GeoEnvironmental Pty Ltd

Geotechnical and Environmental Solutions

DETAILED SITE INVESTIGATION

11-17 COLUMBIA LANE, HOMEBUSH, NSW

Columbia Lane Development Pty Ltd

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EXECUTIVE SUMMARY

STS GeoEnvironmental Pty Limited (STS) carried out a detailed site investigation (DSI) at 11-17 Columbia Lane, Homebush, NSW hereafter referred to as "the site".

The investigation was commissioned by Columbia Lane Development Pty Ltd. The objective of the DSI is to characterise the nature and extent of any potential soil or groundwater contamination at the site. The contamination characterisation of the site is required to support the development approval (DA) submission for the proposed redevelopment.

STS understands that the subject site which covers approximately 6,570 m^2 is proposed for redevelopment as a residential apartment complex comprising an 8-storey residential building, extending into 25-storey and 26-storey residential apartment towers constructed over a common four (4) level basement car park. Communal open space is proposed at ground level between the tower extensions, as well as on terraces on the 9th and 14th storeys. Deep soil planting zones covering a total of approx. 1,365 m^2 are proposed within the public park in the north-east of the site and within the transmission line easement along the western boundary.

Based on the history of the site, the main potential contaminating activities that were identified included; historical site filling and the use of pesticides; the weathering of former built structures; the storage of chemicals onsite and past commercial uses, and offsite commercial and manufacturing activities located up-gradient of the site. Based on the onsite and offsite potential contaminating activities, the following contaminants of concern have been identified as potentially impacting the site; asbestos, heavy metals, benzene, toluene, ethylbenzene, xylenes, naphthalene (BTEXN), total recoverable hydrocarbons (TRH), polyaromatic hydrocarbons (PAH), volatile organic compounds (VOCs), organochlorine pesticides (OCP), organophosphorus (OPP), polychlorinated biphenyls (PCB), and phenolic compounds.

The investigation was performed in accordance with Environment Protection Authority (EPA) and national guidelines for the assessment and management of site contamination. The investigation objective was met by implementing a desktop historical information review of the site and surrounds, and an intrusive investigation with soil and groundwater sampling and chemical analysis programme.

Based on the proposed development plans, the site has been assessed under a high-density residential and public park area land use scenario. The results of chemical analysis of the selected soil samples were compared with NEPM (1999, 2013) HIL-B, HIL-C, HSL-B, HSL-C EIL, ESL, NEPM (1999, 2013) management limits for TRH fraction in soils and CRCCARE's human health screening criteria for petroleum hydrocarbons. The results of chemical analysis of the selected groundwater samples were compared with NEPM (2013) Groundwater HSLs A-B, ANZG (2018) marine water quality trigger values for 95% species protection and NHMRC/NRMMC (2018) drinking water guideline values for health and aesthetics.

The results of the soil sampling have shown that with the exception of asbestos (friable and non-friable) and carcinogenic PAHs, the concentrations of chemical contaminants recorded within the analysed samples were within the respective assessment criteria that are protective of human health in high-density residential and public open space land use settings. The concentrations of asbestos and carcinogenic PAHs are considered to present an unacceptable risk to human health for the proposed development. Further, the results of the soil sampling have shown that the concentrations of cadmium and copper at discrete locations and benzo(a)pyrene across most of the site exceed the respective threshold criteria protective of ecological receptors. A remediation and/or management strategy will be required to mitigate the risks posed to human health and ecological receptors.

The results of the groundwater sampling have shown that the groundwater beneath the site is impacted by zinc and TRH at concentrations that potentially present an unacceptable risk to marine ecosystems, and that impacted groundwater is likely to be migrating offsite. Further, the results of the groundwater sampling have shown that the groundwater beneath the site is impacted by nickel and PAH at concentrations that potentially present an unacceptable risk to human health. Based on the investigation, it is considered that whilst the site is likely contributing to the TRH and PAH, the zinc and nickel concentrations are likely attributable to an off-site source located up-gradient of the site. A remediation and/or management strategy will be required to mitigate the risks posed to human health and ecological receptors by the groundwater beneath and migrating from the site.

It is also noted that a low concentration of total VOCs was detected within one (1) of the groundwater samples analysed. No concentrations of individual VOCs exceeding the respective LOR were recorded, indicating that very low concentrations are present within the groundwater. The investigation concluded that the site was unlikely to be the source of the VOC impact and that it was highly possible that the VOC impact was related to an unknown source located up-gradient of the site. Due to the presence of a low concentration of total VOCs within the groundwater beneath the site, STS recommends that a soil gas sampling programme is conducted to confirm whether an unacceptable risk to human health via vapour intrusion of VOCs is present in regard to the proposed development plans. Alternatively, a suitable vapour barrier may be included within the design of the building to mitigate potential risks from current unknown potential vapour intrusion of VOCs.

Based on this investigation, STS recommends that a remedial action plan (RAP) is to be prepared for the site to address the unacceptable risks to human health, and terrestrial and aquatic receptors as a result of the identified soil and groundwater impacts.

Based on the findings of the investigation, the site can be made suitable for the proposed high density residential and open public space land uses in accordance with the proposed plans, subject to the preparation and implementation of a remedial action plan (RAP) to address the identified soil and groundwater impacts.

Based on the laboratory results for the ASS assessment, the net sulphidic acidity and total net acidity of the soil sampled and tested at the site have triggered the requirement for further management action. Hence, a site-specific acid sulfate soil management plan (ASSMP) should be prepared prior to the commencement of construction.

Due to the unknown historical fill, including prior demolition activities involving old building structures (potentially consisted of ACM), and the detection of asbestos (friable and non-friable) in the soil sampled and tested in this current investigation, it would be necessary that an unexpected-finds protocol (UFP) is prepared for implementation at the site upon commencement of construction.

In addition to the above, the soil and groundwater impacts identified at the site meet the respective trigger criteria for notification of the contamination to the NSW EPA under the provisions of the CLM Act 1997. As the soil and groundwater impacts meet the notification trigger criteria, the landowner has a legal obligation to submit a notification to the NSW EPA. In accordance with Section 60(4) of the CLM Act, the landowner is required to submit the notification to the NSW EPA as soon as practicable after they become aware of the contamination.

1. INTRODUCTION

The report presents the results of a detailed site investigation (DSI) carried out by STS GeoEnvironmental Pty Limited (STS) at 11-17 Columbia Lane, Homebush NSW, hereafter referred as “the site”. The assessment was commissioned by Columbia Lane Development Pty Ltd.

The objective of the DSI is to investigate the nature and extent of contaminants potentially present within the soils and groundwater within the area proposed for the redevelopment. The data will then be employed to characterise the site to enable the assessment of potential risks to human health and the environment with respect to the proposed site redevelopment. Further, the investigation would support the development approval (DA) submission for the proposed site redevelopment.

The investigation was carried out in accordance with Environment Protection Authority (EPA) and other national guidelines related to the assessment and management of site contamination.

The scope of the DSI included:

- Examination of aerial photographs and satellite imagery to identify historical land uses at the site and its surrounds;
- Review of land title information, including a historical title search;
- Review of Council Section 149 (now 10.7) planning certificates, along with NSW EPA and SafeWork NSW records;
- Site inspection;
- Assessment of the potential contamination from surrounding sites;
- Review of local geology and hydrogeology;
- Soil sampling from twenty-seven (27) boreholes;
- Groundwater sampling from five (5) monitoring wells;
- Laboratory analyses of selected soil and groundwater samples for a broad range of potential contaminants;
- Interpretation of analytical data and quality assurance (QA);
- Assessment of potential for acid sulfate soils (ASS) in the soils within the site;
- Assessment of concentrations of contaminants in the soil and groundwater at the site;
- Assessment of potential contaminant exposure pathways and risks of harm to human-health and the environment at the site;
- Assessment of potential contaminant releases, migration and potential impacts on off-site human and ecological receptors;

- Recommendations for any further investigation or remediation that may be required based on relevant assessment and management guidelines for site contamination; and
- Preparation of a confidential report based on the results of the investigation.

2. REDEVELOPMENT AND PROPOSED LAND USE

Preliminary architectural drawings made available at the time of this assessment indicate that the proposed redevelopment involves the construction of a residential apartment complex comprising an 8-storey residential building, extending into 25-storey and 26-storey residential apartment towers constructed over a common four (4) level basement car park. Common open space is proposed at ground-floor between the tower extensions, as well on terraces on the 9th and 14th storeys. Deep soil planting zones covering a total of approx. 1,365 m^2 are proposed within the public park in the north-east of the site and within the transmission line easement along the western boundary.

A copy of the preliminary architectural drawings is provided in Appendix A.

3. SITE IDENTIFICATION

The site covers an approximate area of 6,570 m^2 and is located within the Strathfield Council Local Government Area (LGA). Currently the site is zoned as "R4 – High Density Residential" and is legally defined as Lots 4 and 5 in Deposited Plan (DP) 261926. Development at the site is managed under the "Strathfield Local Environmental Plan 2012" (LEP 2012).

The site boundaries are formed by Gramophone Lane with residential apartment complexes beyond to the north, Columbia Lane with a self-storage facility beyond to the east, and Powells Creek culvert to the south and west of the site with Strathfield substation beyond to the south. To the west of the Powells Creek, a storage yard for construction supplies, and residential apartment complexes were observed.

The site location is presented on Drawing No. 19/1315/1.

4. PREVIOUS ENVIRONMENTAL REPORTS

WSP Environmental (WSP) completed a preliminary contamination and geotechnical investigation for a development precinct incorporating the site. The report was titled:

- *Preliminary Contamination and Geotechnical Investigation, Columbia Precinct, Homebush, NSW, Report Reference: 00015742_FINAL, March 2011*.

4.1 Preliminary Investigation Findings

The report was conducted for the Columbia Precinct, incorporating 2-20 Parramatta Road and 11-13 Columbia Lane, Homebush, NSW. STS reviewed the document, focussing on information pertaining to 11-13 Columbia Lane, Homebush, NSW.

The investigation included a detailed site history review, site inspection and limited intrusive soil and groundwater sampling. A total of ten (10) soil boreholes were advanced across the entire precinct site, with three (3) converted to groundwater monitoring wells. The investigation concluded that the site was overlain by filling up to 4.5 m below existing ground level, with groundwater encountered at a depth of 3.0 – 4.0 m below ground level. Groundwater beneath the site flows in a north-westerly direction.

A total of fifty-four (54) soil samples were recovered from the boreholes, with one (1) sample per borehole selected for analysis. A total of ten (10) soil samples were analysed for concentrations of heavy metals, petroleum hydrocarbons (TPH), polycyclic aromatic hydrocarbons (PAH), phenolics and volatile organic compounds (VOCs) (including monocyclic aromatic hydrocarbons (MAH) and solvents).

Only two (2) of the boreholes advanced were located within 11-13 Columbia Lane, Homebush, NSW, and neither were converted to groundwater monitoring wells.

The investigation determined the potential sources of contamination within 11-13 Columbia Lane to be;

- Two (2) USTs present onsite;
- Asbestos containing building materials within the fabric of the site structures;
- General rubbish (empty containers, plastic bags, brick, wood and plastic materials) across the site;
- Potential past spills of oils and chemicals stored on the site; and
- Fill material from unknown origins across the site.

Within 11-13 Columbia Lane, a concentration of TPH C_{10}-C_{36} (1,075 mg/kg) was recorded above the NSW EPA (1994) guideline criteria of 1,000 mg/kg. No other contaminants within the soil was deemed to be in exceedance of the respective criteria.

The results of the groundwater sampling indicated that groundwater within the south-east of the site was impacted by concentrations of VOCs, specifically; cis-1,2-dichloroethane, trichloroethene and vinyl chloride. This well was considered to represent up-gradient groundwater conditions and are considered unlikely to be a result of site activities. The concentrations of VOCs were not repeated within the down-gradient groundwater samples.

The investigation recommended that a remedial action plan (RAP) was developed for the site, outlining the proposed methodologies for the excavation, handling and offsite disposal of fill soils. An unexpected finds protocol was to be incorporated within the RAP.

Further, the investigation recommended that the USTs within the site were located, decommissioned, removed and validated during the site redevelopment, and that a hazardous materials assessment was conducted prior to demolition of site structures.

5. SITE FEATURES

The site was initially inspected in July 2016, with a follow-up inspection in May 2019. The site inspection consisted of a walkover survey with the following objectives:

- assessment of site accessibility;
- inspection of the surface ground conditions;
- identification of current site structures;
- visual assessment of the current land conditions;
- assessment of surrounding land uses and activities; and
- identification of potential contamination sources at the site and surrounds.

The current site configuration is summarised below and are shown on Drawing No. 19/1315/2.

The following are the main features identified at the site during the visit carried out on 20 May 2019:

- The previous buildings within the northern and central portions have been demolished, though the concrete slabs and foundations remain, sealing the northern and central portions of site. The concrete slabs appear at multiple levels and thicknesses, with some tile and brick also observed. An under-croft was observed within the northern building foundation, though the area was not accessible for further inspection. Vegetation was observed to be growing within the cracks and broken sections of the hardstand areas.

- A utilities room (gas and electricity) of brick construction remains in the north-easternmost corner of the site. A warning sign indicated that the power was still live within this room. No close inspection of this room was undertaken.

- Within the central driveway area, UST2 appears to have been removed from site. A backfilled excavation was visible, with excess stockpiled soils located upon the concrete slab to the north of the excavation. The removal of the UST has not been confirmed, nor have STS viewed any records pertaining to the suspected removal.

- Within the southern portion of the site, the majority of the asphalt and concrete surface seal has been removed, with bare earth visible throughout most of this area. Sporadic sections of concrete and asphalt remain within this area.

- At the time of inspection, the southern unsealed portion of the site was being utilised as a stabling yard for upgrade works associated with the substation immediately south of the site.

- The south-western portion of the site was covered in dense vegetation, extending along the southern and western boundaries. The vegetation impeded access and no further inspection was conducted within these areas. A large concrete ramp was observed within the overgrown vegetation.

- Across the site, general construction and demolition debris was observed, including stockpiled soils, sands and aggregates, discarded PVC piping, timber, pallets, steel, and concrete and brick rubble.

6. GEOLOGY

Reference to the 1:100,000 geological map of Sydney, sheet 9130, indicates that the site is underlain by Middle Triassic Age Ashfield Shale of the Wianamatta Group. Bedrock within this formation comprises black to dark-grey shale and laminite.

The hardstand areas were generally covered by asphaltic concrete (20 – 50 mm approx. thickness and concrete slabs (100 – 450 mm approx. thickness), generally underlain by fill soils comprising predominantly silty clay and gravelly sandy clay, with some gravelly silty clay, silty sandy clay, gravelly clayey sand, clayey silty sand, silty sand, sand and gravel, to depths of between 0.4 m and 2.7 m below existing ground level (bgl). Within the unsealed portion of the site, the fill soils generally comprised gravelly sandy clay, silty clay, sandy clay, sandy gravel and silty gravelly sand and were encountered to depths of between 0.3 m and 1.2 m bgl.

The fill soils across the site are underlain by natural silty clay, gravelly silty clay, sandy silty clay, silty sandy clay and sandy clay consisting of low to medium and medium to high plasticity, pale grey and mottled orange, orange, red and red brown mottled grey, dark grey, red brown and orange brown, further underlain by weathered shale, dark and pale grey and brown.

