory:		Envirolab 102886	Envirolab 102886	Envirolab 103178
Date:		16-Dec-13	17-Dec-13	6-Jan-14
Sample ID		**Spike Recovery**	**Spike Recovery**	**Spike Recovery**
Analyte	Units			
BTEX				
Benzene	mg/kg	**63%**	103%	111%
Toluene	mg/kg	**63%**	101%	111%
Ethylbenzene	mg/kg	**62%**	105%	111%
meta- & para-Xylene	mg/kg	**63%**	106%	111%
ortho-Xylene	mg/kg	**62%**	95%	112%

Notes:

--- Not Analysed

SOIL - Rinsate Results

Laboratory:			Rinsate	Rinsate
Date:			17-Dec-17	6-Jan-14
Sample ID			**Rinsate 1**	**R2**
Analyte	Units	LOR		
Total Metals				
Arsenic	µg/L	0.05	<0.05	<1
Cadmium	µg/L	0.01	<0.01	<0.1
Chromium	µg/L	0.01	<0.01	<1
Copper	µg/L	0.01	<0.01	<1
Lead	µg/L	0.03	<0.03	<1
Nickel	µg/L	0.0005	<0.0005	<0.05
Zinc	µg/L	0.02	<0.02	<1
Mercury	µg/L	0.02	<0.02	<1
BTEX				
Benzene	µg/L	1	<1	<1
Toluene	µg/L	1	<1	<1
Ethylbenzene	µg/L	1	<1	<1
meta- & para-Xylene	µg/L	2	<2	<2
ortho-Xylene	µg/L	1	<1	<1
Total Petroleum Hydrocarbons				
C6 - C9 Fraction	µg/L	50	<10	--
C10 - C14 Fraction	µg/L	50	<50	--
C15 - C28 Fraction	µg/L	100	<100	--
C29 - C36 Fraction	µg/L	100	<100	--
Polynuclear Aromatic Hydrocarbons				
Naphthalene	µg/L	1	<1	--
Acenaphthylene	µg/L	1	<1	--
Acenaphthene	µg/L	1	<1	--
Fluorene	µg/L	1	<1	--
Phenanthrene	µg/L	1	<1	--
Anthracene	µg/L	1	<1	--
Fluoranthene	µg/L	1	<1	--
Pyrene	µg/L	1	<1	--
Benz(a)anthracene	µg/L	1	<1	--
Chrysene	µg/L	1	<1	--
Benzo(b)fluoranthene	µg/L	1	<1	--
Benzo(k)fluoranthene	µg/L	1	<1	--
Benzo(a)pyrene	µg/L	2	<2	--
Indeno(1.2.3.cd)pyrene	µg/L	1	<1	--
Dibenz(a.h)anthracene	µg/L	1	<1	--
Benzo(g.h.i)perylene	µg/L	1	<1	--
TOTAL PAHs	µg/L	1	--	--

Notes:

--- Not Analysed

Note 1: Results in **BOLD** indicate detection above the Limit of Reporting

WATER - Blind Replicate Results

		Sample Date	6/01/2014	6/01/2014	**RPD**
		Sample Identification	**SM060114-101**	**SM060114-102**	
Analyte	Units	LOR			
Total Metals			Envirolab	Envirolab	
Arsenic	µg/L	1	1	1	0%
Cadmium	µg/L	0.1	1.3	1.3	0%
Chromium	µg/L	1	1	<1	--
Copper	µg/L	1	1	1	0%
Lead	µg/L	1	<1	<1	--
Mercury	µg/L	0.05	<0.05	<0.05	--
Nickel	µg/L	1	75	74	1%
Zinc	µg/L	1	150	150	0%
Polycyclic Aromatic Hydrocarbons					
Naphthalene	µg/L	1	<1	<1	--
Acenaphthylene	µg/L	1	<1	<1	--
Acenaphthene	µg/L	1	<1	<1	--
Fluorene	µg/L	1	<1	<1	--
Phenanthrene	µg/L	1	<1	<1	--
Anthracene	µg/L	1	<1	<1	--
Fluoranthene	µg/L	1	<1	<1	--
Pyrene	µg/L	1	<1	<1	--
Benz(a)anthracene	µg/L	1	<1	<1	--
Chrysene	µg/L	1	<1	<1	--
Benzo(b&k)fluoranthene	µg/L	1	<1	<1	--
Benzo(a)pyrene	µg/L	2	<2	<2	--
Indeno(1.2.3.cd)pyrene	µg/L	1	<1	<1	--
Dibenz(a.h)anthracene	µg/L	1	<1	<1	--
Benzo(g.h.i)perylene	µg/L	1	<1	<1	--
TOTAL PAHs	µg/L	1	--	--	--
BTEX					
Benzene	µg/L	1	<1	<1	--
Toluene	µg/L	1	<1	<1	--
Ethylbenzene	µg/L	1	<1	<1	--
meta- & para-Xylene	µg/L	2	<2	<2	--
ortho-Xylene	µg/L	1	<1	<1	--
Total Petroleum Hydrocarbons					
C6 - C9 Fraction	µg/L	10	<10	<10	--
C10 - C14 Fraction	µg/L	50	<50	<50	--
C15 - C28 Fraction	µg/L	100	<100	<100	--
C29 - C36 Fraction	µg/L	100	<100	<100	--

Values in Bold Indicate: RPD > 50 % When average concentration is > 10 x LOR
RPD > 75 % When average concentration is 5 to 10 x LOR
RPD > 100 % When average concentration is< 5 x LOR

WATER - Trip Blank Results

Laboratory:		Envirolab 103178
Date		6-Jan-14
Sample ID		**Trip Blank**
Analyte	Units	
BTEX		
Benzene	µg/L	<1
Toluene	µg/L	<1
Ethylbenzene	µg/L	<1
meta- & para-Xylene	µg/L	<2
ortho-Xylene	µg/L	<1
Total Petroleum Hydrocarbons		
C6 - C9 Fraction	µg/L	<10
C10 - C14 Fraction	µg/L	--
C15 - C28 Fraction	µg/L	--
C29 - C36 Fraction	µg/L	--

Notes:

--- Not Analysed

WATER - Trip Spike Results

Laboratory:		Envirolab 103178
Date		6-Jan
Sample ID		**Spike Recovery**
Analyte	Units	
BTEX		
Benzene	µg/L	82%
Toluene	µg/L	92%
Ethylbenzene	µg/L	98%
meta- & para-Xylene	µg/L	101%
ortho-Xylene	µg/L	100%

Notes:

--- Not Analysed

APPENDIX J

Calibration Certificates

16/12/2013

PID Calibration Certificate

Instrument PhoCheck Tiger
Serial No. T-105859

airmet

Air-Met Scientific Pty Ltd
1300 137 067

Item	Test	Pass	Comments			
Battery	Charge Condition	✓				
	Fuses	✓				
	Capacity	✓				
	Recharge OK?	✓				
Switch/keypad	Operation	✓				
Display	Intensity	✓				
	Operation (segments)	✓				
Grill Filter	Condition	✓				
	Seal	✓				
Pump	Operation	✓				
	Filter	✓				
	Flow	✓				
	Valves, Diaphragm	✓				
PCB	Condition	✓				
Connectors	Condition	✓				
Sensor	PID	✓	10.6 ev			
Alarms	Beeper	✓	**Low**	**High**	**TWA**	**STEL**
	Settings	✓	50ppm	100ppm		
Software	Version	✓				
Data logger	Operation	✓				
Download	Operation	✓				
Other tests:						

Certificate of Calibration

This is to certify that the above instrument has been calibrated to the following specifications:

Sensor	Serial no	Calibration gas and concentration	Certified	Gas bottle No		Instrument Reading
PID Lamp		100ppm Isobutylene	NIST	SY21		99.6ppm

Calibrated by: Joanna Wong

Calibration date: 16/12/2013

Next calibration due: 15/01/2014

3/1/14

PID Calibration Certificate

Instrument **PhoCheck Tiger**
Serial No. **T-105522**

airmet

Air-Met Scientific Pty Ltd
1300 137 067

<table>
<tr><th>Item</th><th>Test</th><th>Pass</th><th colspan="4">Comments</th></tr>
<tr><td>Battery</td><td>Charge Condition</td><td>✓</td><td colspan="4"></td></tr>
<tr><td></td><td>Fuses</td><td>✓</td><td colspan="4"></td></tr>
<tr><td></td><td>Capacity</td><td>✓</td><td colspan="4"></td></tr>
<tr><td></td><td>Recharge OK?</td><td>✓</td><td colspan="4"></td></tr>
<tr><td>Switch/keypad</td><td>Operation</td><td>✓</td><td colspan="4"></td></tr>
<tr><td>Display</td><td>Intensity</td><td>✓</td><td colspan="4"></td></tr>
<tr><td></td><td>Operation (segments)</td><td>✓</td><td colspan="4"></td></tr>
<tr><td>Grill Filter</td><td>Condition</td><td>✓</td><td colspan="4"></td></tr>
<tr><td></td><td>Seal</td><td>✓</td><td colspan="4"></td></tr>
<tr><td>Pump</td><td>Operation</td><td>✓</td><td colspan="4"></td></tr>
<tr><td></td><td>Filter</td><td>✓</td><td colspan="4"></td></tr>
<tr><td></td><td>Flow</td><td>✓</td><td colspan="4"></td></tr>
<tr><td></td><td>Valves, Diaphragm</td><td>✓</td><td colspan="4"></td></tr>
<tr><td>PCB</td><td>Condition</td><td>✓</td><td colspan="4"></td></tr>
<tr><td>Connectors</td><td>Condition</td><td>✓</td><td colspan="4"></td></tr>
<tr><td>Sensor</td><td>PID</td><td>✓</td><td colspan="4">10.6 ev</td></tr>
<tr><td></td><td></td><td></td><td colspan="4"></td></tr>
<tr><td>Alarms</td><td>Beeper</td><td>✓</td><td>Low</td><td>High</td><td>TWA</td><td>STEL</td></tr>
<tr><td></td><td>Settings</td><td>✓</td><td>50ppm</td><td>100ppm</td><td></td><td></td></tr>
<tr><td>Software</td><td>Version</td><td>✓</td><td colspan="4"></td></tr>
<tr><td>Data logger</td><td>Operation</td><td>✓</td><td colspan="4"></td></tr>
<tr><td>Download</td><td>Operation</td><td>✓</td><td colspan="4"></td></tr>
<tr><td>Other tests:</td><td></td><td></td><td colspan="4"></td></tr>
</table>

Certificate of Calibration

This is to certify that the above instrument has been calibrated to the following specifications:

Sensor	Serial no	Calibration gas and concentration	Certified	Gas bottle No		Instrument Reading
PID Lamp		100ppm Isobutylene	NIST	SY21		100.6ppm

Calibrated by: AR **Anne Rutlidge**

Calibration date: **3/01/2014**

Next calibration due: **2/02/2014**

3/1/14

Multi Parameter Water Meter

airmet
Air-Met Scientific Pty Ltd
1300 137 067

Instrument **YSI Quatro Pro Plus**
Serial No. **10E101052**

Item	Test	Pass	Comments
Battery	Charge Condition	✓	
	Fuses	✓	
	Capacity	✓	
Switch/keypad	Operation	✓	
Display	Intensity	✓	
	Operation (segments)	✓	
Grill Filter	Condition	✓	
	Seal	✓	
PCB	Condition	✓	
Connectors	Condition	✓	
Sensor	1. pH	✓	
	2. mV	✓	
	3.Specific conductance	✓	
	4. D.O	✓	
	5. Temp	✓	
Alarms	Beeper		
	Settings		
Software	Version		
Data logger	Operation		
Download	Operation		
Other tests:			

Certificate of Calibration

This is to certify that the above instrument has been calibrated to the following specifications:

Sensor	Serial no	Standard Solutions	Certified	Solution Bottle Number	Instrument Reading
1. pH 7.00		pH 7.00		KL1376	pH 7.00
2. pH 10.00		pH 10.00		JH1569	pH 9.89
3. pH 4.00		pH 4.00		LB2154	pH 4.00
4. mV		229.0mV		KD2048/KG1100	229.9mV
5. EC		2.76mS		KJ1595	2.78mS
6. D.O		0ppm		187	0.00ppm
7. Temp		22.7°C		MultiTherm	22.5°C

Calibrated by: **Anne Rutlidge**

Calibration date: **3/01/2014**

Next calibration due: **2/02/2014**

APPENDIX K

Field Data Sheets

geo-environmental
ENGINEERING
82 BRIDGE STREET
LANE COVE NSW 2066
P: 02 8964 6045
E: info@geoenvironmental.com.au
www.geoenvironmental.com.au

GROUNDWATER SAMPLING FIELD DATA

WELL ID: BH2

PROJECT INFORMATION

PROJECT NAME:	Stage 1 and 2 ESA	PROJECT NUMBER:	E13017BEL
LOCATION / SITE:	677-687 Canterbury Rd Belmore	CLIENT:	City Property Alliance

WELL DETAILS

WELL DIAMETER (mm): 50	WELL SCREEN INTERVAL (m): 3.8-7.8	CASING STICK UP (+) / DOWN (-) m: -0.1

CONDITION (Comments Below):
Damage: ~~YES~~ / NO
Well ID Visible: ~~YES~~ / NO
Well Locked: YES / ~~NO~~
Cap on PVC: YES / ~~NO~~
Water Around Well: ~~YES~~ / NO
Water Between PVC and Gatic/ Monument: ~~YES~~ / NO

WELL MEASUREMENTS

STATIC WATER LEVEL (SWL):	~~[illegible]~~ 3.47	m BTOC or ~~m BGL or m BTOM~~
FREE PRODUCT:	~~Yes~~ or [✓ No]	Thickness (m):
TOTAL DEPTH OF WELL (TD):	7.8.	m BTOC or m BGL or m BTOM

PURGING DETAILS / OBSERVATIONS

METHOD: Bladder Pump Peristaltic High Volume Pump [✓ Foot Valve] Bailer Other:

DATE: 6-1-14	WATER LEVEL AFTER PURGE:	DRY	mBTOC / ~~mBGL / mBTOM~~
MAX. DRAWDOWN (m)	INTAKE DEPTH:		mBTOC / ~~mBGL / mBTOM~~

TIME	CUMUL. VOLUME PURGED (Litres)	PURGE RATE	DO (mg/L)	E.C. mS/cm or µS/cm	pH (standard units)	Redox (mV)	TEMP. (°C)	TURB, (NTUs)
Equilibrium Requirements			± 10 %	± 3 %	± 0.05	± 10	± 0.2	--
	≈15L							

RECHARGE OBSERVATIONS

[✓ Slow (80% recharge > 2 Hours)] Fast (80% recharge < 2 Hours)

SAMPLING DETAILS

METHOD: Bladder Pump Peristaltic High Volume Pump Foot Valve [✓ Bailer] Other:

DATE & TIME:	6-1-14	WATER LEVEL (m)		mBTOC / mBGL / mBTOM
SAMPLE ID:	SM060114 - 104	Blind Replicate ID:	~~SM060114-107~~	
		Split Duplicate ID:		

FINAL WATER QUALITY READINGS:

DO (mg/L)	E.C. mS/cm or [✓ µS/cm]	pH (standard units)	Redox (mV)	TEMP. (°C)	TURB, (NTUs)
2.78	1843	~~6.82~~ 7.75	65	21.5	

DESCRIPTION: Colour Pale Br Turbidity: Yes Odour: — Other

PURGE VOLUME CALCULATOR: Length of Water Column (m) = TD (m) – SWL (m) = ________
One Well Volumes (L) = Length of Water Column x 2 (50mm Dia.) or 7.8 (100mm Dia.) = ________
Three Well Volumes (L) = ________

NOTES: m BTOC = metres Below Top of Casing / m BGS = metres Below Ground Surface / m BTOM = metres Below Top of Monument

GEE PERSONNEL: S. McCormack

SIGNATURE:

geo-environmental
ENGINEERING
82 BRIDGE STREET
LANE COVE NSW 2066
P: 02 8964 6045
E: info@geoenvironmental.com.au
www.geoenvironmental.com.au

GROUNDWATER SAMPLING FIELD DATA

WELL ID: BH3

PROJECT INFORMATION

PROJECT NAME:	Stage 1 and 2 ESA	PROJECT NUMBER:	E13017BEL
LOCATION / SITE:	677-687 Canterbury Rd Belmore	CLIENT:	City Property Alliance

WELL DETAILS

WELL DIAMETER (mm): 50	WELL SCREEN INTERVAL (m): 2.6-6.6	CASING STICK UP (+) / DOWN (-) m: -0.1

CONDITION (Comments Below):
Damage: ~~YES~~ / NO
Well Locked: YES / ~~NO~~
Water Around Well: ~~YES~~ / NO
Well ID Visible: ~~YES~~ / NO
Cap on PVC: YES / ~~NO~~
Water Between PVC and Gatic/ Monument: ~~YES~~ / NO

WELL MEASUREMENTS

STATIC WATER LEVEL (SWL):	~~[illegible]~~ 3.81	[✓ m BTOC] or ~~m BGL or m BTOM~~
FREE PRODUCT:	~~Yes~~ or [✓ No]	Thickness (m):
TOTAL DEPTH OF WELL (TD):	6.6	[✓ m BTOC] or m BGL or m BTOM

PURGING DETAILS / OBSERVATIONS

METHOD: Bladder Pump Peristaltic High Volume Pump [✓ Foot Valve] Bailer Other:

DATE:	6/1/14	WATER LEVEL AFTER PURGE:	D24	mBTOC / ~~mBGL / mBTOM~~
MAX. DRAWDOWN (m)		INTAKE DEPTH:		mBTOC / ~~mBGL / mBTOM~~

TIME	CUMUL. VOLUME PURGED (Litres)	PURGE RATE	DO (mg/L)	E.C. mS/cm or µS/cm	pH (standard units)	Redox (mV)	TEMP. (°C)	TURB. (NTUs)
Equilibrium Requirements			± 10 %	± 3 %	± 0.05	± 10	± 0.2	--
	≈ 10L							

RECHARGE OBSERVATIONS

[✓ Slow (80% recharge > 2 Hours)] Fast (80% recharge < 2 Hours)

SAMPLING DETAILS

METHOD: Bladder Pump Peristaltic High Volume Pump Foot Valve [✓ Bailer] Other:

DATE & TIME:	6/1/14	WATER LEVEL (m)	mBTOC / mBGL / mBTOM
SAMPLE ID:	SM 060114-106	Blind Replicate ID:	
		Split Duplicate ID:	

FINAL WATER QUALITY READINGS:

DO (mg/L)	E.C. mS/cm or µS/cm	pH (standard units)	Redox (mV)	TEMP. (°C)	TURB. (NTUs)
1.81	[✓ µS/cm]	6.37			
[illegible]	13709	[illegible]	60	21.7	—

DESCRIPTION: Colour Pale Br Turbidity: Slight Odour: — Other

PURGE VOLUME CALCULATOR:
Length of Water Column (m) = TD (m) – SWL (m) = ____________
One Well Volumes (L) = Length of Water Column x 2 (50mm Dia.) or 7.8 (100mm Dia.) = ____________
Three Well Volumes (L) = ____________

NOTES: m BTOC = metres Below Top of Casing / m BGS = metres Below Ground Surface / m BTOM = metres Below Top of Monument

GEE PERSONNEL: S. McCormack

SIGNATURE:

geo-environmental
ENGINEERING
82 BRIDGE STREET
LANE COVE NSW 2066
P: 02 8964 6045
E: info@geoenvironmental.com.au
www.geoenvironmental.com.au

GROUNDWATER SAMPLING FIELD DATA

WELL ID: BH4

PROJECT INFORMATION

PROJECT NAME:	Stage 1 and 2 ESA	PROJECT NUMBER:	E13017BEL
LOCATION / SITE:	677-687 Canterbury Rd Belmore	CLIENT:	City Property Alliance

WELL DETAILS

WELL DIAMETER (mm): 50	WELL SCREEN INTERVAL (m): 3.0-6.0	CASING STICK UP (+) / DOWN (-) m: -0.1

CONDITION (Comments Below):
- Damage: ~~YES~~ / NO
- Well ID Visible: ~~YES~~ / NO
- Well Locked: YES / ~~NO~~
- Cap on PVC: YES / ~~NO~~
- Water Around Well: ~~YES~~ / NO
- Water Between PVC and Gatic/ Monument: ~~YES~~ / NO

WELL MEASUREMENTS

STATIC WATER LEVEL (SWL): 3-77 [✓ m BTOC] or ~~m BGL~~ ~~or~~ ~~m BTOM~~

FREE PRODUCT: ~~Yes~~ or [✓ No] Thickness (m):

TOTAL DEPTH OF WELL (TD): [✓ m BTOC] ~~or~~ m BGL or m BTOM

PURGING DETAILS / OBSERVATIONS

METHOD: Bladder Pump Peristaltic High Volume Pump [✓ Foot Valve] Bailer Other:

DATE: 6/1/14 WATER LEVEL AFTER PURGE: DRY. mBTOC / ~~mBGL / mBTOM~~

MAX. DRAWDOWN (m): INTAKE DEPTH: mBTOC / ~~mBGL / mBTOM~~

TIME	CUMUL. VOLUME PURGED (Litres)	PURGE RATE	DO (mg/L)	E.C. mS/cm or µS/cm	pH (standard units)	Redox (mV)	TEMP. (°C)	TURB. (NTUs)
Equilibrium Requirements			± 10 %	± 3 %	± 0.05	± 10	± 0.2	--
	≈15L							

RECHARGE OBSERVATIONS

[✓ Slow (80% recharge > 2 Hours)] Fast (80% recharge < 2 Hours)

SAMPLING DETAILS

METHOD: Bladder Pump Peristaltic High Volume Pump Foot Valve [✓ Bailer] Other:

DATE & TIME: WATER LEVEL (m): mBTOC / mBGL / mBTOM

SAMPLE ID: 8M060114-107

Blind Replicate ID:

Split Duplicate ID:

FINAL WATER QUALITY READINGS:

DO (mg/L)	E.C. mS/cm or µS/cm	pH (standard units)	Redox (mV)	TEMP. (°C)	TURB. (NTUs)
1-75	12485	6.87	62	21.8	

DESCRIPTION: Colour Turbidity: Odour: Other

PURGE VOLUME CALCULATOR:
Length of Water Column (m) = TD (m) – SWL (m) = ____________
One Well Volumes (L) = Length of Water Column x 2 (50mm Dia.) or 7.8 (100mm Dia.) = ____________
Three Well Volumes (L) = ____________

NOTES: m BTOC = metres Below Top of Casing / m BGS = metres Below Ground Surface / m BTOM = metres Below Top of Monument

GEE PERSONNEL: S. McCormack

SIGNATURE:

geo-environmental
ENGINEERING
82 BRIDGE STREET
LANE COVE NSW 2066
P: 02 8964 6045
E: info@geoenvironmental.com.au
www.geoenvironmental.com.au

GROUNDWATER SAMPLING FIELD DATA

WELL ID: **BH10**

PROJECT INFORMATION

PROJECT NAME:	Stage 1 and 2 ESA	PROJECT NUMBER:	E13017BEL
LOCATION / SITE:	677-687 Canterbury Rd Belmore	CLIENT:	City Property Alliance

WELL DETAILS

WELL DIAMETER (mm): 50	WELL SCREEN INTERVAL (m): 3.0-6.0	CASING STICK UP (+) / DOWN (-) m: -0.1

CONDITION (Comments Below):

Damage: ~~YES~~ / NO
Well ID Visible: ~~YES~~ / NO
Well Locked: YES / ~~NO~~
Cap on PVC: YES / ~~NO~~
Water Around Well: ~~YES~~ / NO
Water Between PVC and Gatic/ Monument: ~~YES~~ / NO

WELL MEASUREMENTS

STATIC WATER LEVEL (SWL):	3.37	[✓ m BTOC] ~~or~~ ~~m BGL~~ ~~or~~ ~~m BTOM~~
FREE PRODUCT:	~~Yes~~ or [✓ No]	Thickness (m):
TOTAL DEPTH OF WELL (TD):	6.M	[✓ m BTOC] or m BGL or m BTOM

PURGING DETAILS / OBSERVATIONS

METHOD: Bladder Pump Peristaltic High Volume Pump [✓ Foot Valve] Bailer Other:

DATE:	6/1/14	WATER LEVEL AFTER PURGE: DRY.	mBTOC / ~~mBGL / mBTOM~~
MAX. DRAWDOWN (m)		INTAKE DEPTH:	mBTOC / ~~mBGL / mBTOM~~

TIME	CUMUL. VOLUME PURGED (Litres)	PURGE RATE	DO (mg/L)	E.C. mS/cm or µS/cm	pH (standard units)	Redox (mV)	TEMP. (°C)	TURB, (NTUs)
	Equilibrium Requirements		± 10 %	± 3 %	± 0.05	± 10	± 0.2	--
	≈15L							

RECHARGE OBSERVATIONS

Slow (80% recharge > 2 Hours)	Fast (80% recharge < 2 Hours)

SAMPLING DETAILS

METHOD: Bladder Pump Peristaltic High Volume Pump Foot Valve [✓ Bailer] Other:

DATE & TIME:	6/1/14	WATER LEVEL (m)		mBTOC / mBGL / mBTOM
SAMPLE ID:	SM060114-103	Blind Replicate ID:		
		Split Duplicate ID:		

	DO (mg/L)	E.C. mS/cm or µS/cm	pH (standard units)	Redox (mV)	TEMP. (°C)	TURB, (NTUs)
FINAL WATER QUALITY READINGS:	2.19	6520	6.85	63	22.7	

DESCRIPTION: Colour Turbidity: Odour: Other

PURGE VOLUME CALCULATOR:
Length of Water Column (m) = TD (m) – SWL (m) = ________
One Well Volumes (L) = Length of Water Column x 2 (50mm Dia.) or 7.8 (100mm Dia.) = ________
Three Well Volumes (L) = ________

NOTES: m BTOC = metres Below Top of Casing / m BGS = metres Below Ground Surface / m BTOM = metres Below Top of Monument

GEE PERSONNEL: S. McCormack

SIGNATURE:

geo-environmental
ENGINEERING
82 BRIDGE STREET
LANE COVE NSW 2066
P: 02 8964 6045
E: info@geoenvironmental.com.au
www.geoenvironmental.com.au

GROUNDWATER SAMPLING FIELD DATA

WELL ID: BH14

PROJECT INFORMATION

PROJECT NAME:	Stage 1 and 2 ESA	PROJECT NUMBER:	E13017BEL
LOCATION / SITE:	677-687 Canterbury Rd Belmore	CLIENT:	City Property Alliance

WELL DETAILS

WELL DIAMETER (mm): 50	WELL SCREEN INTERVAL (m): 3.0-6.0	CASING STICK UP (+) / DOWN (-) m: -0.1

CONDITION (Comments Below):
Damage: ~~YES~~ / NO
Well ID Visible: ~~YES~~ / NO
Well Locked: YES / ~~NO~~
Cap on PVC: YES / ~~NO~~
Water Around Well: ~~YES~~ / NO
Water Between PVC and Gatic/ Monument: ~~YES~~ / NO

WELL MEASUREMENTS

STATIC WATER LEVEL (SWL):	3-93	[✓ m BTOC] or ~~m BGL~~ ~~or~~ ~~m BTOM~~
FREE PRODUCT:	~~Yes~~ or [✓ No]	Thickness (m):
TOTAL DEPTH OF WELL (TD):	6m	[✓ m BTOC] or m BGL or m BTOM

PURGING DETAILS / OBSERVATIONS

METHOD: Bladder Pump Peristaltic High Volume Pump [✓ Foot Valve] Bailer Other:

DATE:	6/1/14	WATER LEVEL AFTER PURGE:		mBTOC / ~~mBGL / mBTOM~~
MAX. DRAWDOWN (m)		INTAKE DEPTH:		mBTOC / ~~mBGL / mBTOM~~

TIME	CUMUL. VOLUME PURGED (Litres)	PURGE RATE	DO (mg/L)	E.C. mS/cm or µS/cm	pH (standard units)	Redox (mV)	TEMP. (^{o}C)	TURB, (NTUs)
Equilibrium Requirements			± 10 %	± 3 %	± 0.05	± 10	± 0.2	--
	≈10L							

RECHARGE OBSERVATIONS

[✓ Slow (80% recharge > 2 Hours)] Fast (80% recharge < 2 Hours)

SAMPLING DETAILS

METHOD: Bladder Pump Peristaltic High Volume Pump Foot Valve [✓ Bailer] Other:

DATE & TIME:	6/1/14	WATER LEVEL (m)		mBTOC / mBGL / mBTOM
SAMPLE ID:	SM060114-105	Blind Replicate ID:	—	
		Split Duplicate ID:	—	

FINAL WATER QUALITY READINGS:	DO (mg/L)	E.C. mS/cm or µS/cm	pH (standard units)	Redox (mV)	TEMP. (^{o}C)	TURB, (NTUs)
	2-80	13150	6-17	63	23.0	

DESCRIPTION: Colour Pale Br Turbidity: Slight Odour: — Other

PURGE VOLUME CALCULATOR:
Length of Water Column (m) = TD (m) – SWL (m) = ____________
One Well Volumes (L) = Length of Water Column x 2 (50mm Dia.) or 7.8 (100mm Dia.) = ____________
Three Well Volumes (L) = ____________

NOTES: m BTOC = metres Below Top of Casing / m BGS = metres Below Ground Surface / m BTOM = metres Below Top of Monument

GEE PERSONNEL: S. McCormack

SIGNATURE:

geo-environmental
ENGINEERING

82 BRIDGE STREET
LANE COVE NSW 2066
P: 02 8964 6045
E: info@geoenvironmental.com.au
www.geoenvironmental.com.au

GROUNDWATER SAMPLING FIELD DATA

WELL ID: BH20

PROJECT INFORMATION

PROJECT NAME:	Stage 1 and 2 ESA	PROJECT NUMBER:	E13017BEL
LOCATION / SITE:	677-687 Canterbury Rd Belmore	CLIENT:	City Property Alliance

WELL DETAILS

WELL DIAMETER (mm): 50	WELL SCREEN INTERVAL (m): 2.9-6.9	CASING STICK UP (+) / DOWN (-) m: -0.1

CONDITION (Comments Below):
Damage: ~~YES~~ / NO
Well ID Visible: ~~YES~~ / NO
Well Locked: YES / ~~NO~~
Cap on PVC: YES / ~~NO~~
Water Around Well: ~~YES~~ / NO
Water Between PVC and Gatic/ Monument: ~~YES~~ / NO

WELL MEASUREMENTS

STATIC WATER LEVEL (SWL): 3.87 [✓ m BTOC] or ~~m BGL or m BTOM~~

FREE PRODUCT: ~~Yes~~ or [✓ No] Thickness (m):

TOTAL DEPTH OF WELL (TD): 7m. [✓ m BTOC] or m BGL or m BTOM

PURGING DETAILS / OBSERVATIONS

METHOD: Bladder Pump Peristaltic High Volume Pump [✓ Foot Valve] Bailer Other:

DATE: 6/1/14	WATER LEVEL AFTER PURGE:	DRY.	mBTOC / ~~mBGL / mBTOM~~
MAX. DRAWDOWN (m)	INTAKE DEPTH:		mBTOC / ~~mBGL / mBTOM~~

TIME	CUMUL. VOLUME PURGED (Litres)	PURGE RATE	DO (mg/L)	E.C. mS/cm or µS/cm	pH (standard units)	Redox (mV)	TEMP. (°C)	TURB, (NTUs)
Equilibrium Requirements			± 10 %	± 3 %	± 0.05	± 10	± 0.2	--
	≈15L							

RECHARGE OBSERVATIONS

[✓ Slow (80% recharge > 2 Hours)] Fast (80% recharge < 2 Hours)

SAMPLING DETAILS

METHOD: Bladder Pump Peristaltic High Volume Pump Foot Valve [✓ Bailer] Other:

DATE & TIME:	6/1/14	WATER LEVEL (m)		mBTOC / mBGL / mBTOM
SAMPLE ID:	SM060114-101	Blind Replicate ID:	SM060114-102	
		Split Duplicate ID:		

FINAL WATER QUALITY READINGS:	DO (mg/L)	E.C. mS/cm or µS/cm	pH (standard units)	Redox (mV)	TEMP. (°C)	TURB, (NTUs)
	2.40	7510	~~[illegible]~~ 6.82	64	21.4	—

DESCRIPTION: Colour Slight Brown Turbidity: Yes Odour: — Other

PURGE VOLUME CALCULATOR:
Length of Water Column (m) = TD (m) – SWL (m) = ____________
One Well Volumes (L) = Length of Water Column x 2 (50mm Dia.) or 7.8 (100mm Dia.) = ____________
Three Well Volumes (L) = ____________

NOTES: m BTOC = metres Below Top of Casing / m BGS = metres Below Ground Surface / m BTOM = metres Below Top of Monument

GEE PERSONNEL: S. McCormack

SIGNATURE:

geo-environmental
ENGINEERING

PID HEADSPACE TEST DATA SHEET

PROJECT NAME: Stage 2 ESA	PROJECT NUMBER: E~~130016AM~~ E13017 BEC	
LOCATION / SITE: Belmore NSW	CLIENT: WM Ritchie Properties Pty Ltd & Belmore 677 P/L	DATE: 16-12-13