Bedrock was encountered in thirteen (13) of the boreholes advanced during this investigation. All boreholes were terminated within natural soils.

Based on this investigation, fill soils appear to be generally deeper across the northern and central portions of the site (0.5 – 2.7 m approx.) and becoming shallower to the south (0.3 – 1.2 m approx.).

Further, a review of the NSW Department of Land and Water Conservation (DLWC) 1:25,000 Acid Sulfate Soil (ASS) risk maps of Prospect/Parramatta River (sheet 9130N3, edition 2) indicates the site is located within an area of no known occurrence of ASS. It is to be noted that the ASS risk maps are generally indicative and are not intended to be a confirmation of the presence (or absence) of ASS and/or potential ASS on a particular site.

7. HYDROGEOLOGY

Groundwater was encountered within eight (8) boreholes advanced during this investigation. The depth of encounter ranged from 0.8 m to 4.5 m below existing surface level (bgl). Further, during the investigation, monitoring wells were installed across the site, with five (5) wells deemed serviceable on 20 May 2019. The standing water levels (SWLs) within each well were recorded on 20 May 2019, with the details presented in Table 7.1 below.

Table 7.1 – Groundwater Well Survey Details

Well No.	Date of Measurement	Depth to Groundwater Below Well Head (m)	Relative Height of Well Head[1] (m)	Relative Water level (m)
GW1	20/05/2019	3.60	-0.44	-4.04
GW2	20/05/2019	3.40	-0.54	-3.94
GW3	20/05/2019	3.85	-0.08	-3.93
GW4	20/05/2019	4.16	-0.68	-4.84
GW5	20/05/2019	5.50	0.00	-5.50

1. Relative to GW5

A search of the NSW Office of Water groundwater database indicated that three (3) registered groundwater bores were located within 550 m radius of the site. The wells form a cluster located within a car dealership to the west of the site and are used for monitoring purposes. The drillers' logs for the registered bores indicate that fill soils were typically encountered to depths of 0.3 m bgl, underlain by clay soils to between 2.8 m and 4.1 m bgl, underlain by shale bedrock. Standing water levels (SWLs) within the bores ranged from 0.9 m bgl to 3.07 m bgl. Within two (2) of the bores, a water bearing zone was encountered between 5 m and 6 m bgl, within the shale profile. The other bore recorded a water bearing zone from 2.5 m to 4.5 m, within two (2) profiles, being clay and shale.

Based on the observations made during the site investigation, a summary of the site hydrogeology is shown in Table 7.2 below.

Table 7.2 – Site Hydrogeology

Aquifer Type and Lithology:	shale[2]
Perched groundwater:	Potential to be present at the site[1,2]
Depth to Regional Aquifer at Site:	Greater than 2.5 m bgl[2]
Local Groundwater Flow Direction:	North-west towards Powells Creek.[1,2]
Regional Groundwater Flow Direction:	Generally northerly towards Parramatta River.[2]
Receiving Environments:	Powells Creek, including a man-made culvert, is adjacent the south and west of the site, flowing into the natural alignment of Powells Creek approx. 1.6 km north-west of the site, and ultimately into Parramatta River 3 km to the north-west.

[1] Actual condition based on observations made during on-site drilling and sampling.
[2] Inferred conditions based on site/regional geology and geomorphology.

8. HYDROLOGY

At the time of inspection on 20 May 2019, the central and northern portions of the site were sealed with concrete slabs, extending to the northern, eastern and western site boundaries. Within the southern portion of the site, the existing surface comprised a composition of broken asphalt and some concrete slabs, and exposed soils. Overgrown vegetation occupied the south-western corner of the site, extending along the southern and western boundaries.

The concrete sealed portions of the site varied in height (based on the previous structures) though gently sloped in a generally western direction. Remnants of previous downpipes and associated drainage was observed adjacent the former structures, though no other notable drainage collection or channels were observed within the concrete sealed areas, indicating that stormwater run-off would generally flow across the surface in a westerly direction towards Powells Creek. Within the central portion of the site, stormwater run-off would likely flow in a south-westerly direction, and flow onto the unsealed portions of the site and infiltrate the exposed soils.

Within the southern portion of the of the site, it is anticipated that stormwater would infiltrate the exposed soils and drain into the underlying soils. During periods of extended or heavy rainfall, stormwater is anticipated to flow across the surface into the vegetated areas and Powells Creek beyond.

9. SITE HISTORY

STS GeoEnvironmental Pty Limited (STS) researched the following sources of historical information:

- Selected aerial photographs of the site and surrounds;
- Local Council Section 149 (now Section 10.7) planning certificates;
- Historical land titles;
- NSW EPA register for listings of contaminated sites.

The site history is summarised in the following sections.

9.1 Aerial Photographs

Aerial photographs of the site and surrounds dated; 1930, 1961, 1970, 1986, 1994, 2003, 2014 and 2018 were obtained from Land and Property Information (LPI) NSW. A summary of the observations made from the photographs are presented in Table 9.1 below. Copies of the selected aerial photographs are provided in Appendix B.

Table 9.1 – Aerial Photograph and Satellite Image Observations

Year	Site Features	Surrounding Land Use
1930	The site appears to be cleared vacant land. Some bare earth is visible within the centre of the site. A tributary of Powell Creek appears to transect the site across the approximate centre in a south-east/north-west direction.	The land to the north and north-east appears to be developed for commercial land use, with large building observed. To the east, cleared land with a few small structures can be seen, with the railway corridor located to the south of the site. To the west of the site, residential developments and cleared vacant land is observed.
1961	The site has been developed, with three (3) notable sections. Within the north-eastern portion, several structures (sheds, shelters, warehouse) can be observed. The north-western portion appears to be predominantly unsealed and used for equipment storage and limited truck parking. The southern portion of the site appears predominantly unsealed (except for the driveway and is used for vehicle storage.	The land to the north of the site has been redeveloped with multiple warehouses/factories visible. A large warehouse is visible on the land to the east, which was previously vacant. To the south of the site, between the site boundary and the rail corridor, the electrical substation has been constructed. Limited redevelopment of land to the west of the site can be seen. The culvert of Powell Creek has also been constructed.

Year	Site Features	Surrounding Land Use
	The creek tributary within the site has been backfilled, with the creek diverted around the site perimeter (in the new culvert alignment).	
1970	Further development of the site has been undertaken, with the small structures within the north-east replaced with a large building and two (2) large cylindrical tanks. The north-western portion remains as vehicle parking. A large warehouse has been constructed on an east-west transect across the centre of the site. South of this building is a large vacant area used for vehicle storage.	The surrounding areas appear relatively unchanged.
1986	Within the southern portion of the site, a mezzanine carpark has been constructed, abutting the southern side of the large building, and extends to near the eastern, southern and western site boundaries. Within the northern portion, one (1) of the large cylindrical tanks has been removed.	The land to the north of the site has undergone redevelopment, with a large commercial warehouse occupying previously hardstand and vacant areas. To the north of Parramatta Road, the M4 motorway has been constructed, with limited redevelopment of land between Parramatta Road and the new motorway.
1994	Within the north of the site, the cylindrical tank has been removed. The site otherwise appears relatively unchanged.	The surrounding area appears relatively unchanged. A car yard is operating to the north-west of the site, beyond Powell Creek.
2003	The buildings along the northern boundary have been demolished and replaced with a large commercial warehouse. The large building across the centre of the site remains, with no other notable changes observed.	The land to the north appears relatively unchanged, with minor redevelopment to the north of Parramatta Road. To the east of the site, a few smaller buildings behind the warehouse have been demolished. Further east, beyond the railway corridor an apartment complex has been constructed. To the west of the site and Powell Creek, redevelopment has occurred of a large building, with the construction of medium density residential (possibly townhouses/flats).

Year	Site Features	Surrounding Land Use
2014	The site appears relatively unchanged, though some minor reconfiguration within the north-easternmost corner of the site may have been undertaken.	To the north of the site, an old warehouse has been demolished, with the vacant land now used as a car yard. North of Parramatta road, another large warehouse has been demolished with the land now used for vehicle parking and possibly a construction stabling yard. the possible townhouses noted to the west of the site have been demolished, along with other residential properties, for the construction of apartment complexes. South of the new apartment complexes, a large commercial building with carpark has been constructed. The land to the south-east appears unchanged.
2018	All previous structures have been demolished and removed from the site. the southern portion of the site now consists of bare earth, whilst the concrete slabs and foundations of former buildings and hardstands occupier the northern and central portions of the site.	The commercial buildings to the north have been demolished and replaced with residential apartment complexes. Nipper Street has also been constructed. The land to the east, south and west appears relatively unchanged.

9.2 Planning Certificate

A copy of the Planning Certificates for the site issued under section 149 (now Section 10.7) obtained from Strathfield Council, are presented in Appendix D. A review of the documents indicate that the site is not subjected to any notice or order within the meaning of the *Contaminated Land Management Act*. Further, the site had never been subjected to a Site Audit under the same *Act*.

9.3 Historical Title Search

STS GeoEnvironmental Pty Ltd (STS) requested a historical title search for the site. Copies of the historical land title records were obtained from the Land Titles Office and are presented in Appendix E.

A summary of the site ownership is given in Table 9.2 below.

Table 9.2 – Historical Land Title Summary

Period	Registered Owner/Occupant
Lot 4 in DP 261926	
June 1914 to October 1936	George Robert Knight
October 1936 – May 1949	Independent Manufacturing Proprietary Limited
May 1949 – October 1952	Barretts Food Company Proprietary Limited
October 1952 – July 1977	Hayes Properties proprietary Limited
July 1977 – August 1994	E.M.I. Properties Pty Limited
August 1994 – June 2014	David Lhuede Pty Limited
June 2014 – date	JQZ Four Pty Limited
Lot 5 in DP 261926	
June 1914 to October 1936	George Robert Knight
October 1936 – May 1949	Independent Manufacturing Proprietary Limited
May 1949 – June 1966	Barretts Food Company Proprietary Limited
June 1966 – October 1988	Mauri Brothers & Thomson (Aust) Pty Ltd
October 1988 – February 1998	Vercast Pty Limited
February 1998 – August 2015	Hai Phong Properties Proprietary Limited
August 2015 – date	JQZ Four Pty Limited

A review of the documents indicates that the site has been used primarily for commercial and manufacturing purposes since at least 1936. The site structures were demolished sometime between 2014 and 2018 in preparation for the proposed redevelopment.

9.4 NSW EPA Records

STS GeoEnvironmental Pty Ltd conducted a search of the NSW EPA contaminated land records and the POEO public register on the 17 May 2019. The following was noted:

- No EPA notices have been issued to the site or any other site within a 500 m radius under the CLM Act 1997.
- As of 15 April 2019, no sites within a 500 m radius of the site have been notified to the NSW EPA under Section 60 of the CLM Act 1997.
- A search for the suburb of "Homebush" for issued notices returned eight (8) results, relating to four (4) sites. Seven (7) of the notices related to licence variations, with one (1) notice of a surrendered licence. The closest site was located 735 m approx. north of the site and was used for agricultural crop processing.
- No EPA licences have been issued to the site under the POEO Act 1997.

9.5 Safe Work NSW Records

A search of SafeWork NSW Dangerous Goods License database was conducted in June 2016. The database contains information on sites that are currently, or have previously been, licensed for the storage of dangerous or hazardous goods. The response provided by SafeWork NSW is presented in Appendix F.

Information provided by SafeWork NSW shows that they hold several records for the site under record number 35/016104 in relation to storage of Hazardous Chemicals. The records show that the site contains two (2) underground storage tanks (USTs) with a volume of 1,000 gallons (3,800 litres approx.) each. The USTs are marked as Class 2 Dangerous Goods tanks, which could potentially contain nitro-cellulose (pyroxylin), butyl alcohol (butanol), methylated spirits, vegetable turpentine, or any liquid containing methylated spirits with a flash point of less than 65^0 Celsius.

The above information was utilised in searching for, and locating, the two (2) USTs on the site. The two (2) USTs were located along the former driveway situated between the two (2) rows of buildings in the northern portion of the site. The locations of the USTs (UST1 and UST2) are shown on Drawing No. 19/1315/2.

The records also show that an above ground storage system (comprising brick walls and concrete floor and roof) with a volume of 1,500 gallons (5,700 litres approx.), existed within the site though the records do not indicate the location of the storage system. At the time of inspection on 20 May 2019, most of the site structures had been removed, therefore this storage system was not located. However, it is anticipated that the system was historically located within the footprint of the buildings.

The records indicate that the brick/concrete storage system was intended for the storage of 'white spirit' (a mineral oil classed as inflammable liquid), though the records also state that this storage system may potentially contain inflammable liquids (being mineral spirits and mineral oils), and Class 1 and Class 2 dangerous goods.

9.6 Site History Summary

The historical information reviewed indicates that the land has been primarily for commercial and manufacturing purposes since at least 1936, until its demolition between 2014 and 2018.

The land uses on surrounding properties were initially manufacturing and commercial uses to the north and east, with the rail corridor and utilities to the south, until between 2014 and 2018, at which time the commercial properties to the north were replaced with high-density residential in the form of apartment complexes. To the west, the primary land use was low-density residential until around 2003, when the area was redeveloped for medium density, followed by high-density around 2014.

10. CONCEPTUAL SITE MODEL

Based on the historical review and site inspection, a review of potential contaminant sources, receptors and exposure pathways are presented in Table 10.1.

Table 10.1 – Conceptual Site Model

Contaminant Source	Location	Potential Contaminants of Concern	Potential Exposure Pathways	Potential Onsite Receptors	Potential Offsite Receptors
Historically imported fill for site levelling activities	Site-wide	Heavy metals, TRHs, BTEXN, PAHs, PCBs, OCPs, OPPs, phenolic compounds and asbestos.	Inadvertent ingestion, direct contact, dust inhalation, root uptake by vegetation and migration into underlying natural soils and aquifer.	Construction workers, intrusive maintenance workers, existing and future site occupants.	Occupants and visitors of neighbouring sites during the construction phase. Flora and fauna living within proximity to the site. Groundwater aquifer beneath and beyond the site, and Powells Creek ecosystem.
Historical use of pesticides	Surface and near-surface soil around the former building structures	Heavy metals and OCPs			
Weathering of former building structures	Surface and near-surface soils around and beneath the former building structures	Asbestos, heavy metals and PCBs			
Historic storage of chemicals onsite, both above and below ground	Surface and near surface soils beneath the former building structures, and the groundwater beneath the site	Heavy Metals, TRH, BTEXN, PAHs, Phenolic compounds and VOCs			
Historical offsite manufacturing and commercial activities upgradient of the site	Groundwater beneath the site	Heavy metals, TRHs, BTEXN, PAHs, VOCs,	Direct contact (via groundwater seepage) and vapour intrusion.		

11. DATA QUALITY OBJECTIVES

The *National Environment Protection (Assessment of Site Contamination) Measure 1999* (NEPM) (updated April 2013) recommend that data quality objectives (DQOs) be implemented during the investigation of potentially contaminated sites. The DQO process described in NEPM (2013) outlines seven (7) distinct steps which are designed to ensure an investigation is performed in a structured and efficient manner. The seven (7) steps and the associated processes that were implemented to ensure data, hence decision-making is of quality, are outlined below:

Step 1 – State the Problem

The proposed development at the site involves the construction of a residential apartment complex comprising an 8-storey residential building, extending into 25-storey and 26-storey residential apartment towers constructed over a common four (4) level basement car park. Communal open space is proposed at ground level between the tower extensions, as well on terraces on the 9th and 14th storeys. Deep soil planting zones covering a total of approx. 1,365 m^2 are proposed within the public park in the north-east of the site and within the transmission line easement along the western boundary. Prior to this assessment there was insufficient data to determine whether in its current condition the site is suitable for the intended use.

Step 2 – Identify the Decision

To determine if the concentrations of contaminants in the soil and/or groundwater at the site are likely to present an unacceptable risk to human-health or the environment with regard to proposed intended use.

Step 3 – Identify Inputs to the Decision

To enable a decision regarding the contamination status of the site to be made, the following inputs were required:

- Historical review of information pertinent to the site;
- Soil sampling from twenty-seven (27) boreholes distributed across the site;
- Groundwater sampling from five (5) monitoring wells located within the site;
- Analysis of selected samples for a broad screen of potential chemical contaminants; and
- Implementation of a quality assurance/quality control (QA/QC) programme.

Step 4 – Define the Study Boundaries

The assessment was undertaken within the boundaries of the site, which is the land at 11-17 Columbia Lane, Homebush, NSW. The boundaries of the site are defined in Section 3 and are shown on Drawing No. 19/1315/2.

Step 5 – Develop a Decision Rule

For the assessment of site soils, the results of laboratory analysis will be statistically assessed. This process will include comparing the upper confidence limit of the arithmetic mean of analyte concentrations (except for asbestos) from comparable soil profiles to the relevant EPA and NEPM endorsed criteria to determine whether any soil impacted by contaminants at the site are significant for the proposed land use.

EPA guidance notes that the use of statistical analysis is not appropriate for the assessment of asbestos. Therefore, the detected concentrations of asbestos within the soils, if any, are to be compared to the relevant EPA and NEPM endorsed criteria directly.

For the assessment of groundwater, the recorded analyte concentrations are to be compared directly to the relevant EPA and NEPM endorsed criteria to determine whether groundwater impacted by contamination beneath the site is significant for the proposed land use.

Step 6 - Specify Limits on Decision Errors

For the statistical assessment of soils for contaminant levels (except for asbestos), the following requirements apply:

- The upper confidence limit of the arithmetic mean is to be assessed at a 95% confidence level;
- No single concentration within the data set is to be greater than 250% of the respective criterion; and
- The standard deviation of the data sent is to be no greater than 50% of the respective criterion.

In the event that the above criteria are not satisfied, further assessment of the data set will be required, and may include the isolation of contaminant hotspots, or the assessment of recorded concentrations, as appropriate.

For the assessment of asbestos in soils and contaminant concentrations within groundwater, no statistical analysis undertaken. Therefore, the recorded concentrations are to be compared directly to the relevant criteria.

Step 7 – Optimize the Design for Obtaining Data

The following was implemented to ensure data collected are sufficient and reliable to meet the project objectives:

- Collect an appropriate number of soil samples from twenty-seven (27) locations across the site, sufficient to meet the main objective of a detailed soil contamination assessment;
- Collect an appropriate number of groundwater samples from five (5) monitoring wells within the site, sufficient to meet the main objective of a groundwater condition assessment;
- Store and transport of soil and groundwater samples in an appropriate manner to ensure sample integrity; and
- Design an appropriate chemical analysis programme to screen selected soil and groundwater samples for contaminants potentially present in the soil and groundwater at the site based on our site history review and site inspection.

12. FIELD INVESTIGATION

The field activities for the investigation were undertaken by STS over several days in July 2016, October 2017, January 2018 and May 2019. The assessment was performed in accordance with:

- EPA/OEH guidelines comprising:

  - *Contaminated Sites: Sampling Design Guidelines (1995)*;

  - *Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites* (2011);

  - *Contaminated Sites: Guidelines for the NSW Site Auditor Scheme (3rd Edition)* (2017);

  - *guidelines for the Assessment and Management of Groundwater Contamination (2007);* and

  - *Managing Asbestos in or on Soil (2014).*

- Guidelines issued under Schedule B of the *National Environment Protection (Assessment of Site Contamination) Measure* (NEPM), Environment Protection and Heritage Council (EPHC)/National Environment Protection Council (NEPC), December 1999 (and updated NEPM April 2013);

- *Australian and New Zealand Guidelines for the Assessment and Management of Contaminated Sites* published by the Australian and New Zealand Environment and Conservation Council/National Health and Medical Research Council, January 1992 (ANZECC Guidelines);

- *Australian and New Zealand Guidelines for Fresh and Marine Water Quality,* Australian and New Zealand Governments (ANZG, 2018);

- *Australian Standard 4482.1-2005: Guide to the Investigation and Sampling of Sites with Potentially Contaminated Soil – Part 1: Non-volatile and Semi-Volatile Compounds, Standards Australia* (2 November 2005);

- *Australian Drinking Water Guidelines 6, 2011 (ADWG),* published by the National Health and Medical Research Council (NHMRC) and National Resource Management Ministerial Council (NRMMC), 2018 (ADWG 2018);

- *Australian/New Zealand Standard, Water Quality – Sampling Part II: Guidance on Sampling of Groundwaters, 5 April 1998 (AS/NZS 5667.II.1998);* and

- *CRC Care Technical Report No. 10: Health Screening Levels for Petroleum Hydrocarbons in Soil and Groundwater* (Friebel, E. & Nadebaum, P., 2011).

12.1 Soils

12.1.1 Soil sampling

Twenty-seven (27) boreholes were advanced using a combination of track-mounted, truck-mounted and 4x4 utility-mounted drilling rigs. Borehole locations were sited across a grid at approximately evenly distributed locations and/or targeted at locations of potential concern, such as identified USTs. Where services or obstructions were observed within the proposed locations, the sampling locations were moved to a suitable alternative location whilst providing spatial site coverage. Soil samples were recovered directly from the auger with care taken to not sample material that had been in direct contact with the auger. The sampled material was transferred in new clean glass jars and/or 500 ml plastic zip locked bags provided by the analytical laboratories. The depths of the soil samples were referenced to the existing ground level at the borehole locations.

All soil samples were recovered by a qualified environmental geologist. To minimise the potential for cross contamination to occur, new disposable latex gloves were used to recover each sample. Care was also taken to ensure that sampled material had not been in direct contact with the auger, to minimise potential cross contamination. Soil sample identifications and the description of the soil profiles encountered at each borehole are described on the log sheets presented in Appendix G. Borehole locations are shown on Drawing No. 19/1315/3.

12.1.2 Soil Sample Handling and Equipment Decontamination

As mentioned above, each soil sample was recovered using new disposable latex gloves, with care taken to ensure sampled material had not been in direct contact with the auger, to prevent cross contamination. Further, soil samples were recovered in glass jars with no headspace. The soil samples were not mixed to minimise the potential loss of volatile compounds from the soil matrix. The samples recovered were then placed in an ice-cooled container and transferred to the analytical laboratory for analysis under a "Chain of Custody" (COC). The COC detailed the requested analyses and was used to record the samples' history. A copy of the COC is presented in Appendix J.

The use of new disposable latex gloves and standard field procedures to ensure sampled material had not been in direct contact with the auger were considered adequate to minimise the potential for cross contamination to occur.

Further, the sampling auger was brushed clean of adhering soils between sampling locations.

12.1.3 Analytical Programme for Soil Samples

The selection of analytes was based on our review of the historical data and site inspection observations, along with EPA NSW and NEPM (2013) contaminated site assessment guidelines. Selected soil samples were analysed for both inorganic and organic contaminants.

The analytes included heavy metals (As, Cd, Cr, Cu, Hg, Ni, Pb, Zn), monocyclic aromatic hydrocarbons (MAHs), polycyclic aromatic hydrocarbons (PAHs), total recoverable petroleum hydrocarbons (TRHs), volatile organic compounds (VOCs), organochlorine pesticides (OCPs), organophosphorus pesticides (OPPs), polychlorinated biphenyls (PCBs), phenolic compounds and asbestos.

Selected samples were also analysed for characteristics of acid sulfate soils (ASS).

Further, in order to formulate site-specific investigation and screening levels for ecological receptors, selected samples were also analysed for pH, cation exchange capacity (CEC) and concentrations of organic carbon (TOC).

The analytical programme is illustrated in greater details in the COC in Appendix J.

SGS and ALS Environmental (ALS), which are both NATA accredited analytical laboratories, were selected to complete the analytical programme. The primary soil samples collected in 2016 were analysed by ALS in Sydney, with the interlaboratory analysis conducted by ALS in Brisbane. Due to contractual arrangements, the primary soil and groundwater samples collected in 2019 were analysed by SGS in Sydney, with the interlaboratory analysis conducted by ALS in Sydney.

12.2 Groundwater

12.2.1 Groundwater well installation and development

A total of five (5) monitoring wells were sampled for this assessment. Monitoring wells GW1, GW2 and GW5 were installed in July 2016, with GW3 and GW4 installed in October 2017. Due to damage from activities onsite, a replacement well for GW1 was installed near the original location and was assigned the same nomenclature.

The wells were sited in accessible locations and targeted to provide information relating to up-gradient and down-gradient groundwater conditions. Monitoring wells GW1 – GW4 were installed by STS using a 4x4 utility mounted drilling rig (owned and operated by STS) to depths of between 6 m bgl and 9 m bgl. GW5 was installed by STS using a truck-mounted drilling rig (owned and operated by TerraTest) to a depth of 13.2m bgl and was installed as a piezometer during the geotechnical investigation.

All of the wells were constructed by installing slotted PVC piping (Class 18 uPVC) from the base of the borehole to a depth of 2 m – 3 m bgl and completed with solid casing to the surface. The annulus was filled with a sand gravel pack to at least 0.5 m above the screened section of the well and completed with saturated bentonite pellets to the surface. All wells were terminated as PVC standpipes.

The wells were left for a period of up to one (1) week for water in-flow prior to development. The wells were developed by gently surging water within the formed water column, slowly intensifying the surging. The wells were then bailed out until effectively dry.

12.2.2 Groundwater sampling

Prior to sampling, the standing water levels (SWLs) of the groundwater were recorded, and an interface probe was used to detect any light non-aqueous phase liquids (LNAPLs), such as fuel products.

All groundwater samples were recovered by a qualified environmental scientist using a peristaltic groundwater pump with dedicated LDPE sample tubing at flow rates of 0.12-0.15 L/min. Groundwater stabilisation parameters (including Electrical Conductivity (EC), pH, Redox potential and Dissolved Oxygen (DO)) were monitored prior to sampling to ensure sampled groundwater was representative of the encountered aquifer, and not stagnant water. Once the parameters were confirmed as stabilised, the sampling tube was directed into the laboratory supplied sample containers with appropriate preservation for the analysis requested. Further, the sample portions for analysis of concentrations of metals were field-filtered using a dedicated 45-micron filter. The sample containers were filled to exclude headspace and placed within a chilled transport container.

Groundwater purging sheets are presented in Appendix H. Monitoring well locations are shown on Drawing No. 19/1315/3.

12.2.3 Groundwater Sample Handling and Equipment Decontamination

As mentioned above, each sample was recovered using dedicated sampling equipment to prevent cross contamination. The water samples were collected directly into the laboratory-provided sampling containers, which were then placed in an ice-cooled container returned to STS office for storage in a refrigerated state prior to transfer to the analytical laboratories for analysis under a stringent COC conditions. The COC detailed the requested analysis and was used to record the samples' history. A copy of the COC is presented in Appendix J.

The use of dedicated sampling equipment and standard field procedures were considered adequate to minimise the potential for cross contamination to occur.

12.2.4 Analytical Programme for Groundwater Samples

The selection of analytes was based on our review of the historical data and site inspection observations, along with EPA NSW and NEPM (2013) contaminated site assessment guidelines. Selected groundwater samples were analysed for both inorganic and organic contaminants.

The analytes included heavy metals, MAHs, PAHs, TRHs and VOCs. The analytical programme is illustrated in greater details in the COC in Appendix J.

SGS and ALS, which are both NATA accredited analytical laboratories, were selected by STS to complete the analytical programme.

13. QUALITY ASSURANCE PROGRAMME

In compliance with the NEPM (2013), data quality assurance (QA) was a key component of this investigation. The QA allows the assessment of the integrity of soil and groundwater samples recovered during the site investigation and the accuracy of the laboratory analyses, thus the reliability of the analytical results. Hence the QA programme will ensure the overall representativeness and quality of the analytical data to characterise the condition of the site under investigation.

The QA procedures, actions and checks implemented during the investigation included:

- the utilisation of appropriate sampling methods in accordance with EPA requirements and NEPM (2013);
- appropriate sample handling and transportation, and analysis of samples within recommended analytical holding times;
- the collection and analysis of quality control (QC) samples;
- implementation of internal laboratory QC analyses; and

- the use of National Association of Testing Authorities (NATA) registered laboratory and analytical methods.

13.1 Quality Control Sampling

Inaccuracies in sampling and analytical programmes can result from many causes, including collection of unrepresentative and heterogeneous samples, cross-contamination between samples, unanticipated interferences between elements during laboratory analysis, equipment malfunctions and operator error. Inappropriate sampling, preservation, handling, storage and analytical techniques can also reduce the precision and accuracy of results.

A field-based QC programme was implemented, and the results were compared to accepted criteria to assess its effectiveness. NEPM (2013) has documented procedures for QC sampling and analysis to ensure that the required level of accuracy and precision is obtained. NEPM (2013) and EPA guidelines recommend the use of two (2) analytical laboratories for the implementation of a field QC programme in addition to the internal QC procedures that are required to be followed by the laboratories in compliance to their NATA accreditation.

According to the NEPM (2013), the collection of intra and inter-laboratory duplicate samples are required, along with blank samples. Intra-laboratory and inter-laboratory duplicate samples are collected in the field from the same sample profile as primary samples and using the same procedures. Intra-laboratory samples are analysed by the primary laboratory and are used as a check on the precision of the sampling and analytical procedures. Inter-laboratory samples are analysed by a secondary laboratory and provide a check of the accuracy of the analytical data.

Field blank samples include rinsate blanks and trip blank samples along with trip spike samples. Rinsate blanks are samples of water collected from field equipment after decontamination and are used to determine the effectiveness of the decontamination procedures. Trip blanks are samples of blank sand or water (as appropriate) prepared prior to sampling and are stored and transported with the samples. They are used to identify laboratory errors or to identify sources of contamination due to sample storage and handling. Trip spikes are samples of blank sand or water (as appropriate) that have been spiked with a known concentration of volatile compounds (commonly BTEX) which are prepared prior to sampling and are stored and transported with the samples. They are used to identify loss of volatile compounds due to sample storage and handling.

According to the NEPM a split of a minimum of 10% of the primary samples as field duplicate samples (5% inter-laboratory and 5% intra-laboratory) as well as blank samples is required. Where less than twenty (20) samples are to be analysed, a minimum of two (2) field duplicate samples (one (1) inter-laboratory and one (1) intra-laboratory sample) and a blank sample per sample matrix is generally considered sufficient. Blank samples are generally collected daily during the sampling period and analysed where necessary.