EQUIPMENT AND METHODOLOGY

EQUIPMENT: Procheck Tiger	LAMP VOLTAGE (eV): 10.6	SUPPLIER: Air-Met

CALIBRATION DETAILS

DATE: 16-12-13	CALIBRATION SPAN GAS: Isobutylene	SPAN GAS VALUE (ppm): 97.0

RESULTS

SAMPLE ID	LOCATION	DEPTH (m)	PID VALUE (ppm)	SAMPLE ID	LOCATION	DEPTH (m)	PID VALUE (ppm)
SM161213-01	BH1		0	SM161213-36	BH5		0.0
SM161213-02	BH1		0.1	SM161213-37	BH5		0.0
SM161213-04	BH2		0.1	SM161213-38	BH5		0.1
SM161213-05	BH2		0.2	SM161213-39	BH6		0.1
SM161213-06	BH2		0.0	SM161213-40	BH6		0.3
SM161213-07	BH2		0.0	SM161213-41	BH6		0.0
SM161213-08	BH2		0.0	SM161213-42	BH6		0
SM161213-09	BH2		0.0	SM161213-43	BH6		0
SM161213-10	BH3		0.0	SM161213-44	BH7		0
SM161213-11	BH3		0.1	SM161213-45	BH7		0
SM161213-12	BH3		0.0	SM161213-46	BH7		0
SM161213-13	BH3		0.0	SM161213-47	BH7	open	0.0 #
SM161213-14	BH3		0.1	SM161213-49	BH7		0.0
SM161213-15	BH3		0.1	SM161213-16	BH8		0.0
SM161213-22	BH4		0.1	SM161213-18	BH8		0.0
SM161213-23	BH4		0.0	SM161213-19	BH8		0.0
SM161213-24	BH4		0.0	SM161213-20	BH8		0.0
SM161213-25	BH4		0.0	SM161213-21	BH8		0.0
SM161213-26	BH4		0.0	SM161213-27	BH9		0.0
SM161213-33	BH5		—	SM161213-28	BH9		0.0
SM161213-34	BH5		0.0	SM161213-29	BH9		0.0
SM161213-35	BH5		0.0	SM161213-30	BH9		0.0

Notes: # = Bag open before testing.

geo-environmental
ENGINEERING
275A Stoney Creek Road
KINGSGROVE NSW 2208
Ph: + 61 (0) 2 9592 0218
Fax: + 61 (0) 2 9591 9140
www.geoenvironmental.com.au

PID HEADSPACE TEST DATA SHEET

PROJECT NAME: Stage 2 ESA

PROJECT NUMBER: ~~E13001CAM~~ E13017BEL

LOCATION / SITE: Belmore NSW

CLIENT: WM Ritchie Properties Pty Ltd & Belmore 677 P/L

DATE: 16-12-13

EQUIPMENT AND METHODOLOGY

EQUIPMENT: Procheck Tiger

LAMP VOLTAGE (eV): 10.6

SUPPLIER: Air-Met

CALIBRATION DETAILS

DATE: 16-12-13

CALIBRATION SPAN GAS: Isobutylene

SPAN GAS VALUE (ppm): 97.0

RESULTS

SAMPLE ID	LOCATION	DEPTH (m)	PID VALUE (ppm)	SAMPLE ID	LOCATION	DEPTH (m)	PID VALUE (ppm)
SM161213-31	BH9		0.1				
SM161213-32	BH9		0.1				
SM161213-50	BH10		—				
SM161213-51	BH10		0.2				
SM161213-52	BH10		0.2				
SM161213-53	BH10		0.2				
SM161213-54	BH10		0.1				
SM161213-55	BH10		0.2				
SM161213-56	BH10		0.2				

Notes: # = Bag open before testing

geo-environmental ENGINEERING

PID HEADSPACE TEST DATA SHEET

PROJECT NAME: Stage 2 ESA	PROJECT NUMBER: ~~E13001CAM~~ E13017BEL

LOCATION / SITE: Belmore NSW	CLIENT: WM Ritchie Properties Pty Ltd & Belmore 677 P/L	DATE: 17-12-13

EQUIPMENT AND METHODOLOGY

EQUIPMENT: Procheck Tiger	LAMP VOLTAGE (eV): 10.6	SUPPLIER: Air-Met

CALIBRATION DETAILS

DATE: 18-12-13 ✓	CALIBRATION SPAN GAS: Isobutylene	SPAN GAS VALUE (ppm): 97.0

RESULTS

SAMPLE ID	LOCATION	DEPTH (m)	PID VALUE (ppm)	SAMPLE ID	LOCATION	DEPTH (m)	PID VALUE (ppm)
SM171213-81	BH11		0.0	SM171213-84	BH18		0.0
SM171213-82	BH11		0.0	SM171213-85	BH18		0.0
SM171213-60	BH12		0.0	SM171213-86	BH18		0.0
SM171213-61	BH12		↓	SM171213-87	BH19		0.0
SM171213-62	BH12			SM171213-89	BH19		0.0
SM171213-63	BH12			SM171213-90	BH19		0.0
SM171213-64	BH13			SM171213-91	BH19		0
SM171213-66	BH13		0.1	SM171213-92	BH20		0
SM171213-71	BH13		0.1	SM171213-94	BH20		0
SM171213-67	BH14		0.3	SM171213-95	BH20		0
SM171213-68	BH14		0.4	SM171213-96	BH20		0
SM171213-69	BH14		0.1	SM171213-97	BH20		0
SM171213-70	BH14		0.0	SM171213-98	BH20		0
SM171213-74	BH15		0.0	SM171213-99	BH20		0
SM171213-75	BH15		0.0				
SM171213-76	BH15		0.0				
SM171213-77	BH15		0.0				
SM171213-72	BH16		—				
SM171213-78	BH17		0.0				
SM171213-79	BH17		0 0				
SM171213-80	BH17		0.0				
SM171213-83	BH18		0.0				

Notes: # = Bag open before testing

PID HEADSPACE TEST DATA SHEET

PROJECT NAME: Stage 2 ESA

PROJECT NUMBER: ~~E13001CAM~~ E13017BEL.

LOCATION / SITE: Belmore NSW

CLIENT: WM Ritchie Properties Pty Ltd & Belmore 677 P/L

DATE: ~~[illegible]~~ 6-1-14.

EQUIPMENT AND METHODOLOGY

EQUIPMENT: Procheck Tiger

LAMP VOLTAGE (eV): 10.6

SUPPLIER: Air-Met

CALIBRATION DETAILS

DATE: ~~6-11-13~~ 6-1-14

CALIBRATION SPAN GAS: Isobutylene

SPAN GAS VALUE (ppm): 97.0

RESULTS

SAMPLE ID	LOCATION	DEPTH (m)	PID VALUE (ppm)	SAMPLE ID	LOCATION	DEPTH (m)	PID VALUE (ppm)
SM060114-80	BH21		0.0				
SM060114-81	BH22		0-0				
SM060114-83	BH23		0.0				
SM060114-84	BH23		0.0				
SM060114-86	BH23		0.0				
SM060114-87	BH24						
SM060114-89	BH24						
SM060114-90	BH25						
SM060114-92	BH25						
SM060114-93	BH26						
SM060114-94	BH26						
SM060114-95	BH26						
SM060114-96	BH27						
SM060114-98	BH27						
SM060114-99	BH28						
SM060114-100	BH28		0				

Notes: # = Bag open before testing

APPENDIX L

Laboratory Reports and Certificates

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

CERTIFICATE OF ANALYSIS 102886

Client:

Geo-Environmental Engineering
82 Bridge St
Lane Cove
NSW 2066

Attention: Steve McCormack

Sample log in details:

Your Reference: **E13017BEL**
No. of samples: 96 Soils, 2 Waters
Date samples received / completed instructions received 19/12/2013 / 19/12/2013
This report replaces the previous one due to changes in sample #94

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: / Issue Date: 8/01/14 / 4/03/14
Date of Preliminary Report: Not issued
NATA accreditation number 2901. This document shall not be reproduced except in full.
Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with *.**

Results Approved By:

Jacinta Hurst
Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ------------ ------------	102886-4 SM161213-04 16/12/2013 Soil	102886-10 SM161213-10 16/12/2013 Soil	102886-12 SM161213-12 16/12/2013 Soil	102886-13 SM161213-13 16/12/2013 Soil	102886-16 SM161213-16 16/12/2013 Soil
Date extracted	-	20/12/2013	20/12/2013	20/12/2013	20/12/2013	20/12/2013
Date analysed	-	23/12/2013	23/12/2013	23/12/2013	23/12/2013	23/12/2013
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
Surrogate aaa-Trifluorotoluene	%	101	96	89	97	92

vTRH(C6-C10)/BTEXN in Soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ------------ ------------	102886-17 SM161213-17 16/12/2013 Soil	102886-20 SM161213-20 16/12/2013 Soil	102886-22 SM161213-22 16/12/2013 Soil	102886-23 SM161213-23 16/12/2013 Soil	102886-25 SM161213-25 16/12/2013 Soil
Date extracted	-	20/12/2013	20/12/2013	20/12/2013	20/12/2013	20/12/2013
Date analysed	-	23/12/2013	23/12/2013	23/12/2013	23/12/2013	23/12/2013
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
Surrogate aaa-Trifluorotoluene	%	93	89	95	89	96

vTRH(C6-C10)/BTEXN in Soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ------------- ------------	102886-27 SM161213-27 16/12/2013 Soil	102886-28 SM161213-28 16/12/2013 Soil	102886-30 SM161213-30 16/12/2013 Soil	102886-34 SM161213-34 16/12/2013 Soil	102886-35 SM161213-35 16/12/2013 Soil
Date extracted	-	20/12/2013	20/12/2013	20/12/2013	20/12/2013	20/12/2013
Date analysed	-	23/12/2013	23/12/2013	23/12/2013	23/12/2013	23/12/2013
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
Surrogate aaa-Trifluorotoluene	%	97	103	94	101	82

vTRH(C6-C10)/BTEXN in Soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ------------- ------------	102886-39 SM161213-39 16/12/2013 Soil	102886-41 SM161213-41 16/12/2013 Soil	102886-42 SM161213-42 16/12/2013 Soil	102886-45 SM161213-45 16/12/2013 Soil	102886-47 SM161213-47 16/12/2013 Soil
Date extracted	-	20/12/2013	20/12/2013	20/12/2013	20/12/2013	20/12/2013
Date analysed	-	23/12/2013	23/12/2013	23/12/2013	23/12/2013	23/12/2013
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
Surrogate aaa-Trifluorotoluene	%	84	93	96	98	104

vTRH(C6-C10)/BTEXN in Soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ------------- ------------	102886-48 SM161213-49 16/12/2013 Soil	102886-49 SM161213-50 16/12/2013 Soil	102886-50 SM161213-51 16/12/2013 Soil	102886-55 Trip Blank 1 16/12/2013 Soil	102886-56 Trip Spike 2 16/12/2013 Soil
Date extracted	-	20/12/2013	20/12/2013	20/12/2013	20/12/2013	20/12/2013
Date analysed	-	23/12/2013	23/12/2013	23/12/2013	23/12/2013	23/12/2013
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	[NA]
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	[NA]
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	[NA]
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	63%
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	63%
Ethylbenzene	mg/kg	<1	<1	<1	<1	62%
m+p-xylene	mg/kg	<2	<2	<2	<2	63%
o-Xylene	mg/kg	<1	<1	<1	<1	62%
naphthalene	mg/kg	<1	<1	<1	<1	[NA]
Surrogate aaa-Trifluorotoluene	%	100	98	102	91	89

vTRH(C6-C10)/BTEXN in Soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ------------- ------------	102886-59 SM171213-62 17/12/2013 Soil	102886-61 SM171213-64 17/12/2013 Soil	102886-62 SM171213-65 17/12/2013 Soil	102886-65 SM171213-67 17/12/2013 Soil	102886-69 SM171213-72 17/12/2013 Soil
Date extracted	-	20/12/2013	20/12/2013	20/12/2013	20/12/2013	20/12/2013
Date analysed	-	23/12/2013	23/12/2013	23/12/2013	23/12/2013	23/12/2013
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
Surrogate aaa-Trifluorotoluene	%	84	80	76	86	88

vTRH(C6-C10)/BTEXN in Soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ------------- ------------	102886-71 SM171213-75 17/12/2013 Soil	102886-77 SM171213-81 17/12/2013 Soil	102886-80 SM171213-84 17/12/2013 Soil	102886-83 SM171213-87 17/12/2013 Soil	102886-87 SM171213-92 17/12/2013 Soil
Date extracted	-	20/12/2013	20/12/2013	20/12/2013	20/12/2013	20/12/2013
Date analysed	-	23/12/2013	23/12/2013	23/12/2013	23/12/2013	23/12/2013
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
Surrogate aaa-Trifluorotoluene	%	88	89	85	85	95

vTRH(C6-C10)/BTEXN in Soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ------------- ------------	102886-88 SM171213-93 17/12/2013 Soil	102886-95 Trip blank 2 17/12/2013 Soil	102886-96 Trip spike 2 17/12/2013 Soil
Date extracted	-	20/12/2013	20/12/2013	20/12/2013
Date analysed	-	23/12/2013	23/12/2013	23/12/2013
TRH C_6 - C_9	mg/kg	<25	<25	[NA]
TRH C_6 - C_{10}	mg/kg	<25	<25	[NA]
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	[NA]
Benzene	mg/kg	<0.2	<0.2	103%
Toluene	mg/kg	<0.5	<0.5	101%
Ethylbenzene	mg/kg	<1	<1	105%
m+p-xylene	mg/kg	<2	<2	106%
o-Xylene	mg/kg	<1	<1	95%
naphthalene	mg/kg	<1	<1	[NA]
Surrogate aaa-Trifluorotoluene	%	95	96	103

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	102886-4	102886-10	102886-12	102886-13	102886-16
Your Reference	-------------	SM161213-04	SM161213-10	SM161213-12	SM161213-13	SM161213-16
Date Sampled	------------	16/12/2013	16/12/2013	16/12/2013	16/12/2013	16/12/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	20/12/2013	20/12/2013	20/12/2013	20/12/2013	20/12/2013
Date analysed	-	21/12/2013	21/12/2013	21/12/2013	21/12/2013	21/12/2013
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50	<50	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	<100	<100	<100	<100	<100
TRHC$_{29}$ - 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
Surrogate o-Terphenyl	%	92	92	90	88	91

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	102886-17	102886-20	102886-22	102886-23	102886-25
Your Reference	-------------	SM161213-17	SM161213-20	SM161213-22	SM161213-23	SM161213-25
Date Sampled	------------	16/12/2013	16/12/2013	16/12/2013	16/12/2013	16/12/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	20/12/2013	20/12/2013	20/12/2013	20/12/2013	20/12/2013
Date analysed	-	21/12/2013	21/12/2013	21/12/2013	21/12/2013	21/12/2013
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50	<50	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	<100	<100	<100	<100	<100
TRHC$_{29}$ - 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
Surrogate o-Terphenyl	%	91	89	93	91	89

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	102886-27	102886-28	102886-30	102886-34	102886-35
Your Reference	-------------	SM161213-27	SM161213-28	SM161213-30	SM161213-34	SM161213-35
Date Sampled	------------	16/12/2013	16/12/2013	16/12/2013	16/12/2013	16/12/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	20/12/2013	20/12/2013	20/12/2013	20/12/2013	20/12/2013
Date analysed	-	21/12/2013	21/12/2013	21/12/2013	21/12/2013	21/12/2013
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50	<50	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	<100	<100	<100	<100	<100
TRHC$_{29}$ - 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
Surrogate o-Terphenyl	%	89	91	92	94	97

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	102886-39	102886-41	102886-42	102886-45	102886-47
Your Reference	-------------	SM161213-39	SM161213-41	SM161213-42	SM161213-45	SM161213-47
Date Sampled	------------	16/12/2013	16/12/2013	16/12/2013	16/12/2013	16/12/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	20/12/2013	20/12/2013	20/12/2013	20/12/2013	20/12/2013
Date analysed	-	21/12/2013	21/12/2013	21/12/2013	21/12/2013	21/12/2013
TRHC_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRHC_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRHC_{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
Surrogate o-Terphenyl	%	96	95	94	95	95

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	102886-48	102886-49	102886-50	102886-59	102886-61
Your Reference	-------------	SM161213-49	SM161213-50	SM161213-51	SM171213-62	SM171213-64
Date Sampled	------------	16/12/2013	16/12/2013	16/12/2013	17/12/2013	17/12/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	20/12/2013	20/12/2013	20/12/2013	20/12/2013	20/12/2013
Date analysed	-	21/12/2013	21/12/2013	21/12/2013	21/12/2013	21/12/2013
TRHC_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRHC_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRHC_{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
Surrogate o-Terphenyl	%	98	95	92	94	92

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	102886-62	102886-65	102886-69	102886-71	102886-77
Your Reference	-------------	SM171213-65	SM171213-67	SM171213-72	SM171213-75	SM171213-81
Date Sampled	------------	17/12/2013	17/12/2013	17/12/2013	17/12/2013	17/12/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	20/12/2013	20/12/2013	20/12/2013	20/12/2013	20/12/2013
Date analysed	-	21/12/2013	21/12/2013	21/12/2013	21/12/2013	21/12/2013
TRHC_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRHC_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRHC_{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
Surrogate o-Terphenyl	%	94	92	94	84	91

svTRH (C10-C40) in Soil					
Our Reference:	UNITS	102886-80	102886-83	102886-87	102886-88
Your Reference	-------------	SM171213-84	SM171213-87	SM171213-92	SM171213-93
Date Sampled	------------	17/12/2013	17/12/2013	17/12/2013	17/12/2013
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	20/12/2013	20/12/2013	20/12/2013	20/12/2013
Date analysed	-	21/12/2013	21/12/2013	21/12/2013	21/12/2013
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	<100	<100	<100	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	<100	<100	<100	<100
TRH>C$_{10}$-C$_{16}$	mg/kg	<50	<50	<50	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50
TRH>C$_{16}$-C$_{34}$	mg/kg	<100	<100	<100	<100
TRH>C$_{34}$-C$_{40}$	mg/kg	<100	<100	<100	<100
Surrogate o-Terphenyl	%	93	89	90	92

PAHs in Soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ------------- ------------	102886-4 SM161213-04 16/12/2013 Soil	102886-5 SM161213-05 16/12/2013 Soil	102886-6 SM161213-06 16/12/2013 Soil	102886-10 SM161213-10 16/12/2013 Soil	102886-16 SM161213-16 16/12/2013 Soil
Date extracted	-	20/12/2013	20/12/2013	20/12/2013	20/12/2013	20/12/2013
Date analysed	-	21/12/2013	21/12/2013	21/12/2013	21/12/2013	21/12/2013
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	0.2	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	0.2	<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	0.2	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	0.3	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	0.19	<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
Benzo(a)pyrene TEQ NEPM B1	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	mg/kg	NIL (+)VE	NIL (+)VE	NIL (+)VE	1.5	NIL (+)VE
Surrogate p-Terphenyl-d14	%	98	99	102	100	99

PAHs in Soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ------------- ------------	102886-17 SM161213-17 16/12/2013 Soil	102886-22 SM161213-22 16/12/2013 Soil	102886-27 SM161213-27 16/12/2013 Soil	102886-47 SM161213-47 16/12/2013 Soil	102886-49 SM161213-50 16/12/2013 Soil
Date extracted	-	20/12/2013	20/12/2013	20/12/2013	20/12/2013	20/12/2013
Date analysed	-	21/12/2013	21/12/2013	21/12/2013	21/12/2013	21/12/2013
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	0.5	<0.1	<0.1	0.1
Anthracene	mg/kg	<0.1	0.2	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	1.7	<0.1	<0.1	0.1
Pyrene	mg/kg	<0.1	1.9	<0.1	<0.1	0.1
Benzo(a)anthracene	mg/kg	<0.1	1.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	1.1	<0.1	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	2.1	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	1.3	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	0.7	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	0.2	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	0.8	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ NEPM B1	mg/kg	<0.5	2	<0.5	<0.5	<0.5
Total +ve PAH's	mg/kg	NIL (+)VE	12	NIL (+)VE	NIL (+)VE	0.40
Surrogate p-Terphenyl-d14	%	99	101	97	95	95

PAHs in Soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ------------- ------------	102886-50 SM161213-51 16/12/2013 Soil	102886-59 SM171213-62 17/12/2013 Soil	102886-61 SM171213-64 17/12/2013 Soil	102886-65 SM171213-67 17/12/2013 Soil	102886-66 SM171213-68 17/12/2013 Soil
Date extracted	-	20/12/2013	20/12/2013	20/12/2013	20/12/2013	20/12/2013
Date analysed	-	21/12/2013	21/12/2013	21/12/2013	21/12/2013	21/12/2013
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+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	0.1	<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
Benzo(a)pyrene TEQ NEPM B1	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	mg/kg	NIL (+)VE	NIL (+)VE	NIL (+)VE	0.44	NIL (+)VE
Surrogate p-Terphenyl-d14	%	94	134	102	96	99

PAHs in Soil Our Reference:	UNITS	102886-69	102886-71	102886-72	102886-77	102886-80
Your Reference	-------------	SM171213-72	SM171213-75	SM171213-76	SM171213-81	SM171213-84
Date Sampled	------------	17/12/2013	17/12/2013	17/12/2013	17/12/2013	17/12/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	20/12/2013	20/12/2013	20/12/2013	20/12/2013	20/12/2013
Date analysed	-	21/12/2013	21/12/2013	21/12/2013	21/12/2013	21/12/2013
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	0.2
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	0.5	0.5
Pyrene	mg/kg	<0.1	<0.1	<0.1	0.5	0.5
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	0.3	0.3
Chrysene	mg/kg	<0.1	<0.1	<0.1	0.3	0.3
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	0.6	0.7
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	0.34	0.39
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	0.2	0.2
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	0.2	0.3
Benzo(a)pyrene TEQ NEPM B1	mg/kg	<0.5	<0.5	<0.5	<0.5	1
Total +ve PAH's	mg/kg	NIL (+)VE	NIL (+)VE	NIL (+)VE	3.1	3.4
Surrogate p-Terphenyl-d14	%	100	101	102	106	102

PAHs in Soil Our Reference:	UNITS	102886-83	102886-87	102886-88
Your Reference	-------------	SM171213-87	SM171213-92	SM171213-93
Date Sampled	------------	17/12/2013	17/12/2013	17/12/2013
Type of sample		Soil	Soil	Soil
Date extracted	-	20/12/2013	20/12/2013	20/12/2013
Date analysed	-	21/12/2013	21/12/2013	21/12/2013
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+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
Benzo(a)pyrene TEQ NEPM B1	mg/kg	<0.5	<0.5	<0.5
Total +ve PAH's	mg/kg	NIL (+)VE	0.35	NIL (+)VE
Surrogate p-Terphenyl-d14	%	94	98	98

Organochlorine Pesticides in soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ------------- ------------	102886-1 SM161213-01 16/12/2013 Soil	102886-10 SM161213-10 16/12/2013 Soil	102886-16 SM161213-16 16/12/2013 Soil	102886-17 SM161213-17 16/12/2013 Soil	102886-49 SM161213-50 16/12/2013 Soil
Date extracted	-	20/12/2013	20/12/2013	20/12/2013	20/12/2013	20/12/2013
Date analysed	-	21/12/2013	21/12/2013	21/12/2013	21/12/2013	21/12/2013
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
Surrogate TCMX	%	80	84	85	86	91

Organochlorine Pesticides in soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ------------- ------------	102886-61 SM171213-64 17/12/2013 Soil	102886-77 SM171213-81 17/12/2013 Soil	102886-83 SM171213-87 17/12/2013 Soil	102886-87 SM171213-92 17/12/2013 Soil
Date extracted	-	20/12/2013	20/12/2013	20/12/2013	20/12/2013
Date analysed	-	21/12/2013	21/12/2013	21/12/2013	21/12/2013
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
Surrogate TCMX	%	89	87	84	83

PCBs in Soil Our Reference:	UNITS	102886-1	102886-10	102886-16	102886-17	102886-49
Your Reference	-------------	SM161213-01	SM161213-10	SM161213-16	SM161213-17	SM161213-50
Date Sampled	------------	16/12/2013	16/12/2013	16/12/2013	16/12/2013	16/12/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	20/12/2013	20/12/2013	20/12/2013	20/12/2013	20/12/2013
Date analysed	-	21/12/2013	21/12/2013	21/12/2013	21/12/2013	21/12/2013
Arochlor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	80	84	85	86	91

PCBs in Soil Our Reference:	UNITS	102886-61	102886-77	102886-83	102886-87
Your Reference	-------------	SM171213-64	SM171213-81	SM171213-87	SM171213-92
Date Sampled	------------	17/12/2013	17/12/2013	17/12/2013	17/12/2013
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	20/12/2013	20/12/2013	20/12/2013	20/12/2013
Date analysed	-	21/12/2013	21/12/2013	21/12/2013	21/12/2013
Arochlor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1
Arochlor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1
Arochlor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1
Arochlor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1
Arochlor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1
Arochlor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1
Arochlor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	89	87	84	83

Acid Extractable metals in soil Our Reference:	UNITS	102886-1	102886-2	102886-3	102886-4	102886-5
Your Reference	-------------	SM161213-01	SM161213-02	SM161213-03	SM161213-04	SM161213-05
Date Sampled	------------	16/12/2013	16/12/2013	16/12/2013	16/12/2013	16/12/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	20/12/2013	20/12/2013	20/12/2013	20/12/2013	20/12/2013
Date analysed	-	20/12/2013	20/12/2013	20/12/2013	20/12/2013	20/12/2013
Arsenic	mg/kg	5	7	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	15	13	9	19	3
Copper	mg/kg	47	20	19	65	14
Lead	mg/kg	39	13	14	4	5
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	32	2	1	110	12
Zinc	mg/kg	72	10	9	40	16

Acid Extractable metals in soil Our Reference:	UNITS	102886-6	102886-10	102886-12	102886-13	102886-16
Your Reference	-------------	SM161213-06	SM161213-10	SM161213-12	SM161213-13	SM161213-16
Date Sampled	------------	16/12/2013	16/12/2013	16/12/2013	16/12/2013	16/12/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	20/12/2013	20/12/2013	20/12/2013	20/12/2013	20/12/2013
Date analysed	-	20/12/2013	20/12/2013	20/12/2013	20/12/2013	20/12/2013
Arsenic	mg/kg	10	7	[NA]	[NA]	5
Cadmium	mg/kg	<0.4	<0.4	[NA]	[NA]	<0.4
Chromium	mg/kg	26	20	[NA]	[NA]	3
Copper	mg/kg	8	25	[NA]	[NA]	<1
Lead	mg/kg	27	48	11	26	3
Mercury	mg/kg	<0.1	<0.1	[NA]	[NA]	<0.1
Nickel	mg/kg	2	7	[NA]	[NA]	1
Zinc	mg/kg	36	33	[NA]	[NA]	6

Acid Extractable metals in soil Our Reference:	UNITS	102886-17	102886-20	102886-22	102886-23	102886-25
Your Reference	-------------	SM161213-17	SM161213-20	SM161213-22	SM161213-23	SM161213-25
Date Sampled	------------	16/12/2013	16/12/2013	16/12/2013	16/12/2013	16/12/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	20/12/2013	20/12/2013	20/12/2013	20/12/2013	20/12/2013
Date analysed	-	20/12/2013	20/12/2013	20/12/2013	20/12/2013	20/12/2013
Arsenic	mg/kg	5	7	9	6	[NA]
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	[NA]
Chromium	mg/kg	2	9	17	11	[NA]
Copper	mg/kg	<1	40	35	29	[NA]
Lead	mg/kg	2	13	60	12	24
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	[NA]
Nickel	mg/kg	1	12	6	3	[NA]
Zinc	mg/kg	4	84	42	22	[NA]

Acid Extractable metals in soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ------------- ------------	102886-27 SM161213-27 16/12/2013 Soil	102886-28 SM161213-28 16/12/2013 Soil	102886-30 SM161213-30 16/12/2013 Soil	102886-33 SM161213-33 16/12/2013 Soil	102886-34 SM161213-34 16/12/2013 Soil
Date digested	-	20/12/2013	20/12/2013	20/12/2013	20/12/2013	20/12/2013
Date analysed	-	20/12/2013	20/12/2013	20/12/2013	20/12/2013	20/12/2013
Arsenic	mg/kg	<4	9	[NA]	<4	[NA]
Cadmium	mg/kg	<0.4	<0.4	[NA]	<0.4	[NA]
Chromium	mg/kg	2	20	[NA]	3	[NA]
Copper	mg/kg	29	77	[NA]	14	[NA]
Lead	mg/kg	3	110	17	180	78
Mercury	mg/kg	<0.1	<0.1	[NA]	<0.1	[NA]
Nickel	mg/kg	1	7	[NA]	1	[NA]
Zinc	mg/kg	5	66	[NA]	140	[NA]

Acid Extractable metals in soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ------------- ------------	102886-39 SM161213-39 16/12/2013 Soil	102886-41 SM161213-41 16/12/2013 Soil	102886-42 SM161213-42 16/12/2013 Soil	102886-44 SM161213-44 16/12/2013 Soil	102886-45 SM161213-45 16/12/2013 Soil
Date digested	-	20/12/2013	20/12/2013	20/12/2013	20/12/2013	20/12/2013
Date analysed	-	20/12/2013	20/12/2013	20/12/2013	20/12/2013	20/12/2013
Arsenic	mg/kg	7	[NA]	[NA]	<4	[NA]
Cadmium	mg/kg	<0.4	[NA]	[NA]	<0.4	[NA]
Chromium	mg/kg	13	[NA]	[NA]	21	[NA]
Copper	mg/kg	15	[NA]	[NA]	56	[NA]
Lead	mg/kg	59	22	10	310	14
Mercury	mg/kg	<0.1	[NA]	[NA]	<0.1	[NA]
Nickel	mg/kg	2	[NA]	[NA]	10	[NA]
Zinc	mg/kg	120	[NA]	[NA]	270	[NA]

Acid Extractable metals in soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ------------- ------------	102886-47 SM161213-47 16/12/2013 Soil	102886-48 SM161213-49 16/12/2013 Soil	102886-49 SM161213-50 16/12/2013 Soil	102886-50 SM161213-51 16/12/2013 Soil	102886-51 SM161213-52 16/12/2013 Soil
Date digested	-	20/12/2013	20/12/2013	20/12/2013	20/12/2013	20/12/2013
Date analysed	-	20/12/2013	20/12/2013	20/12/2013	20/12/2013	20/12/2013
Arsenic	mg/kg	<4	[NA]	<4	10	8
Cadmium	mg/kg	<0.4	[NA]	<0.4	<0.4	<0.4
Chromium	mg/kg	5	[NA]	2	19	23
Copper	mg/kg	7	[NA]	3	17	22
Lead	mg/kg	35	17	9	43	17
Mercury	mg/kg	<0.1	[NA]	<0.1	<0.1	<0.1
Nickel	mg/kg	3	[NA]	<1	4	2
Zinc	mg/kg	85	[NA]	79	74	9

Acid Extractable metals in soil Our Reference:	UNITS	102886-54	102886-55	102886-57	102886-59	102886-60
Your Reference	-------------	SM161213-55	Trip Blank 1	SM171213-60	SM171213-62	SM171213-63
Date Sampled	------------	16/12/2013	16/12/2013	17/12/2013	17/12/2013	17/12/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	20/12/2013	20/12/2013	20/12/2013	20/12/2013	20/12/2013
Date analysed	-	20/12/2013	20/12/2013	20/12/2013	20/12/2013	20/12/2013
Arsenic	mg/kg	7	<4	<4	7	8
Cadmium	mg/kg	0.9	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	9	2	30	8	9
Copper	mg/kg	37	1	38	15	30
Lead	mg/kg	15	<1	72	22	15
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	30	1	51	6	2
Zinc	mg/kg	180	2	69	28	12

Acid Extractable metals in soil Our Reference:	UNITS	102886-61	102886-62	102886-65	102886-66	102886-69
Your Reference	-------------	SM171213-64	SM171213-65	SM171213-67	SM171213-68	SM171213-72
Date Sampled	------------	17/12/2013	17/12/2013	17/12/2013	17/12/2013	17/12/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	20/12/2013	20/12/2013	20/12/2013	20/12/2013	20/12/2013
Date analysed	-	20/12/2013	20/12/2013	20/12/2013	20/12/2013	20/12/2013
Arsenic	mg/kg	<4	4	7	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	2	3	15	8	17
Copper	mg/kg	22	32	15	18	4
Lead	mg/kg	1	2	26	11	130
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	1	2	3	2	1
Zinc	mg/kg	5	6	28	13	25

Acid Extractable metals in soil Our Reference:	UNITS	102886-70	102886-71	102886-72	102886-74	102886-75
Your Reference	-------------	SM171213-74	SM171213-75	SM171213-76	SM171213-78	SM171213-79
Date Sampled	------------	17/12/2013	17/12/2013	17/12/2013	17/12/2013	17/12/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	20/12/2013	20/12/2013	20/12/2013	20/12/2013	20/12/2013
Date analysed	-	20/12/2013	20/12/2013	20/12/2013	20/12/2013	20/12/2013
Arsenic	mg/kg	8	6	5	<4	9
Cadmium	mg/kg	4.3	<0.4	<0.4	0.4	<0.4
Chromium	mg/kg	50	21	9	12	24
Copper	mg/kg	110	29	22	32	22
Lead	mg/kg	590	22	27	43	18
Mercury	mg/kg	0.3	<0.1	<0.1	0.1	<0.1
Nickel	mg/kg	48	3	2	6	4
Zinc	mg/kg	1,500	19	20	66	15

Acid Extractable metals in soil Our Reference:	UNITS	102886-77	102886-79	102886-80	102886-83	102886-84
Your Reference	-------------	SM171213-81	SM171213-83	SM171213-84	SM171213-87	SM171213-89
Date Sampled	------------	17/12/2013	17/12/2013	17/12/2013	17/12/2013	17/12/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	20/12/2013	20/12/2013	20/12/2013	20/12/2013	20/12/2013
Date analysed	-	20/12/2013	20/12/2013	20/12/2013	20/12/2013	20/12/2013
Arsenic	mg/kg	20	<4	10	5	6
Cadmium	mg/kg	0.8	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	17	3	21	3	47
Copper	mg/kg	170	21	35	4	25
Lead	mg/kg	450	19	160	<1	320
Mercury	mg/kg	0.2	<0.1	0.6	<0.1	0.2
Nickel	mg/kg	15	2	5	1	32
Zinc	mg/kg	280	93	100	2	190

Acid Extractable metals in soil Our Reference:	UNITS	102886-85	102886-87	102886-88	102886-89	102886-90
Your Reference	-------------	SM171213-90	SM171213-92	SM171213-93	SM171213-94	SM171213-95
Date Sampled	------------	17/12/2013	17/12/2013	17/12/2013	17/12/2013	17/12/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	20/12/2013	20/12/2013	20/12/2013	20/12/2013	20/12/2013
Date analysed	-	20/12/2013	20/12/2013	20/12/2013	20/12/2013	20/12/2013
Arsenic	mg/kg	8	<4	<4	6	7
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	18	2	2	12	15
Copper	mg/kg	20	1	<1	41	27
Lead	mg/kg	520	4	4	230	75
Mercury	mg/kg	0.2	<0.1	<0.1	0.4	0.1
Nickel	mg/kg	6	1	1	9	6
Zinc	mg/kg	230	7	5	200	91

Acid Extractable metals in soil Our Reference:	UNITS	102886-91	102886-92	102886-99	102886-100	102886-101
Your Reference	-------------	SM171213-96	SM171213-97	SM161213-01 -TRIPLICATE	SM161213-47 -TRIPLICATE	SM171213-72 -TRIPLICATE
Date Sampled	------------	17/12/2013	17/12/2013	16/12/2013	16/12/2013	17/12/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	20/12/2013	20/12/2013	20/12/2013	20/12/2013	20/12/2013
Date analysed	-	20/12/2013	20/12/2013	20/12/2013	20/12/2013	20/12/2013
Arsenic	mg/kg	<4	6	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	6	10	12	3	17
Copper	mg/kg	16	31	53	4	4
Lead	mg/kg	8	11	5	61	140
Mercury	mg/kg	0.2	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	3	5	85	1	1
Zinc	mg/kg	25	44	33	91	40

Moisture						
Our Reference:	UNITS	102886-1	102886-2	102886-3	102886-4	102886-5
Your Reference	-------------	SM161213-01	SM161213-02	SM161213-03	SM161213-04	SM161213-05
Date Sampled	------------	16/12/2013	16/12/2013	16/12/2013	16/12/2013	16/12/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	20/12/2013	20/12/2013	20/12/2013	20/12/2013	20/12/2013
Date analysed	-	23/12/2013	23/12/2013	23/12/2013	23/12/2013	23/12/2013
Moisture	%	16	25	22	11	22

Moisture						
Our Reference:	UNITS	102886-6	102886-10	102886-12	102886-13	102886-16
Your Reference	-------------	SM161213-06	SM161213-10	SM161213-12	SM161213-13	SM161213-16
Date Sampled	------------	16/12/2013	16/12/2013	16/12/2013	16/12/2013	16/12/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	20/12/2013	20/12/2013	20/12/2013	20/12/2013	20/12/2013
Date analysed	-	23/12/2013	23/12/2013	23/12/2013	23/12/2013	23/12/2013
Moisture	%	23	20	18	17	11

Moisture						
Our Reference:	UNITS	102886-17	102886-20	102886-22	102886-23	102886-25
Your Reference	-------------	SM161213-17	SM161213-20	SM161213-22	SM161213-23	SM161213-25
Date Sampled	------------	16/12/2013	16/12/2013	16/12/2013	16/12/2013	16/12/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	20/12/2013	20/12/2013	20/12/2013	20/12/2013	20/12/2013
Date analysed	-	23/12/2013	23/12/2013	23/12/2013	23/12/2013	23/12/2013
Moisture	%	20	21	18	34	14

Moisture						
Our Reference:	UNITS	102886-27	102886-28	102886-30	102886-33	102886-34
Your Reference	-------------	SM161213-27	SM161213-28	SM161213-30	SM161213-33	SM161213-34
Date Sampled	------------	16/12/2013	16/12/2013	16/12/2013	16/12/2013	16/12/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	20/12/2013	20/12/2013	20/12/2013	20/12/2013	20/12/2013
Date analysed	-	23/12/2013	23/12/2013	23/12/2013	23/12/2013	23/12/2013
Moisture	%	17	15	19	14	12

Moisture						
Our Reference:	UNITS	102886-35	102886-39	102886-41	102886-42	102886-44
Your Reference	-------------	SM161213-35	SM161213-39	SM161213-41	SM161213-42	SM161213-44
Date Sampled	------------	16/12/2013	16/12/2013	16/12/2013	16/12/2013	16/12/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	20/12/2013	20/12/2013	20/12/2013	20/12/2013	20/12/2013
Date analysed	-	23/12/2013	23/12/2013	23/12/2013	23/12/2013	23/12/2013
Moisture	%	36	22	21	10	11

Moisture						
Our Reference:	UNITS	102886-45	102886-47	102886-48	102886-49	102886-50
Your Reference	-------------	SM161213-45	SM161213-47	SM161213-49	SM161213-50	SM161213-51
Date Sampled	------------	16/12/2013	16/12/2013	16/12/2013	16/12/2013	16/12/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	20/12/2013	20/12/2013	20/12/2013	20/12/2013	20/12/2013
Date analysed	-	23/12/2013	23/12/2013	23/12/2013	23/12/2013	23/12/2013
Moisture	%	2.8	5.0	15	19	19

Moisture						
Our Reference:	UNITS	102886-51	102886-54	102886-55	102886-57	102886-59
Your Reference	-------------	SM161213-52	SM161213-55	Trip Blank 1	SM171213-60	SM171213-62
Date Sampled	------------	16/12/2013	16/12/2013	16/12/2013	17/12/2013	17/12/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	20/12/2013	20/12/2013	20/12/2013	20/12/2013	20/12/2013
Date analysed	-	23/12/2013	23/12/2013	23/12/2013	23/12/2013	23/12/2013
Moisture	%	28	9.4	0.3	11	24

Moisture						
Our Reference:	UNITS	102886-60	102886-61	102886-62	102886-65	102886-66
Your Reference	-------------	SM171213-63	SM171213-64	SM171213-65	SM171213-67	SM171213-68
Date Sampled	------------	17/12/2013	17/12/2013	17/12/2013	17/12/2013	17/12/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	20/12/2013	20/12/2013	20/12/2013	20/12/2013	20/12/2013
Date analysed	-	23/12/2013	23/12/2013	23/12/2013	23/12/2013	23/12/2013
Moisture	%	18	9.4	21	21	24

Moisture						
Our Reference:	UNITS	102886-69	102886-70	102886-71	102886-72	102886-74
Your Reference	-------------	SM171213-72	SM171213-74	SM171213-75	SM171213-76	SM171213-78
Date Sampled	------------	17/12/2013	17/12/2013	17/12/2013	17/12/2013	17/12/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	20/12/2013	20/12/2013	20/12/2013	20/12/2013	20/12/2013
Date analysed	-	23/12/2013	23/12/2013	23/12/2013	23/12/2013	23/12/2013
Moisture	%	15	24	16	18	18

Moisture						
Our Reference:	UNITS	102886-75	102886-77	102886-79	102886-80	102886-83
Your Reference	-------------	SM171213-79	SM171213-81	SM171213-83	SM171213-84	SM171213-87
Date Sampled	------------	17/12/2013	17/12/2013	17/12/2013	17/12/2013	17/12/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	20/12/2013	20/12/2013	20/12/2013	20/12/2013	20/12/2013
Date analysed	-	23/12/2013	23/12/2013	23/12/2013	23/12/2013	23/12/2013
Moisture	%	24	15	18	17	21

Moisture Our Reference: Your Reference Date Sampled Type of sample	UNITS ------------- ------------	102886-84 SM171213-89 17/12/2013 Soil	102886-85 SM171213-90 17/12/2013 Soil	102886-87 SM171213-92 17/12/2013 Soil	102886-88 SM171213-93 17/12/2013 Soil	102886-89 SM171213-94 17/12/2013 Soil
Date prepared	-	20/12/2013	20/12/2013	20/12/2013	20/12/2013	20/12/2013
Date analysed	-	23/12/2013	23/12/2013	23/12/2013	23/12/2013	23/12/2013
Moisture	%	16	20	4.1	3.2	22

Moisture Our Reference: Your Reference Date Sampled Type of sample	UNITS ------------- ------------	102886-90 SM171213-95 17/12/2013 Soil	102886-91 SM171213-96 17/12/2013 Soil	102886-92 SM171213-97 17/12/2013 Soil	102886-94 SM171213-99 17/12/2013 Soil	102886-95 Trip blank 2 17/12/2013 Soil
Date prepared	-	20/12/2013	20/12/2013	20/12/2013	20/12/2013	20/12/2013
Date analysed	-	23/12/2013	23/12/2013	23/12/2013	23/12/2013	23/12/2013
Moisture	%	19	16	12	13	<0.1

Asbestos ID - soils Our Reference: Your Reference Date Sampled Type of sample	UNITS ------------- ------------	102886-10 SM161213-10 16/12/2013 Soil	102886-16 SM161213-16 16/12/2013 Soil	102886-22 SM161213-22 16/12/2013 Soil	102886-27 SM161213-27 16/12/2013 Soil	102886-59 SM171213-62 17/12/2013 Soil
Date analysed	-	03/01/2014	03/01/2014	03/01/2014	03/01/2014	03/01/2014
Sample mass tested	g	Approx 20g	Approx 60g	Approx 30g	Approx 40g	Approx 45g
Sample Description	-	Brown fine-grained soil	Beige coarse-grained sandy soil	Brown fine-grained soil	Beige coarse-grained sandy soil	Brown fine-grained clayey 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
Trace Analysis	-	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected

Asbestos ID - soils Our Reference: Your Reference Date Sampled Type of sample	UNITS ------------- ------------	102886-65 SM171213-67 17/12/2013 Soil	102886-69 SM171213-72 17/12/2013 Soil	102886-80 SM171213-84 17/12/2013 Soil
Date analysed	-	03/01/2014	03/01/2014	03/01/2014
Sample mass tested	g	Approx 50g	Approx 50g	Approx 30g
Sample Description	-	Brown fine-grained soil & rocks	Grey coarse-grained soil & rocks	Brown coarse-grained soil
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
Trace Analysis	-	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected

ESP/CEC						
Our Reference:	UNITS	102886-1	102886-2	102886-4	102886-5	102886-6
Your Reference	-------------	SM161213-01	SM161213-02	SM161213-04	SM161213-05	SM161213-06
Date Sampled	------------	16/12/2013	16/12/2013	16/12/2013	16/12/2013	16/12/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Exchangeable Ca	meq/100g	25	0.4	19	3.6	6.1
Exchangeable K	meq/100g	0.5	0.3	0.4	0.1	0.2
Exchangeable Mg	meq/100g	9.8	3.1	8.4	1.5	2.4
Exchangeable Na	meq/100g	0.50	0.26	0.65	1.6	0.57
Cation Exchange Capacity	meq/100g	36	4.1	28	6.8	9.3

ESP/CEC						
Our Reference:	UNITS	102886-10	102886-16	102886-20	102886-22	102886-23
Your Reference	-------------	SM161213-10	SM161213-16	SM161213-20	SM161213-22	SM161213-23
Date Sampled	------------	16/12/2013	16/12/2013	16/12/2013	16/12/2013	16/12/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Exchangeable Ca	meq/100g	10	0.6	11	12	2.6
Exchangeable K	meq/100g	0.6	0.3	0.4	0.6	0.4
Exchangeable Mg	meq/100g	1.1	3.6	5.0	1.6	3.7
Exchangeable Na	meq/100g	0.45	1.7	1.4	0.36	1.1
Cation Exchange Capacity	meq/100g	13	6.2	18	15	7.8

ESP/CEC						
Our Reference:	UNITS	102886-27	102886-28	102886-33	102886-39	102886-44
Your Reference	-------------	SM161213-27	SM161213-28	SM161213-33	SM161213-39	SM161213-44
Date Sampled	------------	16/12/2013	16/12/2013	16/12/2013	16/12/2013	16/12/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Exchangeable Ca	meq/100g	16	12	17	11	9.6
Exchangeable K	meq/100g	<0.1	0.8	0.1	<0.1	0.3
Exchangeable Mg	meq/100g	0.33	1.0	0.26	0.36	2.2
Exchangeable Na	meq/100g	<0.1	0.19	0.10	<0.1	0.23
Cation Exchange Capacity	meq/100g	16	14	18	11	12

ESP/CEC						
Our Reference:	UNITS	102886-47	102886-49	102886-50	102886-51	102886-54
Your Reference	-------------	SM161213-47	SM161213-50	SM161213-51	SM161213-52	SM161213-55
Date Sampled	------------	16/12/2013	16/12/2013	16/12/2013	16/12/2013	16/12/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Exchangeable Ca	meq/100g	17	1.2	10	15	0.3
Exchangeable K	meq/100g	<0.1	<0.1	0.5	0.6	0.6
Exchangeable Mg	meq/100g	0.21	<0.1	0.55	4.7	3.4
Exchangeable Na	meq/100g	<0.1	<0.1	<0.1	0.40	2.1
Cation Exchange Capacity	meq/100g	17	1.3	11	21	6.4

ESP/CEC Our Reference:	UNITS	102886-57	102886-59	102886-60	102886-61	102886-65
Your Reference	-------------	SM171213-60	SM171213-62	SM171213-63	SM171213-64	SM171213-67
Date Sampled	------------	17/12/2013	17/12/2013	17/12/2013	17/12/2013	17/12/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Exchangeable Ca	meq/100g	59	7.8	0.7	17	4.6
Exchangeable K	meq/100g	0.9	0.5	0.5	<0.1	0.4
Exchangeable Mg	meq/100g	0.74	3.9	3.1	0.62	1.2
Exchangeable Na	meq/100g	0.75	0.91	1.3	<0.1	0.28
Cation Exchange Capacity	meq/100g	61	13	5.5	17	6.5

ESP/CEC Our Reference:	UNITS	102886-66	102886-69	102886-70	102886-71	102886-72
Your Reference	-------------	SM171213-68	SM171213-72	SM171213-74	SM171213-75	SM171213-76
Date Sampled	------------	17/12/2013	17/12/2013	17/12/2013	17/12/2013	17/12/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Exchangeable Ca	meq/100g	3.1	30	13	4.7	3.3
Exchangeable K	meq/100g	0.3	0.1	0.4	0.4	0.5
Exchangeable Mg	meq/100g	4.7	0.43	1.6	2.8	5.1
Exchangeable Na	meq/100g	1.2	<0.1	0.16	0.41	0.75
Cation Exchange Capacity	meq/100g	9.3	31	15	8.3	9.6

ESP/CEC Our Reference:	UNITS	102886-74	102886-75	102886-77	102886-79	102886-80
Your Reference	-------------	SM171213-78	SM171213-79	SM171213-81	SM171213-83	SM171213-84
Date Sampled	------------	17/12/2013	17/12/2013	17/12/2013	17/12/2013	17/12/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Exchangeable Ca	meq/100g	14	1.9	9.2	23	10
Exchangeable K	meq/100g	1.1	0.6	0.5	0.4	0.6
Exchangeable Mg	meq/100g	1.9	2.1	1.6	0.21	0.87
Exchangeable Na	meq/100g	0.35	0.51	<0.1	<0.1	<0.1
Cation Exchange Capacity	meq/100g	17	5.2	11	23	12

ESP/CEC Our Reference:	UNITS	102886-83	102886-84	102886-85	102886-87	102886-89
Your Reference	-------------	SM171213-87	SM171213-89	SM171213-90	SM171213-92	SM171213-94
Date Sampled	------------	17/12/2013	17/12/2013	17/12/2013	17/12/2013	17/12/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Exchangeable Ca	meq/100g	18	35	27	1.6	25
Exchangeable K	meq/100g	<0.1	0.5	0.5	<0.1	0.4
Exchangeable Mg	meq/100g	1.2	2.6	1.4	<0.1	1.4
Exchangeable Na	meq/100g	0.11	0.35	<0.1	<0.1	<0.1
Cation Exchange Capacity	meq/100g	20	39	29	1.8	27

ESP/CEC Our Reference:	UNITS	102886-90	102886-91	102886-92
Your Reference	-------------	SM171213-95	SM171213-96	SM171213-97
Date Sampled	------------	17/12/2013	17/12/2013	17/12/2013
Type of sample		Soil	Soil	Soil
Exchangeable Ca	meq/100g	17	0.6	<0.1
Exchangeable K	meq/100g	0.4	0.4	0.4
Exchangeable Mg	meq/100g	1.5	4.0	3.8
Exchangeable Na	meq/100g	0.11	1.5	2.3
Cation Exchange Capacity	meq/100g	19	6.5	6.6

Miscellaneous Inorg - soil						
Our Reference:	UNITS	102886-1	102886-2	102886-4	102886-5	102886-6
Your Reference	-------------	SM161213-01	SM161213-02	SM161213-04	SM161213-05	SM161213-06
Date Sampled	------------	16/12/2013	16/12/2013	16/12/2013	16/12/2013	16/12/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	23/12/2013	23/12/2013	23/12/2013	23/12/2013	23/12/2013
Date analysed	-	07/01/2014	07/01/2014	07/01/2014	07/01/2014	07/01/2014
pH 1:5 soil:water	pH Units	8.8	4.5	8.8	6.7	4.9
Electrical Conductivity 1:5 soil:water	µS/cm	[NA]	[NA]	100	630	510
Chloride, Cl 1:5 soil:water	mg/kg	[NA]	[NA]	<10	[NA]	150
Sulphate, SO4 1:5 soil:water	mg/kg	[NA]	[NA]	10	[NA]	690
Resistivity in soil*	ohm m	[NA]	[NA]	96	[NA]	20

Miscellaneous Inorg - soil						
Our Reference:	UNITS	102886-7	102886-8	102886-9	102886-10	102886-16
Your Reference	-------------	SM161213-07	SM161213-08	SM161213-09	SM161213-10	SM161213-16
Date Sampled	------------	16/12/2013	16/12/2013	16/12/2013	16/12/2013	16/12/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	23/12/2013	23/12/2013	23/12/2013	23/12/2013	23/12/2013
Date analysed	-	07/01/2014	07/01/2014	07/01/2014	07/01/2014	07/01/2014
pH 1:5 soil:water	pH Units	[NA]	5.1	5.2	5.6	5.1
Electrical Conductivity 1:5 soil:water	µS/cm	190	92	310	[NA]	[NA]
Chloride, Cl 1:5 soil:water	mg/kg	[NA]	21	320	[NA]	[NA]
Sulphate, SO4 1:5 soil:water	mg/kg	[NA]	130	200	[NA]	[NA]
Resistivity in soil*	ohm m	[NA]	110	32	[NA]	[NA]

Miscellaneous Inorg - soil						
Our Reference:	UNITS	102886-20	102886-22	102886-23	102886-27	102886-28
Your Reference	-------------	SM161213-20	SM161213-22	SM161213-23	SM161213-27	SM161213-28
Date Sampled	------------	16/12/2013	16/12/2013	16/12/2013	16/12/2013	16/12/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	23/12/2013	23/12/2013	23/12/2013	23/12/2013	23/12/2013
Date analysed	-	07/01/2014	07/01/2014	07/01/2014	07/01/2014	07/01/2014
pH 1:5 soil:water	pH Units	7.0	6.4	5.1	9.3	7.2

Miscellaneous Inorg - soil						
Our Reference:	UNITS	102886-33	102886-39	102886-44	102886-47	102886-49
Your Reference	-------------	SM161213-33	SM161213-39	SM161213-44	SM161213-47	SM161213-50
Date Sampled	------------	16/12/2013	16/12/2013	16/12/2013	16/12/2013	16/12/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	23/12/2013	23/12/2013	23/12/2013	23/12/2013	23/12/2013
Date analysed	-	07/01/2014	07/01/2014	07/01/2014	07/01/2014	07/01/2014
pH 1:5 soil:water	pH Units	8.4	8.6	5.7	9.0	8.7

Miscellaneous Inorg - soil						
Our Reference:	UNITS	102886-50	102886-51	102886-54	102886-57	102886-59
Your Reference	-------------	SM161213-51	SM161213-52	SM161213-55	SM171213-60	SM171213-62
Date Sampled	------------	16/12/2013	16/12/2013	16/12/2013	17/12/2013	17/12/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	23/12/2013	23/12/2013	23/12/2013	23/12/2013	23/12/2013
Date analysed	-	07/01/2014	07/01/2014	07/01/2014	07/01/2014	07/01/2014
pH 1:5 soil:water	pH Units	7.8	7.4	6.5	10.2	5.6
Electrical Conductivity 1:5 soil:water	µS/cm	[NA]	93	320	[NA]	[NA]
Chloride, Cl 1:5 soil:water	mg/kg	[NA]	<10	360	[NA]	[NA]
Sulphate, SO4 1:5 soil:water	mg/kg	[NA]	20	150	[NA]	[NA]
Resistivity in soil*	ohm m	[NA]	110	31	[NA]	[NA]

Miscellaneous Inorg - soil						
Our Reference:	UNITS	102886-60	102886-61	102886-65	102886-66	102886-69
Your Reference	-------------	SM171213-63	SM171213-64	SM171213-67	SM171213-68	SM171213-72
Date Sampled	------------	17/12/2013	17/12/2013	17/12/2013	17/12/2013	17/12/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	23/12/2013	23/12/2013	23/12/2013	23/12/2013	23/12/2013
Date analysed	-	07/01/2014	07/01/2014	07/01/2014	07/01/2014	07/01/2014
pH 1:5 soil:water	pH Units	5.4	9.9	6.2	4.9	8.6

Miscellaneous Inorg - soil						
Our Reference:	UNITS	102886-70	102886-71	102886-72	102886-74	102886-75
Your Reference	-------------	SM171213-74	SM171213-75	SM171213-76	SM171213-78	SM171213-79
Date Sampled	------------	17/12/2013	17/12/2013	17/12/2013	17/12/2013	17/12/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	23/12/2013	23/12/2013	23/12/2013	23/12/2013	23/12/2013
Date analysed	-	07/01/2014	07/01/2014	07/01/2014	07/01/2014	07/01/2014
pH 1:5 soil:water	pH Units	7.7	4.8	4.7	6.5	5.0

Miscellaneous Inorg - soil						
Our Reference:	UNITS	102886-77	102886-79	102886-80	102886-83	102886-84
Your Reference	-------------	SM171213-81	SM171213-83	SM171213-84	SM171213-87	SM171213-89
Date Sampled	------------	17/12/2013	17/12/2013	17/12/2013	17/12/2013	17/12/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	23/12/2013	23/12/2013	23/12/2013	23/12/2013	23/12/2013
Date analysed	-	07/01/2014	07/01/2014	07/01/2014	07/01/2014	07/01/2014
pH 1:5 soil:water	pH Units	6.1	9.0	6.8	8.9	8.2

Miscellaneous Inorg - soil						
Our Reference:	UNITS	102886-85	102886-87	102886-89	102886-90	102886-91
Your Reference	-------------	SM171213-90	SM171213-92	SM171213-94	SM171213-95	SM171213-96
Date Sampled	------------	17/12/2013	17/12/2013	17/12/2013	17/12/2013	17/12/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	23/12/2013	23/12/2013	23/12/2013	23/12/2013	23/12/2013
Date analysed	-	07/01/2014	07/01/2014	07/01/2014	07/01/2014	07/01/2014
pH 1:5 soil:water	pH Units	8.6	9.2	8.2	7.4	5.5
Electrical Conductivity 1:5 soil:water	µS/cm	[NA]	58	130	200	100
Chloride, Cl 1:5 soil:water	mg/kg	[NA]	[NA]	<10	<10	29

Miscellaneous Inorg - soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ------------- ------------	102886-85 SM171213-90 17/12/2013 Soil	102886-87 SM171213-92 17/12/2013 Soil	102886-89 SM171213-94 17/12/2013 Soil	102886-90 SM171213-95 17/12/2013 Soil	102886-91 SM171213-96 17/12/2013 Soil
Sulphate, SO4 1:5 soil:water	mg/kg	[NA]	[NA]	20	110	130
Resistivity in soil*	ohm m	[NA]	[NA]	79	50	96

Miscellaneous Inorg - soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ------------- ------------	102886-92 SM171213-97 17/12/2013 Soil	102886-93 SM171213-98 17/12/2013 Soil	102886-94 SM171213-99 17/12/2013 Soil
Date prepared	-	23/12/2013	23/12/2013	23/12/2013
Date analysed	-	07/01/2014	07/01/2014	07/01/2014
pH 1:5 soil:water	pH Units	5.4	[NA]	6.3
Electrical Conductivity 1:5 soil:water	µS/cm	190	310	780
Chloride, Cl 1:5 soil:water	mg/kg	88	[NA]	1,000
Sulphate, SO4 1:5 soil:water	mg/kg	210	[NA]	280
Resistivity in soil*	ohm m	51	[NA]	13

vTRH(C6-C10)/BTEXN in Water		
Our Reference:	UNITS	102886-97
Your Reference	-------------	Rinsate 1
Date Sampled	------------	17/12/2013
Type of sample		Water
Date extracted	-	20/12/2013
Date analysed	-	21/12/2013
TRHC_6 - C_9	µg/L	<10
TRHC_6 - C_{10}	µg/L	<10
TRHC_6 - C_{10} less BTEX (F1)	µg/L	<10
Benzene	µg/L	<1
Toluene	µg/L	<1
Ethylbenzene	µg/L	<1
m+p-xylene	µg/L	<2
o-xylene	µg/L	<1
Naphthalene	µg/L	<1
Surrogate Dibromofluoromethane	%	112
Surrogate toluene-d8	%	95
Surrogate 4-BFB	%	83

svTRH (C10-C40) in Water		
Our Reference:	UNITS	102886-97
Your Reference	-------------	Rinsate 1
Date Sampled	------------	17/12/2013
Type of sample		Water
Date extracted	-	20/12/2013
Date analysed	-	20/12/2013
TRHC$_{10}$ - C$_{14}$	µg/L	<50
TRHC$_{15}$ - C$_{28}$	µg/L	<100
TRHC$_{29}$ - C$_{36}$	µg/L	<100
TRH>C$_{10}$ - C$_{16}$	µg/L	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	µg/L	<50
TRH>C$_{16}$ - C$_{34}$	µg/L	<100
TRH>C$_{34}$ - C$_{40}$	µg/L	<100
Surrogate o-Terphenyl	%	94

PAHs in Water Our Reference: Your Reference Date Sampled Type of sample	UNITS ------------- ------------	102886-97 Rinsate 1 17/12/2013 Water
Date extracted	-	20/12/2013
Date analysed	-	20/12/2013
Naphthalene	µg/L	<1
Acenaphthylene	µg/L	<1
Acenaphthene	µg/L	<1
Fluorene	µg/L	<1
Phenanthrene	µg/L	<1
Anthracene	µg/L	<1
Fluoranthene	µg/L	<1
Pyrene	µg/L	<1
Benzo(a)anthracene	µg/L	<1
Chrysene	µg/L	<1
Benzo(b+k)fluoranthene	µg/L	<2
Benzo(a)pyrene	µg/L	<1
Indeno(1,2,3-c,d)pyrene	µg/L	<1
Dibenzo(a,h)anthracene	µg/L	<1
Benzo(g,h,i)perylene	µg/L	<1
Benzo(a)pyrene TEQ	µg/L	<5
Total +ve PAH's	µg/L	NIL (+)VE
Surrogate p-Terphenyl-d14	%	114

Metals in Water - Dissolved		
Our Reference:	UNITS	102886-97
Your Reference	-------------	Rinsate 1
Date Sampled	------------	17/12/2013
Type of sample		Water
Date digested	-	23/12/2013
Date analysed	-	23/12/2013
Arsenic - Dissolved	mg/L	<0.05
Cadmium - Dissolved	mg/L	<0.01
Chromium - Dissolved	mg/L	<0.01
Copper - Dissolved	mg/L	<0.01
Lead - Dissolved	mg/L	<0.03
Mercury - Dissolved	mg/L	<0.0005
Nickel - Dissolved	mg/L	<0.02
Zinc - Dissolved	mg/L	<0.02

Method ID	Methodology Summary
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)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
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. Note Naphthalene is determined from the VOC analysis.
Org-012 subset	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.
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Inorg-008	Moisture content determined by heating at 105+/-5 deg C for a minimum of 12 hours.
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.
Metals-009	Determination of exchangeable cations and cation exchange capacity in soil based on Rayment and Lyons 2011.
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA 22nd ED, 4500-H+.
Inorg-002	Conductivity and Salinity - measured using a conductivity cell at 25oC in accordance with APHA 22nd ED 2510 and Rayment & Lyons.
Inorg-081	Anions - a range of Anions are determined by Ion Chromatography, in accordance with APHA 22nd ED, 4110 -B.
Org-013	Water samples are analysed directly by purge and trap GC-MS.