For this contamination assessment, the following field quality control samples were collected and analysed:

- Ten (10) intra-laboratory duplicate soil samples (seven (7) of which were analysed);
- One (1) intra-laboratory duplicate groundwater sample;
- Ten (10) inter-laboratory duplicate soil samples (seven (7) of which were analysed);
- One (1) inter-laboratory duplicate groundwater sample;
- Three (3) trip spike samples (one (1) water-based and two (2) soil-based); and
- Three (3) trip blank samples (one (1) water-based and two (2) soil-based).

As described in Section 12, STS places an emphasis on implementing robust field-based sampling collection/storage procedures. In view of the implemented sampling procedures and use of dedicated equipment for the direct handling of sampled soils and groundwater, the collection and analysis of rinsate samples was not considered necessary.

Due to standard STS sampling and handling policy and procedures at the time, no field blank samples were recovered during the 2016 sampling event.

STS considers that the accuracy and precision of the soil and groundwater data used in this assessment has not been compromised.

13.2 Quality Control Criteria

The analytical results of each duplicate were compared with the results for the primary sample using Relative Percent Difference (RPD). The RPD is defined as the absolute difference between two (2) values divided by their mean.

Reference to AS 4482.1-2005 (and referenced in the NEPM) indicates that RPDs below 50% are considered to demonstrate a good correlation between duplicate sample results for inorganic species. However, the same standard indicates possible higher RPDs for organics. Based on our experience, RPDs of up to 70% are considered acceptable for organic analytes. RPDs are not calculated when the analytical results for either the primary sample or the duplicate is less than the laboratory limits of reporting (LOR). RPDs of 100% or greater demonstrate a poor correlation, unless results are less than five (5) times the analytical laboratory LOR.

13.3 Laboratory Quality Control

A laboratory QC programme involves the preparation and analysis of their own duplicate samples, reagent blanks and control samples (where the analyte concentration is known) or matrix spikes. Duplicate samples are subjected to the same preparation and analytical procedures as primary samples. The laboratories are required to analyse matrix spikes or control samples at a minimum frequency of 5% of the total number of primary samples in each sample batch.

The results of method blanks, duplicates and control sample analyses are compared by the laboratory to established quality assurance criteria for data precision and accuracy. If the results do not meet the criteria, then the analyses should be repeated. The relevant criteria are:

- method blanks should not return any positives on analysis;
- duplicate samples should not return results beyond the laboratory specified criteria; and
- laboratory control samples should generally give a recovery of 70-130% for inorganics and 60-140% for organics.

The laboratory QC programme implemented for this assessment involved the preparation and analysis of laboratory duplicates, method blanks, laboratory control spike and surrogate samples and matrix spike samples. The results of the laboratory quality control are documented in Appendix K. The data reported are considered of sufficient quality to enable an acceptable assessment of the contamination of the site.

14. ASSESSMENT CRITERIA

The *National Environmental Protection (Assessment of Site Contamination) Measure* (NEPM *1999*, 2013) is the key national guideline on the assessment and management of site contamination. NEPM (2013) guidelines are endorsed by the NSW EPA and the equivalent regulatory authorities in other Australian states.

The assessment criteria utilised for this investigation to determine the significance of the contaminant concentrations within the soil and groundwater at the site are detailed below in Sections 14.1 and 14.2.

Due to the proximity of the site to Powells Creek, an acid sulfate soil (ASS) investigation was also included within this investigation. The *National Acid Sulfate Soils Guidance* (Sullivan et al, 2018) is the key national guideline on the assessment and management of acid sulfate soils.

The assessment criteria utilised for this investigation to determine the likelihood and potential impact of ASS within the soil at the site are detailed below in Section 14.3.

14.1 Site Assessment Criteria for Soils

The key NEPM criteria for the assessment of soils comprise Health-Based Investigation Levels (HILs) and the Ecologically-Based Investigation Levels (EILs)/Environmental Screening Levels (ESLs). The HILs are threshold values that are indicative of potential adverse impacts to human health. EILs/ESLs are values that indicate potential phytotoxicity to plants and potential harm to other environment compartments.

EILs requires pH and Cation Exchange Capacity (CEC) data and in some cases the clay content of the soil. In the absence of pH and CEC data, EILs from NEPM (1999) are considered as screening levels for the evaluation of potential adverse (phytotoxic) impacts to vegetation.

In addition, the NEPM (2013) outlines criteria for key volatile hydrocarbon compounds which are designed to be protective of human-health via a soil vapour inhalation exposure pathway, the "Health Screening Levels" (HSLs).

Four (4) classes of HIL are described in the NEPM (2013) to appraise the risks posed by site contamination for different land use settings. These include:

HIL Residential A: for a 'standard' residential land use with garden and accessible soil, including children's day care centres, preschools and primary schools;

HIL Residential B: for a residential land use with minimal opportunities for soil access, including properties with fully and permanently paved yard space such as high-rise apartment buildings and flats;

HIL Recreational C: for public open spaces, such as parks, playgrounds, playing fields (e.g. ovals), secondary schools and footpaths, but excluding undeveloped public open space; and

HIL Commercial/Industrial D: for a commercial/industrial land use such as shops, offices, factories and industrial sites.

The HSLs outlined in the NEPM also include thresholds for the different land use settings as defined above, however, a combined set of criteria is provided that is to be applied for both Residential A and B land use settings.

Regarding the EILs and ESLs, criteria are provided for three (3) categories of land uses including a) areas of ecological significance, b) urban residential and public open space, and c) commercial/industrial.

The NEPM (2013) also outlines 'management limits' for petroleum hydrocarbons in soil which are designed to be thresholds which minimise the potential for light non-aqueous phase liquids (LNAPL) formation, fire and explosive hazards and penetration/damage to below ground infrastructure by hydrocarbons. These criteria are considered key when evaluating immediate impacts to human-health and the environment and long-term potential impacts associated with the on-site containment of contamination.

It is noted that the NEPM HILs do not include criteria for petroleum hydrocarbons, however, CRC Care's *Technical Report No. 10: Health Screening Levels for Petroleum Hydrocarbons in Soil and Groundwater* (Friebel and Nadebaum, 2011) does provide health-based screening levels for key petroleum hydrocarbons based on the direct contact with soil which may be used as alternative screening criteria. The 1999 NEPM also provides threshold HIL values for petroleum hydrocarbon fractions that may be adopted provided that speciation testing is undertaken for specific aromatic and aliphatic components.

Where a proposed land use will include more than one (1) land use category (e.g. mixed residential/commercial development) the criteria which are protective of the most sensitive of the combined land uses should be adopted.

Reference to the architectural drawings indicate that the proposed redevelopment involves the construction of a residential apartment complex comprising an 8-storey residential building, extending into 25-storey and 26-storey residential apartment towers constructed over a common four (4) level basement car park. Common open space is proposed at ground-floor between the tower extensions, as well on terraces on the 9th and 14th storeys. Deep soil planting zones covering a total of approx. 1,365 m^2 are proposed within the public park in the north-east of the site and within the transmission line easement along the western boundary.

In view of the proposed development, NEPM (2013) HIL-B/HSL-B criteria are considered appropriate to assess the human health risk associated to potential exposure to contaminants within the proposed building area. The proposed development also includes a public park area within the north-eastern portion of the site. In view of the typical construction of public park areas, NEPM (2013) HIL-C/HSL-C criteria are considered appropriate to assess the human health risk associated to potential exposure to contaminants within the proposed public park area. With regards to the HSLs management limits, criteria applicable for clay have been used, since materials encountered at the site was predominantly silty and sandy clays.

As the development includes landscaped areas, the NEPM EILs and ESLs have been adopted to evaluate the potential for adverse impacts to plants and the general environment within these zones. Due to the inclusion of the public park area, site-specific EILs have been calculated in accordance with NEPM (2013), and are presented in further detail within Table H.

When considering the appropriate site specific EILs to be adopted, consideration was given to the predominant encountered soil profile as well as the depth of the analysed soils, as the NEPM indicates that EILs are generally applicable only to a depth of 2 m bgl.

Where the NEPM (2013) does not provide generic EILs, and no site-specific EILs were generated, the 1999 NEPM EILs have been adopted.

In addition, the background ranges for contaminants in Australian soils outlined in the 1999 NEPM have been considered.

The criteria adopted for this investigation are outlined in Tables 14.1 - Tables 14.4 below.

Table 14.1 – Site soil assessment criteria for inorganic contaminants within proposed building area

Contaminant	NEPM 2013 HIL B [1] / HSL (Residential A & B) [2]	NEPM 2013 EIL/ESL Urban Residential and Public Open Space) [3]	CRC CARE 2011 HSL-B Direct Soil Contact [4]	NEPM 2013 Management Limits Residential, Parkland & Public Open Space) [5]
Metals				
Arsenic	500	100 (b), (h)	-	-
Cadmium	150	3 (c)	-	-
Chromium	500 (l)	410 (a), (n)	-	-
Copper	30,000	95 (a)	-	-
Lead	1,200	1,100 (b), (h)	-	-
Mercury	120 (m)	1 (c), (m)	-	-
Nickel	1,200	200 (a)	-	-
Zinc	60,000	510 (a)	-	-
Asbestos				
Bonded asbestos	0.04% w/w	-	-	-
Friable Asbestos	0.001% w/w	-	-	-

Notes: *All criteria in mg/kg concentrations unless otherwise specified*

[1] NEPM (2013) – Schedule B1 – HILs for Soil Contaminants – Residential B - Table 1A (1).
[2] NEPM (2013) – Schedule B1 – HSLs for Vapour Intrusion – HSL A & B Low/High Density Residential -Table 1A (3.)
[3] NEPM (2013) – Schedule B1 – Soil EILs and ESLs – Urban Residential and Public Open Space – Tables 1B (5) and 1B (6).
[4] CRC CARE (2011) – Technical Report No. 10 – Soil HSLs for Direct Contact – HSL B High Density Residential – Table B4.
[5] NEPM (2013) – Schedule B1 – Management Limits for TRH Fractions F1-F4 in Soil – Table 1B (7).
(a) NEPM 2013 site-specific EIL.
(b) NEPM 2013 generic EIL.
(c) NEPM 1999 EIL used where no generic NEPM 2013 criteria are available
(d) F1 TRH = TRH (C_6-C_{10}) minus BTEX fraction.
(e) F2 TRH = TRH (C_{10}-C_{16}) minus naphthalene fraction.
(f) NEPM 2013 HSL criterion for vapour intrusion, 0m to <1m depth in clay.
(g) Criterion for fine texture grade soils.
(h) Criterion for 'aged' contamination.
(i) Insufficient data available to calculate 'aged' contamination. Consequently, the values for fresh contamination should be used.
(j) Criterion for DDT.
(k) NL= Contaminant is not considered to pose a risk to human health through vapour inhalation regardless the concentration.
(l) Criterion for chromium VI.
(m) Criterion for inorganic mercury.
(n) Criterion for chromium III.

Table 14.2 – Site soil assessment criteria for organics contaminants within proposed building area

Contaminant	NEPM 2013 HIL B [1] / HSL (Residential A & B) [2]	NEPM 2013 EIL/ESL (Urban Residential and Public Open Space) [3]	CRC CARE 2011 HSL-B Direct Soil Contact [4]	NEPM 2013 Management Limits (Residential, Parkland & Public Open Space) [5]
Total Recoverable Hydrocarbons				
TRH (C_6-C_{10})	-	-	-	800 (g)
TRH (C_{10}-C_{16})	-	120	-	1,000 (g)
F1 TRH (C_6-C_{10}) (d)	50 (f)	180	5,600	-
F2 TRH (C_{10}-C_{16}) (e)	280 (f)	-	4,200	-
F3 TRH (C_{16}-C_{34})	-	1,300 (g)	5,800	3,500 (g)
F4 TRH (C_{34}-C_{40})	-	5,600 (g)	8,100	10,000 (g)
TRH (C_{10}-C_{40})	-	-	-	-
Volatile Organic Compounds				
Benzene	0.7 (f)	65 (g)	140	-
Toluene	480 (f)	105 (g)	21,000	-
Ethylbenzene	NL (f), (k)	125 (g)	5,900	-
Xylenes	110 (f)	45 (g)	17,000	-
Naphthalene	5 (f)	170 (b), (i)	2,200	-
Polycyclic Aromatic Hydrocarbons				
Carcinogenic PAHs	4	-	-	-
B(a)P	-	0.7 (g)	-	-
Total PAHs	400	-	-	-
Organochlorine Pesticides				
DDT+DDD+ DDE	600	180 (b), (j)	-	-
Aldrin + Dieldrin	10	-	-	-
Chlordane	90	-	-	-
Endosulfan	400	-	-	-
Endrin	20	-	-	-
Heptachlor	10	-	-	-
HCB	15	-	-	-
Methoxychlor	500	-	-	-
Mirex	20	-	-	-
Other Pesticides				
Chlorpyrifos	340	-	-	-
Phenols				
Phenol	45,000	-	-	-
Pentachlorophenol	130	-	-	-
Cresols	4,700	-	-	
Other Organics				

Contaminant	NEPM 2013 HIL B [1] / HSL (Residential A & B) [2]	NEPM 2013 EIL/ESL (Urban Residential and Public Open Space) [3]	CRC CARE 2011 HSL-B Direct Soil Contact [4]	NEPM 2013 Management Limits (Residential, Parkland & Public Open Space) [5]
PCBs	1	-	-	-

Notes: *All criteria in mg/kg concentrations unless otherwise specified*

(1) NEPM (2013) – Schedule B1 – HILs for Soil Contaminants – Residential B - Table 1A (1).

(2) NEPM (2013) – Schedule B1 – HSLs for Vapour Intrusion – HSL A & B Low/High Density Residential -Table 1A (3.)

(3) NEPM (2013) – Schedule B1 – Soil EILs and ESLs – Urban Residential and Public Open Space – Tables 1B (5) and 1B (6).

(4) CRC CARE (2011) – Technical Report No. 10 – Soil HSLs for Direct Contact – HSL B High Density Residential – Table B4.

(5) NEPM (2013) – Schedule B1 – Management Limits for TRH Fractions F1-F4 in Soil – Table 1B (7).

(a) NEPM 2013 site-specific EIL.

(b) NEPM 2013 generic EIL.

(c) NEPM 1999 EIL used where no generic NEPM 2013 criteria are available

(d) F1 TRH = TRH (C_6-C_{10}) minus BTEX fraction.

(e) F2 TRH = TRH (C_{10}-C_{16}) minus naphthalene fraction.

(f) NEPM 2013 HSL criterion for vapour intrusion, 0m to <1m depth in clay.

(g) Criterion for fine texture grade soils.

(h) Criterion for 'aged' contamination.

(i) Insufficient data available to calculate 'aged' contamination. Consequently, the values for fresh contamination should be used.

(j) Criterion for DDT.

(k) NL= Contaminant is not considered to pose a risk to human health through vapour inhalation regardless the concentration.

(l) Criterion for chromium VI.

(m) Criterion for inorganic mercury.

(n) Criterion for chromium III.

Table 14.3 – Site soil assessment criteria for inorganic contaminants within proposed public park area

Contaminant	NEPM 2013 HIL/HSL C (Recreational / Public Open Space) [1], [2]	NEPM 2013 EIL/ESL Urban Residential and Public Open Space) [3]	CRC CARE 2011 HSL-C Direct Soil Contact [4]	NEPM 2013 Management Limits Residential, Parkland & Public Open Space) [5]
Metals				
Arsenic	300	100 (b), (h)	-	-
Cadmium	90	3 (c)	-	-
Chromium	300 (l)	410 (a), (n)	-	-
Copper	30,000	95 (a)	-	-
Lead	600	1,100 (b), (h)	-	-
Mercury	80 (m)	1 (c), (m)	-	-
Nickel	1,200	200 (a)	-	-
Zinc	30,000	510 (a)	-	-
Asbestos				
Bonded asbestos	0.02% w/w	-	-	-
Friable Asbestos	0.001% w/w	-	-	-

Notes: *All criteria in mg/kg concentrations unless otherwise specified*

[1] NEPM (2013) – Schedule B1 – HILs for Soil Contaminants – Recreational/Public Open Space - Table 1A (1).
[2] NEPM (2013) – Schedule B1 – HSLs for Vapour Intrusion – HSL C Recreational/Public Open Space -Table 1A (3.)
[3] NEPM (2013) – Schedule B1 – Soil EILs and ESLs – Urban Residential and Public Open Space – Tables 1B (5) and 1B (6).
[4] CRC CARE (2011) – Technical Report No. 10 – Soil HSLs for Direct Contact – HSL C (Recreational/Open Space) – Table B4.
[5] NEPM (2013) – Schedule B1 – Management Limits for TRH Fractions F1-F4 in Soil – Table 1B (7).
(a) NEPM 2013 site-specific EIL.
(b) NEPM 2013 generic EIL.
(c) NEPM 1999 EIL used where no generic NEPM 2013 criteria are available
(d) F1 TRH = TRH (C_6-C_{10}) minus BTEX fraction.
(e) F2 TRH = TRH (C_{10}-C_{16}) minus naphthalene fraction.
(f) NEPM 2013 HSL criterion for vapour intrusion, 0m to <1m depth in clay.
(g) Criterion for fine texture grade soils.
(h) Criterion for 'aged' contamination.
(i) Insufficient data available to calculate 'aged' contamination. Consequently, the values for fresh contamination should be used.
(j) Criterion for DDT.
(k) NL= Contaminant is not considered to pose a risk to human health through vapour inhalation regardless the concentration.
(l) Criterion for chromium VI.
(m) Criterion for inorganic mercury.
(n) Criterion for chromium III.

Table 14.4 – Site soil assessment criteria for organics contaminants within proposed public park area

Contaminant	NEPM 2013 HIL/HSL C (Recreational / Public Open Space) [1], [2]	NEPM 2013 EIL/ESL (Urban Residential and Public Open Space) [3]	CRC CARE 2011 HSL-C Direct Soil Contact [4]	NEPM 2013 Management Limits (Residential, Parkland & Public Open Space) [5]
Total Recoverable Hydrocarbons				
TRH (C_6-C_{10})	-	-	-	800 (g)
TRH (C_{10}-C_{16})	-	120	-	1,000 (g)
F1 TRH (C_6-C_{10}) (d)	NL (f), (k)	180	5,100	-
F2 TRH (C_{10}-C_{16}) (e)	NL (f), (k)	-	3,800	-
F3 TRH (C_{16}-C_{34})	-	1,300 (g)	5,300	3,500 (g)
F4 TRH (C_{34}-C_{40})	-	5,600 (g)	7,400	10,000 (g)
TRH (C_{10}-C_{40})	-	-	-	-
Volatile Organic Compounds				
Benzene	NL (f), (k)	65 (g)	120	-
Toluene	NL (f), (k)	105 (g)	18,000	-
Ethylbenzene	NL (f), (k)	125 (g)	5,300	-
Xylenes	NL (f), (k)	45 (g)	15,000	-
Naphthalene	NL (f), (k)	170 (b), (i)	1,900	-
Polycyclic Aromatic Hydrocarbons				
Carcinogenic PAHs	3	-	-	-
B(a)P	-	0.7 (g)	-	-
Total PAHs	300	-	-	-
Organochlorine Pesticides				
DDT+DDD+ DDE	400	180 (b), (j)	-	-
Aldrin + Dieldrin	10	-	-	-
Chlordane	70	-	-	-
Endosulfan	340	-	-	-
Endrin	20	-	-	-
Heptachlor	10	-	-	-
HCB	10	-	-	-
Methoxychlor	400	-	-	-
Mirex	20	-	-	-
Other Pesticides				
Chlorpyrifos	250	-	-	-
Phenols				
Phenol	40,000	-	-	-
Pentachlorophenol	120	-	-	-
Cresols	4,000	-	-	
Other Organics				
PCBs	1	-	-	-

Notes: *All criteria in mg/kg concentrations unless otherwise specified*

(1) *NEPM (2013) – Schedule B1 – HILs for Soil Contaminants – Recreational/Public Open Space - Table 1A (1).*
(2) *NEPM (2013) – Schedule B1 – HSLs for Vapour Intrusion – HSL C Recreational/Public Open Space -Table 1A (3.)*
(3) *NEPM (2013) – Schedule B1 – Soil EILs and ESLs – Urban Residential and Public Open Space – Tables 1B (5) and 1B (6).*
(4) *CRC CARE (2011) – Technical Report No. 10 – Soil HSLs for Direct Contact – HSL C (Recreational/Open Space) – Table B4.*
(5) *NEPM (2013) – Schedule B1 – Management Limits for TRH Fractions F1-F4 in Soil – Table 1B (7).*
(a) *NEPM 2013 site-specific EIL.*
(b) *NEPM 2013 generic EIL.*
(c) *NEPM 1999 EIL used where no generic NEPM 2013 criteria are available*
(d) *F1 TRH = TRH (C_6-C_{10}) minus BTEX fraction.*
(e) *F2 TRH = TRH (C_{10}-C_{16}) minus naphthalene fraction.*
(f) *NEPM 2013 HSL criterion for vapour intrusion, 0m to <1m depth in clay.*
(g) *Criterion for fine texture grade soils.*
(h) *Criterion for 'aged' contamination.*
(i) *Insufficient data available to calculate 'aged' contamination. Consequently, the values for fresh contamination should be used.*
(j) *Criterion for DDT.*
(k) *NL= Contaminant is not considered to pose a risk to human health through vapour inhalation regardless the concentration.*
(l) *Criterion for chromium VI.*
(m) *Criterion for inorganic mercury.*
(n) *Criterion for chromium III.*

14.2 Site Assessment Criteria for Groundwater

The key NEPM criteria for the assessment of groundwater comprise Groundwater Investigation Levels (GILs) and are based on the Australian and New Zealand guidelines for fresh and marine water quality (ANZECC & ARMCANZ, 2000) and the Australian Drinking Water guidelines (NHMRC/NRMMC, 2011). The adopted GILs are based on the 95% species protection for fresh and marine waters, applicable to typical slightly to moderately disturbed terrains, such as urban environments, and the health protection values of the drinking water guidelines.

STS note that the Australian and New Zealand guidelines for fresh and marine water quality were updated in 2018 into an web-based interactive guideline by the Australian and New Zealand Governments (ANZG, 2018) whilst the Australian Drinking Water guidelines were also updated in August 2018 (NHMRC/NRMMC, 2018), with the NSW EPA endorsing both of these guidance documents. Therefore, the most current versions of these documents (at the time of writing) were utilised for the assessment of groundwater conditions.

In determining the appropriate assessment criteria, the geographical setting of the site, expected receiving environment and potential down-gradient groundwater uses were considered.

Based on the geographical setting of the site and the expected receiving waters, the 'marine water' values were adopted from the Australian and New Zealand Guidelines for fresh and marine water quality (ANZG, 2018) to assess the potential risk to environmental receptors.

As the expected receiving waters are Powells Creek, which flow into the Parramatta River, it is plausible that the waters will also be used for recreational purposes. To account for the potential ingestion of or contact with, the groundwater of the site at down-gradient receptors, the health and aesthetic threshold values detailed within the Australian Drinking Water guidelines (NHMRC/NRMMC, 2018) were also considered.

The NEPM 2013 also provides guidance criteria for the assessment of potential vapour intrusion risk, which are also considered.

The adopted groundwater assessment criteria are outlined within Table 14.5 below.

Table 14.5 – Site groundwater assessment criteria

Contaminant	NEPM 2013 Groundwater HSLs for Vapour Intrusion [1]	Australian & New Zealand Guidelines for Fresh and Marine Water Quality 2018 Marine Water Values [2]	NHRMC/NRMMC Australian Drinking Water Guidelines 2011 (2018 updated) Health Guidance Value [3]	NHRMC/NRMMC Australian Drinking Water Guidelines 2011 (2018 updated) Aesthetics Value [4]
Metals				
Arsenic	-	2.3 (a), (b)	-	-
Cadmium	-	5.5	2	-
Chromium (Total)	-	4.4 (c)	50 (c)	-
Copper	-	1.3	2,000	-
Lead	-	4.4	10	-
Mercury	-	0.4 (d)	1	-
Nickel	-	70	20	-
Zinc	-	15	-	3,000
Volatile Organic Compounds (VOCs)				
Total Xylenes	NL (f), (g)	-	600	20
Total BTEX	-	-	-	-
Total VOCs	-	-	-	-
Fumigants (VOCs)				
2,2-dichloropropane	-	-	-	-
1,2-dichloropropane	-	900	-	-
cis-1,3-dichloropropene	-	0.8 (l)	100 (l)	-
trans-1,3-dichloropropene	-			-
1,2-dibromoethane (EDB)	-	-	1	-
Halogenated Aliphatics (VOCs)				
Dichlorodifluromethane (CFC-12)	-	-	-	-
Chloromethane	-	-	-	-
Chloroethene (Vinyl Chloride)	-	100	0.3	-
Bromomethane	-	-	-	-
Chloroethane	-	-	-	-
Trichlorofluoromethane	-	-	-	-
Iodomethane	-	-	-	-
1,1-dichloroethene	-	700	30	-

Contaminant	NEPM 2013 Groundwater HSLs for Vapour Intrusion [1]	Australian & New Zealand Guidelines for Fresh and Marine Water Quality 2018 Marine Water Values [2]	NHRMC/NRMMC Australian Drinking Water Guidelines 2011 (2018 updated) Health Guidance Value [3]	NHRMC/NRMMC Australian Drinking Water Guidelines 2011 (2018 updated) Aesthetics Value [4]
Dichloromethane (Methylene Chloride)	-	4,000	4	-
Allyl Chloride	-	-	-	-
trans-1,2-dichloroethene	-	-	60 (m)	-
1,1-dichloroethane	-	-	-	-
cis-1,2-dichloroethene	-	-	60 (m)	-
Bromochloromethane	-	-	-	-
1,2-dichloroethane	-	1,900	3	-
1,1,1-Trichloroethane (1,1,1-TCA)	-	270	-	-
1,1-dichloropropene	-	-	-	-
Carbon Tetrachloride	-	240	3	-
Trichloroethene (TCE)	-	-	-	-
1,1,2-trichloroethane	-	1,900	-	-
1,3-dichloropropane	-	1,100	100	-
Tetrachloroethene (PCE)	-	-	50	-
1,1,1,2-tetrachloroethane	-	-	-	-
cis-1,4-dichloro-2-butene	-	-	-	-
1,1,2,2-tetrachloroethane	-	400 (h)	-	-
1,2,3-trichloropropane	-	-	-	-
trans-1,4-dichloro-2-butene	-	-	-	-
1,2-dibromo-3-chloropropane	-	-	-	-
Hexachlorobutadiene	-	-	0.7	-
Halogenated Aromatics (VOCs)				
Chlorobenzene	-	-	300	-
Bromobenzene	-	-	-	-
2-Chlorotoluene	-	-	-	-
4-Chlorotoluene	-	-	-	-
1,3-dichlorobenzene	-	260	-	-
1,4-dichlorobenzene	-	60	40	-
1,2-dichlorobenzene	-	160	1,500	-
1,2,4-trichlorobenzene	-	20	30 (n)	-
1,2,3-trichlorobenzene	-	3		-
Monocyclic Aromatic Hydrocarbons (VOCs)				

Contaminant	NEPM 2013 Groundwater HSLs for Vapour Intrusion [1]	Australian & New Zealand Guidelines for Fresh and Marine Water Quality 2018 Marine Water Values [2]	NHRMC/NRMMC Australian Drinking Water Guidelines 2011 (2018 updated) Health Guidance Value [3]	NHRMC/NRMMC Australian Drinking Water Guidelines 2011 (2018 updated) Aesthetics Value [4]
Benzene	5,000	700	1	-
Toluene	NL (f), (g)	180	800	25
Ethylbenzene	NL (f), (g)	5	300	3
m/p-xylene	-	75 (e)	-	-
o-xylene	-	350	-	-
Vinyl benzene (Styrene)	-	-	30	4
Isopropylbenzene (Cumene)	-	30	-	-
n-propylbenzene	-	-	-	-
1,3,5-trimethylbenzene	-	-	-	-
tert-butylbenzene	-	-	-	-
1,2,4-trimethylbenzene	-	-	-	-
sec-butylbenzene	-	-	-	-
p-isopropyltoluene	-	-	-	-
n-butylbenzene	-	-	-	-
Nitrogenous Compounds (VOCs)				
Acrylonitrile	-	8	-	-
2-nitropropane	-	-	-	-
Oxygenated Compounds (VOCs)				
2-propanone (Acetone)	-	-	-	-
Methyl-tert butyl ether (MTBE)	-	-	-	-
Vinyl acetate	-	-	-	-
2-butanone (MEK)	-	-	-	-
4-methyl-2-pentanone (MIBK)	-	-	-	-
2-hexanone (MBK)	-	-	-	-
Polycyclic VOCs				
Naphthalene	-	-	-	-
Sulphonated Compounds (VOCs)				
Carbon Disulfide	-	20	-	-
Trihalomethanes (VOCs)				
Chloroform	-	370	-	-
Bromodichloromethane	-	-	-	-
Dibromochloromethane	-	-	-	-

Contaminant	NEPM 2013 Groundwater HSLs for Vapour Intrusion [1]	Australian & New Zealand Guidelines for Fresh and Marine Water Quality 2018 Marine Water Values [2]	NHRMC/NRMMC Australian Drinking Water Guidelines 2011 (2018 updated) Health Guidance Value [3]	NHRMC/NRMMC Australian Drinking Water Guidelines 2011 (2018 updated) Aesthetics Value [4]
Bromoform	-	-	-	-
Trihalomethanes (total)	-	-	250	-
Total Recoverable Hydrocarbons				
TRH (C_6-C_{10})	-	7 (b)	-	-
TRH (C_{10}-C_{16})	-	-	-	-
F1 TRH (C_6-C_{10}) (i)	NL (f), (g)	-	-	-
F2 TRH (C_{10}-C_{16}) (j)	NL (f), (g)	-	-	-
F3 TRH (C_{16}-C_{34})	-	-	-	-
F4 TRH (C_{34}-C_{40})	-	-	-	-
TRH (C_{10}-C_{40})	-	7 (b)	-	-
	Polycyclic Aromatic Hydrocarbons			
Naphthalene	-	70	-	-
2-methylnaphthalene	-	-	-	-
1-methylnaphthalene	-	-	-	-
Acenaphthylene	-	-	-	-
Acenaphthene	-	-	-	-
Fluorene	-	-	-	-
Phenanthrene	-	0.6	-	-
Anthracene	-	0.1	-	-
Fluorathene	-	1	-	-
Pyrene	-	-	-	-
Benzo(a)anthracene	-	-	0.1 (k)	-
Chrysene	-	-	1 (k)	-
Benzo(b&j)fluorathene	-	-	0.1 (k)	-
Benzo(k)fluorathene	-	-	0.1 (k)	-
Benzo(a)pyrene	-	0.1	0.01	-
Indeno(1,2,3-cd)pyrene	-	-	0.1 (k)	-
dibenzo(ah)anthracene	-	-	0.01 (k)	-
Benzo(ghi)perylene	-	-	1 (k)	-
Total PAHs	-	-	-	-

Notes: *All criteria in µg/L concentrations unless otherwise specified*

[1] NEPM (2013) – Schedule B1 – HSLs for Vapour Intrusion – HSL A & B Low/High Density Residential -Table 1A (4).