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			20/12/2013	102886-4	20/12/2013 || 20/12/2013	LCS-2	20/12/2013
Date analysed	-			23/12/2013	102886-4	23/12/2013 || 23/12/2013	LCS-2	23/12/2013
TRHC_6 - C_9	mg/kg	25	Org-016	<25	102886-4	<25 || <25	LCS-2	89%
TRHC_6 - C_{10}	mg/kg	25	Org-016	<25	102886-4	<25 || <25	LCS-2	89%
Benzene	mg/kg	0.2	Org-016	<0.2	102886-4	<0.2 || <0.2	LCS-2	93%
Toluene	mg/kg	0.5	Org-016	<0.5	102886-4	<0.5 || <0.5	LCS-2	87%
Ethylbenzene	mg/kg	1	Org-016	<1	102886-4	<1 || <1	LCS-2	84%
m+p-xylene	mg/kg	2	Org-016	<2	102886-4	<2 || <2	LCS-2	90%
o-Xylene	mg/kg	1	Org-016	<1	102886-4	<1 || <1	LCS-2	90%
naphthalene	mg/kg	1	Org-014	<1	102886-4	<1 || <1	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%		Org-016	100	102886-4	101 || 78 || RPD: 26	LCS-2	108%

QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			20/12/2013	102886-4	20/12/2013 || 20/12/2013	LCS-2	20/12/2013
Date analysed	-			21/12/2013	102886-4	21/12/2013 || 21/12/2013	LCS-2	21/12/2013
TRHC_{10} - C_{14}	mg/kg	50	Org-003	<50	102886-4	<50 || <50	LCS-2	98%
TRHC_{15} - C_{28}	mg/kg	100	Org-003	<100	102886-4	<100 || <100	LCS-2	105%
TRHC_{29} - C_{36}	mg/kg	100	Org-003	<100	102886-4	<100 || <100	LCS-2	91%
TRH>C_{10}-C_{16}	mg/kg	50	Org-003	<50	102886-4	<50 || <50	LCS-2	98%
TRH>C_{16}-C_{34}	mg/kg	100	Org-003	<100	102886-4	<100 || <100	LCS-2	105%
TRH>C_{34}-C_{40}	mg/kg	100	Org-003	<100	102886-4	<100 || <100	LCS-2	91%
Surrogate o-Terphenyl	%		Org-003	90	102886-4	92 || 88 || RPD: 4	LCS-2	96%

QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			20/12/2013	102886-4	20/12/2013 || 20/12/2013	LCS-2	20/12/2013
Date analysed	-			20/12/2013	102886-4	21/12/2013 || 21/12/2013	LCS-2	20/12/2013
Naphthalene	mg/kg	0.1	Org-012 subset	<0.1	102886-4	<0.1 || <0.1	LCS-2	102%
Acenaphthylene	mg/kg	0.1	Org-012 subset	<0.1	102886-4	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	0.1	Org-012 subset	<0.1	102886-4	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	0.1	Org-012 subset	<0.1	102886-4	<0.1 || <0.1	LCS-2	106%
Phenanthrene	mg/kg	0.1	Org-012 subset	<0.1	102886-4	<0.1 || <0.1	LCS-2	100%
Anthracene	mg/kg	0.1	Org-012 subset	<0.1	102886-4	<0.1 || <0.1	[NR]	[NR]
Fluoranthene	mg/kg	0.1	Org-012 subset	<0.1	102886-4	<0.1 || <0.1	LCS-2	98%

QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Pyrene	mg/kg	0.1	Org-012 subset	<0.1	102886-4	<0.1 || <0.1	LCS-2	104%
Benzo(a)anthracene	mg/kg	0.1	Org-012 subset	<0.1	102886-4	<0.1 || <0.1	[NR]	[NR]
Chrysene	mg/kg	0.1	Org-012 subset	<0.1	102886-4	<0.1 || <0.1	LCS-2	95%
Benzo(b+k)fluoranthene	mg/kg	0.2	Org-012 subset	<0.2	102886-4	<0.2 || <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	0.05	Org-012 subset	<0.05	102886-4	<0.05 || <0.05	LCS-2	105%
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012 subset	<0.1	102886-4	<0.1 || <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012 subset	<0.1	102886-4	<0.1 || <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012 subset	<0.1	102886-4	<0.1 || <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012 subset	99	102886-4	98 || 99 || RPD: 1	LCS-2	98%

QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			20/12/2013	102886-1	20/12/2013 || 20/12/2013	LCS-2	20/12/2013
Date analysed	-			21/12/2013	102886-1	21/12/2013 || 21/12/2013	LCS-2	21/12/2013
HCB	mg/kg	0.1	Org-005	<0.1	102886-1	<0.1 || <0.1	[NR]	[NR]
alpha-BHC	mg/kg	0.1	Org-005	<0.1	102886-1	<0.1 || <0.1	LCS-2	89%
gamma-BHC	mg/kg	0.1	Org-005	<0.1	102886-1	<0.1 || <0.1	[NR]	[NR]
beta-BHC	mg/kg	0.1	Org-005	<0.1	102886-1	<0.1 || <0.1	LCS-2	93%
Heptachlor	mg/kg	0.1	Org-005	<0.1	102886-1	<0.1 || <0.1	LCS-2	93%
delta-BHC	mg/kg	0.1	Org-005	<0.1	102886-1	<0.1 || <0.1	[NR]	[NR]
Aldrin	mg/kg	0.1	Org-005	<0.1	102886-1	<0.1 || <0.1	LCS-2	93%
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	102886-1	<0.1 || <0.1	LCS-2	96%
gamma-Chlordane	mg/kg	0.1	Org-005	<0.1	102886-1	<0.1 || <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	0.1	Org-005	<0.1	102886-1	<0.1 || <0.1	[NR]	[NR]
Endosulfan I	mg/kg	0.1	Org-005	<0.1	102886-1	<0.1 || <0.1	[NR]	[NR]
pp-DDE	mg/kg	0.1	Org-005	<0.1	102886-1	<0.1 || <0.1	LCS-2	91%
Dieldrin	mg/kg	0.1	Org-005	<0.1	102886-1	<0.1 || <0.1	LCS-2	96%
Endrin	mg/kg	0.1	Org-005	<0.1	102886-1	<0.1 || <0.1	LCS-2	96%
pp-DDD	mg/kg	0.1	Org-005	<0.1	102886-1	<0.1 || <0.1	LCS-2	95%
Endosulfan II	mg/kg	0.1	Org-005	<0.1	102886-1	<0.1 || <0.1	[NR]	[NR]
pp-DDT	mg/kg	0.1	Org-005	<0.1	102886-1	<0.1 || <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	0.1	Org-005	<0.1	102886-1	<0.1 || <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	0.1	Org-005	<0.1	102886-1	<0.1 || <0.1	LCS-2	91%
Methoxychlor	mg/kg	0.1	Org-005	<0.1	102886-1	<0.1 || <0.1	[NR]	[NR]
Surrogate TCMX	%		Org-005	85	102886-1	80 || 85 || RPD: 6	LCS-2	80%

QUALITY CONTROL PCBs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			20/12/2013	102886-1	20/12/2013 || 20/12/2013	LCS-2	20/12/2013
Date analysed	-			21/12/2013	102886-1	21/12/2013 || 21/12/2013	LCS-2	21/12/2013
Arochlor 1016	mg/kg	0.1	Org-006	<0.1	102886-1	<0.1 || <0.1	[NR]	[NR]
Arochlor 1221	mg/kg	0.1	Org-006	<0.1	102886-1	<0.1 || <0.1	[NR]	[NR]
Arochlor 1232	mg/kg	0.1	Org-006	<0.1	102886-1	<0.1 || <0.1	[NR]	[NR]
Arochlor 1242	mg/kg	0.1	Org-006	<0.1	102886-1	<0.1 || <0.1	[NR]	[NR]
Arochlor 1248	mg/kg	0.1	Org-006	<0.1	102886-1	<0.1 || <0.1	[NR]	[NR]
Arochlor 1254	mg/kg	0.1	Org-006	<0.1	102886-1	<0.1 || <0.1	LCS-2	100%
Arochlor 1260	mg/kg	0.1	Org-006	<0.1	102886-1	<0.1 || <0.1	[NR]	[NR]
Surrogate TCLMX	%		Org-006	85	102886-1	80 || 85 || RPD: 6	LCS-2	79%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date digested	-			[NT]	102886-1	20/12/2013 || 20/12/2013	LCS-9	20/12/2013
Date analysed	-			[NT]	102886-1	20/12/2013 || 20/12/2013	LCS-9	20/12/2013
Arsenic	mg/kg	4	Metals-020 ICP-AES	<4	102886-1	5 || <4	LCS-9	96%
Cadmium	mg/kg	0.4	Metals-020 ICP-AES	<0.4	102886-1	<0.4 || <0.4	LCS-9	103%
Chromium	mg/kg	1	Metals-020 ICP-AES	<1	102886-1	15 || 14 || RPD: 7	LCS-9	104%
Copper	mg/kg	1	Metals-020 ICP-AES	<1	102886-1	47 || 47 || RPD: 0	LCS-9	104%
Lead	mg/kg	1	Metals-020 ICP-AES	<1	102886-1	39 || 7 || RPD: 139	LCS-9	98%
Mercury	mg/kg	0.1	Metals-021 CV-AAS	<0.1	102886-1	<0.1 || <0.1	LCS-9	91%
Nickel	mg/kg	1	Metals-020 ICP-AES	<1	102886-1	32 || 73 || RPD: 78	LCS-9	103%
Zinc	mg/kg	1	Metals-020 ICP-AES	<1	102886-1	72 || 37 || RPD: 64	LCS-9	101%

QUALITY CONTROL Moisture	UNITS	PQL	METHOD	Blank
Date prepared	-			[NT]
Date analysed	-			[NT]
Moisture	%	0.1	Inorg-008	<0.1

QUALITY CONTROL Asbestos ID - soils	UNITS	PQL	METHOD	Blank
Date analysed	-			[NT]

QUALITY CONTROL ESP/CEC	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Exchangeable Ca	meq/100g	0.1	Metals-009	<0.1	102886-1	25 || 22 || RPD: 13	LCS-1	109%
Exchangeable K	meq/100g	0.1	Metals-009	<0.1	102886-1	0.5 || 0.4 || RPD: 22	LCS-1	105%
Exchangeable Mg	meq/100g	0.1	Metals-009	<0.1	102886-1	9.8 || 9.1 || RPD: 7	LCS-1	105%
Exchangeable Na	meq/100g	0.1	Metals-009	<0.1	102886-1	0.50 || 0.50 || RPD: 0	LCS-1	111%
Cation Exchange Capacity	meq/100g	1	Metals-009	<1.0	102886-1	36 || 32 || RPD: 12	[NR]	[NR]

QUALITY CONTROL Miscellaneous Inorg - soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			23/12/2013	102886-1	23/12/2013 || 23/12/2013	LCS-1	23/12/2013
Date analysed	-			07/01/2014	102886-1	07/01/2014 || 07/01/2014	LCS-1	07/01/2014
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	102886-1	8.8 || 8.8 || RPD: 0	LCS-1	100%
Electrical Conductivity 1:5 soil:water	µS/cm	1	Inorg-002	<1	[NT]	[NT]	LCS-1	104%
Chloride, Cl 1:5 soil:water	mg/kg	10	Inorg-081	<10	[NT]	[NT]	LCS-1	117%
Sulphate, SO4 1:5 soil:water	mg/kg	10	Inorg-081	<10	[NT]	[NT]	LCS-1	114%
Resistivity in soil*	ohm m	1	Inorg-002	<1.0	[NT]	[NT]	LCS-1	104%

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			20/12/2013	[NT]	[NT]	LCS-W1	20/12/2013
Date analysed	-			21/12/2013	[NT]	[NT]	LCS-W1	21/12/2013
TRHC_6 - C_9	µg/L	10	Org-016	<10	[NT]	[NT]	LCS-W1	96%
TRHC_6 - C_{10}	µg/L	10	Org-016	<10	[NT]	[NT]	LCS-W1	96%
Benzene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	101%
Toluene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	93%
Ethylbenzene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	93%
m+p-xylene	µg/L	2	Org-016	<2	[NT]	[NT]	LCS-W1	97%
o-xylene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	95%
Naphthalene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Surrogate Dibromofluoromethane	%		Org-016	108	[NT]	[NT]	LCS-W1	107%
Surrogate toluene-d8	%		Org-016	94	[NT]	[NT]	LCS-W1	103%
Surrogate 4-BFB	%		Org-016	86	[NT]	[NT]	LCS-W1	99%

QUALITY CONTROL svTRH (C10-C40) in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			20/12/2013	[NT]	[NT]	LCS-W1	20/12/2013
Date analysed	-			20/12/2013	[NT]	[NT]	LCS-W1	20/12/2013
TRHC_{10} - C_{14}	µg/L	50	Org-003	<50	[NT]	[NT]	LCS-W1	84%
TRHC_{15} - C_{28}	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	100%
TRHC_{29} - C_{36}	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	121%
TRH>C_{10} - C_{16}	µg/L	50	Org-003	<50	[NT]	[NT]	LCS-W1	84%
TRH>C_{16} - C_{34}	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	100%
TRH>C_{34} - C_{40}	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	121%
Surrogate o-Terphenyl	%		Org-003	74	[NT]	[NT]	LCS-W1	112%

QUALITY CONTROL PAHs in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			[NT]	[NT]	[NT]	LCS-W1	20/12/2013
Date analysed	-			[NT]	[NT]	[NT]	LCS-W1	20/12/2013
Naphthalene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	83%
Acenaphthylene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Acenaphthene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Fluorene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	85%
Phenanthrene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	82%
Anthracene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Fluoranthene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	81%
Pyrene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	86%
Benzo(a)anthracene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Chrysene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	80%
Benzo(b+k)fluoranthene	µg/L	2	Org-012 subset	<2	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	87%
Indeno(1,2,3-c,d)pyrene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]

QUALITY CONTROL PAHs in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Dibenzo(a,h)anthracene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Surrogate *p*-Terphenyl-d14	%		Org-012 subset	[NT]	[NT]	[NT]	LCS-W1	85%

QUALITY CONTROL Metals in Water - Dissolved	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date digested	-			23/12/2013	[NT]	[NT]	LCS-W1	23/12/2013
Date analysed	-			23/12/2013	[NT]	[NT]	LCS-W1	23/12/2013
Arsenic - Dissolved	mg/L	0.05	Metals-020 ICP-AES	<0.05	[NT]	[NT]	LCS-W1	90%
Cadmium - Dissolved	mg/L	0.01	Metals-020 ICP-AES	<0.01	[NT]	[NT]	LCS-W1	98%
Chromium - Dissolved	mg/L	0.01	Metals-020 ICP-AES	<0.01	[NT]	[NT]	LCS-W1	94%
Copper - Dissolved	mg/L	0.01	Metals-020 ICP-AES	<0.01	[NT]	[NT]	LCS-W1	94%
Lead - Dissolved	mg/L	0.03	Metals-020 ICP-AES	<0.03	[NT]	[NT]	LCS-W1	93%
Mercury - Dissolved	mg/L	0.0005	Metals-021 CV-AAS	<0.0005	[NT]	[NT]	LCS-W1	100%
Nickel - Dissolved	mg/L	0.02	Metals-020 ICP-AES	<0.02	[NT]	[NT]	LCS-W1	95%
Zinc - Dissolved	mg/L	0.02	Metals-020 ICP-AES	<0.02	[NT]	[NT]	LCS-W1	95%

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	102886-27	20/12/2013 || 20/12/2013	LCS-3	20/12/2013
Date analysed	-	102886-27	23/12/2013 || 23/12/2013	LCS-3	23/12/2013
TRHC_6 - C_9	mg/kg	102886-27	<25 || <25	LCS-3	95%
TRHC_6 - C_{10}	mg/kg	102886-27	<25 || <25	LCS-3	95%
Benzene	mg/kg	102886-27	<0.2 || <0.2	LCS-3	88%
Toluene	mg/kg	102886-27	<0.5 || <0.5	LCS-3	94%
Ethylbenzene	mg/kg	102886-27	<1 || <1	LCS-3	94%
m+p-xylene	mg/kg	102886-27	<2 || <2	LCS-3	96%
o-Xylene	mg/kg	102886-27	<1 || <1	LCS-3	99%
naphthalene	mg/kg	102886-27	<1 || <1	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%	102886-27	97 || 101 || RPD: 4	LCS-3	97%

QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	102886-27	20/12/2013 || 20/12/2013	LCS-3	20/12/2013
Date analysed	-	102886-27	21/12/2013 || 21/12/2013	LCS-3	21/12/2013
TRHC_{10} - C_{14}	mg/kg	102886-27	<50 || <50	LCS-3	99%
TRHC_{15} - C_{28}	mg/kg	102886-27	<100 || <100	LCS-3	110%
TRHC_{29} - C_{36}	mg/kg	102886-27	<100 || <100	LCS-3	103%
TRH>C_{10}-C_{16}	mg/kg	102886-27	<50 || <50	LCS-3	99%
TRH>C_{16}-C_{34}	mg/kg	102886-27	<100 || <100	LCS-3	110%
TRH>C_{34}-C_{40}	mg/kg	102886-27	<100 || <100	LCS-3	103%
Surrogate o-Terphenyl	%	102886-27	89 || 87 || RPD: 2	LCS-3	106%

QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	102886-27	20/12/2013 || 20/12/2013	LCS-3	20/12/2013
Date analysed	-	102886-27	21/12/2013 || 21/12/2013	LCS-3	20/12/2013
Naphthalene	mg/kg	102886-27	<0.1 || <0.1	LCS-3	107%
Acenaphthylene	mg/kg	102886-27	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	102886-27	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	102886-27	<0.1 || <0.1	LCS-3	110%
Phenanthrene	mg/kg	102886-27	<0.1 || <0.1	LCS-3	105%
Anthracene	mg/kg	102886-27	<0.1 || <0.1	[NR]	[NR]
Fluoranthene	mg/kg	102886-27	<0.1 || <0.1	LCS-3	102%
Pyrene	mg/kg	102886-27	<0.1 || <0.1	LCS-3	108%
Benzo(a)anthracene	mg/kg	102886-27	<0.1 || <0.1	[NR]	[NR]
Chrysene	mg/kg	102886-27	<0.1 || <0.1	LCS-3	98%
Benzo(b+k)fluoranthene	mg/kg	102886-27	<0.2 || <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	102886-27	<0.05 || <0.05	LCS-3	111%
Indeno(1,2,3-c,d)pyrene	mg/kg	102886-27	<0.1 || <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	102886-27	<0.1 || <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	102886-27	<0.1 || <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%	102886-27	97 || 89 || RPD: 9	LCS-3	102%

QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	102886-10	20/12/2013
Date analysed	-	[NT]	[NT]	102886-10	21/12/2013
HCB	mg/kg	[NT]	[NT]	[NR]	[NR]
alpha-BHC	mg/kg	[NT]	[NT]	102886-10	89%
gamma-BHC	mg/kg	[NT]	[NT]	[NR]	[NR]
beta-BHC	mg/kg	[NT]	[NT]	102886-10	94%
Heptachlor	mg/kg	[NT]	[NT]	102886-10	93%
delta-BHC	mg/kg	[NT]	[NT]	[NR]	[NR]
Aldrin	mg/kg	[NT]	[NT]	102886-10	93%
Heptachlor Epoxide	mg/kg	[NT]	[NT]	102886-10	96%
gamma-Chlordane	mg/kg	[NT]	[NT]	[NR]	[NR]
alpha-chlordane	mg/kg	[NT]	[NT]	[NR]	[NR]
Endosulfan I	mg/kg	[NT]	[NT]	[NR]	[NR]
pp-DDE	mg/kg	[NT]	[NT]	102886-10	92%
Dieldrin	mg/kg	[NT]	[NT]	102886-10	96%
Endrin	mg/kg	[NT]	[NT]	102886-10	89%
pp-DDD	mg/kg	[NT]	[NT]	102886-10	95%
Endosulfan II	mg/kg	[NT]	[NT]	[NR]	[NR]
pp-DDT	mg/kg	[NT]	[NT]	[NR]	[NR]
Endrin Aldehyde	mg/kg	[NT]	[NT]	[NR]	[NR]
Endosulfan Sulphate	mg/kg	[NT]	[NT]	102886-10	88%
Methoxychlor	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate TCMX	%	[NT]	[NT]	102886-10	85%

QUALITY CONTROL PCBs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	102886-10	20/12/2013
Date analysed	-	[NT]	[NT]	102886-10	21/12/2013
Arochlor 1016	mg/kg	[NT]	[NT]	[NR]	[NR]
Arochlor 1221	mg/kg	[NT]	[NT]	[NR]	[NR]
Arochlor 1232	mg/kg	[NT]	[NT]	[NR]	[NR]
Arochlor 1242	mg/kg	[NT]	[NT]	[NR]	[NR]
Arochlor 1248	mg/kg	[NT]	[NT]	[NR]	[NR]
Arochlor 1254	mg/kg	[NT]	[NT]	102886-10	101%
Arochlor 1260	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate TCLMX	%	[NT]	[NT]	102886-10	81%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	102886-4	20/12/2013 || 20/12/2013	LCS-10	20/12/2013
Date analysed	-	102886-4	20/12/2013 || 20/12/2013	LCS-10	20/12/2013
Arsenic	mg/kg	102886-4	<4 || <4	LCS-10	98%
Cadmium	mg/kg	102886-4	<0.4 || <0.4	LCS-10	106%
Chromium	mg/kg	102886-4	19 || 21 || RPD: 10	LCS-10	107%
Copper	mg/kg	102886-4	65 || 67 || RPD: 3	LCS-10	106%
Lead	mg/kg	102886-4	4 || 5 || RPD: 22	LCS-10	100%
Mercury	mg/kg	102886-4	<0.1 || <0.1	LCS-10	96%
Nickel	mg/kg	102886-4	110 || 110 || RPD: 0	LCS-10	105%
Zinc	mg/kg	102886-4	40 || 48 || RPD: 18	LCS-10	104%

QUALITY CONTROL ESP/CEC	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Exchangeable Ca	meq/100g	102886-27	16 || 17 || RPD: 6	LCS-2	119%
Exchangeable K	meq/100g	102886-27	<0.1 || <0.1	LCS-2	114%
Exchangeable Mg	meq/100g	102886-27	0.33 || 0.37 || RPD: 11	LCS-2	114%
Exchangeable Na	meq/100g	102886-27	<0.1 || <0.1	LCS-2	118%
Cation Exchange Capacity	meq/100g	102886-27	16 || 17 || RPD: 6	[NR]	[NR]

QUALITY CONTROL Miscellaneous Inorg - soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	102886-20	23/12/2013 || 23/12/2013	LCS-2	23/12/2013
Date analysed	-	102886-20	07/01/2014 || 07/01/2014	LCS-2	07/01/2014
pH 1:5 soil:water	pH Units	102886-20	7.0 || 7.1 || RPD: 1	LCS-2	99%
Electrical Conductivity 1:5 soil:water	µS/cm	[NT]	[NT]	LCS-2	99%
Chloride, Cl 1:5 soil:water	mg/kg	[NT]	[NT]	[NR]	[NR]
Sulphate, SO4 1:5 soil:water	mg/kg	[NT]	[NT]	[NR]	[NR]
Resistivity in soil*	ohm m	[NT]	[NT]	[NR]	[NR]

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	102886-47	20/12/2013 || 20/12/2013	102886-10	20/12/2013
Date analysed	-	102886-47	23/12/2013 || 23/12/2013	102886-10	23/12/2013
TRHC_6 - C_9	mg/kg	102886-47	<25 || <25	102886-10	82%
TRHC_6 - C_{10}	mg/kg	102886-47	<25 || <25	102886-10	82%
Benzene	mg/kg	102886-47	<0.2 || <0.2	102886-10	83%
Toluene	mg/kg	102886-47	<0.5 || <0.5	102886-10	76%
Ethylbenzene	mg/kg	102886-47	<1 || <1	102886-10	79%
m+p-xylene	mg/kg	102886-47	<2 || <2	102886-10	86%
o-Xylene	mg/kg	102886-47	<1 || <1	102886-10	84%
naphthalene	mg/kg	102886-47	<1 || <1	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%	102886-47	104 || 103 || RPD: 1	102886-10	101%

QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	102886-47	20/12/2013 || 20/12/2013	102886-10	20/12/2013
Date analysed	-	102886-47	21/12/2013 || 21/12/2013	102886-10	21/12/2013
TRHC_{10} - C_{14}	mg/kg	102886-47	<50 || <50	102886-10	88%
TRHC_{15} - C_{28}	mg/kg	102886-47	<100 || <100	102886-10	106%
TRHC_{29} - C_{36}	mg/kg	102886-47	<100 || <100	102886-10	98%
TRH>C_{10}-C_{16}	mg/kg	102886-47	<50 || <50	102886-10	88%
TRH>C_{16}-C_{34}	mg/kg	102886-47	<100 || <100	102886-10	106%
TRH>C_{34}-C_{40}	mg/kg	102886-47	<100 || <100	102886-10	98%
Surrogate o-Terphenyl	%	102886-47	95 || 106 || RPD: 11	102886-10	96%

QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	102886-47	20/12/2013 || 20/12/2013	102886-10	20/12/2013
Date analysed	-	102886-47	21/12/2013 || 21/12/2013	102886-10	20/12/2013
Naphthalene	mg/kg	102886-47	<0.1 || <0.1	102886-10	102%
Acenaphthylene	mg/kg	102886-47	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	102886-47	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	102886-47	<0.1 || <0.1	102886-10	108%
Phenanthrene	mg/kg	102886-47	<0.1 || <0.1	102886-10	103%
Anthracene	mg/kg	102886-47	<0.1 || <0.1	[NR]	[NR]
Fluoranthene	mg/kg	102886-47	<0.1 || <0.1	102886-10	106%
Pyrene	mg/kg	102886-47	<0.1 || <0.1	102886-10	112%
Benzo(a)anthracene	mg/kg	102886-47	<0.1 || <0.1	[NR]	[NR]
Chrysene	mg/kg	102886-47	<0.1 || <0.1	102886-10	100%
Benzo(b+k)fluoranthene	mg/kg	102886-47	<0.2 || <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	102886-47	<0.05 || <0.05	102886-10	115%
Indeno(1,2,3-c,d)pyrene	mg/kg	102886-47	<0.1 || <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	102886-47	<0.1 || <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	102886-47	<0.1 || <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%	102886-47	95 || 110 || RPD: 15	102886-10	99%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	102886-27	20/12/2013 || 20/12/2013	LCS-11	20/12/2013
Date analysed	-	102886-27	20/12/2013 || 20/12/2013	LCS-11	20/12/2013
Arsenic	mg/kg	102886-27	<4 || <4	LCS-11	90%
Cadmium	mg/kg	102886-27	<0.4 || <0.4	LCS-11	96%
Chromium	mg/kg	102886-27	2 || 2 || RPD: 0	LCS-11	97%
Copper	mg/kg	102886-27	29 || 21 || RPD: 32	LCS-11	98%
Lead	mg/kg	102886-27	3 || 3 || RPD: 0	LCS-11	92%
Mercury	mg/kg	102886-27	<0.1 || 0.3	LCS-11	89%
Nickel	mg/kg	102886-27	1 || 1 || RPD: 0	LCS-11	96%
Zinc	mg/kg	102886-27	5 || 4 || RPD: 22	LCS-11	94%

QUALITY CONTROL ESP/CEC	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Exchangeable Ca	meq/100 g	102886-57	59 || 63 || RPD: 7	LCS-3	109%
Exchangeable K	meq/100 g	102886-57	0.9 || 0.9 || RPD: 0	LCS-3	107%
Exchangeable Mg	meq/100 g	102886-57	0.74 || 0.75 || RPD: 1	LCS-3	105%
Exchangeable Na	meq/100 g	102886-57	0.75 || 0.74 || RPD: 1	LCS-3	107%
Cation Exchange Capacity	meq/100 g	102886-57	61 || 65 || RPD: 6	[NR]	[NR]

QUALITY CONTROL Miscellaneous Inorg - soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	102886-50	23/12/2013 || 23/12/2013	LCS-3	23/12/2013
Date analysed	-	102886-50	07/01/2014 || 07/01/2014	LCS-3	07/01/2014
pH 1:5 soil:water	pH Units	102886-50	7.8 || 8.2 || RPD: 5	LCS-3	101%
Electrical Conductivity 1:5 soil:water	µS/cm	[NT]	[NT]	LCS-3	105%
Chloride, Cl 1:5 soil:water	mg/kg	[NT]	[NT]	[NR]	[NR]
Sulphate, SO4 1:5 soil:water	mg/kg	[NT]	[NT]	[NR]	[NR]
Resistivity in soil*	ohm m	[NT]	[NT]	[NR]	[NR]

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	102886-69	20/12/2013 || 20/12/2013	102886-50	20/12/2013
Date analysed	-	102886-69	23/12/2013 || 23/12/2013	102886-50	23/12/2013
TRHC_6 - C_9	mg/kg	102886-69	<25 || <25	102886-50	97%
TRHC_6 - C_{10}	mg/kg	102886-69	<25 || <25	102886-50	97%
Benzene	mg/kg	102886-69	<0.2 || <0.2	102886-50	84%
Toluene	mg/kg	102886-69	<0.5 || <0.5	102886-50	89%
Ethylbenzene	mg/kg	102886-69	<1 || <1	102886-50	99%
m+p-xylene	mg/kg	102886-69	<2 || <2	102886-50	103%
o-Xylene	mg/kg	102886-69	<1 || <1	102886-50	106%
naphthalene	mg/kg	102886-69	<1 || <1	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%	102886-69	88 || 85 || RPD: 3	102886-50	82%

QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	102886-69	20/12/2013 || 20/12/2013	102886-50	20/12/2013
Date analysed	-	102886-69	21/12/2013 || 21/12/2013	102886-50	21/12/2013
TRHC$_{10}$ - C$_{14}$	mg/kg	102886-69	<50 || <50	102886-50	99%
TRHC$_{15}$ - C$_{28}$	mg/kg	102886-69	<100 || <100	102886-50	104%
TRHC$_{29}$ - C$_{36}$	mg/kg	102886-69	<100 || <100	102886-50	89%
TRH>C$_{10}$-C$_{16}$	mg/kg	102886-69	<50 || <50	102886-50	99%
TRH>C$_{16}$-C$_{34}$	mg/kg	102886-69	<100 || <100	102886-50	104%
TRH>C$_{34}$-C$_{40}$	mg/kg	102886-69	<100 || <100	102886-50	89%
Surrogate o-Terphenyl	%	102886-69	94 || 91 || RPD: 3	102886-50	101%

QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	102886-69	20/12/2013 || 20/12/2013	102886-50	20/12/2013
Date analysed	-	102886-69	21/12/2013 || 21/12/2013	102886-50	20/12/2013
Naphthalene	mg/kg	102886-69	<0.1 || <0.1	102886-50	101%
Acenaphthylene	mg/kg	102886-69	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	102886-69	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	102886-69	<0.1 || <0.1	102886-50	108%
Phenanthrene	mg/kg	102886-69	<0.1 || <0.1	102886-50	103%
Anthracene	mg/kg	102886-69	<0.1 || <0.1	[NR]	[NR]
Fluoranthene	mg/kg	102886-69	<0.1 || <0.1	102886-50	103%
Pyrene	mg/kg	102886-69	<0.1 || <0.1	102886-50	108%
Benzo(a)anthracene	mg/kg	102886-69	<0.1 || <0.1	[NR]	[NR]
Chrysene	mg/kg	102886-69	<0.1 || <0.1	102886-50	97%
Benzo(b+k)fluoranthene	mg/kg	102886-69	<0.2 || <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	102886-69	<0.05 || 0.06	102886-50	112%
Indeno(1,2,3-c,d)pyrene	mg/kg	102886-69	<0.1 || <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	102886-69	<0.1 || <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	102886-69	<0.1 || <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%	102886-69	100 || 100 || RPD: 0	102886-50	99%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	102886-47	20/12/2013 || 20/12/2013	LCS-12	20/12/2013
Date analysed	-	102886-47	20/12/2013 || 20/12/2013	LCS-12	20/12/2013
Arsenic	mg/kg	102886-47	<4 || <4	LCS-12	96%
Cadmium	mg/kg	102886-47	<0.4 || <0.4	LCS-12	101%
Chromium	mg/kg	102886-47	5 || 8 || RPD: 46	LCS-12	106%
Copper	mg/kg	102886-47	7 || 6 || RPD: 15	LCS-12	107%
Lead	mg/kg	102886-47	35 || 55 || RPD: 44	LCS-12	98%
Mercury	mg/kg	102886-47	<0.1 || <0.1	LCS-12	94%
Nickel	mg/kg	102886-47	3 || 5 || RPD: 50	LCS-12	103%
Zinc	mg/kg	102886-47	85 || 350 || RPD: 122	LCS-12	101%

QUALITY CONTROL ESP/CEC	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Exchangeable Ca	meq/100 g	102886-74	14 || 16 || RPD: 13
Exchangeable K	meq/100 g	102886-74	1.1 || 1.1 || RPD: 0
Exchangeable Mg	meq/100 g	102886-74	1.9 || 2.0 || RPD: 5
Exchangeable Na	meq/100 g	102886-74	0.35 || 0.35 || RPD: 0
Cation Exchange Capacity	meq/100 g	102886-74	17 || 20 || RPD: 16

QUALITY CONTROL Miscellaneous Inorg - soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	102886-70	23/12/2013 || 23/12/2013	102886-4	23/12/2013
Date analysed	-	102886-70	07/01/2014 || 07/01/2014	102886-4	07/01/2014
pH 1:5 soil:water	pH Units	102886-70	7.7 || 7.9 || RPD: 3	[NR]	[NR]
Electrical Conductivity 1:5 soil:water	µS/cm	[NT]	[NT]	[NR]	[NR]
Chloride, Cl 1:5 soil:water	mg/kg	[NT]	[NT]	102886-4	102%
Sulphate, SO4 1:5 soil:water	mg/kg	[NT]	[NT]	102886-4	116%
Resistivity in soil*	ohm m	[NT]	[NT]	[NR]	[NR]

QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	102886-69	20/12/2013 || 20/12/2013	102886-17	20/12/2013
Date analysed	-	102886-69	20/12/2013 || 20/12/2013	102886-17	20/12/2013
Arsenic	mg/kg	102886-69	<4 || <4	102886-17	98%
Cadmium	mg/kg	102886-69	<0.4 || <0.4	102886-17	103%
Chromium	mg/kg	102886-69	17 || 15 || RPD: 12	102886-17	99%
Copper	mg/kg	102886-69	4 || 5 || RPD: 22	102886-17	103%
Lead	mg/kg	102886-69	130 || 160 || RPD: 21	102886-17	97%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Mercury	mg/kg	102886-69	<0.1 || <0.1	102886-17	115%
Nickel	mg/kg	102886-69	1 || 1 || RPD: 0	102886-17	98%
Zinc	mg/kg	102886-69	25 || 81 || RPD: 106	102886-17	99%

QUALITY CONTROL ESP/CEC	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Exchangeable Ca	meq/100g	102886-90	17 || 18 || RPD: 6
Exchangeable K	meq/100g	102886-90	0.4 || 0.4 || RPD: 0
Exchangeable Mg	meq/100g	102886-90	1.5 || 1.6 || RPD: 6
Exchangeable Na	meq/100g	102886-90	0.11 || 0.13 || RPD: 17
Cation Exchange Capacity	meq/100g	102886-90	19 || 20 || RPD: 5

QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	102886-85	20/12/2013 || 20/12/2013	102886-50	20/12/2013
Date analysed	-	102886-85	20/12/2013 || 20/12/2013	102886-50	20/12/2013
Arsenic	mg/kg	102886-85	8 || 5 || RPD: 46	102886-50	79%
Cadmium	mg/kg	102886-85	<0.4 || <0.4	102886-50	82%
Chromium	mg/kg	102886-85	18 || 17 || RPD: 6	102886-50	87%
Copper	mg/kg	102886-85	20 || 20 || RPD: 0	102886-50	98%
Lead	mg/kg	102886-85	520 || 460 || RPD: 12	102886-50	75%
Mercury	mg/kg	102886-85	0.2 || 0.2 || RPD: 0	102886-50	93%
Nickel	mg/kg	102886-85	6 || 6 || RPD: 0	102886-50	83%
Zinc	mg/kg	102886-85	230 || 220 || RPD: 4	102886-50	109%

QUALITY CONTROL Miscellaneous Inorg - soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Date prepared	-	102886-85	23/12/2013 || 23/12/2013
Date analysed	-	102886-85	07/01/2014 || 07/01/2014
pH 1:5 soil:water	pH Units	102886-85	8.6 || 8.3 || RPD: 4
Electrical Conductivity 1:5 soil:water	µS/cm	[NT]	[NT]
Chloride, Cl 1:5 soil:water	mg/kg	[NT]	[NT]
Sulphate, SO4 1:5 soil:water	mg/kg	[NT]	[NT]
Resistivity in soil*	ohm m	[NT]	[NT]

Report Comments:

Asbestos in soil:
Note: All samples analysed as received. However, samples 102886-10, 22 & 80 are below the recommended volume of 40-50g (50mL) as per AS4964-2004. This insufficient sample size may lead to inaccurate interpretation of the result as it may not be representative of the sampled area.

Acid Extractable Metals in Soil: The laboratory RPD acceptance criteriae has been exceeded for 102886-1 for Pb, Ni & Zn. Therefore a triplicate result has been issued as laboratory sample number 102886-99.

Acid Extractable Metals in Soil: The laboratory RPD acceptance criteriae has been exceeded for 102886-47 for Ni & Zn. Therefore a triplicate result has been issued as laboratory sample number 102886-100.

Acid Extractable Metals in Soil: The laboratory RPD acceptance criteriae has been exceeded for 102886-69 for Zn. Therefore a triplicate result has been issued as laboratory sample number 102886-101.

Asbestos ID was analysed by Approved Identifier: Paul Ching
Asbestos ID was authorised by Approved Signatory: Paul Ching

INS: Insufficient sample for this test
NA: Test not required
<: Less than
PQL: Practical Quantitation Limit
RPD: Relative Percent Difference
>: Greater than
NT: Not tested
NA: Test not required
LCS: Laboratory Control Sample

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.

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 and 10-140% for SVOC 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

CHAIN OF CUSTODY - Client

ENVIROLAB SERVICES

Client: Geo-Environmental Engineering Pty Ltd
Project Mgr: McCormack
Sampler: Mccormack
Address: 82 Bridge Street
Lane Cove NSW 2066
Email: stephen@geoenvironmental.com.au
Phone: 0431 480 980

Client Project Name and Number:
E13017BEL
PO No.:
Envirolab Services Quote No. :
Date results required:
Or choose: standard / 1 day / 2 day / 3 day
Note: Inform lab in advance if urgent turnaround is required - surcharge applies

Envirolab Services
12 Ashley St, Chatswood, NSW, 2067
Phone: 02 9910 6200
Fax: 02 9910 6201
E-mail: ahie@envirolabservices.com.au
Contact: Aileen Hie

Sample information				Tests Required																Comments
Envirolab Sample ID	Client Sample ID	Date sampled	Type of sample	Metals (Std 8)	TRH/BTEX	pH	Combination 3	Combination 3a	Combination 5	Combination 5a	PAHs	OCP/PCB	Combination 1 NEPM	BTEX	BTEX / (Vol TRH	CEC	EC	sulphate/Chloride /pH	Resistivity (Calc)	Provide as much information about the sample as you can
1	SM161213-01	16/12/2013	soil	1		1						1				1				
2	SM161213-02	16/12/2013	soil	1		1										1				
3	SM161213-03	16/12/2013	soil	1																
4	SM161213-04	16/12/2013	soil				1									1	1	1	1	
5	SM161213-05	16/12/2013	soil	1		1					1					1	1			
6	SM161213-06	16/12/2013	soil	1							1					1	1	1	1	
7	SM161213-07	16/12/2013	soil														1			
8	SM161213-08	16/12/2013	soil														1	1	1	
9	SM161213-09	16/12/2013	soil														1	1	1	
10	SM161213-10	16/12/2013	soil			1				1						1				
11	SM161213-11	16/12/2013	soil																	
12	SM161213-12	16/12/2013	soil										1							
13	SM161213-13	16/12/2013	soil										1							
14	SM161213-14	16/12/2013	soil																	
15	SM161213-15	16/12/2013	soil																	
16	SM161213-16	16/12/2013	soil			1				1						1				
17	SM161213-17	16/12/2013	soil						1											

ENVIROLAB
Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200
Job No: 102886
Date Received: 19/12/13
Time Received: 10:00
Received by: AW
Temp: [✓ Cool]/Ambient
Cooling: [✓ Ice]/Icepack 8-3°C
Security: [✓ Intact]/Broken/None

Relinquished by (company):
Print Name: S. Mccormack
Date & Time: 18-Dec-13
Signature:

Form: 302 - Chain of Custody-Client, Issued 14/02/08, Version 3, Page 1 of 1

Received by (company): ELS
Print Name: A. Weir
Date & Time: 19/12/13 10:00
Signature:

Samples Received: Cool or Ambient (circle one)
Temperature Recieved at: **(if applicable)**
Transported by: Hand delivered / courier
Page No: 1 of

CHAIN OF CUSTODY - Client

ENVIROLAB SERVICES

Client: Geo-Environmental Engineering Pty Ltd
Project Mgr: McCormack
Sampler: Mccormack
Address: 82 Bridge Street
Lane Cove NSW 2066
Email: stephen@geoenvironmental.com.au
Phone: 0431 480 980

Client Project Name and Number: E13017BEL
PO No.:
Envirolab Services Quote No. :
Date results required:
Or choose: standard / 1 day / 2 day / 3 day
Note: Inform lab in advance if urgent turnaround is required - surcharge applies

Envirolab Services
12 Ashley St, Chatswood, NSW, 2067
Phone: 02 9910 6200
Fax: 02 9910 6201
E-mail: ahie@envirolabservices.com.au
Contact: Aileen Hie

Sample information				Tests Required																Comments
Envirolab Sample ID	Client Sample ID	Date sampled	Type of sample	Metals (Std 8)	TRH/BTEX	pH	Combination 3	Combination 3a	Combination 5	Combination 5a	PAHs	OCP/PCB	Combination 1 NEPM	BTEX	BTEX / (Vol TRH	CEC	EC	sulphate/Chloride/pH	Resistivity (Calc)	Provide as much information about the sample as you can
18	SM161213-18	16/12/2013	soil																	
19	SM161213-19	16/12/2013	soil																	
20	SM161213-20	16/12/2013	soil	1	1	1										1				
21	SM161213-21	16/12/2013	soil																	
22	SM161213-22	16/12/2013	soil			1		1								1				
23	SM161213-23	16/12/2013	soil	1	1	1										1				
24	SM161213-24	16/12/2013	soil																	
25	SM161213-25	16/12/2013	soil										1							
26	SM161213-26	16/12/2013	soil																	
27	SM161213-27	16/12/2013	soil			1		1								1				
28	SM161213-28	16/12/2013	soil	1	1	1										1				
29	SM161213-29	16/12/2013	soil																	
30	SM161213-30	16/12/2013	soil										1							
31	SM161213-31	16/12/2013	soil																	
32	SM161213-32	16/12/2013	soil																	
33	SM161213-33	16/12/2013	soil	1		1										1				
34	SM161213-34	16/12/2013	soil										1							

Relinquished by (company):
Print Name: S. Mccormack
Date & Time: 18-Dec-13
Signature:

~~Form 302 - Chain of Custody-Client, Issued 14/02/08, Version 3, Page 1 of 1.~~

Received by (company): ELS
Print Name: A. Weir
Date & Time: 19/12/13 10:00
Signature:

Samples Received: Cool or Ambient (circle one)
Temperature Recieved at: (if applicable)
Transported by: Hand delivered / courier
Page No: 2 of

CHAIN OF CUSTODY - Client

ENVIROLAB SERVICES

Client: Geo-Environmental Engineering Pty Ltd
Project Mgr: McCormack
Sampler: Mccormack
Address: 82 Bridge Street
Lane Cove NSW 2066
Email: stephen@geoenvironmental.com.au
Phone: 0431 480 980

Client Project Name and Number:
E13017BEL
PO No.:
Envirolab Services Quote No. :
Date results required:
Or choose: standard / 1 day / 2 day / 3 day 5 days
Note: Inform lab in advance if urgent turnaround is required - surcharge applies

Envirolab Services
12 Ashley St, Chatswood, NSW, 2067

Phone: 02 9910 6200
Fax: 02 9910 6201
E-mail: ahie@envirolabservices.com.au
Contact: Aileen Hie

Sample information				Tests Required																Comments
Envirolab Sample ID	Client Sample ID	Date sampled	Type of sample	Metals (Std 8)	TRH/BTEX	pH	Combination 3	Combination 3a	Combination 5	Combination 5a	PAHs	OCP/PCB	Combination 1 NEPM	BTEX	BTEX / (Vol TRH	CEC	EC	sulphate/Chloride/pH	Resistivity (Calc)	Provide as much information about the sample as you can
35	SM161213-35	16/12/2013	soil		1															
36	SM161213-36	16/12/2013	soil																	
37	SM161213-37	16/12/2013	soil																	
38	SM161213-38	16/12/2013	soil																	
39	SM161213-39	16/12/2013	soil	1	1	1										1				
40	SM161213-40	16/12/2013	soil																	
41	SM161213-41	16/12/2013	soil										1							
42	SM161213-42	16/12/2013	soil										1							
43	SM161213-43	16/12/2013	soil																	
44	SM161213-44	16/12/2013	soil	1		1										1				
45	SM161213-45	16/12/2013	soil										1							
46	SM161213-46	16/12/2013	soil																	
47	SM161213-47	16/12/2013	soil			1	1									1				
48	SM161213-49	16/12/2013	soil										1							
49	SM161213-50	16/12/2013	soil			1			1							1				
50	SM161213-51	16/12/2013	soil			1	1									1				

Relinquished by (company):
Print Name: S. Mccormack
Date & Time: 18-Dec-13
Signature:

Received by (company): ELS
Print Name: A. Weir
Date & Time: 19/12/13 10:00
Signature:

Samples Received: Cool or Ambient (circle one)
Temperature Recieved at: **(if applicable)**
Transported by: Hand delivered / courier
Page No: 3 of

Form: 302 - Chain of Custody-Client, Issued 14/02/08, Version 3, Page 1 of 1.

CHAIN OF CUSTODY - Client

ENVIROLAB SERVICES

Client: Geo-Environmental Engineering Pty Ltd
Project Mgr: McCormack
Sampler: Mccormack
Address: 82 Bridge Street
Lane Cove NSW 2066
Email: stephen@geoenvironmental.com.au
Phone: 0431 480 980

Client Project Name and Number:
E13017BEL
PO No.:
Envirolab Services Quote No. :
Date results required:
Or choose: standard / 1 day / 2 day / 3 day 5 days
Note: Inform lab in advance if urgent turnaround is required - surcharge applies

Envirolab Services
12 Ashley St, Chatswood, NSW, 2067

Phone: 02 9910 6200
Fax: 02 9910 6201
E-mail: ahie@envirolabservices.com.au
Contact: Aileen Hie

Sample information				Tests Required																Comments
Envirolab Sample ID	Client Sample ID	Date sampled	Type of sample	Metals (Std 8)	TRH/BTEX	pH	Combination 3	Combination 3a	Combination 5	Combination 5a	PAHs	OCP/PCB	Combination 1 NEPM	BTEX	BTEX / (Vol TRH	CEC	EC	sulphate/Chloride/pH	Resistivity (Calc)	Provide as much information about the sample as you can
S1	SM161213-52	16/12/2013	soil	1												1	1	1	1	
S2	SM161213-53	16/12/2013	soil																	
S3	SM161213-54	16/12/2013	soil																	
S4	SM161213-55	16/12/2013	soil	1												1	1	1	1	
	~~SM161213-56~~	~~16/12/2013~~	~~soil~~																	
S5	Trip Blank1	16/12/2013	soil	1											1					
S6	Trip spike2	16/12/2013	soil											1						

Relinquished by (company):
Print Name: S. Mccormack
Date & Time: 18-Dec-13
Signature:

Form: 302 - Chain of Custody-Client, Issued 14/02/08, Version 3, Page 1 of

Received by (company): ELS
Print Name: A. Weir
Date & Time: 19/12/13 10:00
Signature:

Samples Received: Cool or Ambient (circle one)
Temperature Recieved at: **(if applicable)**
Transported by: Hand delivered / courier
Page No: 4 of

CHAIN OF CUSTODY - Client

ENVIROLAB SERVICES

Client: Geo-Environmental Engineering Pty Ltd
Project Mgr: McCormack
Sampler: Mccormack
Address: 82 Bridge Street
Lane Cove NSW 2066
Email: stephen@geoenvironmental.com.au
Phone: 0431 480 980

Client Project Name and Number:
E13017BEL
PO No.:
Envirolab Services Quote No. :
Date results required:
Or choose: standard / 1 day / 2 day / 3 day 5 days
Note: Inform lab in advance if urgent turnaround is required - surcharge applies

Envirolab Services
12 Ashley St, Chatswood, NSW, 2067
Phone: 02 9910 6200
Fax: 02 9910 6201
E-mail: ahie@envirolabservices.com.au
Contact: Aileen Hie

Sample information				Tests Required																Comments
Envirolab Sample ID	Client Sample ID	Date sampled	Type of sample	Metals (Std 8)	TRH/BTEX	pH	Combination 3	Combination 3a	Combination 5	Combination 5a	PAHs	OCP/PCB	Combination 1 NEPM	BTEX	BTEX / (Vol TRH	CEC	EC	sulphate/Chloride/pH	Resistivity (Calc)	Provide as much information about the sample as you can
57	SM171213-60	17/12/2013	soil	1		1										1				
58	SM171213-61	17/12/2013	soil																	
59	SM171213-62	17/12/2013	soil			1		1								1				
60	SM171213-63	17/12/2013	soil	1		1										1				
61	SM171213-64	17/12/2013	soil			1			1							1				
62	SM171213-65	17/12/2013	soil	1	1															
63	SM171213-66	17/12/2013	soil																	
64	SM171213-71	17/12/2013	soil																	
65	SM171213-67	17/12/2013	soil			1		1								1				
66	SM171213-68	17/12/2013	soil	1		1					1					1				
67	SM171213-69	17/12/2013	soil																	
68	SM171213-70	17/12/2013	soil																	
69	SM171213-72	17/12/2013	soil			1		1								1				
70	SM171213-74	17/12/2013	soil	1		1										1				
71	SM171213-75	17/12/2013	soil			1	1									1				
72	SM171213-76	17/12/2013	soil	1		1					1					1				
73	SM171213-77	17/12/2013	soil																	

Relinquished by (company):
Print Name: S. Mccormack
Date & Time: 18-Dec-13
Signature:

Received by (company): ELS
Print Name: A-Weir
Date & Time: 19/12/13 10:00
Signature:

Samples Received: Cool or Ambient (circle one)
Temperature Recieved at: **(if applicable)**
Transported by: Hand delivered / courier
Page No: 5 of

CHAIN OF CUSTODY - Client

ENVIROLAB SERVICES

Client: Geo-Environmental Engineering Pty Ltd
Project Mgr: McCormack
Sampler: Mccormack
Address: 82 Bridge Street
Lane Cove NSW 2066
Email: stephen@geoenvironmental.com.au
Phone: 0431 480 980

Client Project Name and Number:
E13017BEL
PO No.:
Envirolab Services Quote No. :
Date results required:
Or choose: standard / 1 day / 2 day / 3 day 5 days
Note: Inform lab in advance if urgent turnaround is required - surcharge applies

Envirolab Services
12 Ashley St, Chatswood, NSW, 2067
Phone: 02 9910 6200
Fax: 02 9910 6201
E-mail: ahie@envirolabservices.com.au
Contact: Aileen Hie

Sample information				Tests Required																Comments
Envirolab Sample ID	Client Sample ID	Date sampled	Type of sample	Metals (Std 8)	TRH/BTEX	pH	Combination 3	Combination 3a	Combination 5	Combination 5a	PAHs	OCP/PCB	Combination 1 NEPM	BTEX	BTEX / (Vol TRH	CEC	EC	sulphate/Chloride/pH	Resistivity (Calc)	Provide as much information about the sample as you can
74	SM171213-78	17/12/2013	soil	1		1										1				
75	SM171213-79	17/12/2013	soil	1		1										1				
76	SM171213-80	17/12/2013	soil																	
77	SM171213-81	17/12/2013	soil			1			1							1				
78	SM171213-82	17/12/2013	soil																	
79	SM171213-83	17/12/2013	soil	1		1										1				
80	SM171213-84	17/12/2013	soil			1		1								1				
81	SM171213-85	17/12/2013	soil																	
82	SM171213-86	17/12/2013	soil																	
83	SM171213-87	17/12/2013	soil			1			1							1				
84	SM171213-89	17/12/2013	soil	1		1										1				
85	SM171213-90	17/12/2013	soil	1		1										1				
86	SM171213-91	17/12/2013	soil																	
87	SM171213-92	17/12/2013	soil			1			1							1	1			
88	SM171213-93	17/12/2013	soil				1													
89	SM171213-94	17/12/2013	soil	1												1	1	1	1	

Relinquished by (company):
Print Name: S. Mccormack
Date & Time: 18-Dec-13
Signature:

Received by (company): ELS
Print Name: A. Weir
Date & Time: 19/12/13 10:00
Signature:

Samples Received: Cool or Ambient (circle one)
Temperature Recieved at: **(if applicable)**
Transported by: Hand delivered / courier
Page No: 6 of

Form: 302 - Chain of Custody-Client, Issued 14/02/08, Version 3, Page 1 of 1.

CHAIN OF CUSTODY - Client

ENVIROLAB SERVICES

Client: Geo-Environmental Engineering Pty Ltd
Project Mgr: McCormack
Sampler: Mccormack
Address: 82 Bridge Street
Lane Cove NSW 2066
Email: stephen@geoenvironmental.com.au
Phone: 0431 480 980

Client Project Name and Number:
E13017BEL
PO No.:
Envirolab Services Quote No. :
Date results required:
Or choose: standard / 1 day / 2 day / 3 day 5 days
Note: Inform lab in advance if urgent turnaround is required - surcharge applies

Envirolab Services
12 Ashley St, Chatswood, NSW, 2067
Phone: 02 9910 6200
Fax: 02 9910 6201
E-mail: ahie@envirolabservices.com.au
Contact: Aileen Hie

Sample information				Tests Required																Comments
Envirolab Sample ID	Client Sample ID	Date sampled	Type of sample	Metals (Std 8)	TRH/BTEX	pH	Combination 3	Combination 3a	Combination 5	Combination 5a	PAHs	OCP/PCB	Combination 1 NEPM	BTEX	BTEX / (Vol TRH	CEC	EC	sulphate/Chloride/pH	Resistivity (Calc)	Provide as much information about the sample as you can
90	SM171213-95	17/12/2013	soil	1												1	1	1	1	
91	SM171213-96	17/12/2013	soil	1												1	1	1	1	
92	SM171213-97	17/12/2013	soil	1												1	1	1	1	
93	SM171213-98	17/12/2013	soil														1			
94	SM171213-99	17/12/2013	soil														1	1	1	
95	Trip blank2	17/12/2013	soil												1					
96	Trip spike 2	17/12/2013	soil											1						
97	Rinsate 1	17/12/2013	water				1													
98	Rinsate 2 (extra)																			

Relinquished by (company):
Print Name: S. Mccormack
Date & Time: 18-Dec-13
Signature:

Received by (company): ELS
Print Name: A.Weir
Date & Time: 19/12/13 10:00
Signature:

Samples Received: Cool or Ambient (circle one)
Temperature Recieved at: (if applicable)
Transported by: Hand delivered / courier
Page No: 7 of

Form: 302 - Chain of Custody-Client, Issued 14/02/08, Version 3, Page 1 of 1.

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

CERTIFICATE OF ANALYSIS 103178

Client:

Geo-Environmental Engineering
82 Bridge St
Lane Cove
NSW 2066

Attention: Steve McCormack

Sample log in details:

Your Reference:	**E13017BEL**
No. of samples:	30 Soils, 1 Water
Date samples received / completed instructions received	07/01/14 / 07/01/14

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: / Issue Date:	14/01/14 / 13/01/14
Date of Preliminary Report:	Not issued

NATA accreditation number 2901. This document shall not be reproduced except in full.
Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with *.**

Results Approved By:

Jacinta Hurst
Laboratory Manager

ACCREDITED FOR TECHNICAL COMPETENCE

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	103178-1	103178-2	103178-3	103178-5	103178-7
Your Reference	-------------	SM060114-80	SM060114-81	SM060114-82	SM060114-84	SM060114-86
Date Sampled	------------	06/01/2014	06/01/2014	06/01/2014	06/01/2014	06/01/2014
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	08/01/2014	08/01/2014	08/01/2014	08/01/2014	08/01/2014
Date analysed	-	08/01/2014	08/01/2014	08/01/2014	08/01/2014	08/01/2014
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
Surrogate aaa-Trifluorotoluene	%	98	104	104	96	97

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	103178-10	103178-11	103178-13	103178-15	103178-17
Your Reference	-------------	SM060114-89	SM060114-90	SM060114-93	SM060114-96	SM060114-98
Date Sampled	------------	06/01/2014	06/01/2014	06/01/2014	06/01/2014	06/01/2014
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	08/01/2014	08/01/2014	08/01/2014	08/01/2014	08/01/2014
Date analysed	-	08/01/2014	08/01/2014	08/01/2014	08/01/2014	08/01/2014
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
Surrogate aaa-Trifluorotoluene	%	92	101	102	99	96

Client Reference: E13017BEL

vTRH(C6-C10)/BTEXN in Soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ------------ ------------	103178-18 SM060114-99 06/01/2014 Soil	103178-20 Trip Blank 2 06/01/2014 Soil	103178-21 Trip Spike 2 06/01/2014 Soil
Date extracted	-	08/01/2014	08/01/2014	08/01/2014
Date analysed	-	08/01/2014	08/01/2014	08/01/2014
TRH C_6 - C_9	mg/kg	<25	<25	[NA]
TRH C_6 - C_{10}	mg/kg	<25	<25	[NA]
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	[NA]
Benzene	mg/kg	<0.2	<0.2	111%
Toluene	mg/kg	<0.5	<0.5	111%
Ethylbenzene	mg/kg	<1	<1	111%
m+p-xylene	mg/kg	<2	<2	111%
o-Xylene	mg/kg	<1	<1	112%
naphthalene	mg/kg	<1	<1	[NA]
Surrogate aaa-Trifluorotoluene	%	96	105	110

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	103178-1	103178-2	103178-3	103178-5	103178-7
Your Reference	-------------	SM060114-80	SM060114-81	SM060114-82	SM060114-84	SM060114-86
Date Sampled	------------	06/01/2014	06/01/2014	06/01/2014	06/01/2014	06/01/2014
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	08/01/2014	08/01/2014	08/01/2014	08/01/2014	08/01/2014
Date analysed	-	08/01/2014	08/01/2014	08/01/2014	08/01/2014	08/01/2014
TRHC_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRHC_{15} - C_{28}	mg/kg	<100	100	<100	<100	<100
TRHC_{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	160	110	<100	<100
TRH>C_{34}-C_{40}	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	93	98	95	90	93

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	103178-10	103178-11	103178-13	103178-15	103178-17
Your Reference	-------------	SM060114-89	SM060114-90	SM060114-93	SM060114-96	SM060114-98
Date Sampled	------------	06/01/2014	06/01/2014	06/01/2014	06/01/2014	06/01/2014
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	08/01/2014	08/01/2014	08/01/2014	08/01/2014	08/01/2014
Date analysed	-	08/01/2014	08/01/2014	08/01/2014	08/01/2014	08/01/2014
TRHC_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRHC_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRHC_{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
Surrogate o-Terphenyl	%	91	91	93	91	93

svTRH (C10-C40) in Soil		
Our Reference:	UNITS	103178-18
Your Reference	-------------	SM060114-99
Date Sampled	------------	06/01/2014
Type of sample		Soil
Date extracted	-	08/01/2014
Date analysed	-	08/01/2014
TRHC_{10} - C_{14}	mg/kg	<50
TRHC_{15} - C_{28}	mg/kg	<100
TRHC_{29} - C_{36}	mg/kg	<100
TRH>C_{10}-C_{16}	mg/kg	<50
TRH>C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50
TRH>C_{16}-C_{34}	mg/kg	<100
TRH>C_{34}-C_{40}	mg/kg	<100
Surrogate o-Terphenyl	%	93

PAHs in Soil Our Reference:	UNITS	103178-1	103178-2	103178-3	103178-5	103178-7
Your Reference	-------------	SM060114-80	SM060114-81	SM060114-82	SM060114-84	SM060114-86
Date Sampled	------------	06/01/2014	06/01/2014	06/01/2014	06/01/2014	06/01/2014
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	08/01/2014	08/01/2014	08/01/2014	08/01/2014	08/01/2014
Date analysed	-	08/01/2014	08/01/2014	08/01/2014	08/01/2014	08/01/2014
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	0.4	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	0.4	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	0.2	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	0.3	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	0.4	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	0.22	<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
Benzo(a)pyrene TEQ NEPM B1	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	mg/kg	NIL (+)VE	NIL (+)VE	NIL (+)VE	2.3	NIL (+)VE
Surrogate p-Terphenyl-d14	%	88	89	90	90	90

PAHs in Soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ------------- ------------	103178-11 SM060114-90 06/01/2014 Soil	103178-13 SM060114-93 06/01/2014 Soil	103178-15 SM060114-96 06/01/2014 Soil	103178-17 SM060114-98 06/01/2014 Soil	103178-18 SM060114-99 06/01/2014 Soil
Date extracted	-	08/01/2014	08/01/2014	08/01/2014	08/01/2014	08/01/2014
Date analysed	-	08/01/2014	08/01/2014	08/01/2014	08/01/2014	08/01/2014
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	0.4	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	0.9	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	0.8	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	0.4	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	0.5	<0.1	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	0.8	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	0.45	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	0.3	<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	0.3	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ NEPM B1	mg/kg	<0.5	1	<0.5	<0.5	<0.5
Total +ve PAH's	mg/kg	NIL (+)VE	4.8	NIL (+)VE	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	92	94	88	91	96

Organochlorine Pesticides in soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ------------- ------------	103178-2 SM060114-81 06/01/2014 Soil	103178-8 SM060114-87 06/01/2014 Soil	103178-11 SM060114-90 06/01/2014 Soil	103178-18 SM060114-99 06/01/2014 Soil
Date extracted	-	08/01/2014	08/01/2014	08/01/2014	08/01/2014
Date analysed	-	08/01/2014	08/01/2014	08/01/2014	08/01/2014
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
Surrogate TCMX	%	82	82	81	82

PCBs in Soil Our Reference:	UNITS	103178-2	103178-8	103178-11	103178-18
Your Reference	-------------	SM060114-81	SM060114-87	SM060114-90	SM060114-99
Date Sampled	------------	06/01/2014	06/01/2014	06/01/2014	06/01/2014
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	08/01/2014	08/01/2014	08/01/2014	08/01/2014
Date analysed	-	08/01/2014	08/01/2014	08/01/2014	08/01/2014
Arochlor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1
Arochlor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1
Arochlor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1
Arochlor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1
Arochlor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1
Arochlor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1
Arochlor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	82	82	81	82

Acid Extractable metals in soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ------------- ------------	103178-1 SM060114-80 06/01/2014 Soil	103178-2 SM060114-81 06/01/2014 Soil	103178-3 SM060114-82 06/01/2014 Soil	103178-4 SM060114-83 06/01/2014 Soil	103178-5 SM060114-84 06/01/2014 Soil
Date digested	-	09/01/2014	09/01/2014	09/01/2014	09/01/2014	09/01/2014
Date analysed	-	09/01/2014	09/01/2014	09/01/2014	09/01/2014	09/01/2014
Arsenic	mg/kg	4	<4	<4	<4	8
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	50	5	4	6	18
Copper	mg/kg	15	33	49	18	23
Lead	mg/kg	11	220	180	10	45
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	0.1
Nickel	mg/kg	37	3	3	1	5
Zinc	mg/kg	27	10	16	17	120

Acid Extractable metals in soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ------------- ------------	103178-7 SM060114-86 06/01/2014 Soil	103178-8 SM060114-87 06/01/2014 Soil	103178-10 SM060114-89 06/01/2014 Soil	103178-11 SM060114-90 06/01/2014 Soil	103178-12 SM060114-92 06/01/2014 Soil
Date digested	-	09/01/2014	09/01/2014	09/01/2014	09/01/2014	09/01/2014
Date analysed	-	09/01/2014	09/01/2014	09/01/2014	09/01/2014	09/01/2014
Arsenic	mg/kg	9	5	5	7	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	20	2	10	5	5
Copper	mg/kg	19	5	12	18	13
Lead	mg/kg	14	<1	320	14	6
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	2	<1	4	1	2
Zinc	mg/kg	15	2	150	11	13

Acid Extractable metals in soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ------------- ------------	103178-13 SM060114-93 06/01/2014 Soil	103178-14 SM060114-94 06/01/2014 Soil	103178-15 SM060114-96 06/01/2014 Soil	103178-17 SM060114-98 06/01/2014 Soil	103178-18 SM060114-99 06/01/2014 Soil
Date digested	-	09/01/2014	09/01/2014	09/01/2014	09/01/2014	09/01/2014
Date analysed	-	09/01/2014	09/01/2014	09/01/2014	09/01/2014	09/01/2014
Arsenic	mg/kg	<4	7	<4	6	7
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	180	29	9	16	11
Copper	mg/kg	45	29	13	23	26
Lead	mg/kg	6,000	350	16	16	14
Mercury	mg/kg	0.2	0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	7	6	4	3	2
Zinc	mg/kg	120	110	11	21	24

Acid Extractable metals in soil			
Our Reference:	UNITS	103178-19	103178-31
Your Reference	-------------	SM060114-100	SM060114-95
Date Sampled	------------	06/01/2014	06/01/2014
Type of sample		Soil	soil
Date digested	-	09/01/2014	09/01/2014
Date analysed	-	09/01/2014	09/01/2014
Arsenic	mg/kg	6	9
Cadmium	mg/kg	<0.4	<0.4
Chromium	mg/kg	11	21
Copper	mg/kg	32	20
Lead	mg/kg	13	35
Mercury	mg/kg	<0.1	<0.1
Nickel	mg/kg	2	3
Zinc	mg/kg	26	15

Moisture						
Our Reference:	UNITS	103178-1	103178-2	103178-3	103178-4	103178-5
Your Reference	-------------	SM060114-80	SM060114-81	SM060114-82	SM060114-83	SM060114-84
Date Sampled	------------	06/01/2014	06/01/2014	06/01/2014	06/01/2014	06/01/2014
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	08/01/2014	08/01/2014	08/01/2014	08/01/2014	08/01/2014
Date analysed	-	09/01/2014	09/01/2014	09/01/2014	09/01/2014	09/01/2014
Moisture	%	9.3	6.3	7.8	21	18

Moisture						
Our Reference:	UNITS	103178-7	103178-8	103178-10	103178-11	103178-12
Your Reference	-------------	SM060114-86	SM060114-87	SM060114-89	SM060114-90	SM060114-92
Date Sampled	------------	06/01/2014	06/01/2014	06/01/2014	06/01/2014	06/01/2014
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	08/01/2014	08/01/2014	08/01/2014	08/01/2014	08/01/2014
Date analysed	-	09/01/2014	09/01/2014	09/01/2014	09/01/2014	09/01/2014
Moisture	%	28	8.4	13	18	18

Moisture						
Our Reference:	UNITS	103178-13	103178-14	103178-15	103178-17	103178-18
Your Reference	-------------	SM060114-93	SM060114-94	SM060114-96	SM060114-98	SM060114-99
Date Sampled	------------	06/01/2014	06/01/2014	06/01/2014	06/01/2014	06/01/2014
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	08/01/2014	08/01/2014	08/01/2014	08/01/2014	08/01/2014
Date analysed	-	09/01/2014	09/01/2014	09/01/2014	09/01/2014	09/01/2014
Moisture	%	13	30	24	25	21

Moisture			
Our Reference:	UNITS	103178-19	103178-31
Your Reference	-------------	SM060114-100	SM060114-95
Date Sampled	------------	06/01/2014	06/01/2014
Type of sample		Soil	soil
Date prepared	-	08/01/2014	08/01/2014
Date analysed	-	09/01/2014	09/01/2014
Moisture	%	22	30