[2] ANZG 2018, Australian and New Zealand Guidelines for Fresh and Marine Water Quality. Viewed 31/05/2019; http://www.waterquality.gov.au/anz-guidelines/guideline-values/default/water-quality-toxicants/search.

[3] Australian Drinking Water Guidelines 2011 (NHMRC/NRMMC, 2018) – Guideline values – Health – Table 10.6

[4] Australian Drinking Water Guidelines 2011 (NHMRC/NRMMC, 2018) – Guideline values – Aesthetic – Table 10.6

(a) Criterion for Arsenic as As III.

(b) Low reliability criterion (ANZECC 2000).

(c) Criterion for Hexavalent Chromium (Cr IV).
(d) Criterion for inorganic mercury.
(e) Criterion for m-xylene.
(f) Criterion for clay soils, 2m to <4m.
(g) NL = Contaminant is not considered to pose a risk to human health through vapour inhalation regardless the concentration.
(h) Freshwater criterion value adopted in lieu of marine water value.
(i) F1 TRH = TRH (C_6-C_{10}) minus BTEX fraction.
(j) F2 TRH = TRH (C_{10}-C_{16}) minus naphthalene fraction.
(k) Risk assessment criterion based on carcinogenic potency relative to Benzo(a)pyrene.
(l) Criterion for 1,3-dichloropropene (total).
(m) Criterion for 1,2-dichloroethene (total).
(n) Criterion for trichlorobenzene (total).

14.3 Acid Sulfate Soil Assessment Criteria

ASS is the common name given to sediments and soils containing iron sulfides which, when exposed to oxygen generate sulfuric acid (a result of a chemical process called oxidation) and iron oxides. Natural processes formed most of acid sulfate sediments when certain conditions existed in the Holocene geological period (the last 10,000 years). Formation conditions require the presence of iron-rich sediments, sulfate (usually from seawater), removal of reaction products such as bicarbonate, the presence of sulfate reducing bacteria and a plentiful supply of organic matter. It should be noted that these conditions commonly exist in mangroves, salt marsh vegetation or tidal areas, and at the bottom of coastal rivers and lakes.

The relatively specific conditions under which acid sulfate soils are formed usually limit their occurrence to low lying parts of coastal floodplains, rivers and creeks. This includes areas with saline or brackish water such as deltas, coastal flats, back swamps and seasonal or permanent freshwater swamps that were formerly brackish. Due to flooding and stormwater erosion, these sulfidic sediments may continue to be redistributed through the sands and sediments of the estuarine floodplain region. Sulfidic sediment may be found at any depth in suitable coastal sediments; usually beneath the water table.

Any lowering in the water table that covers and prevents the potential acidity impact from ASS will result in their aeration and the exposure of iron sulfide sediments to oxygen. The lowering in the water table can occur naturally due to seasonal fluctuations and drought, or any human intervention such as any excavations during a site development. Sulfidic soils (potential ASS (PASS)) can also be exposed to air during physical disturbance of the material at the disturbance face, as well as the extracted material, both potentially being oxidised. The oxidation of iron sulfide sediments in sulfidic soils (PASS) results in sulfuric soils (actual ASS) soils.

When works involving the disturbance of soil or the change of groundwater levels are proposed in coastal areas, a preliminary assessment should be undertaken to determine whether acid sulfate soils are present and if the proposed works are likely to disturb these soils.

Successful management of areas with sulfidic or sulfuric soils is possible with due consideration of the specific features of the site and the potential environmental impacts that might result from the development. While it is preferable that sites exhibiting characteristics

of acid sulfate soils are not disturbed, in instances where disturbance is unavoidable, management techniques have been devised to minimise and manage the potential environmental impacts.

The *National Acid Sulfate Soils Guidance: National acid sulfate soils sampling and identification methods manual (*Sullivan et al, 2018) outlines a list of soil characteristics and field testing which are indicative of ASS.

The laboratory results for ASS indicators were compared to the 'field soil characteristics as indicators of ASS materials' specified in the *National Acid Sulfate Soils Guidance: National acid sulfate soils sampling and identification methods manual* (Sullivan et al, 2018).

the National Acid Sulfate Soil Guidance: *National acid sulfate soils identification and laboratory methods manual (*Sullivan et al, 2018) provides 'action levels' as part of the decision-making process regarding the management of ASS. The action levels are based on the concentrations of oxidisable sulfur for three (3) different soil textures and the amount (tonnes) of soil proposed to be disturbed. STS Note that the action levels are equivalent to the action criteria detailed within the ASSMAC Acid Sulfate Soil Manual (1998).

It is assumed that excavation at the site will disturb greater than 1,000 tonnes of soil. Further, as the soils encountered on the site consisted predominantly of silty and sandy clays, the criteria for fine texture grade soils are considered the most appropriate and have been adopted for this assessment.

The ASS criteria adopted for this investigation are outlined in Tables 14.6 and 14.7 below.

Table 14.6 – Soil Characteristics Indicative of ASS

Soil Type	Indicators
Sulfidic Soils (Potential Acid Sulfate Soil)	• Soil pH_f > 4, commonly neutral; • Soil pH_{ox} <3, with large unit change from pH_f to pH_{ox}, together with volcanic reaction to peroxide; • Waterlogged soils (such as unripe muds, silty sands, sands or bottom sediments); • Peat or peaty soils; • Coffee rock horizons; and • Sulfurous odour.
Sulfuric Soils (Actual Acid Sulfate Soil)	• Soil pH_f <4 (though sometimes incomplete when pH_f >4 but < 5); • Sulfurous odour; • Presence of jarosite or iron oxide mottling; and • Presence of corroded mollusc shells.

Table 14.7 – Action criteria for ASS management

Type of material		Net Acidity	
Texture Range (NCST 2009)*	Approx. clay content (%<0.02mm)	>1,000 t material disturbed	
		% S equivalent (oven-dried basis)	Mol H^+/tonne (oven-dried basis)
Medium: Light medium to heavy clays	>40	>0.03	>18

*NCST: National Committee on Soil and Terrain

15. ANALYTICAL RESULTS AND INTERPRETATION

The analytical results for the soil and groundwater samples are presented in the NATA-endorsed laboratory reports included in Appendix K and are summarised in the Table of Results (Tables A-D) attached to this report. The analytical results exceeding the assessment criteria are highlighted in the tables accordingly.

15.1 Interpretation of Soil Sampling Results for Proposed Public Park Area

The analytical results for the soil samples recovered from the proposed public park area show that with the exception of carcinogenic PAHs and asbestos (non-friable and friable), the concentrations of chemical contaminants measured in the soils on the site are low and below the NEPM HIL/HSL-C criteria, the CRC Care HSL-C criteria and the NEPM management limits for residential, parklands and public open space.

The concentrations of carcinogenic PAHs in soil samples S84 (9.9 mg/kg), S89 (3.6 mg/kg) and S90 (5.4 mg/kg), non-friable asbestos in soil sample S30 (0.11 %w/w) and friable asbestos in soil sample S30 (0.0011 %w/w) are above the NEPM HIL/HSL C criteria of 3 mg/kg, 0.02 %w/w and 0.001 %w/w respectively.

In regard to risk to ecological receptors, the concentration of copper in soil sample S30 (173 mg/kg) exceeded the site-specific NEPM EIL criterion of 95 mg/kg. The concentrations of benzo(a)pyrene in soil samples S28 (1.5 mg/kg), S30 (1.8 mg/kg), S84 (7.3 mg/kg), S89 (2.5 mg/kg), S90 (4.0 mg/kg), S101 (1.5 mg/kg) and S117 (1.0 mg/kg) exceeded the NEPM EIL criterion of 0.7 mg/kg. All other concentrations of chemical contaminants measured in the soils on the site are within the respective EIL/ESL for residential, parklands and public open space.

In order to determine the significance of the carcinogenic PAHs concentrations as a potential risk to human health, statistical analysis of the 95% upper confidence level (UCL) of the arithmetic mean, along with the standard deviation was determined, for the distinct soil profiles. After accounting for samples with concentrations less than LOR, and for identified

hotspots (i.e. samples with concentrations greater than 250% of the criterion), the data set was considered to not be large enough to allow for meaningful statistical analysis. Therefore, the raw data was used for this assessment.

No statistical analysis was undertaken in regard to the asbestos concentrations.

No concentrations of BTEX, TRH F1, TRH F2, TRH F4, OCP, OPP, PCB or phenolic compounds were detected above the LOR within the analysed soil samples.

15.2 Interpretation of Soil Sampling Results for Proposed Building Area

The analytical results for the soil samples recovered from the proposed building area show that with the exception of carcinogenic PAHs, the concentrations of chemical contaminants measured in the soils on the site are below the NEPM HIL/HSL-B criteria, the CRC Care HSL-B criteria and the NEPM management limits for residential, parklands and public open space.

The concentrations of carcinogenic PAHs in soil samples S4 (6.6 mg/kg) and S7 (24 mg/kg) are above the NEPM HIL/HSL C criteria of 4 mg/kg.

In regard to the risk to ecological receptors, the concentration of cadmium in soil sample S6 (4 mg/kg), copper in S6 (167 mg/kg), S7 (239 mg/kg), S68 (129 mg/kg) and S75 (360 mg/kg) exceeded the NEPM EIL criteria of 3 mg/kg and 95 mg/kg respectively. The concentration of benzo(a)pyrene within soil samples S4 (4.6 mg/kg), S6 (1.1 mg/kg), S7 (17 mg/kg), S16 (1.0 mg/kg), S54 (0.9 mg/kg), S68 (2.8 mg/kg), S70 (1.9 mg/kg) exceeded the NEPM EIL criterion of 0.7 mg/kg.

In order to determine the significance of the carcinogenic PAHs concentrations as a potential risk to human health, statistical analysis of the 95% upper confidence level (UCL) of the arithmetic mean, along with the standard deviation was determined, for the distinct soil profiles. After accounting for samples with concentrations less than LOR, and for identified hotspots (i.e. samples with concentrations greater than 250% of the criterion), the data set was considered to not be large enough to allow for meaningful statistical analysis. Therefore, the raw data was used for this assessment.

No concentrations of BTEX, TRH F1, TRH F2, OPP, PCB, phenolic compounds or non-friable asbestos were detected above the LOR within the analysed soil samples.

15.3 Interpretation of Acid Sulfate Soil Sampling Results

The results of ASS indicator analysis did not record any pH_f values of less than pH 5, indicating that the site soils are not affected by sulphuric soils (ASS). Upon field oxidation, the pH of the samples ranged from pH 2.9 to pH 10.0, with the recorded difference in pH_f to pH_{ox} readings of between 0.4 and 3.8 pH units and observed reactions being rated from slight to vigorous. Based on the results of the indicator analysis, selected samples were forwarded for detailed analysis.

The results of the ASS detailed analysis returned positive results for nine (9) of the twelve (12) analysed samples, with seven (7) samples returning positive results above the respective action criteria.

The exceedances were located at 0.5 m to 1.5 m bgl in BH22, 1.5 m to 3.0 m bgl in BH23 and 1.5 m bgl within BH25. The net sulphidic acidity ranged from 0.08 %S to 0.16 %S, whilst the total net acidity ranged from 21 Mol H^+/tonne to 110 Mol H^+/tonne, exceeding the actionable criteria of 0.03 %S and 18 Mol H^+/tonne respectively.

Based on the results, the laboratory calculated the appropriate liming rate (based on a liming product with 100% neutralising value) and included a safety factor of 1.5. the liming rate ranged from 1.6 kg to 8.3 kg of lime product per tonne of untreated sulfidic soils (commonly referred to as “potential acid sulfate soils”).

Based on the location of the boreholes returning exceedances, ASS is anticipated to be encountered within the historic tributary creek alignment and within the north-eastern portion of the site. Though the results indicate that ASS is limited to these areas, confirmation testing should be conducted during construction of the basement excavation.

15.4 Interpretation of Groundwater Sampling Results

The analytical results for the groundwater samples show that the concentrations of chemical contaminants measured in the groundwater are generally low and with the exception of nickel, zinc, TRH and PAH (specifically benzo(a)anthracene), were below the NEPM 2013 Groundwater HSLs for vapour intrusion, the ANZG 2018 marine water quality values and the NHRMC/NRMMC 2018 drinking water guidelines for both health and aesthetic considerations.

The concentrations of zinc within GW3-1 (45 µg/L) and GW5-1 (36 µg/L) and TRH within GW3-1 (100 µg/L) and GW4-1 (366 µg/L) exceeded the limit of the ANZG 2018 marine water quality values of 15 µg/L and 7 µg/L respectively. Further, the concentrations of nickel within GW5-1 (50 µg/L) and benzo(a)anthracene within GW4-1 (0.4 µg/L) exceeded the limit of NHRMC/NRMMC 2018 drinking water health guidance values of 20 µg/L and 0.1 µg/L respectively.

Based on the groundwater flow direction established in Section 7, which is in a north/north-western direction, the results indicate that the elevated concentrations of TRH and benzo(a)anthracene within GW4-1 may be attributable to an on-site source, presumably the known USTs. As monitoring wells GW3 and GW5 were located along the eastern site boundary, the elevated concentrations of nickel, zinc and TRH (within GW3 only) are likely attributable to an offsite source up-gradient or cross-gradient of the site.

No concentrations of chromium (total), lead, mercury, individual VOCs (including fumigants, halogenated aliphatic and aromatic compounds, MAHs, nitrogenous compounds, oxygenated compounds, polycyclic compounds, sulphonated compounds and trihalomethanes) were recorded above the LOR within the analysed groundwater samples.

Though individual VOC contaminant concentrations were not recorded, the total VOC contaminant concentration for sample GW3-1 (11 µg/L) indicated that low concentrations of VOCs were present within the groundwater beneath the site. Based on the location of this groundwater monitoring well, the low VOCs concentrations detected are likely to be related to an off-site source.

15.5 Potential of Groundwater Impacts

As outlined in Sections 15.1 and 15.2, the concentrations of chemical contaminants measured in the soils within the site were generally low, however, elevated concentrations of PAH were detected across the site, and were confirmed to have migrated to within the natural soils at two (2) locations. Further, two (2) USTs were previously known to be present within the site, with at least one (1) remaining at the time of the 2019 inspection. As downward migration of contamination was confirmed, and at least one (1) point source of contamination exists within the site, there is a potential for the soils within the site to present a source of contamination to the groundwater beneath the site.

As outlined in Section 15.4, the concentrations of chemical contaminants measured in the groundwater at the site are generally low, with the exception of nickel, zinc, TRH and PAHs which were detected at elevated levels. The concentrations of Total VOCs were detected at low levels; whilst the concentrations of all individual VOCs were below their respective LORs. Based on the location of the monitoring wells, along with the elevated concentrations, it is considered likely that the nickel, zinc and total VOCs detected were attributable to a yet unidentified up-gradient or cross-gradient source. However, elevated concentrations of TRH and PAH (benzo(a)anthracene) were detected within GW4, which is located down-gradient of the known UST locations, and is located within close proximity to the site boundary, thereby representing the condition of a possible groundwater migration from the site.

Based on the concentrations of chemical contaminants within the soil and groundwater, and that potential point-sources of contamination (i.e. the USTs) were identified within the site, it is considered plausible that the site presents a source of unacceptable groundwater impacts.

15.6 Potential for Off-Site Migration of Contamination

The concentrations of chemical contaminants within the soils at the site are generally low, however migration of contaminants within underlying natural soils was confirmed within two (2) borehole locations and may be plausible in other locations. Further, at least one (1) of the former USTs appears to remain onsite, presenting a potential point source of contamination. Therefore, the site is considered as potentially contributing to the groundwater impact beneath the site and may present an unacceptable risk to off-site receptors.

Though some elevated concentrations of chemical contaminants were identified, particularly within near-surface fill soils, approximately 50% of the site is sealed with concrete. The remaining site area consists of densely overgrown vegetation and bare earth. Though bare

earth was observed, the surface appeared well compacted and did not appear to be mobilised by wind action (i.e. dust generation). Therefore, the surface condition of the site is considered likely to limit the potential for soils to be mobilised as a result of surface runoff or wind action.

15.7 Duty to Report Site Contamination

Under the provisions of the *Contaminated Land Management Act 1997* (CLM Act), a site owner or occupant has a duty to notify EPA of any significant contamination that has the potential to cause human-health or environmental impacts. The requirements for reporting contamination are outlined in EPA's (2015) *Guidelines on the Duty to Report Contamination Under the Contaminated Land Management Act 1997*. This guideline outlines the specific triggers which need to be considered regarding soil, groundwater and soil vapour for notifiable contamination under the CLM Act. it should be noted that the Duty to Report Guidelines also provide a list of situations which though exceed the trigger notifications, are not intended to be captured within the duty to report, such as the presence of bonded or naturally occurring asbestos on or in site soils, regardless of the concentration.

For soil, the notification thresholds are the HILs and soil based HSLs, which are outlined in Schedule B1 of *the National Environment Protection (Assessment of Site Contamination) Measure (NEPM) 1999* (NEPC 2013). Where contaminants in the soils on a particular site exceed their HIL criteria by more than 2.5 times in any one (1) sample or where the average concentrations (i.e. 95% upper confidence limits of the arithmetic means of the contaminant concentrations) of contaminants in soil exceed the applicable HILs, **and** where exposure pathways exist or have previously existed, EPA must be notified. The Duty to Report Guidelines also apply the specific criteria for asbestos in soil that are provided in the NEPM, these being that notification would be required where friable asbestos from anthropogenic sources is present in the soil at a weight-based percentage which exceeds 0.001%. In addition, where a particular site is the source of contamination which results in the above being realised on adjacent land, EPA must also be notified.

For groundwater, the notification thresholds are the groundwater investigation levels (GILs), which are outlined in Schedule B1 of the *National Environment Protection (Assessment of Site Contamination) Measure (NEPM) 1999* (NEPC 2013). STS note that these thresholds are referenced from the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC & ARMCANZ, 2000). Notification to the NSW EPA is required where the contaminant has entered or will foreseeably enter groundwater or surface water, the concentration is above the respective GIL criterion and the contaminant concentration will foreseeably remain above the respective GIL criterion. The Duty to Report Guidelines also apply specific notification triggers to separate-phase contamination of groundwater (such as immiscible organic liquid). If separate-phase contamination is present, the NSW EPA is required to be notified regardless of the concentration within the groundwater.

It should be noted that the Duty to Report Guidelines do not define notification thresholds for all contaminants. EPA has advised that where no criteria are listed, the need to submit a notification (or otherwise) should be based on advice provided by an environmental consultant.

15.8 Appraisal of Duty to Report Requirements

The results of the soil sampling performed for this investigation show that the concentrations of the majority of contaminants measured in the soil samples do not exceed the applicable notification thresholds. Though the concentrations of carcinogenic PAHs within soil sample S7 (24 mg/kg) and soil sample S84 (9.9 mg/kg) exceeded the respective HIL B criterion (4 mg/kg) and HIL C criterion (3 mg/kg) by a factor of greater than 2.5 times, the concentrations were within the current applicable land use scenario of HIL D criterion (40 mg/kg). Therefore, the elevated concentrations of carcinogenic PAHs do not trigger the requirement for notification.

However, the friable asbestos concentration in soil sample S30 (0.0011 %w/w) exceeded the NEPM HIL C criterion, and the currently applicable NEPM HIL D criterion of 0.001 %w/w. Further, whilst the site is currently enclosed by temporary fencing precluding public access and the elevated friable asbestos concentration was located within a sealed portion of the site, the fact that the elevated friable concentration was identified in the near-surface soils within close proximity to the edge of the sealed area, and that the site is occasionally used for storage purposes, the potential for exposures to occur, both historic and current, cannot be discounted. Therefore, STS consider the presence of asbestos in the soils within the site has triggered the notification requirements. That is, the landowner has a legal obligation to notify the NSW EPA of the friable asbestos impacts which exist within the soils on the site.

The results of the groundwater sampling performed for this investigation show that with the exception of nickel, zinc, TRH and PAH (specifically, benzo(a)anthracene), all of the concentrations of chemical contaminants measured within the groundwater samples are below their respective NEPM 2013, ANZG 2018 marine water quality and NHRMC/NRMMC 2018 Australian drinking water guidelines criteria. The detected concentrations of zinc and TRH exceeded the respective ANZG 2018 marine water quality thresholds, whilst the concentrations of nickel and benzo(a)anthracene exceeded the respective NHRMC/NRMMC 2018 Australian drinking water guidelines criteria.

Though elevated, the concentrations of nickel, zinc and TRH (GW3 only) were considered to relate to up-gradient or cross-gradient offsite sources, based on the location of the monitoring wells. However, the elevated concentrations of TRH and benzo(a)anthracene detected within GW4, which is located down-gradient of the known UST locations, are indicative of groundwater migrating from the site. Though the site is under consideration for redevelopment, which will include the removal of the known USTs, along with bulk excavation of soils and rock for the construction of the basement, no proposed timeframe has been provided for this work. Therefore, it is anticipated that the concentrations of TRH and benzo(a)anthracene would remain elevated for the foreseeable future.

As such, STS considers that the condition of the groundwater beneath the site satisfies the notification trigger requirements. That is, the landowner has a legal obligation to notify the NSW EPA of the TRH and PAH impacts which exist within the groundwater beneath the site.

It is therefore recommended that the landowner submit the notification to NSW EPA in accordance with the regulatory requirements.

16. HUMAN HEALTH AND ENVIRONMENTAL RISK ANALYSIS

The key potential exposure pathways by which human-health could be affected by soil and groundwater impacts include dermal contact, ingestion and inhalation. Further, both plant health and the environment generally should be protected. An appraisal of the potential risks to human-health and environmental receptors is provided below.

16.1 Dermal contact and Ingestion Exposure Pathways

The analytical results show that with the exception of carcinogenic PAHs, the concentrations of chemical contaminants in all soil samples analysed are below the assessment criteria which are protective of human health in the proposed high-density residential and public open space settings. Though carcinogenic PAHs are detected at concentrations which present an unacceptable human health risk, the soils impacted by elevated concentrations of carcinogenic PAHs within the proposed building area will be removed during the course of the construction. Within the public open space area, the elevated concentrations of carcinogenic PAHs were generally limited to a depth of approx. 1 m bgl and would likely be removed during redevelopment of the site to obtain desired site levels and allow for the installation of a suitable growing medium. Therefore, it is considered that the redevelopment of the site will alleviate the unacceptable dermal and ingestion exposure risk, provided the development is conducted in accordance with the proposed plans, and that the removal of all soils impacted by carcinogenic PAHs at concentrations exceeding the respective assessment criteria is confirmed.

STS note that asbestos was identified within the soils of the site, however the health concern emanating from the presence of asbestos is related to the inhalation of fibres rather than dermal contact or ingestion. This is further discussed in Section 16.2 below.

As the proposed basement will intercept groundwater, it is possible that a dermal contact or ingestion pathway exists via possible groundwater encounter during the basement construction. The analytical results show that with the exception of nickel and benzo(a)anthracene, the concentrations of chemical contaminants in all groundwater samples analysed are below the assessment criteria (specifically, health and aesthetic considerations) which are protective of human health. The concentrations of nickel detected within GW5 and benzo(a)anthracene within GW4 exceeded the respective NHRMC/NRMMC health guidance value related to drinking water quality.

Based on these elevated concentrations of chemical contaminants within the groundwater, the site is considered to present an unacceptable human health risk via dermal contact or ingestion exposure pathways. It is noted that there are no groundwater bores within 550 m of the site registered for domestic use.

The management of these potential unacceptable risks are required during the course of the proposed development and may include a separation or isolation of receptors (residents, workers, visitors etc) from groundwater seepage within the proposed development.

16.2 Inhalation Exposure Pathways

The analytical results show that with the exception of friable asbestos, the concentrations of chemical contaminants in all soil samples analysed are below the respective assessment criteria which are protective of human health via a vapour intrusion pathway in a high-density residential setting and within public open space respectively. However, friable asbestos was detected within sample S30 at a concentration exceeding the respective assessment criterion which is protective of human health via a vapour intrusion pathway in all land-use scenarios. The elevated concentration related to a near-surface sample that is currently sealed by a concrete slab, however, is near the interface of the concrete slab and unsealed portion of the site and it is plausible that the impact extends beyond the confines of the concrete seal. Therefore, though the inhalation exposure pathway is currently incomplete due to the concrete slab, it is possible that an exposure pathway exists within the nearby unsealed soils.

Though the friable asbestos is considered to currently present an unacceptable human health risk from an inhalation exposure pathway, it may be expected that the near-surface soils of the site will be removed through the course of the redevelopment to achieve the desired site levels. Therefore, it is considered that the redevelopment of the site will alleviate the unacceptable inhalation exposure risk, provided the development is implemented in accordance with the proposed plans, and that the removal of all friable asbestos impacted soils that do not meet the respective assessment criteria for the development is confirmed.

The analytical results show that the concentrations of chemical contaminants in all groundwater samples analysed are within the assessment criteria which are protective of human health via a vapour intrusion pathway in a high-density residential setting. Though concentrations of individual VOCs were below the LOR, the total concentrations of VOCs were above the LOR. Currently there is no data available to determine the potential concentrations of VOCs which may be volatilising and permeating through the soil profile as soil gas. Therefore, the potential for inhalation exposure via vapour intrusion emanating from groundwater beneath the site is present, though currently there is no data available to determine whether this exposure pathway presents an unacceptable risk to human health in a high-density residential setting.

16.3 Potential Risk to Terrestrial Environments

The analytical results show that with the exception of cadmium, copper and benzo(a)pyrene, the concentrations of chemical contaminants in all soil samples recovered from the proposed building footprint are within the EIL/ESL criteria for residential, parklands and public open space. Though elevated concentrations of chemical contaminants were detected, the proposed development within the building footprint will require bulk excavation for the basement construction. It is considered likely that deep soil planting areas within the building area would be reinstated with suitable growing medium, and that the impacted soils would not likely be reused within the site.

The analytical results show that with the exception of copper and benzo(a)pyrene, the concentrations of chemical contaminants in all soil samples recovered from the proposed park area are within the EIL/ESL criteria for residential, parklands and public open space. It is noted that all elevated concentrations were recorded within samples recovered from less than 1 m below the existing surface levels. Further, with the exception of benzo(a)pyrene within soil samples S28, S101 and S117, the elevated concentrations were co-located with other contaminants that were considered to pose an unacceptable risk to human health and would require remediation and/or management for this purpose.

In regard to the elevated benzo(a)pyrene concentrations within soil samples S28, S101 and S117, consideration should be given to undertaking localised excavation and disposal of soils within the vicinity of S28 (BH7), S101 (BH25) and S117 (BH26) and validation sampling to confirm whether the residual concentrations of benzo(a)pyrene are within the acceptable clean-up criteria.

In regard to the groundwater condition, due to the depth to groundwater and the overall generally low concentrations of chemical contaminants detected in all groundwater samples analysed, unacceptable impacts to terrestrial environments emanating from the groundwater beneath the site is considered unlikely to occur.

16.4 Risk to Aquatic Environments

As elaborated in Section 15.4, the site is considered to be a potential source of unacceptable groundwater impacts, specifically TRH and PAH. It is considered likely that a point source of contamination exists within the site, and that the source is presumably associated with the known USTs within the site. As such, unacceptable impacts to down-gradient aquatic environments emanating from on-site sources are considered possible, and a remediation and/or management strategy will be required to mitigate the potential risks to down-gradient aquatic receptors.

It is noted that the proposed development would involve the removal of the former USTs along with significant excavation (for the construction of the basement levels), which is considered to likely remove the source of ongoing groundwater impacts.

16.5 Assessment Outcomes

The results of the investigation show that the soils within the site are impacted by carcinogenic PAHs and asbestos (friable and non-friable) at concentrations that are significant to the proposed high-density residential and public open space land uses. That is, the concentrations of carcinogenic PAHs and asbestos identified in the soils within the site present an unacceptable risk to human health. Further, the concentrations of benzo(a)pyrene distributed across most of the site and cadmium and copper in one (1) and four (4) locations respectively, present an unacceptable risk to ecological receptors.

The groundwater beneath the site has also been confirmed to be impacted by nickel, zinc TRH and benzo(a)anthracene at concentrations which present an unacceptable risk to human health and/or ecological receptors. Though elevated, the results of the investigation, indicate that the nickel and zinc impacts are likely to be attributed to an offsite source of contamination located up-gradient of the site. The concentration of benzo(a)anthracene, and some of the TRH impact, are likely attributable to sources within the site.

Further, the results of this investigation also indicate that the groundwater beneath the site may also be impacted by low concentrations of VOCs. The concentrations of VOCs were below the respective LOR, though when summed, the total VOC concentrations were equal to or greater than the LOR for total VOCs, indicating that high concentrations of VOC impact is unlikely. During this investigation, no evidence of a source of VOC contamination was identified. Based on the location of the sample recording Total VOCs and the findings of the PSI prepared for the greater development precinct (WSP, 2011), it is considered that the VOC impact is likely to be related to an as yet unknown source located up-gradient of the site, rather than onsite activities. Therefore, the site is not considered to be contributing to the concentrations of VOCs detected within the groundwater samples.

In view of the above, remediation or management intervention will be required to make the site suitable for the proposed high-density residential and public open space land uses.

Based on the results of this investigation, in its current condition, the site is considered to present an unacceptable risk to human-health for the proposed development, however, the site can be made suitable for the proposed land use subject to the preparation and implementation of a remedial action plan (RAP) to address the identified soil and groundwater impacts.