Asbestos ID - soils				
Our Reference:	UNITS	103178-2	103178-11	103178-15
Your Reference	-------------	SM060114-81	SM060114-90	SM060114-96
Date Sampled	------------	06/01/2014	06/01/2014	06/01/2014
Type of sample		Soil	Soil	Soil
Date analysed	-	9/01/2014	9/01/2014	9/01/2014
Sample mass tested	g	Approx 40g	Approx 40g	Approx 40g
Sample Description	-	Grey coarse-grained soil & rocks	Mustard coarse-grained clayey soil	Brown fine-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
Trace Analysis	-	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected

ESP/CEC Our Reference: Your Reference Date Sampled Type of sample	UNITS ------------- ------------	103178-1 SM060114-80 06/01/2014 Soil	103178-2 SM060114-81 06/01/2014 Soil	103178-4 SM060114-83 06/01/2014 Soil	103178-5 SM060114-84 06/01/2014 Soil	103178-7 SM060114-86 06/01/2014 Soil
Exchangeable Ca	meq/100g	27	100	6.5	4.1	1.3
Exchangeable K	meq/100g	0.3	1.7	0.7	0.99	0.4
Exchangeable Mg	meq/100g	0.44	0.32	5.8	1.9	1.5
Exchangeable Na	meq/100g	0.24	0.93	0.82	0.23	0.26
Cation Exchange Capacity	meq/100g	28	106	14	7.2	3.4

ESP/CEC Our Reference: Your Reference Date Sampled Type of sample	UNITS ------------- ------------	103178-8 SM060114-87 06/01/2014 Soil	103178-10 SM060114-89 06/01/2014 Soil	103178-11 SM060114-90 06/01/2014 Soil	103178-12 SM060114-92 06/01/2014 Soil	103178-13 SM060114-93 06/01/2014 Soil
Exchangeable Ca	meq/100g	19	32	5.7	0.7	5.7
Exchangeable K	meq/100g	0.1	0.7	0.6	0.3	0.1
Exchangeable Mg	meq/100g	1.3	1.2	2.8	2.0	0.10
Exchangeable Na	meq/100g	0.16	0.21	1.0	0.86	<0.1
Cation Exchange Capacity	meq/100g	21	34	10	3.9	5.9

ESP/CEC Our Reference: Your Reference Date Sampled Type of sample	UNITS ------------- ------------	103178-14 SM060114-94 06/01/2014 Soil	103178-15 SM060114-96 06/01/2014 Soil	103178-17 SM060114-98 06/01/2014 Soil	103178-18 SM060114-99 06/01/2014 Soil	103178-19 SM060114-100 06/01/2014 Soil
Exchangeable Ca	meq/100g	33	3.0	1	2.5	2.4
Exchangeable K	meq/100g	1.2	0.5	0.3	0.5	0.5
Exchangeable Mg	meq/100g	2.3	1.4	2.9	2.9	3.6
Exchangeable Na	meq/100g	0.62	0.72	1.2	0.92	1.1
Cation Exchange Capacity	meq/100g	37	5.6	5.3	6.8	7.6

ESP/CEC Our Reference: Your Reference Date Sampled Type of sample	UNITS ------------- ------------	103178-31 SM060114-95 06/01/2014 soil
Exchangeable Ca	meq/100g	2.8
Exchangeable K	meq/100g	0.4
Exchangeable Mg	meq/100g	1.2
Exchangeable Na	meq/100g	0.33
Cation Exchange Capacity	meq/100g	4.8

Miscellaneous Inorg - soil						
Our Reference:	UNITS	103178-1	103178-2	103178-4	103178-5	103178-7
Your Reference	-------------	SM060114-80	SM060114-81	SM060114-83	SM060114-84	SM060114-86
Date Sampled	------------	06/01/2014	06/01/2014	06/01/2014	06/01/2014	06/01/2014
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	08/01/2014	08/01/2014	08/01/2014	08/01/2014	08/01/2014
Date analysed	-	08/01/2014	08/01/2014	08/01/2014	08/01/2014	08/01/2014
pH 1:5 soil:water	pH Units	9.0	11.5	5.2	5.0	4.9

Miscellaneous Inorg - soil						
Our Reference:	UNITS	103178-8	103178-10	103178-11	103178-12	103178-13
Your Reference	-------------	SM060114-87	SM060114-89	SM060114-90	SM060114-92	SM060114-93
Date Sampled	------------	06/01/2014	06/01/2014	06/01/2014	06/01/2014	06/01/2014
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	08/01/2014	08/01/2014	08/01/2014	08/01/2014	08/01/2014
Date analysed	-	08/01/2014	08/01/2014	08/01/2014	08/01/2014	08/01/2014
pH 1:5 soil:water	pH Units	9.7	8.8	5.7	5.6	8.8

Miscellaneous Inorg - soil						
Our Reference:	UNITS	103178-14	103178-15	103178-17	103178-18	103178-19
Your Reference	-------------	SM060114-94	SM060114-96	SM060114-98	SM060114-99	SM060114-100
Date Sampled	------------	06/01/2014	06/01/2014	06/01/2014	06/01/2014	06/01/2014
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	08/01/2014	08/01/2014	08/01/2014	08/01/2014	08/01/2014
Date analysed	-	08/01/2014	08/01/2014	08/01/2014	08/01/2014	08/01/2014
pH 1:5 soil:water	pH Units	7.8	6.6	4.9	5.0	4.7

Miscellaneous Inorg - soil		
Our Reference:	UNITS	103178-31
Your Reference	-------------	SM060114-95
Date Sampled	------------	06/01/2014
Type of sample		soil
Date prepared	-	08/01/2014
Date analysed	-	08/01/2014
pH 1:5 soil:water	pH Units	4.8

VOCs in water Our Reference: Your Reference Date Sampled Type of sample	UNITS ------------- ------------	103178-22 SM060114-101 06/01/2014 water	103178-23 SM060114-102 06/01/2014 water	103178-24 SM060114-103 06/01/2014 water	103178-25 SM060114-104 06/01/2014 water	103178-26 SM060114-105 06/01/2014 water
Date extracted	-	07/01/2014	07/01/2014	07/01/2014	07/01/2014	07/01/2014
Date analysed	-	07/01/2014	07/01/2014	07/01/2014	07/01/2014	07/01/2014
Dichlorodifluoromethane	µg/L	<10	<10	<10	<10	<10
Chloromethane	µg/L	<10	<10	<10	<10	<10
Vinyl Chloride	µg/L	<10	<10	<10	<10	<10
Bromomethane	µg/L	<10	<10	<10	<10	<10
Chloroethane	µg/L	<10	<10	<10	<10	<10
Trichlorofluoromethane	µg/L	<10	<10	<10	<10	<10
1,1-Dichloroethene	µg/L	<1	<1	<1	<1	<1
Trans-1,2-dichloroethene	µg/L	<1	<1	<1	<1	<1
1,1-dichloroethane	µg/L	<1	<1	<1	<1	<1
Cis-1,2-dichloroethene	µg/L	<1	<1	<1	<1	<1
Bromochloromethane	µg/L	<1	<1	<1	<1	<1
Chloroform	µg/L	<1	<1	<1	<1	1
2,2-dichloropropane	µg/L	<1	<1	<1	<1	<1
1,2-dichloroethane	µg/L	<1	<1	<1	<1	<1
1,1,1-trichloroethane	µg/L	<1	<1	<1	<1	<1
1,1-dichloropropene	µg/L	<1	<1	<1	<1	<1
Cyclohexane	µg/L	<1	<1	<1	<1	<1
Carbon tetrachloride	µg/L	<1	<1	<1	<1	<1
Benzene	µg/L	<1	<1	<1	<1	<1
Dibromomethane	µg/L	<1	<1	<1	<1	<1
1,2-dichloropropane	µg/L	<1	<1	<1	<1	<1
Trichloroethene	µg/L	<1	<1	<1	<1	<1
Bromodichloromethane	µg/L	<1	<1	<1	<1	<1
trans-1,3-dichloropropene	µg/L	<1	<1	<1	<1	<1
cis-1,3-dichloropropene	µg/L	<1	<1	<1	<1	<1
1,1,2-trichloroethane	µg/L	<1	<1	<1	<1	<1
Toluene	µg/L	<1	<1	<1	<1	<1
1,3-dichloropropane	µg/L	<1	<1	<1	<1	<1
Dibromochloromethane	µg/L	<1	<1	<1	<1	<1
1,2-dibromoethane	µg/L	<1	<1	<1	<1	<1
Tetrachloroethene	µg/L	<1	<1	<1	<1	<1
1,1,1,2-tetrachloroethane	µg/L	<1	<1	<1	<1	<1
Chlorobenzene	µg/L	<1	<1	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1	<1	<1
Bromoform	µg/L	<1	<1	<1	<1	<1
m+p-xylene	µg/L	<2	<2	<2	<2	<2
Styrene	µg/L	<1	<1	<1	<1	<1
1,1,2,2-tetrachloroethane	µg/L	<1	<1	<1	<1	<1
o-xylene	µg/L	<1	<1	<1	<1	<1
1,2,3-trichloropropane	µg/L	<1	<1	<1	<1	<1

VOCs in water Our Reference: Your Reference Date Sampled Type of sample	UNITS ------------- ------------	103178-22 SM060114-101 06/01/2014 water	103178-23 SM060114-102 06/01/2014 water	103178-24 SM060114-103 06/01/2014 water	103178-25 SM060114-104 06/01/2014 water	103178-26 SM060114-105 06/01/2014 water
Isopropylbenzene	µg/L	<1	<1	<1	<1	<1
Bromobenzene	µg/L	<1	<1	<1	<1	<1
n-propyl benzene	µg/L	<1	<1	<1	<1	<1
2-chlorotoluene	µg/L	<1	<1	<1	<1	<1
4-chlorotoluene	µg/L	<1	<1	<1	<1	<1
1,3,5-trimethyl benzene	µg/L	<1	<1	<1	<1	<1
Tert-butyl benzene	µg/L	<1	<1	<1	<1	<1
1,2,4-trimethyl benzene	µg/L	<1	<1	<1	<1	<1
1,3-dichlorobenzene	µg/L	<1	<1	<1	<1	<1
Sec-butyl benzene	µg/L	<1	<1	<1	<1	<1
1,4-dichlorobenzene	µg/L	<1	<1	<1	<1	<1
4-isopropyl toluene	µg/L	<1	<1	<1	<1	<1
1,2-dichlorobenzene	µg/L	<1	<1	<1	<1	<1
n-butyl benzene	µg/L	<1	<1	<1	<1	<1
1,2-dibromo-3-chloropropane	µg/L	<1	<1	<1	<1	<1
1,2,4-trichlorobenzene	µg/L	<1	<1	<1	<1	<1
Hexachlorobutadiene	µg/L	<1	<1	<1	<1	<1
1,2,3-trichlorobenzene	µg/L	<1	<1	<1	<1	<1
Surrogate Dibromofluoromethane	%	107	115	119	119	126
Surrogate toluene-d8	%	95	93	94	94	93
Surrogate 4-BFB	%	77	76	79	74	74

VOCs in water Our Reference: Your Reference Date Sampled Type of sample	UNITS ------------ ------------	103178-27 SM060114-106 06/01/2014 water	103178-28 SM060114-107 06/01/2014 water
Date extracted	-	07/01/2014	07/01/2014
Date analysed	-	07/01/2014	07/01/2014
Dichlorodifluoromethane	µg/L	<10	<10
Chloromethane	µg/L	<10	<10
Vinyl Chloride	µg/L	<10	<10
Bromomethane	µg/L	<10	<10
Chloroethane	µg/L	<10	<10
Trichlorofluoromethane	µg/L	<10	<10
1,1-Dichloroethene	µg/L	<1	<1
Trans-1,2-dichloroethene	µg/L	<1	<1
1,1-dichloroethane	µg/L	<1	<1
Cis-1,2-dichloroethene	µg/L	<1	<1
Bromochloromethane	µg/L	<1	<1
Chloroform	µg/L	1	1
2,2-dichloropropane	µg/L	<1	<1
1,2-dichloroethane	µg/L	<1	<1
1,1,1-trichloroethane	µg/L	<1	<1
1,1-dichloropropene	µg/L	<1	<1
Cyclohexane	µg/L	<1	<1
Carbon tetrachloride	µg/L	<1	<1
Benzene	µg/L	<1	<1
Dibromomethane	µg/L	<1	<1
1,2-dichloropropane	µg/L	<1	<1
Trichloroethene	µg/L	<1	<1
Bromodichloromethane	µg/L	<1	<1
trans-1,3-dichloropropene	µg/L	<1	<1
cis-1,3-dichloropropene	µg/L	<1	<1
1,1,2-trichloroethane	µg/L	<1	<1
Toluene	µg/L	<1	<1
1,3-dichloropropane	µg/L	<1	<1
Dibromochloromethane	µg/L	<1	<1
1,2-dibromoethane	µg/L	<1	<1
Tetrachloroethene	µg/L	<1	<1
1,1,1,2-tetrachloroethane	µg/L	<1	<1
Chlorobenzene	µg/L	<1	<1
Ethylbenzene	µg/L	<1	<1
Bromoform	µg/L	<1	<1
m+p-xylene	µg/L	<2	<2
Styrene	µg/L	<1	<1
1,1,2,2-tetrachloroethane	µg/L	<1	<1
o-xylene	µg/L	<1	<1
1,2,3-trichloropropane	µg/L	<1	<1

VOCs in water Our Reference:	UNITS	103178-27	103178-28
Your Reference	-------------	SM060114-106	SM060114-107
Date Sampled	------------	06/01/2014	06/01/2014
Type of sample		water	water
Isopropylbenzene	µg/L	<1	<1
Bromobenzene	µg/L	<1	<1
n-propyl benzene	µg/L	<1	<1
2-chlorotoluene	µg/L	<1	<1
4-chlorotoluene	µg/L	<1	<1
1,3,5-trimethyl benzene	µg/L	<1	<1
Tert-butyl benzene	µg/L	<1	<1
1,2,4-trimethyl benzene	µg/L	<1	<1
1,3-dichlorobenzene	µg/L	<1	<1
Sec-butyl benzene	µg/L	<1	<1
1,4-dichlorobenzene	µg/L	<1	<1
4-isopropyl toluene	µg/L	<1	<1
1,2-dichlorobenzene	µg/L	<1	<1
n-butyl benzene	µg/L	<1	<1
1,2-dibromo-3-chloropropane	µg/L	<1	<1
1,2,4-trichlorobenzene	µg/L	<1	<1
Hexachlorobutadiene	µg/L	<1	<1
1,2,3-trichlorobenzene	µg/L	<1	<1
Surrogate Dibromofluoromethane	%	128	130
Surrogate toluene-d8	%	91	92
Surrogate 4-BFB	%	76	75

vTRH(C6-C10)/BTEXN in Water						
Our Reference:	UNITS	103178-6	103178-22	103178-23	103178-24	103178-25
Your Reference	-------------	R2	SM060114-101	SM060114-102	SM060114-103	SM060114-104
Date Sampled	------------	06/01/2014	06/01/2014	06/01/2014	06/01/2014	06/01/2014
Type of sample		water	water	water	water	water
Date extracted	-	07/01/2014	07/01/2014	07/01/2014	07/01/2014	07/01/2014
Date analysed	-	07/01/2014	07/01/2014	07/01/2014	07/01/2014	07/01/2014
TRHC_6 - C_9	µg/L	[NA]	<10	<10	<10	<10
TRHC_6 - C_{10}	µg/L	[NA]	<10	<10	<10	<10
TRHC_6 - C_{10} less BTEX (F1)	µg/L	[NA]	<10	<10	<10	<10
Benzene	µg/L	<1	<1	<1	<1	<1
Toluene	µg/L	<1	<1	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1	<1	<1
m+p-xylene	µg/L	<2	<2	<2	<2	<2
o-xylene	µg/L	<1	<1	<1	<1	<1
Naphthalene	µg/L	[NA]	<1	<1	<1	<1
Surrogate Dibromofluoromethane	%	114	107	115	119	119
Surrogate toluene-d8	%	99	95	93	94	94
Surrogate 4-BFB	%	88	77	76	79	74

vTRH(C6-C10)/BTEXN in Water						
Our Reference:	UNITS	103178-26	103178-27	103178-28	103178-29	103178-30
Your Reference	-------------	SM060114-105	SM060114-106	SM060114-107	Trip Spike	Trip Blank
Date Sampled	------------	06/01/2014	06/01/2014	06/01/2014	06/01/2014	06/01/2014
Type of sample		water	water	water	water	water
Date extracted	-	07/01/2014	07/01/2014	07/01/2014	07/01/2014	07/01/2014
Date analysed	-	07/01/2014	07/01/2014	07/01/2014	07/01/2014	07/01/2014
TRHC_6 - C_9	µg/L	<10	<10	<10	[NA]	<10
TRHC_6 - C_{10}	µg/L	<10	<10	<10	[NA]	<10
TRHC_6 - C_{10} less BTEX (F1)	µg/L	<10	<10	<10	[NA]	<10
Benzene	µg/L	<1	<1	<1	82%	<1
Toluene	µg/L	<1	<1	<1	92%	<1
Ethylbenzene	µg/L	<1	<1	<1	98%	<1
m+p-xylene	µg/L	<2	<2	<2	101%	<2
o-xylene	µg/L	<1	<1	<1	100%	<1
Naphthalene	µg/L	<1	<1	<1	[NA]	<1
Surrogate Dibromofluoromethane	%	126	128	130	105	113
Surrogate toluene-d8	%	93	91	92	100	99
Surrogate 4-BFB	%	74	76	75	104	90

svTRH (C10-C40) in Water						
Our Reference:	UNITS	103178-22	103178-23	103178-24	103178-25	103178-26
Your Reference	-------------	SM060114-101	SM060114-102	SM060114-103	SM060114-104	SM060114-105
Date Sampled	------------	06/01/2014	06/01/2014	06/01/2014	06/01/2014	06/01/2014
Type of sample		water	water	water	water	water
Date extracted	-	08/01/2014	08/01/2014	08/01/2014	08/01/2014	08/01/2014
Date analysed	-	08/01/2014	08/01/2014	08/01/2014	08/01/2014	08/01/2014
TRHC_{10} - C_{14}	µg/L	<50	<50	<50	<50	<50
TRHC_{15} - C_{28}	µg/L	<100	<100	<100	<100	<100
TRHC_{29} - C_{36}	µg/L	<100	<100	<100	<100	<100
TRH>C_{10} - C_{16}	µg/L	<50	<50	<50	<50	<50
TRH>C_{10} - C_{16} less Naphthalene (F2)	µg/L	<50	<50	<50	<50	<50
TRH>C_{16} - C_{34}	µg/L	<100	<100	<100	<100	<100
TRH>C_{34} - C_{40}	µg/L	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	103	104	104	107	90

svTRH (C10-C40) in Water			
Our Reference:	UNITS	103178-27	103178-28
Your Reference	-------------	SM060114-106	SM060114-107
Date Sampled	------------	06/01/2014	06/01/2014
Type of sample		water	water
Date extracted	-	08/01/2014	08/01/2014
Date analysed	-	08/01/2014	08/01/2014
TRHC_{10} - C_{14}	µg/L	<50	<50
TRHC_{15} - C_{28}	µg/L	<100	<100
TRHC_{29} - C_{36}	µg/L	<100	<100
TRH>C_{10} - C_{16}	µg/L	<50	<50
TRH>C_{10} - C_{16} less Naphthalene (F2)	µg/L	<50	<50
TRH>C_{16} - C_{34}	µg/L	<100	<100
TRH>C_{34} - C_{40}	µg/L	<100	<100
Surrogate o-Terphenyl	%	94	116

PAHs in Water Our Reference:	UNITS	103178-22	103178-23	103178-24	103178-25	103178-26
Your Reference	-------------	SM060114-101	SM060114-102	SM060114-103	SM060114-104	SM060114-105
Date Sampled	------------	06/01/2014	06/01/2014	06/01/2014	06/01/2014	06/01/2014
Type of sample		water	water	water	water	water
Date extracted	-	08/01/2014	08/01/2014	08/01/2014	08/01/2014	08/01/2014
Date analysed	-	09/01/2014	09/01/2014	09/01/2014	09/01/2014	09/01/2014
Naphthalene	µg/L	<1	<1	<1	<1	<1
Acenaphthylene	µg/L	<1	<1	<1	<1	<1
Acenaphthene	µg/L	<1	<1	<1	<1	<1
Fluorene	µg/L	<1	<1	<1	<1	<1
Phenanthrene	µg/L	<1	<1	<1	<1	<1
Anthracene	µg/L	<1	<1	<1	<1	<1
Fluoranthene	µg/L	<1	<1	<1	<1	<1
Pyrene	µg/L	<1	<1	<1	<1	<1
Benzo(a)anthracene	µg/L	<1	<1	<1	<1	<1
Chrysene	µg/L	<1	<1	<1	<1	<1
Benzo(b+k)fluoranthene	µg/L	<2	<2	<2	<2	<2
Benzo(a)pyrene	µg/L	<1	<1	<1	<1	<1
Indeno(1,2,3-c,d)pyrene	µg/L	<1	<1	<1	<1	<1
Dibenzo(a,h)anthracene	µg/L	<1	<1	<1	<1	<1
Benzo(g,h,i)perylene	µg/L	<1	<1	<1	<1	<1
Benzo(a)pyrene TEQ	µg/L	<5	<5	<5	<5	<5
Total +ve PAH's	µg/L	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	96	86	98	102	90

PAHs in Water			
Our Reference:	UNITS	103178-27	103178-28
Your Reference	-------------	SM060114-106	SM060114-107
Date Sampled	------------	06/01/2014	06/01/2014
Type of sample		water	water
Date extracted	-	08/01/2014	08/01/2014
Date analysed	-	09/01/2014	09/01/2014
Naphthalene	µg/L	<1	<1
Acenaphthylene	µg/L	<1	<1
Acenaphthene	µg/L	<1	<1
Fluorene	µg/L	<1	<1
Phenanthrene	µg/L	<1	<1
Anthracene	µg/L	<1	<1
Fluoranthene	µg/L	<1	<1
Pyrene	µg/L	<1	<1
Benzo(a)anthracene	µg/L	<1	<1
Chrysene	µg/L	<1	<1
Benzo(b+k)fluoranthene	µg/L	<2	<2
Benzo(a)pyrene	µg/L	<1	<1
Indeno(1,2,3-c,d)pyrene	µg/L	<1	<1
Dibenzo(a,h)anthracene	µg/L	<1	<1
Benzo(g,h,i)perylene	µg/L	<1	<1
Benzo(a)pyrene TEQ	µg/L	<5	<5
Total +ve PAH's	µg/L	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	94	104

HM in water - dissolved						
Our Reference:	UNITS	103178-6	103178-22	103178-23	103178-24	103178-25
Your Reference	-------------	R2	SM060114-101	SM060114-102	SM060114-103	SM060114-104
Date Sampled	------------	06/01/2014	06/01/2014	06/01/2014	06/01/2014	06/01/2014
Type of sample		water	water	water	water	water
Date prepared	-	08/01/2014	08/01/2014	08/01/2014	08/01/2014	08/01/2014
Date analysed	-	08/01/2014	08/01/2014	08/01/2014	08/01/2014	08/01/2014
Arsenic-Dissolved	µg/L	<1	1	1	2	3
Cadmium-Dissolved	µg/L	<0.1	1.3	1.3	0.7	2.6
Chromium-Dissolved	µg/L	<1	1	<1	3	1
Copper-Dissolved	µg/L	<1	1	1	6	4
Lead-Dissolved	µg/L	<1	<1	<1	<1	2
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Nickel-Dissolved	µg/L	<1	75	74	61	330
Zinc-Dissolved	µg/L	<1	150	150	210	850

HM in water - dissolved				
Our Reference:	UNITS	103178-26	103178-27	103178-28
Your Reference	-------------	SM060114-105	SM060114-106	SM060114-107
Date Sampled	------------	06/01/2014	06/01/2014	06/01/2014
Type of sample		water	water	water
Date prepared	-	08/01/2014	08/01/2014	08/01/2014
Date analysed	-	08/01/2014	08/01/2014	08/01/2014
Arsenic-Dissolved	µg/L	1	<1	1
Cadmium-Dissolved	µg/L	5.0	5.6	1.7
Chromium-Dissolved	µg/L	1	6	2
Copper-Dissolved	µg/L	2	2	5
Lead-Dissolved	µg/L	<1	<1	1
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05
Nickel-Dissolved	µg/L	200	93	52
Zinc-Dissolved	µg/L	190	320	140

Miscellaneous Inorganics				
Our Reference:	UNITS	103178-22	103178-24	103178-28
Your Reference	-------------	SM060114-101	SM060114-103	SM060114-107
Date Sampled	------------	06/01/2014	06/01/2014	06/01/2014
Type of sample		water	water	water
Date prepared	-	08/01/2014	08/01/2014	08/01/2014
Date analysed	-	08/01/2014	08/01/2014	08/01/2014
pH	pH Units	6.8	6.2	7.1
Electrical Conductivity	µS/cm	16,000	5,500	13,000
Chloride, Cl	mg/L	4,500	1,100	3,300
Sulphate, SO4	mg/L	1,000	700	890
Hardness	mgCaCO3/L	1,600	260	1,200
Calcium - Dissolved	mg/L	57	33	57
Magnesium - Dissolved	mg/L	350	44	250

Method ID	Methodology Summary
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)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
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. Note Naphthalene is determined from the VOC analysis.
Org-012 subset	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.
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Inorg-008	Moisture content determined by heating at 105+/-5 deg C for a minimum of 12 hours.
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.
Metals-009	Determination of exchangeable cations and cation exchange capacity in soil based on Rayment and Lyons 2011.
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA 22nd ED, 4500-H+.
Org-013	Water samples are analysed directly by purge and trap GC-MS.
Metals-022 ICP-MS	Determination of various metals by ICP-MS.
Inorg-002	Conductivity and Salinity - measured using a conductivity cell and dedicated meter, in accordance with APHA 22nd ED 2510 and Rayment & Lyons.
Inorg-081	Anions - a range of Anions are determined by Ion Chromatography, in accordance with APHA 22nd ED, 4110 -B.

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			08/01/2014	103178-2	08/01/2014 || 08/01/2014	LCS-2	08/01/2014
Date analysed	-			08/01/2014	103178-2	08/01/2014 || 08/01/2014	LCS-2	08/01/2014
TRHC$_6$ - C$_9$	mg/kg	25	Org-016	<25	103178-2	<25 || <25	LCS-2	79%
TRHC$_6$ - C$_{10}$	mg/kg	25	Org-016	<25	103178-2	<25 || <25	LCS-2	79%
Benzene	mg/kg	0.2	Org-016	<0.2	103178-2	<0.2 || <0.2	LCS-2	79%
Toluene	mg/kg	0.5	Org-016	<0.5	103178-2	<0.5 || <0.5	LCS-2	75%
Ethylbenzene	mg/kg	1	Org-016	<1	103178-2	<1 || <1	LCS-2	75%
m+p-xylene	mg/kg	2	Org-016	<2	103178-2	<2 || <2	LCS-2	83%
o-Xylene	mg/kg	1	Org-016	<1	103178-2	<1 || <1	LCS-2	83%
naphthalene	mg/kg	1	Org-014	<1	103178-2	<1 || <1	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%		Org-016	118	103178-2	104 || 101 || RPD: 3	LCS-2	105%

QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			08/01/2014	103178-2	08/01/2014 || 08/01/2014	LCS-2	08/01/2014
Date analysed	-			08/01/2014	103178-2	08/01/2014 || 08/01/2014	LCS-2	08/01/2014
TRHC$_{10}$ - C$_{14}$	mg/kg	50	Org-003	<50	103178-2	<50 || <50	LCS-2	108%
TRHC$_{15}$ - C$_{28}$	mg/kg	100	Org-003	<100	103178-2	100 || <100	LCS-2	94%
TRHC$_{29}$ - C$_{36}$	mg/kg	100	Org-003	<100	103178-2	<100 || <100	LCS-2	82%
TRH>C$_{10}$-C$_{16}$	mg/kg	50	Org-003	<50	103178-2	<50 || <50	LCS-2	108%
TRH>C$_{16}$-C$_{34}$	mg/kg	100	Org-003	<100	103178-2	160 || 130 || RPD: 21	LCS-2	94%
TRH>C$_{34}$-C$_{40}$	mg/kg	100	Org-003	<100	103178-2	<100 || <100	LCS-2	82%
Surrogate o-Terphenyl	%		Org-003	92	103178-2	98 || 94 || RPD: 4	LCS-2	96%

QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			08/01/2014	103178-2	08/01/2014 || 08/01/2014	LCS-2	08/01/2014
Date analysed	-			08/01/2014	103178-2	08/01/2014 || 08/01/2014	LCS-2	08/01/2014
Naphthalene	mg/kg	0.1	Org-012 subset	<0.1	103178-2	<0.1 || <0.1	LCS-2	94%
Acenaphthylene	mg/kg	0.1	Org-012 subset	<0.1	103178-2	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	0.1	Org-012 subset	<0.1	103178-2	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	0.1	Org-012 subset	<0.1	103178-2	<0.1 || <0.1	LCS-2	96%
Phenanthrene	mg/kg	0.1	Org-012 subset	<0.1	103178-2	<0.1 || <0.1	LCS-2	100%
Anthracene	mg/kg	0.1	Org-012 subset	<0.1	103178-2	<0.1 || <0.1	[NR]	[NR]
Fluoranthene	mg/kg	0.1	Org-012 subset	<0.1	103178-2	<0.1 || <0.1	LCS-2	95%

QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Pyrene	mg/kg	0.1	Org-012 subset	<0.1	103178-2	<0.1 || <0.1	LCS-2	101%
Benzo(a)anthracene	mg/kg	0.1	Org-012 subset	<0.1	103178-2	<0.1 || <0.1	[NR]	[NR]
Chrysene	mg/kg	0.1	Org-012 subset	<0.1	103178-2	<0.1 || <0.1	LCS-2	97%
Benzo(b+k)fluoranthene	mg/kg	0.2	Org-012 subset	<0.2	103178-2	<0.2 || <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	0.05	Org-012 subset	<0.05	103178-2	<0.05 || <0.05	LCS-2	105%
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012 subset	<0.1	103178-2	<0.1 || <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012 subset	<0.1	103178-2	<0.1 || <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012 subset	<0.1	103178-2	<0.1 || <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012 subset	89	103178-2	89 || 89 || RPD: 0	LCS-2	92%

QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			08/01/2014	103178-2	08/01/2014 || 08/01/2014	LCS-1	08/01/2014
Date analysed	-			08/01/2014	103178-2	08/01/2014 || 08/01/2014	LCS-1	08/01/2014
HCB	mg/kg	0.1	Org-005	<0.1	103178-2	<0.1 || <0.1	[NR]	[NR]
alpha-BHC	mg/kg	0.1	Org-005	<0.1	103178-2	<0.1 || <0.1	LCS-1	100%
gamma-BHC	mg/kg	0.1	Org-005	<0.1	103178-2	<0.1 || <0.1	[NR]	[NR]
beta-BHC	mg/kg	0.1	Org-005	<0.1	103178-2	<0.1 || <0.1	LCS-1	108%
Heptachlor	mg/kg	0.1	Org-005	<0.1	103178-2	<0.1 || <0.1	LCS-1	97%
delta-BHC	mg/kg	0.1	Org-005	<0.1	103178-2	<0.1 || <0.1	[NR]	[NR]
Aldrin	mg/kg	0.1	Org-005	<0.1	103178-2	<0.1 || <0.1	LCS-1	102%
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	103178-2	<0.1 || <0.1	LCS-1	107%
gamma-Chlordane	mg/kg	0.1	Org-005	<0.1	103178-2	<0.1 || <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	0.1	Org-005	<0.1	103178-2	<0.1 || <0.1	[NR]	[NR]
Endosulfan I	mg/kg	0.1	Org-005	<0.1	103178-2	<0.1 || <0.1	[NR]	[NR]
pp-DDE	mg/kg	0.1	Org-005	<0.1	103178-2	<0.1 || <0.1	LCS-1	104%
Dieldrin	mg/kg	0.1	Org-005	<0.1	103178-2	<0.1 || <0.1	LCS-1	110%
Endrin	mg/kg	0.1	Org-005	<0.1	103178-2	<0.1 || <0.1	LCS-1	104%
pp-DDD	mg/kg	0.1	Org-005	<0.1	103178-2	<0.1 || <0.1	LCS-1	115%
Endosulfan II	mg/kg	0.1	Org-005	<0.1	103178-2	<0.1 || <0.1	[NR]	[NR]
pp-DDT	mg/kg	0.1	Org-005	<0.1	103178-2	<0.1 || <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	0.1	Org-005	<0.1	103178-2	<0.1 || <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	0.1	Org-005	<0.1	103178-2	<0.1 || <0.1	LCS-1	106%
Methoxychlor	mg/kg	0.1	Org-005	<0.1	103178-2	<0.1 || <0.1	[NR]	[NR]
Surrogate TCMX	%		Org-005	76	103178-2	82 || 82 || RPD: 0	LCS-1	77%

QUALITY CONTROL PCBs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			08/01/2014	103178-2	08/01/2014 || 08/01/2014	LCS-1	08/01/2014
Date analysed	-			08/01/2014	103178-2	08/01/2014 || 08/01/2014	LCS-1	08/01/2014
Arochlor 1016	mg/kg	0.1	Org-006	<0.1	103178-2	<0.1 || <0.1	[NR]	[NR]
Arochlor 1221	mg/kg	0.1	Org-006	<0.1	103178-2	<0.1 || <0.1	[NR]	[NR]
Arochlor 1232	mg/kg	0.1	Org-006	<0.1	103178-2	<0.1 || <0.1	[NR]	[NR]
Arochlor 1242	mg/kg	0.1	Org-006	<0.1	103178-2	<0.1 || <0.1	[NR]	[NR]
Arochlor 1248	mg/kg	0.1	Org-006	<0.1	103178-2	<0.1 || <0.1	[NR]	[NR]
Arochlor 1254	mg/kg	0.1	Org-006	<0.1	103178-2	<0.1 || <0.1	LCS-1	80%
Arochlor 1260	mg/kg	0.1	Org-006	<0.1	103178-2	<0.1 || <0.1	[NR]	[NR]
Surrogate TCLMX	%		Org-006	76	103178-2	82 || 82 || RPD: 0	LCS-1	80%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date digested	-			09/01/2014	103178-2	09/01/2014 || 09/01/2014	LCS-3	09/01/2014
Date analysed	-			09/01/2014	103178-2	09/01/2014 || 09/01/2014	LCS-3	09/01/2014
Arsenic	mg/kg	4	Metals-020 ICP-AES	<4	103178-2	<4 || <4	LCS-3	101%
Cadmium	mg/kg	0.4	Metals-020 ICP-AES	<0.4	103178-2	<0.4 || <0.4	LCS-3	110%
Chromium	mg/kg	1	Metals-020 ICP-AES	<1	103178-2	5 || 6 || RPD: 18	LCS-3	106%
Copper	mg/kg	1	Metals-020 ICP-AES	<1	103178-2	33 || 38 || RPD: 14	LCS-3	104%
Lead	mg/kg	1	Metals-020 ICP-AES	<1	103178-2	220 || 340 || RPD: 43	LCS-3	104%
Mercury	mg/kg	0.1	Metals-021 CV-AAS	<0.1	103178-2	<0.1 || <0.1	LCS-3	99%
Nickel	mg/kg	1	Metals-020 ICP-AES	<1	103178-2	3 || 3 || RPD: 0	LCS-3	105%
Zinc	mg/kg	1	Metals-020 ICP-AES	<1	103178-2	10 || 15 || RPD: 40	LCS-3	104%

QUALITY CONTROL Moisture	UNITS	PQL	METHOD	Blank
Date prepared	-			[NT]
Date analysed	-			[NT]
Moisture	%	0.1	Inorg-008	[NT]

QUALITY CONTROL Asbestos ID - soils	UNITS	PQL	METHOD	Blank
Date analysed	-			[NT]

QUALITY CONTROL ESP/CEC	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Exchangeable Ca	meq/100g	0.1	Metals-009	<0.1	103178-1	27 || 27 || RPD: 0	LCS-1	110%
Exchangeable K	meq/100g	0.1	Metals-009	<0.1	103178-1	0.3 || 0.3 || RPD: 0	LCS-1	108%
Exchangeable Mg	meq/100g	0.1	Metals-009	<0.1	103178-1	0.44 || 0.38 || RPD: 15	LCS-1	103%
Exchangeable Na	meq/100g	0.1	Metals-009	<0.1	103178-1	0.24 || 0.19 || RPD: 23	LCS-1	100%
Cation Exchange Capacity	meq/100g	1	Metals-009	<1.0	103178-1	28 || 28 || RPD: 0	[NR]	[NR]

QUALITY CONTROL Miscellaneous Inorg - soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			[NT]	103178-1	08/01/2014 || 08/01/2014	LCS-1	08/01/2014
Date analysed	-			[NT]	103178-1	08/01/2014 || 08/01/2014	LCS-1	08/01/2014
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	103178-1	9.0 || 9.0 || RPD: 0	LCS-1	101%

QUALITY CONTROL VOCs in water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			07/01/2014	103178-27	07/01/2014 || 07/01/2014	LCS-W1	07/01/2014
Date analysed	-			07/01/2014	103178-27	07/01/2014 || 07/01/2014	LCS-W1	07/01/2014
Dichlorodifluoromethane	µg/L	10	Org-013	<10	103178-27	<10 || <10	[NR]	[NR]
Chloromethane	µg/L	10	Org-013	<10	103178-27	<10 || <10	[NR]	[NR]
Vinyl Chloride	µg/L	10	Org-013	<10	103178-27	<10 || <10	[NR]	[NR]
Bromomethane	µg/L	10	Org-013	<10	103178-27	<10 || <10	[NR]	[NR]
Chloroethane	µg/L	10	Org-013	<10	103178-27	<10 || <10	[NR]	[NR]
Trichlorofluoromethane	µg/L	10	Org-013	<10	103178-27	<10 || <10	[NR]	[NR]
1,1-Dichloroethene	µg/L	1	Org-013	<1	103178-27	<1 || <1	[NR]	[NR]
Trans-1,2-dichloroethene	µg/L	1	Org-013	<1	103178-27	<1 || <1	[NR]	[NR]
1,1-dichloroethane	µg/L	1	Org-013	<1	103178-27	<1 || <1	LCS-W1	88%
Cis-1,2-dichloroethene	µg/L	1	Org-013	<1	103178-27	<1 || <1	[NR]	[NR]
Bromochloromethane	µg/L	1	Org-013	<1	103178-27	<1 || <1	[NR]	[NR]
Chloroform	µg/L	1	Org-013	<1	103178-27	1 || <1	LCS-W1	85%
2,2-dichloropropane	µg/L	1	Org-013	<1	103178-27	<1 || <1	[NR]	[NR]
1,2-dichloroethane	µg/L	1	Org-013	<1	103178-27	<1 || <1	LCS-W1	79%
1,1,1-trichloroethane	µg/L	1	Org-013	<1	103178-27	<1 || <1	LCS-W1	83%

QUALITY CONTROL VOCs in water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
1,1-dichloropropene	µg/L	1	Org-013	<1	103178-27	<1 || <1	[NR]	[NR]
Cyclohexane	µg/L	1	Org-013	<1	103178-27	<1 || <1	[NR]	[NR]
Carbon tetrachloride	µg/L	1	Org-013	<1	103178-27	<1 || <1	[NR]	[NR]
Benzene	µg/L	1	Org-013	<1	103178-27	<1 || <1	[NR]	[NR]
Dibromomethane	µg/L	1	Org-013	<1	103178-27	<1 || <1	[NR]	[NR]
1,2-dichloropropane	µg/L	1	Org-013	<1	103178-27	<1 || <1	[NR]	[NR]
Trichloroethene	µg/L	1	Org-013	<1	103178-27	<1 || <1	LCS-W1	99%
Bromodichloromethane	µg/L	1	Org-013	<1	103178-27	<1 || <1	LCS-W1	82%
trans-1,3-dichloropropene	µg/L	1	Org-013	<1	103178-27	<1 || <1	[NR]	[NR]
cis-1,3-dichloropropene	µg/L	1	Org-013	<1	103178-27	<1 || <1	[NR]	[NR]
1,1,2-trichloroethane	µg/L	1	Org-013	<1	103178-27	<1 || <1	[NR]	[NR]
Toluene	µg/L	1	Org-013	<1	103178-27	<1 || <1	[NR]	[NR]
1,3-dichloropropane	µg/L	1	Org-013	<1	103178-27	<1 || <1	[NR]	[NR]
Dibromochloromethane	µg/L	1	Org-013	<1	103178-27	<1 || <1	LCS-W1	82%
1,2-dibromoethane	µg/L	1	Org-013	<1	103178-27	<1 || <1	[NR]	[NR]
Tetrachloroethene	µg/L	1	Org-013	<1	103178-27	<1 || <1	LCS-W1	78%
1,1,1,2-tetrachloroethane	µg/L	1	Org-013	<1	103178-27	<1 || <1	[NR]	[NR]
Chlorobenzene	µg/L	1	Org-013	<1	103178-27	<1 || <1	[NR]	[NR]
Ethylbenzene	µg/L	1	Org-013	<1	103178-27	<1 || <1	[NR]	[NR]
Bromoform	µg/L	1	Org-013	<1	103178-27	<1 || <1	[NR]	[NR]
m+p-xylene	µg/L	2	Org-013	<2	103178-27	<2 || <2	[NR]	[NR]
Styrene	µg/L	1	Org-013	<1	103178-27	<1 || <1	[NR]	[NR]
1,1,2,2-tetrachloroethane	µg/L	1	Org-013	<1	103178-27	<1 || <1	[NR]	[NR]
o-xylene	µg/L	1	Org-013	<1	103178-27	<1 || <1	[NR]	[NR]
1,2,3-trichloropropane	µg/L	1	Org-013	<1	103178-27	<1 || <1	[NR]	[NR]
Isopropylbenzene	µg/L	1	Org-013	<1	103178-27	<1 || <1	[NR]	[NR]
Bromobenzene	µg/L	1	Org-013	<1	103178-27	<1 || <1	[NR]	[NR]
n-propyl benzene	µg/L	1	Org-013	<1	103178-27	<1 || <1	[NR]	[NR]
2-chlorotoluene	µg/L	1	Org-013	<1	103178-27	<1 || <1	[NR]	[NR]
4-chlorotoluene	µg/L	1	Org-013	<1	103178-27	<1 || <1	[NR]	[NR]
1,3,5-trimethyl benzene	µg/L	1	Org-013	<1	103178-27	<1 || <1	[NR]	[NR]
Tert-butyl benzene	µg/L	1	Org-013	<1	103178-27	<1 || <1	[NR]	[NR]
1,2,4-trimethyl benzene	µg/L	1	Org-013	<1	103178-27	<1 || <1	[NR]	[NR]
1,3-dichlorobenzene	µg/L	1	Org-013	<1	103178-27	<1 || <1	[NR]	[NR]
Sec-butyl benzene	µg/L	1	Org-013	<1	103178-27	<1 || <1	[NR]	[NR]
1,4-dichlorobenzene	µg/L	1	Org-013	<1	103178-27	<1 || <1	[NR]	[NR]
4-isopropyl toluene	µg/L	1	Org-013	<1	103178-27	<1 || <1	[NR]	[NR]
1,2-dichlorobenzene	µg/L	1	Org-013	<1	103178-27	<1 || <1	[NR]	[NR]
n-butyl benzene	µg/L	1	Org-013	<1	103178-27	<1 || <1	[NR]	[NR]
1,2-dibromo-3-chloropropane	µg/L	1	Org-013	<1	103178-27	<1 || <1	[NR]	[NR]
1,2,4-trichlorobenzene	µg/L	1	Org-013	<1	103178-27	<1 || <1	[NR]	[NR]
Hexachlorobutadiene	µg/L	1	Org-013	<1	103178-27	<1 || <1	[NR]	[NR]

QUALITY CONTROL VOCs in water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
1,2,3-trichlorobenzene	µg/L	1	Org-013	<1	103178-27	<1 || <1	[NR]	[NR]
Surrogate Dibromofluoromethane	%		Org-013	111	103178-27	128 || 103 || RPD: 22	LCS-W1	79%
Surrogate toluene-d8	%		Org-013	94	103178-27	91 || 76 || RPD: 18	LCS-W1	84%
Surrogate 4-BFB	%		Org-013	76	103178-27	76 || 74 || RPD: 3	LCS-W1	96%

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			07/01/2014	103178-27	07/01/2014 || 07/01/2014	LCS-W1	07/01/2014
Date analysed	-			07/01/2014	103178-27	07/01/2014 || 07/01/2014	LCS-W1	07/01/2014
TRHC_6 - C_9	µg/L	10	Org-016	<10	103178-27	<10 || <10	LCS-W1	104%
TRHC_6 - C_{10}	µg/L	10	Org-016	<10	103178-27	<10 || <10	LCS-W1	104%
Benzene	µg/L	1	Org-016	<1	103178-27	<1 || <1	LCS-W1	98%
Toluene	µg/L	1	Org-016	<1	103178-27	<1 || <1	LCS-W1	101%
Ethylbenzene	µg/L	1	Org-016	<1	103178-27	<1 || <1	LCS-W1	105%
m+p-xylene	µg/L	2	Org-016	<2	103178-27	<2 || <2	LCS-W1	108%
o-xylene	µg/L	1	Org-016	<1	103178-27	<1 || <1	LCS-W1	109%
Naphthalene	µg/L	1	Org-013	<1	103178-27	<1 || <1	[NR]	[NR]
Surrogate Dibromofluoromethane	%		Org-016	111	103178-27	128 || 103 || RPD: 22	LCS-W1	114%
Surrogate toluene-d8	%		Org-016	94	103178-27	91 || 76 || RPD: 18	LCS-W1	95%
Surrogate 4-BFB	%		Org-016	76	103178-27	76 || 74 || RPD: 3	LCS-W1	107%

QUALITY CONTROL svTRH (C10-C40) in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			08/01/2014	[NT]	[NT]	LCS-W1	08/01/2014
Date analysed	-			08/01/2014	[NT]	[NT]	LCS-W1	08/01/2014
TRHC_{10} - C_{14}	µg/L	50	Org-003	<50	[NT]	[NT]	LCS-W1	111%
TRHC_{15} - C_{28}	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	101%
TRHC_{29} - C_{36}	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	116%
TRH>C_{10} - C_{16}	µg/L	50	Org-003	<50	[NT]	[NT]	LCS-W1	111%
TRH>C_{16} - C_{34}	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	101%
TRH>C_{34} - C_{40}	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	116%
Surrogate o-Terphenyl	%		Org-003	93	[NT]	[NT]	LCS-W1	99%

QUALITY CONTROL PAHs in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			08/01/2014	[NT]	[NT]	LCS-W1	08/01/2014
Date analysed	-			09/01/2014	[NT]	[NT]	LCS-W1	09/01/2014
Naphthalene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	95%
Acenaphthylene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Acenaphthene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Fluorene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	97%
Phenanthrene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	101%
Anthracene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Fluoranthene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	97%
Pyrene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	103%
Benzo(a)anthracene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Chrysene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	100%
Benzo(b+k)fluoranthene	µg/L	2	Org-012 subset	<2	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	103%
Indeno(1,2,3-c,d)pyrene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012 subset	92	[NT]	[NT]	LCS-W1	94%

QUALITY CONTROL HM in water - dissolved	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			08/01/2014	103178-26	08/01/2014 || 08/01/2014	LCS-W1	08/01/2014
Date analysed	-			08/01/2014	103178-26	08/01/2014 || 08/01/2014	LCS-W1	08/01/2014
Arsenic-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	103178-26	1 || 1 || RPD: 0	LCS-W1	106%
Cadmium-Dissolved	µg/L	0.1	Metals-022 ICP-MS	<0.1	103178-26	5.0 || 5.8 || RPD: 15	LCS-W1	104%
Chromium-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	103178-26	1 || 2 || RPD: 67	LCS-W1	99%
Copper-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	103178-26	2 || 2 || RPD: 0	LCS-W1	102%
Lead-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	103178-26	<1 || <1	LCS-W1	108%
Mercury-Dissolved	µg/L	0.05	Metals-021 CV-AAS	<0.05	103178-26	<0.05 || <0.05	LCS-W1	96%
Nickel-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	103178-26	200 || 230 || RPD: 14	LCS-W1	102%
Zinc-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	103178-26	190 || 220 || RPD: 15	LCS-W1	102%

QUALITY CONTROL Miscellaneous Inorganics	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			09/01/2014	[NT]	[NT]	LCS-W1	08/01/2014
Date analysed	-			09/01/2014	[NT]	[NT]	LCS-W1	08/01/2014
pH	pH Units		Inorg-001	[NT]	[NT]	[NT]	LCS-W1	101%
Electrical Conductivity	µS/cm	1	Inorg-002	<1	[NT]	[NT]	LCS-W1	104%
Chloride, Cl	mg/L	1	Inorg-081	<1	[NT]	[NT]	LCS-W1	85%
Sulphate, SO4	mg/L	1	Inorg-081	<1	[NT]	[NT]	LCS-W1	97%
Hardness	mgCaCO3/L	3		3.0	[NT]	[NT]	[NR]	[NR]
Calcium - Dissolved	mg/L	0.5	Metals-020 ICP-AES	<0.5	[NT]	[NT]	LCS-W1	106%
Magnesium - Dissolved	mg/L	0.5	Metals-020 ICP-AES	<0.5	[NT]	[NT]	LCS-W1	104%

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	103178-18	08/01/2014 || 08/01/2014	103178-11	08/01/2014
Date analysed	-	103178-18	08/01/2014 || 08/01/2014	103178-11	08/01/2014
TRH C_6 - C_9	mg/kg	103178-18	<25 || <25	103178-11	82%
TRH C_6 - C_{10}	mg/kg	103178-18	<25 || <25	103178-11	82%
Benzene	mg/kg	103178-18	<0.2 || <0.2	103178-11	83%
Toluene	mg/kg	103178-18	<0.5 || <0.5	103178-11	78%
Ethylbenzene	mg/kg	103178-18	<1 || <1	103178-11	77%
m+p-xylene	mg/kg	103178-18	<2 || <2	103178-11	76%

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
o-Xylene	mg/kg	103178-18	<1 || <1	103178-11	86%
naphthalene	mg/kg	103178-18	<1 || <1	103178-11	84%
Surrogate aaa-Trifluorotoluene	%	103178-18	96 || 102 || RPD: 6	103178-11	102%

QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	103178-18	08/01/2014 || 08/01/2014	103178-11	08/01/2014
Date analysed	-	103178-18	08/01/2014 || 08/01/2014	103178-11	08/01/2014
TRHC$_{10}$ - C$_{14}$	mg/kg	103178-18	<50 || <50	103178-11	111%
TRHC$_{15}$ - C$_{28}$	mg/kg	103178-18	<100 || <100	103178-11	101%
TRHC$_{29}$ - C$_{36}$	mg/kg	103178-18	<100 || <100	103178-11	116%
TRH>C$_{10}$-C$_{16}$	mg/kg	103178-18	<50 || <50	103178-11	111%
TRH>C$_{16}$-C$_{34}$	mg/kg	103178-18	<100 || <100	103178-11	101%
TRH>C$_{34}$-C$_{40}$	mg/kg	103178-18	<100 || <100	103178-11	116%
Surrogate o-Terphenyl	%	103178-18	93 || 93 || RPD: 0	103178-11	99%

QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	103178-18	08/01/2014 || 08/01/2014	103178-11	08/01/2014
Date analysed	-	103178-18	08/01/2014 || 08/01/2014	103178-11	08/01/2014
Naphthalene	mg/kg	103178-18	<0.1 || <0.1	103178-11	89%
Acenaphthylene	mg/kg	103178-18	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	103178-18	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	103178-18	<0.1 || <0.1	103178-11	92%
Phenanthrene	mg/kg	103178-18	<0.1 || <0.1	103178-11	95%
Anthracene	mg/kg	103178-18	<0.1 || <0.1	[NR]	[NR]
Fluoranthene	mg/kg	103178-18	<0.1 || <0.1	103178-11	90%
Pyrene	mg/kg	103178-18	<0.1 || <0.1	103178-11	95%
Benzo(a)anthracene	mg/kg	103178-18	<0.1 || <0.1	[NR]	[NR]
Chrysene	mg/kg	103178-18	<0.1 || <0.1	103178-11	92%
Benzo(b+k)fluoranthene	mg/kg	103178-18	<0.2 || <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	103178-18	<0.05 || <0.05	103178-11	100%
Indeno(1,2,3-c,d)pyrene	mg/kg	103178-18	<0.1 || <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	103178-18	<0.1 || <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	103178-18	<0.1 || <0.1	[NR]	[NR]
Surrogate *p*-Terphenyl-d14	%	103178-18	96 || 94 || RPD: 2	103178-11	90%

QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	103178-18	08/01/2014 || 08/01/2014	103178-11	08/01/2014
Date analysed	-	103178-18	08/01/2014 || 08/01/2014	103178-11	08/01/2014
HCB	mg/kg	103178-18	<0.1 || <0.1	[NR]	[NR]
alpha-BHC	mg/kg	103178-18	<0.1 || <0.1	103178-11	101%
gamma-BHC	mg/kg	103178-18	<0.1 || <0.1	[NR]	[NR]
beta-BHC	mg/kg	103178-18	<0.1 || <0.1	103178-11	108%
Heptachlor	mg/kg	103178-18	<0.1 || <0.1	103178-11	95%
delta-BHC	mg/kg	103178-18	<0.1 || <0.1	[NR]	[NR]
Aldrin	mg/kg	103178-18	<0.1 || <0.1	103178-11	102%
Heptachlor Epoxide	mg/kg	103178-18	<0.1 || <0.1	103178-11	107%
gamma-Chlordane	mg/kg	103178-18	<0.1 || <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	103178-18	<0.1 || <0.1	[NR]	[NR]
Endosulfan I	mg/kg	103178-18	<0.1 || <0.1	[NR]	[NR]
pp-DDE	mg/kg	103178-18	<0.1 || <0.1	103178-11	103%
Dieldrin	mg/kg	103178-18	<0.1 || <0.1	103178-11	109%
Endrin	mg/kg	103178-18	<0.1 || <0.1	103178-11	99%
pp-DDD	mg/kg	103178-18	<0.1 || <0.1	103178-11	116%
Endosulfan II	mg/kg	103178-18	<0.1 || <0.1	[NR]	[NR]
pp-DDT	mg/kg	103178-18	<0.1 || <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	103178-18	<0.1 || <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	103178-18	<0.1 || <0.1	103178-11	107%
Methoxychlor	mg/kg	103178-18	<0.1 || <0.1	[NR]	[NR]
Surrogate TCMX	%	103178-18	82 || 84 || RPD: 2	103178-11	79%

QUALITY CONTROL PCBs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	103178-18	08/01/2014 || 08/01/2014	103178-11	08/01/2014
Date analysed	-	103178-18	08/01/2014 || 08/01/2014	103178-11	08/01/2014
Arochlor 1016	mg/kg	103178-18	<0.1 || <0.1	[NR]	[NR]
Arochlor 1221	mg/kg	103178-18	<0.1 || <0.1	[NR]	[NR]
Arochlor 1232	mg/kg	103178-18	<0.1 || <0.1	[NR]	[NR]
Arochlor 1242	mg/kg	103178-18	<0.1 || <0.1	[NR]	[NR]
Arochlor 1248	mg/kg	103178-18	<0.1 || <0.1	[NR]	[NR]
Arochlor 1254	mg/kg	103178-18	<0.1 || <0.1	103178-11	90%
Arochlor 1260	mg/kg	103178-18	<0.1 || <0.1	[NR]	[NR]
Surrogate TCLMX	%	103178-18	82 || 84 || RPD: 2	103178-11	87%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	103178-18	09/01/2014 || 09/01/2014	103178-11	09/01/2014
Date analysed	-	103178-18	09/01/2014 || 09/01/2014	103178-11	09/01/2014
Arsenic	mg/kg	103178-18	7 || 5 || RPD: 33	103178-11	91%
Cadmium	mg/kg	103178-18	<0.4 || <0.4	103178-11	97%
Chromium	mg/kg	103178-18	11 || 12 || RPD: 9	103178-11	97%
Copper	mg/kg	103178-18	26 || 29 || RPD: 11	103178-11	107%
Lead	mg/kg	103178-18	14 || 14 || RPD: 0	103178-11	95%
Mercury	mg/kg	103178-18	<0.1 || <0.1	103178-11	75%
Nickel	mg/kg	103178-18	2 || 2 || RPD: 0	103178-11	92%
Zinc	mg/kg	103178-18	24 || 26 || RPD: 8	103178-11	96%

QUALITY CONTROL ESP/CEC	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Exchangeable Ca	meq/100g	103178-14	33 || 31 || RPD: 6
Exchangeable K	meq/100g	103178-14	1.2 || 1.2 || RPD: 0
Exchangeable Mg	meq/100g	103178-14	2.3 || 2.3 || RPD: 0
Exchangeable Na	meq/100g	103178-14	0.62 || 0.61 || RPD: 2
Cation Exchange Capacity	meq/100g	103178-14	37 || 35 || RPD: 6

QUALITY CONTROL Miscellaneous Inorg - soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Date prepared	-	103178-14	08/01/2014 || 08/01/2014
Date analysed	-	103178-14	08/01/2014 || 08/01/2014
pH 1:5 soil:water	pH Units	103178-14	7.8 || 7.9 || RPD: 1

QUALITY CONTROL HM in water - dissolved	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	[NT]	[NT]	103178-27	08/01/2014
Date analysed	-	[NT]	[NT]	103178-27	08/01/2014
Arsenic-Dissolved	µg/L	[NT]	[NT]	103178-27	111%
Cadmium-Dissolved	µg/L	[NT]	[NT]	103178-27	97%
Chromium-Dissolved	µg/L	[NT]	[NT]	103178-27	92%
Copper-Dissolved	µg/L	[NT]	[NT]	103178-27	101%
Lead-Dissolved	µg/L	[NT]	[NT]	103178-27	94%
Mercury-Dissolved	µg/L	[NT]	[NT]	[NR]	[NR]
Nickel-Dissolved	µg/L	[NT]	[NT]	103178-27	92%
Zinc-Dissolved	µg/L	[NT]	[NT]	103178-27	#

Report Comments:

Trace metals:# 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.

Asbestos ID was analysed by Approved Identifier:	Paul Ching
Asbestos ID was authorised by Approved Signatory:	Paul Ching

INS: Insufficient sample for this test
NA: Test not required
<: Less than
PQL: Practical Quantitation Limit
RPD: Relative Percent Difference
>: Greater than
NT: Not tested
NA: Test not required
LCS: Laboratory Control Sample

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.

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 and 10-140% for SVOC 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.

CHAIN OF CUSTODY - Client

ENVIROLAB SERVICES

Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200
Job No: 103178
Date Received: 7.1.14.
Time Received: 11.00
Received by:
Temp: [✓ Cool]/Ambient
Cooling: Ice/[✓ Icepack]
Security: Intact/Broken/None

Client:	**Geo-Environmental Engineering Pty Ltd**	**Client Project Name and Number:**	
Project Mgr:	**McCormack**	E13017BEL	
Sampler:	**Mccormack**	**PO No.:**	
Address:	**82 Bridge Street** **Lane Cove NSW 2066**	**Envirolab Services Quote No. :**	
		Date results required:	
Email:	stephen@geoenvironmental.com.au	**Or choose: standard / 1 day / 2 day / 3 day / [✓ 5 days]**	
Phone:	**0431 480 980**	*Note: Inform lab in advance if urgent turnaround is required - surcharge applies*	

Envirolab Services
12 Ashley St, Chatswood, NSW, 2067

Phone: 02 9910 6200
Fax: 02 9910 6201
E-mail: ahie@envirolabservices.com.au

Contact: Aileen Hie

Sample information				**Tests Required**																**Comments**
Envirolab Sample ID	**Client Sample ID**	**Date sampled**	**Type of sample**	**Metals (Std 8)**	**TRH/BTEX**	**pH**	**Combination 3**	**Combination 3a**	**Combination 5**	**Combination 5a**	**PAHs**	**OCP/PCB**	**Combination 1 NEPM**	**BTEX**	**BTEX / (Vol TRH**	**CEC**	**EC**	**sulphate/Chloride/pH**	**Resistivity (Calc)**	**Provide as much information about the sample as you can**
1	SM060114-80	6/01/2014	soil			1	1									1				
2	SM060114-81	6/01/2014	soil			1				1						1				
3	SM060114-82	6/01/2014	soil				1													
4	SM060114-83	6/01/2014	soil	1		1										1				
5	SM060114-84	6/01/2014	soil			1	1									1				
6	R2	6/01/2014	water	1										1						
7	SM060114-86	6/01/2014	soil			1	1									1				
8	SM060114-87	6/01/2014	soil	1		1						1				1				
9	SM060114-88	6/01/2014	soil																	
10	SM060114-89	6/01/2014	soil	1	1	1										1				
11	SM060114-90	6/01/2014	soil			1				1						1				
12	SM060114-92	6/01/2014	soil	1		1										1				
13	SM060114-93	6/01/2014	soil			1	1									1				
14	SM060114-94	6/01/2014	soil	1		1										1				
15	SM060114-96	6/01/2014	soil			1		1								1				

Relinquished by (company):		**Received by (company):**	ELS
Print Name:	**S. Mccormack**	**Print Name:**	GEOFF
Date & Time:	07-Jan-14	**Date & Time:**	7.1.14 _ 11am
Signature:		**Signature:**	

Samples Received: [✓ Cool] or Ambient (circle one)
Temperature Recieved at: 4.2 **(if applicable)**
Transported by: Hand delivered / [✓ courier]
Page No: 1 of 2

Form: 302 - Chain of Custody-Client, Issued 14/02/08, Version 3, Page 1 of 1.

CHAIN OF CUSTODY - Client

ENVIROLAB SERVICES

Client: Geo-Environmental Engineering Pty Ltd
Project Mgr: McCormack
Sampler: Mccormack
Address: 82 Bridge Street
Lane Cove NSW 2066
Email: stephen@geoenvironmental.com.au
Phone: 0431 480 980

Client Project Name and Number:
E13017BEL
PO No.:
Envirolab Services Quote No. :
Date results required:
Or choose: standard / 1 day / 2 day / 3 day 5 days
Note: Inform lab in advance if urgent turnaround is required - surcharge applies

Envirolab Services
12 Ashley St, Chatswood, NSW, 2067
Phone: 02 9910 6200
Fax: 02 9910 6201
E-mail: ahie@envirolabservices.com.au
Contact: Aileen Hie

Sample information				Tests Required																Comments
Envirolab Sample ID	Client Sample ID	Date sampled	Type of sample	Metals (Std 8)	TRH/BTEX	pH	Combination 3	Combination 3a	Combination 5	Combination 5a	PAHs	OCP/PCB	VOC	BTEX	BTEX / (Vol TRH	CEC	EC	hardness	sulphate / chloride / pH	Provide as much information about the sample as you can
16	SM060114-97	6/01/2014	soil																	
17	SM060114-98	6/01/2014	soil			1	1									1				
18	SM060114-99	6/01/2014	soil			1			1							1				
19	SM060114-100	6/01/2014	soil	1		1										1				
20	trip blank2	6/01/2014	soil												1					
21	trip psike 2	6/01/2014	soil											1						
←	R2	6/01/2014	water	1										1						
22	SM060114-101	6/01/2014	water				1						1				1	1	1	
23	SM060114-102	6/01/2014	water				1						1							
24	SM060114-103	6/01/2014	water				1						1				1	1	1	
25	SM060114-104	6/01/2014	water				1						1							
26	SM060114-105	6/01/2014	water				1						1							
27	SM060114-106	6/01/2014	water				1						1							
28	SM060114-107	6/01/2014	water				1						1				1	1	1	
29	trip spike	6/01/2014	water											1						
30.	trip blank	6/01/2014	water												1					
Gw 31	SM060114-95		Soil	Extra sample												X	added 22-7/1			

Relinquished by (company):
Print Name: S. Mccormack
Date & Time: 07-Jan-14
Signature:

Received by (company): ELS
Print Name: GEOFF
Date & Time: 7-1-14 - 11am
Signature:

Samples Received: [✓ Cool] or Ambient (circle one)
Temperature Recieved at: 4.2 (if applicable)
Transported by: Hand delivered / [✓ courier]
Page No: 2 of 2

Form: 302 - Chain of Custody-Client, Issued 14/02/08, Version 3, Page 1 of 1.

Certificate of Analysis

NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025.
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Geo-Environmental Engineering Pty Ltd
82 Bridge St
Lane Cove
NSW 2066

Attention: **Stephen McCormack**

Report **404022-S**
Client Reference E13017BEL
Received Date Dec 19, 2013

Client Sample ID **Sample Matrix** **Eurofins | mgt Sample No.** **Date Sampled** Test/Reference	LOR	Unit	**SM161213-48** **Soil** **S13-De17122** **Not Provided**	**SM171213-73** **Soil** **S13-De17123** **Not Provided**	**SM171213-88** **Soil** **S13-De17124** **Not Provided**
Total Recoverable Hydrocarbons - 1999 NEPM Fractions					
TRH C6-C9	20	mg/kg	< 20	-	< 20
TRH C10-C14	20	mg/kg	< 20	-	< 20
TRH C15-C28	50	mg/kg	< 50	-	< 50
TRH C29-C36	50	mg/kg	< 50	-	< 50
TRH C10-36 (Total)	50	mg/kg	< 50	-	< 50
BTEX					
Benzene	0.1	mg/kg	< 0.1	-	< 0.1
Toluene	0.1	mg/kg	< 0.1	-	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	-	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	-	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	-	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	-	< 0.3
4-Bromofluorobenzene (surr.)	1	%	103	-	100
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					
Naphthalene^{N02}	0.5	mg/kg	< 0.5	-	< 0.5
TRH C6-C10	20	mg/kg	< 20	-	< 20
TRH C6-C10 less BTEX (F1)^{N04}	20	mg/kg	< 20	-	< 20
TRH >C10-C16	50	mg/kg	< 50	-	< 50
TRH >C10-C16 less Naphthalene (F2)^{N01}	50	mg/kg	< 50	-	< 50
TRH >C16-C34	100	mg/kg	< 100	-	< 100
TRH >C34-C40	100	mg/kg	< 100	-	< 100
Polycyclic Aromatic Hydrocarbons					
Acenaphthene	0.5	mg/kg	< 0.5	-	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	-	< 0.5
Anthracene	0.5	mg/kg	< 0.5	-	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	-	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	-	< 0.5
Benzo(b&j)fluoranthene^{N07}	0.5	mg/kg	< 0.5	-	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	-	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	-	< 0.5
Chrysene	0.5	mg/kg	< 0.5	-	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	-	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	-	< 0.5
Fluorene	0.5	mg/kg	< 0.5	-	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	-	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	-	< 0.5

Client Sample ID **Sample Matrix** **Eurofins | mgt Sample No.** **Date Sampled** Test/Reference	LOR	Unit	**SM161213-48** **Soil** **S13-De17122** **Not Provided**	**SM171213-73** **Soil** **S13-De17123** **Not Provided**	**SM171213-88** **Soil** **S13-De17124** **Not Provided**
Polycyclic Aromatic Hydrocarbons					
Phenanthrene	0.5	mg/kg	< 0.5	-	< 0.5
Pyrene	0.5	mg/kg	< 0.5	-	< 0.5
Total PAH	0.5	mg/kg	< 0.5	-	< 0.5
Benzo(a)pyrene TEQ (lower bound)*	0.5	mg/kg	< 0.5	-	< 0.5
Benzo(a)pyrene TEQ (medium bound)*	0.5	mg/kg	0.6	-	0.6
Benzo(a)pyrene TEQ (upper bound)*	0.5	mg/kg	1.2	-	1.2
2-Fluorobiphenyl (surr.)	1	%	97	-	95
p-Terphenyl-d14 (surr.)	1	%	107	-	104
Organochlorine Pesticides					
Chlordanes - Total	0.1	mg/kg	-	-	< 0.1
4.4'-DDD	0.05	mg/kg	-	-	< 0.05
4.4'-DDE	0.05	mg/kg	-	-	< 0.05
4.4'-DDT	0.05	mg/kg	-	-	< 0.05
a-BHC	0.05	mg/kg	-	-	< 0.05
Aldrin	0.05	mg/kg	-	-	< 0.05
b-BHC	0.05	mg/kg	-	-	< 0.05
d-BHC	0.05	mg/kg	-	-	< 0.05
Dieldrin	0.05	mg/kg	-	-	< 0.05
Endosulfan I	0.05	mg/kg	-	-	< 0.05
Endosulfan II	0.05	mg/kg	-	-	< 0.05
Endosulfan sulphate	0.05	mg/kg	-	-	< 0.05
Endrin	0.05	mg/kg	-	-	< 0.05
Endrin aldehyde	0.05	mg/kg	-	-	< 0.05
Endrin ketone	0.05	mg/kg	-	-	< 0.05
g-BHC (Lindane)	0.05	mg/kg	-	-	< 0.05
Heptachlor	0.05	mg/kg	-	-	< 0.05
Heptachlor epoxide	0.05	mg/kg	-	-	< 0.05
Hexachlorobenzene	0.05	mg/kg	-	-	< 0.05
Methoxychlor	0.2	mg/kg	-	-	< 0.2
Toxaphene	1	mg/kg	-	-	< 1
Dibutylchlorendate (surr.)	1	%	-	-	106
Tetrachloro-m-xylene (surr.)	1	%	-	-	101
Polychlorinated Biphenyls (PCB)					
Aroclor-1016	0.5	mg/kg	-	-	< 0.5
Aroclor-1232	0.5	mg/kg	-	-	< 0.5
Aroclor-1242	0.5	mg/kg	-	-	< 0.5
Aroclor-1248	0.5	mg/kg	-	-	< 0.5
Aroclor-1254	0.5	mg/kg	-	-	< 0.5
Aroclor-1260	0.5	mg/kg	-	-	< 0.5
Total PCB	0.5	mg/kg	-	-	< 0.5
Dibutylchlorendate (surr.)	1	%	-	-	106
Heavy Metals					
Arsenic	2	mg/kg	3.5	4.0	5.2
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	< 5	24	< 5
Copper	5	mg/kg	< 5	< 5	< 5
Lead	5	mg/kg	39	230	< 5
Mercury	0.05	mg/kg	< 0.05	0.07	< 0.05
Nickel	5	mg/kg	< 5	< 5	< 5
Zinc	5	mg/kg	89	39	< 5

Client Sample ID **Sample Matrix** **Eurofins | mgt Sample No.** **Date Sampled** Test/Reference	LOR	Unit	**SM161213-48** **Soil** **S13-De17122** **Not Provided**	**SM171213-73** **Soil** **S13-De17123** **Not Provided**	**SM171213-88** **Soil** **S13-De17124** **Not Provided**
% Moisture	0.1	%	4.6	16	18

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	**Testing Site**	**Extracted**	**Holding Time**
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	Dec 23, 2013	14 Day
- Method: E004 Petroleum Hydrocarbons (TPH)			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Dec 23, 2013	14 Day
- Method: LM-LTM-ORG2010			
BTEX	Sydney	Dec 23, 2013	14 Day
- Method: E029/E016 BTEX			
Polycyclic Aromatic Hydrocarbons	Sydney	Dec 21, 2013	14 Day
- Method: E007 Polyaromatic Hydrocarbons (PAH)			
Organochlorine Pesticides	Sydney	Dec 21, 2013	14 Day
- Method: E013 Organochlorine Pesticides (OC)			
Polychlorinated Biphenyls (PCB)	Sydney	Dec 21, 2013	28 Day
- Method: E013 Polychlorinated Biphenyls (PCB)			
Metals M8	Sydney	Dec 21, 2013	28 Day
- Method: E022 Acid Extractable metals in Soils & E026 Mercury			
% Moisture	Sydney	Dec 21, 2013	28 Day
- Method: E005 Moisture Content			

Company Name:	Geo-Environmental Engineering P/L	**Order No.:**		**Received:**	Dec 18, 2013 12:00 AM
Address:	82 Bridge St Lane Cove NSW 2066	**Report #:**	404022	**Due:**	Dec 30, 2013
		Phone:	02 9592 0218	**Priority:**	5 Day
		Fax:	02 9519 9140	**Contact Name:**	Stephen McCormack
Client Job No.:	E13017BEL				

Eurofins | mgt Client Manager: Jean Heng

Sample Detail					% Moisture	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Metals M8	BTEX	Polychlorinated Biphenyls (PCB)	Total Recoverable Hydrocarbons
Laboratory where analysis is conducted											
Melbourne Laboratory - NATA Site # 1254 & 14271											
Sydney Laboratory - NATA Site # 18217					X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794											
External Laboratory											
Sample ID	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**							
SM161213-48	Not Provided		Soil	S13-De17122	X	X		X	X		X
SM171213-73	Not Provided		Soil	S13-De17123	X			X			
SM171213-88	Not Provided		Soil	S13-De17124	X	X	X	X	X	X	X

Eurofins | mgt Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Actual PQLs are matrix dependant. Quoted PQLs may be raised where sample extracts are diluted due to interferences.
4. Results are uncorrected for matrix spikes or surrogate recoveries.
5. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
6. Samples were analysed on an 'as received' basis. 7. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Acknowledgment.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

****NOTE:** pH duplicates are reported as a range NOT as RPD

UNITS

mg/kg: milligrams per Kilogram
ug/l: micrograms per litre
ppb: Parts per billion
org/100ml: Organisms per 100 millilitres
MPN/100mL: Most Probable Number of organisms per 100 millilitres
mg/l: milligrams per litre
ppm: Parts per million
%: Percentage
NTU: Units

TERMS

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery
CRM	Certified Reference Material - reported as percent recovery
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands. In the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
Batch Duplicate	A second piece of analysis from a sample outside of the clients batch of samples but run within the laboratory batch of analysis.
Batch SPIKE	Spike recovery reported on a sample from outside of the clients batch of samples but run within the laboratory batch of analysis.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
ASLP	Australian Standard Leaching Procedure (AS4439.3)
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within
TEQ	Toxic Equivalency Quotient

QC - ACCEPTANCE CRITERIA

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries : Recoveries must lie between 50-150% - Phenols 20-130%.

QC DATA GENERAL COMMENTS

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxophene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxophene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Arochlor 1260 in Matrix Spikes and LCS's.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPD's are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH C6-C10 less BTEX (F1)	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
4.4'-DDD	mg/kg	< 0.05			0.05	Pass	
4.4'-DDE	mg/kg	< 0.05			0.05	Pass	
4.4'-DDT	mg/kg	< 0.05			0.05	Pass	
a-BHC	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-BHC	mg/kg	< 0.05			0.05	Pass	
d-BHC	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endosulfan II	mg/kg	< 0.05			0.05	Pass	
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-BHC (Lindane)	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.2			0.2	Pass	
Toxaphene	mg/kg	< 1			1	Pass	
Method Blank							
Polychlorinated Biphenyls (PCB)							
Aroclor-1016	mg/kg	< 0.5			0.5	Pass	
Aroclor-1232	mg/kg	< 0.5			0.5	Pass	
Aroclor-1242	mg/kg	< 0.5			0.5	Pass	
Aroclor-1248	mg/kg	< 0.5			0.5	Pass	
Aroclor-1254	mg/kg	< 0.5			0.5	Pass	
Aroclor-1260	mg/kg	< 0.5			0.5	Pass	
Total PCB	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.05			0.05	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	105			70-130	Pass	
TRH C10-C14	%	82			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	101			70-130	Pass	
Toluene	%	95			70-130	Pass	
Ethylbenzene	%	91			70-130	Pass	
m&p-Xylenes	%	95			70-130	Pass	
o-Xylene	%	93			70-130	Pass	
Xylenes - Total	%	94			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	76			70-130	Pass	
TRH C6-C10	%	99			70-130	Pass	
TRH >C10-C16	%	89			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	108			70-130	Pass	
Acenaphthylene	%	100			70-130	Pass	
Anthracene	%	109			70-130	Pass	
Benz(a)anthracene	%	111			70-130	Pass	
Benzo(a)pyrene	%	107			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Benzo(b&j)fluoranthene	%	101			70-130	Pass	
Benzo(g.h.i)perylene	%	97			70-130	Pass	
Benzo(k)fluoranthene	%	113			70-130	Pass	
Chrysene	%	106			70-130	Pass	
Dibenz(a.h)anthracene	%	108			70-130	Pass	
Fluoranthene	%	105			70-130	Pass	
Fluorene	%	121			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	105			70-130	Pass	
Naphthalene	%	102			70-130	Pass	
Phenanthrene	%	101			70-130	Pass	
Pyrene	%	103			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	127			70-130	Pass	
4.4'-DDD	%	121			70-130	Pass	
4.4'-DDE	%	127			70-130	Pass	
4.4'-DDT	%	119			70-130	Pass	
a-BHC	%	129			70-130	Pass	
Aldrin	%	129			70-130	Pass	
b-BHC	%	120			70-130	Pass	
d-BHC	%	129			70-130	Pass	
Dieldrin	%	129			70-130	Pass	
Endosulfan I	%	128			70-130	Pass	
Endosulfan II	%	128			70-130	Pass	
Endosulfan sulphate	%	124			70-130	Pass	
Endrin	%	125			70-130	Pass	
Endrin aldehyde	%	130			70-130	Pass	
Endrin ketone	%	128			70-130	Pass	
g-BHC (Lindane)	%	127			70-130	Pass	
Heptachlor	%	117			70-130	Pass	
Heptachlor epoxide	%	128			70-130	Pass	
Hexachlorobenzene	%	101			70-130	Pass	
Methoxychlor	%	117			70-130	Pass	
LCS - % Recovery							
Polychlorinated Biphenyls (PCB)							
Aroclor-1260	%	106			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	106			70-130	Pass	
Cadmium	%	95			70-130	Pass	
Chromium	%	114			70-130	Pass	
Copper	%	110			70-130	Pass	
Lead	%	104			70-130	Pass	
Mercury	%	127			70-130	Pass	
Nickel	%	117			70-130	Pass	
Zinc	%	106			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	S13-De17361	NCP	%	96			70-130	Pass	
TRH C10-C14	S13-De18631	NCP	%	97			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S13-De17361	NCP	%	100			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Toluene	S13-De17361	NCP	%	93			70-130	Pass	
Ethylbenzene	S13-De17361	NCP	%	87			70-130	Pass	
m&p-Xylenes	S13-De17361	NCP	%	91			70-130	Pass	
o-Xylene	S13-De17361	NCP	%	90			70-130	Pass	
Xylenes - Total	S13-De17361	NCP	%	91			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S13-De17361	NCP	%	82			70-130	Pass	
TRH C6-C10	S13-De17361	NCP	%	92			70-130	Pass	
TRH >C10-C16	S13-De18631	NCP	%	105			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	B13-De16516	NCP	%	126			70-130	Pass	
Acenaphthylene	B13-De16516	NCP	%	110			70-130	Pass	
Anthracene	B13-De16516	NCP	%	120			70-130	Pass	
Benz(a)anthracene	B13-De16516	NCP	%	114			70-130	Pass	
Benzo(a)pyrene	B13-De16516	NCP	%	125			70-130	Pass	
Benzo(b&j)fluoranthene	B13-De16516	NCP	%	121			70-130	Pass	
Benzo(g.h.i)perylene	B13-De16516	NCP	%	113			70-130	Pass	
Benzo(k)fluoranthene	B13-De16516	NCP	%	124			70-130	Pass	
Chrysene	B13-De16516	NCP	%	129			70-130	Pass	
Dibenz(a.h)anthracene	B13-De16516	NCP	%	125			70-130	Pass	
Fluoranthene	B13-De16516	NCP	%	115			70-130	Pass	
Fluorene	B13-De16516	NCP	%	117			70-130	Pass	
Indeno(1.2.3-cd)pyrene	B13-De16516	NCP	%	122			70-130	Pass	
Naphthalene	B13-De16516	NCP	%	119			70-130	Pass	
Phenanthrene	B13-De16516	NCP	%	115			70-130	Pass	
Pyrene	B13-De16516	NCP	%	117			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S13-De18384	NCP	%	112			70-130	Pass	
Cadmium	S13-De18384	NCP	%	124			70-130	Pass	
Chromium	S13-De18384	NCP	%	120			70-130	Pass	
Copper	S13-De17695	NCP	%	123			70-130	Pass	
Lead	S13-De18384	NCP	%	97			70-130	Pass	
Mercury	S13-De18384	NCP	%	105			70-130	Pass	
Nickel	S13-De18384	NCP	%	104			70-130	Pass	
Zinc	S13-De17827	NCP	%	120			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	S13-De17361	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	S13-De18631	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S13-De18631	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	S13-De18631	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S13-De17361	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S13-De17361	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S13-De17361	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S13-De17361	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S13-De17361	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total	S13-De17361	NCP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	

Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S13-De17361	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S13-De17361	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C6-C10 less BTEX (F1)	S13-De17361	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH >C10-C16	S13-De18631	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	S13-De18631	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	S13-De18631	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	B13-De16516	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	B13-De16516	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	B13-De16516	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	B13-De16516	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	B13-De16516	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	B13-De16516	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	B13-De16516	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	B13-De16516	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	B13-De16516	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	B13-De16516	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	B13-De16516	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	B13-De16516	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	B13-De16516	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	B13-De16516	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	B13-De16516	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	B13-De16516	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S13-De18384	NCP	mg/kg	5.5	5.6	2.0	30%	Pass	
Cadmium	S13-De18384	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S13-De18384	NCP	mg/kg	14	18	27	30%	Pass	
Copper	S13-De18384	NCP	mg/kg	18	19	8.0	30%	Pass	
Lead	S13-De18384	NCP	mg/kg	15	18	13	30%	Pass	
Mercury	S13-De18384	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Nickel	S13-De18384	NCP	mg/kg	9.3	6.7	32	30%	Fail	Q15
Zinc	S13-De18384	NCP	mg/kg	130	180	28	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Organic samples had Teflon liners	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
Q15	The RPD reported passes Eurofins | mgt's Acceptance Criteria as stipulated in SOP 05. Refer to Glossary Page of this report for further details

Authorised By

Jean Heng	Client Services
James Norford	Senior Analyst-Metal (NSW)
Ryan Hamilton	Senior Analyst-Organic (NSW)
Ryan Hamilton	Senior Analyst-Volatile (NSW)

Dr. Bob Symons

Laboratory Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Uncertainty data is available on request

#404022.

404022

Chain Of Custody Form

MGT-LabMark (SYDNEY)
Unit F3, Park View Building
16 Mars Road
LANE COVE 2066
NSW, Australia
Phone: +61 2 8215 6222
Fax: +61 2 9420 2977
Contact: Bob Symons
Email: bob.symons@labmark.com.au

mgt LabMark ENVIRONMENTAL LABORATORIES

Page 1 **of** 1

Special Directions & Comments (including safe handling requirements):

All samples must be tranferred to the laboratory on Ice

From: Geo-Environmental Engineering Pty Ltd (Ph: 0431 480 980)
To Laboratory: MGT Sydney -
Project ID E13017BEL

			Analytes										Container								
Report Number	Sample ID	Matrix				Metals (As, Cd, Cr, Cu, Pb, Ni, Zn, Hg)	TRH/BTEX	PAHs	OCP/PCB				Jar	Vial	125 ml plastic (blue)	200 ml glass (purple)	25mls plastic (purple)	1L (orange) Glass amber	1L Plastic (green)	OTHER	TAT
	SM161213-48	soil				1	1	1					1								
	SM171213-73	soil				1							1								
	SM171213-88	soil				1	1	1	1				1								

Relinquished By: Stephen Mccormack
Date & Time : 18/12/2013
Signature:

Received By: C.ALHANE.
Date & Time : 19/12/13 . 12 30PM
Signature:

Method Of Shipment:
Courier ☐
Hand Delivered ☒
Postal ☐

NOTES: **Samples 11, 12, 16 and 19 not filtered in the field for the red plastic metals jar. Can these be filtered at lab**

For samples which require transportation between internal laboratories:
Departing - Signature: Date & Time: Temperature:
Upon receipt - Signature: Date & Time: Temperature:

Certificate of Analysis

NATA Accredited
Accreditation Number 1261
Site Number 1254

Accredited for compliance with ISO/IEC 17025.
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Geo-Environmental Engineering Pty Ltd
82 Bridge St
Lane Cove
NSW 2066

Attention: **Stephen McCormack**

Report **404830-S**
Client Reference E13017BEL
Received Date Jan 07, 2014

Client Sample ID			**SM060114-85**	**SM060114-91**
Sample Matrix			**Soil**	**Soil**
Eurofins | mgt Sample No.			**M14-Ja00590**	**M14-Ja00591**
Date Sampled			**Jan 06, 2014**	**Jan 06, 2014**
Test/Reference	LOR	Unit		
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				
TRH C6-C9	20	mg/kg	< 20	-
TRH C10-C14	20	mg/kg	< 20	-
TRH C15-C28	50	mg/kg	< 50	-
TRH C29-C36	50	mg/kg	< 50	-
TRH C10-36 (Total)	50	mg/kg	< 50	-
BTEX				
Benzene	0.1	mg/kg	< 0.1	-
Toluene	0.1	mg/kg	< 0.1	-
Ethylbenzene	0.1	mg/kg	< 0.1	-
m&p-Xylenes	0.2	mg/kg	< 0.2	-
o-Xylene	0.1	mg/kg	< 0.1	-
Xylenes - Total	0.3	mg/kg	< 0.3	-
4-Bromofluorobenzene (surr.)	1	%	82	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				
Naphthalene^{N02}	0.5	mg/kg	< 0.5	-
TRH C6-C10	20	mg/kg	< 20	-
TRH C6-C10 less BTEX (F1)^{N04}	20	mg/kg	< 20	-
TRH >C10-C16	50	mg/kg	< 50	-
TRH >C10-C16 less Naphthalene (F2)^{N01}	50	mg/kg	< 50	-
TRH >C16-C34	100	mg/kg	< 100	-
TRH >C34-C40	100	mg/kg	< 100	-
Polycyclic Aromatic Hydrocarbons				
Acenaphthene	0.5	mg/kg	< 0.5	-
Acenaphthylene	0.5	mg/kg	< 0.5	-
Anthracene	0.5	mg/kg	< 0.5	-
Benz(a)anthracene	0.5	mg/kg	< 0.5	-
Benzo(a)pyrene	0.5	mg/kg	< 0.5	-
Benzo(b&j)fluoranthene^{N07}	0.5	mg/kg	< 0.5	-
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	-
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	-
Chrysene	0.5	mg/kg	< 0.5	-
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	-
Fluoranthene	0.5	mg/kg	< 0.5	-
Fluorene	0.5	mg/kg	< 0.5	-
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	-
Naphthalene	0.5	mg/kg	< 0.5	-

Client Sample ID **Sample Matrix** **Eurofins | mgt Sample No.** **Date Sampled** Test/Reference	LOR	Unit	**SM060114-85** **Soil** **M14-Ja00590** **Jan 06, 2014**	**SM060114-91** **Soil** **M14-Ja00591** **Jan 06, 2014**
Polycyclic Aromatic Hydrocarbons				
Phenanthrene	0.5	mg/kg	< 0.5	-
Pyrene	0.5	mg/kg	< 0.5	-
Total PAH	0.5	mg/kg	< 0.5	-
Benzo(a)pyrene TEQ (lower bound)*	0.5	mg/kg	< 0.5	-
Benzo(a)pyrene TEQ (medium bound)*	0.5	mg/kg	0.6	-
Benzo(a)pyrene TEQ (upper bound)*	0.5	mg/kg	1.2	-
2-Fluorobiphenyl (surr.)	1	%	97	-
p-Terphenyl-d14 (surr.)	1	%	63	-
Heavy Metals				
Arsenic	2	mg/kg	4.6	6.2
Cadmium	0.4	mg/kg	< 0.4	< 0.4
Chromium	5	mg/kg	15	6.1
Copper	5	mg/kg	23	18
Lead	5	mg/kg	31	14
Mercury	0.1	mg/kg	< 0.1	< 0.1
Nickel	5	mg/kg	< 5	< 5
Zinc	5	mg/kg	100	15
% Moisture	0.1	%	21	18

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	Jan 13, 2014	14 Day
- Method: TRH C6-C36 - MGT 100A			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Jan 13, 2014	14 Day
- Method: LM-LTM-ORG2010			
BTEX	Melbourne	Jan 13, 2014	14 Day
- Method: USEPA 8260 - MGT 350A Monocyclic Aromatic Hydrocarbons and MGT 100A			
Polycyclic Aromatic Hydrocarbons	Melbourne	Jan 13, 2014	14 Day
- Method: USEPA 8270 Polycyclic Aromatic Hydrocarbons			
Metals M8	Melbourne	Jan 13, 2014	28 Day
- Method: USEPA 6010/6020 Heavy Metals & USEPA 7470/71 Mercury			
% Moisture	Melbourne	Jan 13, 2014	14 Day
- Method: Method 102 - ANZECC - % Moisture			

Company Name: Geo-Environmental Engineering P/L
Address: 82 Bridge St
Lane Cove
NSW 2066

Client Job No.: E13017BEL

Order No.:
Report #: 404830
Phone: 02 9592 0218
Fax: 02 9519 9140

Received: Jan 7, 2014 9:15 AM
Due: Jan 14, 2014
Priority: 5 Day
Contact Name: Stephen McCormack

Eurofins | mgt Client Manager: Jean Heng

Sample Detail					% Moisture	Polycyclic Aromatic Hydrocarbons	Metals M8	BTEX	Total Recoverable Hydrocarbons
Laboratory where analysis is conducted									
Melbourne Laboratory - NATA Site # 1254 & 14271					X	X	X	X	X
Sydney Laboratory - NATA Site # 18217									
Brisbane Laboratory - NATA Site # 20794									
External Laboratory									
Sample ID	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**					
SM060114-85	Jan 06, 2014		Soil	M14-Ja00590	X	X	X	X	X
SM060114-91	Jan 06, 2014		Soil	M14-Ja00591	X		X		

Eurofins | mgt Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Actual PQLs are matrix dependant. Quoted PQLs may be raised where sample extracts are diluted due to interferences.
4. Results are uncorrected for matrix spikes or surrogate recoveries.
5. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
6. Samples were analysed on an 'as received' basis. 7. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Acknowledgment.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

****NOTE:** pH duplicates are reported as a range NOT as RPD

UNITS

mg/kg: milligrams per Kilogram
ug/l: micrograms per litre
ppb: Parts per billion
org/100ml: Organisms per 100 millilitres
MPN/100mL: Most Probable Number of organisms per 100 millilitres

mg/l: milligrams per litre
ppm: Parts per million
%: Percentage
NTU: Units

TERMS

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery
CRM	Certified Reference Material - reported as percent recovery
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands. In the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
Batch Duplicate	A second piece of analysis from a sample outside of the clients batch of samples but run within the laboratory batch of analysis.
Batch SPIKE	Spike recovery reported on a sample from outside of the clients batch of samples but run within the laboratory batch of analysis.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
ASLP	Australian Standard Leaching Procedure (AS4439.3)
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within
TEQ	Toxic Equivalency Quotient

QC - ACCEPTANCE CRITERIA

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries : Recoveries must lie between 50-150% - Phenols 20-130%.

QC DATA GENERAL COMMENTS

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxophene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxophene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Arochlor 1260 in Matrix Spikes and LCS's.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPD's are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH C6-C10 less BTEX (F1)	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
TRH C6-C9	%	125			70-130	Pass	
TRH C10-C14	%	104			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	123			70-130	Pass	
Toluene	%	120			70-130	Pass	
Ethylbenzene	%	123			70-130	Pass	
m&p-Xylenes	%	118			70-130	Pass	
Xylenes - Total	%	118			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH C6-C10	%	125			70-130	Pass	
TRH >C10-C16	%	105			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	103			70-130	Pass	
Acenaphthylene	%	109			70-130	Pass	
Anthracene	%	113			70-130	Pass	
Benz(a)anthracene	%	109			70-130	Pass	
Benzo(a)pyrene	%	103			70-130	Pass	
Benzo(b&j)fluoranthene	%	93			70-130	Pass	
Benzo(g.h.i)perylene	%	98			70-130	Pass	
Benzo(k)fluoranthene	%	101			70-130	Pass	
Chrysene	%	113			70-130	Pass	
Dibenz(a.h)anthracene	%	105			70-130	Pass	
Fluoranthene	%	98			70-130	Pass	
Fluorene	%	106			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	103			70-130	Pass	
Naphthalene	%	100			70-130	Pass	
Phenanthrene	%	112			70-130	Pass	
Pyrene	%	95			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	80			80-120	Pass	
Cadmium	%	94			80-120	Pass	
Chromium	%	97			80-120	Pass	
Copper	%	101			80-120	Pass	
Lead	%	100			80-120	Pass	
Mercury	%	106			75-125	Pass	
Nickel	%	94			80-120	Pass	
Zinc	%	91			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	M14-Ja01292	NCP	%	117			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	M14-Ja01292	NCP	%	95			70-130	Pass	
Toluene	M14-Ja01292	NCP	%	97			70-130	Pass	
Ethylbenzene	M14-Ja01292	NCP	%	85			70-130	Pass	
m&p-Xylenes	M14-Ja01292	NCP	%	84			70-130	Pass	
o-Xylene	M14-Ja01292	NCP	%	85			70-130	Pass	
Xylenes - Total	M14-Ja01292	NCP	%	85			70-130	Pass	
Spike - % Recovery									

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH C6-C10	M14-Ja01292	NCP	%	117			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	M14-Ja01907	NCP	%	102			70-130	Pass	
Acenaphthylene	M14-Ja01907	NCP	%	109			70-130	Pass	
Anthracene	M14-Ja01907	NCP	%	108			70-130	Pass	
Benz(a)anthracene	M14-Ja01907	NCP	%	101			70-130	Pass	
Benzo(a)pyrene	M14-Ja01907	NCP	%	109			70-130	Pass	
Benzo(b&j)fluoranthene	M14-Ja01907	NCP	%	91			70-130	Pass	
Benzo(g.h.i)perylene	M14-Ja01907	NCP	%	103			70-130	Pass	
Benzo(k)fluoranthene	M14-Ja01907	NCP	%	103			70-130	Pass	
Chrysene	M14-Ja01907	NCP	%	104			70-130	Pass	
Dibenz(a.h)anthracene	M14-Ja01907	NCP	%	112			70-130	Pass	
Fluoranthene	M14-Ja01907	NCP	%	86			70-130	Pass	
Fluorene	M14-Ja01907	NCP	%	106			70-130	Pass	
Indeno(1.2.3-cd)pyrene	M14-Ja01907	NCP	%	106			70-130	Pass	
Naphthalene	M14-Ja01907	NCP	%	98			70-130	Pass	
Phenanthrene	M14-Ja01907	NCP	%	109			70-130	Pass	
Pyrene	M14-Ja01907	NCP	%	89			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	M14-Ja01892	NCP	%	77			75-125	Pass	
Cadmium	M14-Ja00590	CP	%	81			75-125	Pass	
Chromium	M14-Ja00590	CP	%	82			75-125	Pass	
Copper	M14-Ja00590	CP	%	85			75-125	Pass	
Lead	M14-Ja01892	NCP	%	116			75-125	Pass	
Mercury	M14-Ja00590	CP	%	106			70-130	Pass	
Nickel	M14-Ja00590	CP	%	76			75-125	Pass	
Zinc	M14-Ja01892	NCP	%	89			75-125	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	M14-Ja01292	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	M14-Ja01292	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	M14-Ja01292	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	M14-Ja01292	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	M14-Ja01292	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	M14-Ja01292	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total	M14-Ja01292	NCP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	M14-Ja01292	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	M14-Ja01292	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C6-C10 less BTEX (F1)	M14-Ja01292	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	M14-Ja01907	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	M14-Ja01907	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	M14-Ja01907	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	M14-Ja01907	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	M14-Ja01907	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Benzo(b&j)fluoranthene	M14-Ja01907	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	M14-Ja01907	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	M14-Ja01907	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	M14-Ja01907	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	M14-Ja01907	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	M14-Ja01907	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	M14-Ja01907	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	M14-Ja01907	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	M14-Ja01907	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	M14-Ja01907	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	M14-Ja01907	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	M14-Ja00590	CP	mg/kg	4.6	6.9	39	30%	Fail	Q15
Cadmium	M14-Ja00590	CP	mg/kg	< 0.4	0.5	26	30%	Pass	
Chromium	M14-Ja00590	CP	mg/kg	15	19	24	30%	Pass	
Copper	M14-Ja00590	CP	mg/kg	23	26	12	30%	Pass	
Lead	M14-Ja00590	CP	mg/kg	31	40	26	30%	Pass	
Mercury	M14-Ja00590	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	M14-Ja00590	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Zinc	M14-Ja00590	CP	mg/kg	100	120	20	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Organic samples had Teflon liners	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
Q15	The RPD reported passes Eurofins | mgt's Acceptance Criteria as stipulated in SOP 05. Refer to Glossary Page of this report for further details

Authorised By

Jean Heng	Client Services
Carroll Lee	Senior Analyst-Volatile (VIC)
Emily Rosenberg	Senior Analyst-Metal (VIC)
Stacey Jenkins	Senior Analyst-Organic (VIC)

Glenn Jackson

Laboratory Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Uncertainty data is available on request

Chain Of Custody Form

MGT-LabMark (SYDNEY)
Unit F3, Park View Building
16 Mars Road
LANE COVE 2066
NSW, Australia
Phone: +61 2 8215 6222
Fax: +61 2 9420 2977
Contact: Bob Symons
Email: bob.symons@labmark.com.au

mgt LabMark
ENVIRONMENTAL LABORATORIES

Page 1 **of** 1

#1 404830

Special Directions & Comments (including safe handling requirements):

All samples must be tranferred to the laboratory on Ice

From: Geo-Environmental Engineering Pty Ltd (Ph: 0431 480 980)
To Laboratory: MGT Sydney -
Project ID E13017BEL

Report Number	Sample ID	Matrix	Analytes			Metals (As, Cd, Cr, Cu, Pb, Ni, Zn, Hg)	TRH/BTEX	PAHs	OCP/PCB				Container: Jar	Vial	125 ml plastic (blue)	200 ml glass (purple)	25mls plastic (purple)	1L (orange) Glass amber	1L Plastic (green)	OTHER	TAT
	SM060114-85	soil				1	1	1					1								
	SM060114-91	soil				1							1								

Relinquished By: Stephen Mccormack
Date & Time : 7/01/2014
Signature:

Received By: Ellen Ng EZmgt.
Date & Time : 070114 09.15
Signature:

Method Of Shipment:
Courier
Hand Delivered X
Postal

NOTES:
Samples 11, 12, 16 and 19 not filtered in the field for the red plastic metals jar. Can these be filtered at lab

For samples which require transportation between internal laboratories:
Departing - Signature:
Date & Time
Temperature:
Upon receipt - Signature:
Date & Time
Temperature