It is also noted that the concentrations of friable asbestos within the soil and TRH and benzo(a)anthracene within the groundwater meet the trigger criteria requiring the NSW EPA to be notified. Therefore, the landowner has a legal obligation to submit a notification to the NSW EPA.

17. EVALUATION OF QUALITY ASSURANCE

17.1 Field Quality Sample Results

The analytical results of the field intra-laboratory and inter-laboratory duplicate samples are compared to those of the corresponding primary samples, presented in Tables E & F. The results of trip spike and blank samples are presented in Table G.

For soils, the results show that the variations between the primary and duplicate sample concentrations exceeded the allowable Relative Percentage Difference (RPD) criterion of 50% for inorganic species and 70% for organic analytes in nineteen (19) of the two-hundred-sixty-two (262) comparable data sets, which is equates to approx. 7.25% overall. This is marginally outside the acceptable rate of correlation (5%) and require further consideration.

The exceedances related to primary and duplicate samples which were recovered from fill soil profiles, and the fill soils were characterised as heterogeneous. Therefore, greater variance of results is expected. To minimise the potential to underestimate the analyte concentrations present, the higher concentration of the duplicate pairing was adopted as the reported analyte concentrations.

For groundwater, the results show that the variations between the primary and duplicate sample concentrations did not exceed the allowable RPD criterion within any of the comparable data sets.

Further, the results show that the trip spike samples for soil and groundwater produced spike recoveries within the acceptable range of 70% - 130%, whilst the trip blank samples for soil and groundwater did not return any contaminant concentrations above the LOR.

Therefore, the reported data is considered adequate to be used to characterise the site.

17.2 Laboratory Quality Control Programme

Our review of the laboratory's internal QC programme for soil has shown that except for five (5) internal duplicate samples, two (2) matrix spike recoveries and three (3) surrogate recoveries, all laboratory blanks, internal duplicate samples, laboratory control samples, matrix spike recoveries, and surrogate recovery standards were within the analytical laboratories' recommended range for acceptable reproducibility. Within the analytical batch from 2019, the internal duplicate failures were attributed to sample heterogeneity. No further information regarding the other duplicate failures, or the matrix spike and surrogate recovery failures was provided by the laboratories.

Our review of the laboratory's internal QC programme for water has shown that with the exception of one (1) surrogate recovery, all laboratory blanks, internal duplicate samples, laboratory control samples, matrix spike recoveries, and surrogate recovery standards were within the analytical laboratories' recommended range for acceptable reproducibility.

Overall, STS considers the laboratory data obtained in the sampling programme to be of acceptable precision, accuracy and reliability and representative of the site conditions encountered.

17.3 Procedure-Based Quality Control

An appraisal of the key procedure-based quality control aspects of the investigation are summarised in Table 17.1 below.

Table 17 .1 Appraisal of procedure-based quality control

Item	Compliance	Reference/Comments
Appropriate sampling methods adopted?	Yes	Refer to Sections 12.1.1 and 12.2.2
Appropriate sample handling and transportation procedures implemented?	Yes	Refer to Sections 12.1.2 and 12.2.3 and COC documentation in Appendix J
Samples analysed within recommended laboratory holding times?	No	The inter-laboratory duplicate groundwater sample was extracted for the concentrations of PAH and TRH one (1) day beyond the holding time recommended by ALS. STS considers that the minor delay in analysis would not compromise the returned data. For soil samples S8, S13 and S26, the extraction and analysis of BTEX, TRH, PAH and VOCs were up to 2 weeks beyond the recommended holding time by the laboratory (up to 3 weeks from the date of sampling). This delay was caused by this analysis being an additional request. All other samples were

Item	Compliance	Reference/Comments
		analysed within the recommended holding time. Refer to COC documentation in Appendix J and laboratory reports in Appendix K
NATA-accredited laboratory testing methods used	Yes	Refer to laboratory reports in Appendix K

18. CONCLUSIONS AND RECOMMENDATIONS

Based on the results of this investigation the following conclusions and recommendations are made:

- The historical information reviewed indicates that the land has been utilised primarily for commercial and manufacturing purposes since at least 1936, until its demolition between 2014 and 2018.
- Land uses on surrounding properties were initially manufacturing and commercial uses to the north and east, with the rail corridor and utilities to the south, until between 2014 and 2018, when the commercial properties to the north were replaced with high-density residential in the form of apartment complexes. To the west, the primary land use was low-density residential until around 2003, at which time the area was redeveloped for medium density, followed by high-density around 2014.
- At some point in time, the importation of undocumented fill materials for site levelling purposes occurred.
- Based on the site history, the potential contaminating activities identified included; historic site filling and pesticide use, weathering of former building structures, historic onsite chemical storage and commercial use, and historic offsite manufacturing and commercial purposes.
- Results of the soil sampling have shown that with the exception of asbestos (friable and non-friable) and carcinogenic PAHs, the concentrations of chemical contaminants recorded within the analysed samples were within the respective assessment criteria that are protective of human health in high-density residential and public open space land use settings. The concentrations of asbestos and carcinogenic PAHs are considered to present an unacceptable risk to human health for the proposed development and will require a strategy of remediation and/or management to be implemented to mitigate these risks.

- The results of the soil sampling have also shown that the concentrations of cadmium and copper at discrete locations and benzo(a)pyrene across most of the site do not meet the respective threshold criteria that are protective of ecological receptors and will require remediation and/or management to mitigate these risks. It is noted that with the exception of benzo(a)pyrene within three (3) borehole locations, the elevated concentrations of cadmium, copper and benzo(a)pyrene not meeting the respective protective ecological threshold criteria are co-located with other chemical contaminants identified at levels considered to present an unacceptable risk to human health. Therefore, the management of the human health risks in those locations is considered likely to also address the unacceptable risks to ecological receptors.

- The results of the groundwater sampling have shown that the groundwater beneath the site is impacted by zinc and TRH at concentrations that potentially present an unacceptable risk to marine ecosystems, and that impacted groundwater is likely to be migrating offsite. Based on the investigation, it is considered that whilst the site is likely to be contributing to the TRH impact, the zinc concentrations are possibly attributable to an off-site source located up-gradient of the site. A strategy of remediation and/or management is required to mitigate this risk.

- The results of the groundwater sampling have shown that with the exception of nickel in monitoring well GW5, all detected concentrations of chemical contaminants were within the respective NHRMC/NRMMC (2018) Australian drinking water guidelines for health and aesthetic considerations. STS note that the NHRMC/NRMMC (2018) Australian drinking water guidelines state that no guideline values have been set for PAHs, except for benzo(a)pyrene. However, based on the carcinogenic potencies of other PAHs relative to benzo(a)pyrene, an estimation of the risk posed can be made. The concentration of benzo(a)anthracene within monitoring well GW4 exceeded the estimated risk criterion. Additionally, though concentrations of TRH were detected within the groundwater samples, there is currently no guidance value set for concentrations of TRH within drinking water. A strategy of remediation and/or management is required to mitigate these risks.

- It is noted that a low concentration of total VOCs was detected within one (1) of the groundwater samples analysed. No concentrations of individual VOCs exceeding the respective LOR were recorded, indicating it is unlikely that high concentrations are present within the groundwater. The investigation concluded that the site was unlikely to be the source of the VOC impact and that it was highly possible that the VOC impact was related to an unknown source located up-gradient of the site.

- Due to the presence of a low concentration of total VOCs within the groundwater beneath the site, STS recommends that a soil gas sampling programme is conducted to confirm whether an unacceptable risk to human health via vapour intrusion of VOCs is present in regard to the proposed development plans. Alternatively, a suitable vapour

barrier may be included within the design of the building to mitigate potential risks from current unknown potential vapour intrusion of VOCs.

- A remedial action plan (RAP) is to be prepared for the site to address the unacceptable risks to human health, and terrestrial and aquatic receptors as a result of the identified soil and groundwater impacts and is to include a soil gas sampling programme for the assessment of VOC vapour intrusion potential.

- Based on the findings of the investigation, the site can be made suitable for the proposed high density residential and open public space land uses in accordance with the proposed plans, subject to the preparation and implementation of a remedial action plan (RAP) to address the identified soil and groundwater impacts.

- Based on the laboratory results for the ASS assessment, the net sulphidic acidity and total net acidity of the soil sampled and tested at the site have triggered the requirement for further management action. Hence, a site-specific acid sulfate soil management plan (ASSMP) should be prepared prior to the commencement of construction.

- Due to the unknown historical fill, including prior demolition activities involving old building structures (potentially containing ACM), and the detection of asbestos (friable and non-friable) in the soil sampled and tested in this current investigation, it would be necessary that an unexpected-finds protocol (UFP) is prepared for implementation at the site upon commencement of construction.

- In addition to the above, the soil and groundwater impacts identified at the site meet the respective trigger criteria for notification of the contamination to the NSW EPA under the provisions of the CLM Act 1997. As the soil and groundwater impacts meet the notification trigger criteria, the landowner has a legal obligation to submit a notification to the NSW EPA. In accordance with Section 60(4) of the CLM Act, the landowner is required to submit the notification to the NSW EPA as soon as practicable after they become aware of the contamination.

19. LIMITATIONS

STS GeoEnvironmental Pty Ltd has performed its services for this project in accordance with its current professional standards. Laboratory analyses were undertaken as part of this investigation by SGS Australia and ALS Environmental, who are NATA-accredited for the analyses performed.

When assessing the extent of contamination across a site from a soil and groundwater sampling programme there is the possibility that variations may occur between sample locations and the actual presence of contaminated material at the site may differ from that

referred to herein, since no sampling programme, no matter how comprehensive, can reveal all anomalies and hot spots that may be present.

STS assumed that data/information provided by a third party which STS have used in generating this report are accurate, true and complete. The verification of the data/information provided by a third party does not form part of this DSI.

The data collected has been used to form an opinion about land contamination with regard to the construction of a residential apartment complex comprising an 8-storey residential building, extending into 25 and 26 storey residential apartment towers constructed over a common four (4) level basement car park, with common open space at the ground floor. Deep soil planting zones are proposed within the public park in the north-east of the site and within the transmission line easement along the western boundary. If the nature of the proposed land use changes, the conclusions given in this report may need to be revised. Also, regulatory evaluation criteria are constantly changing and as a consequence, concentrations of contaminants presently considered low may, in the future, fall under different regulatory standards which could alter the outcome of this investigation. Opinions and judgements expressed herein, which are based on our understanding and interpretation of current regulatory standards, should not be construed as legal opinions.

This document and the information herein have been prepared solely for the use of Columbia Lane Development Pty Ltd for the purposes nominated in this report. No person or organisation other than of Columbia Lane Development Pty Ltd are entitled to rely on any part of the report without the prior written consent of STS GeoEnvironmental Pty Ltd. Any third party relying on this report shall have no legal recourse against STS GeoEnvironmental Pty Ltd or its parent organisations or subsidiaries and shall indemnify and defend them from all and against all claims arising out of, or in conjunction with such use or reliance.



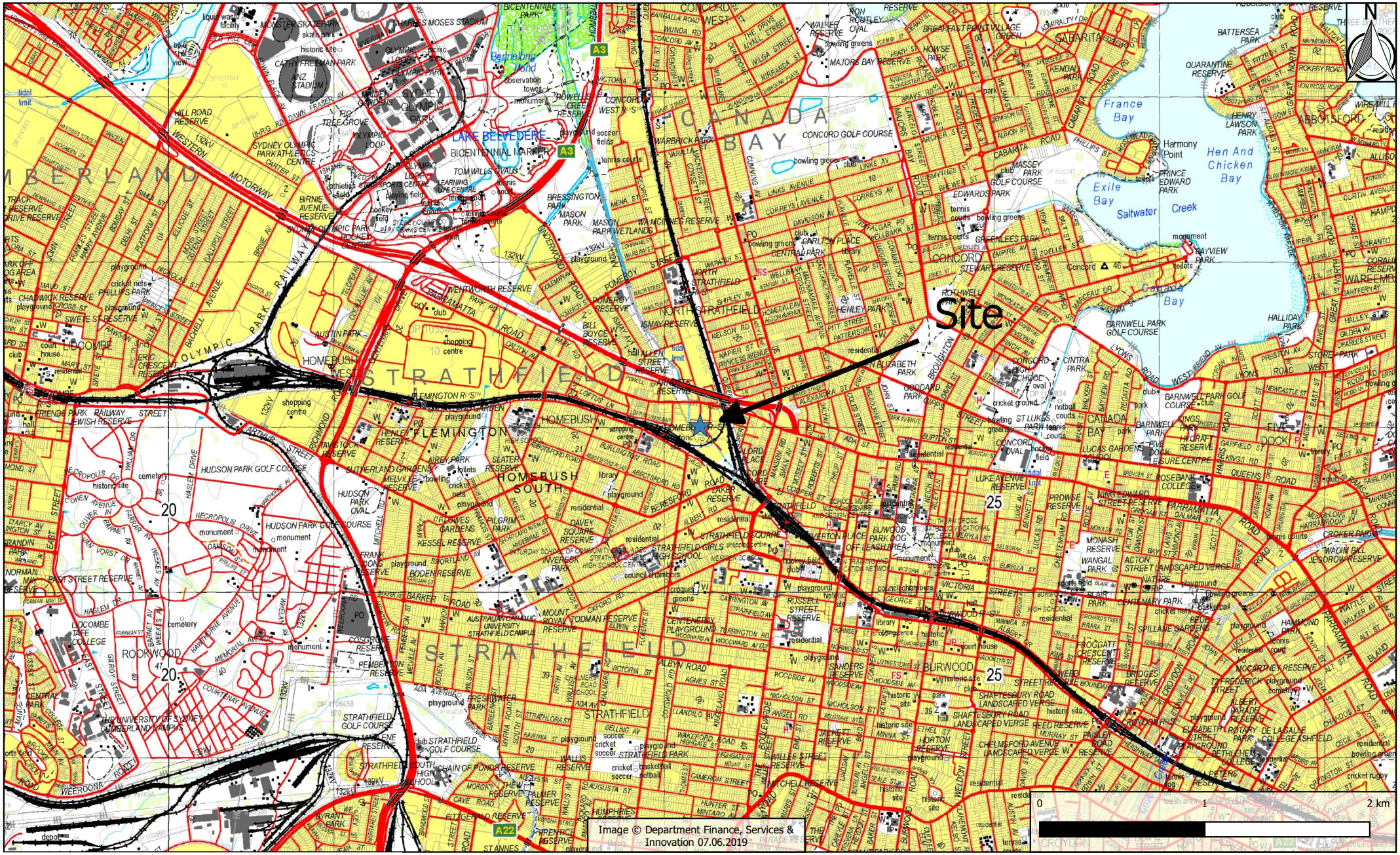
Report Written By:
Craig Ridley, *BAppSc (EnvHlth)*
Environmental Consultant



Report Reviewed By:
Esther Koay, *MIEAust CPEng NER*
Environmental Manager

FIGURES

Locality Sketch



STS GeoEnvironmental Pty Ltd

Client: Columbia Lane Developement Pty Ltd

Detailed Site Investigation

11-17 Columbia Lane, Homebush

Project No.: 21024/1934D-E

Date: Jun. 2019 Page Size: A4

Drawing No.: 19/1315/1

Approximate Scale: 1:30000

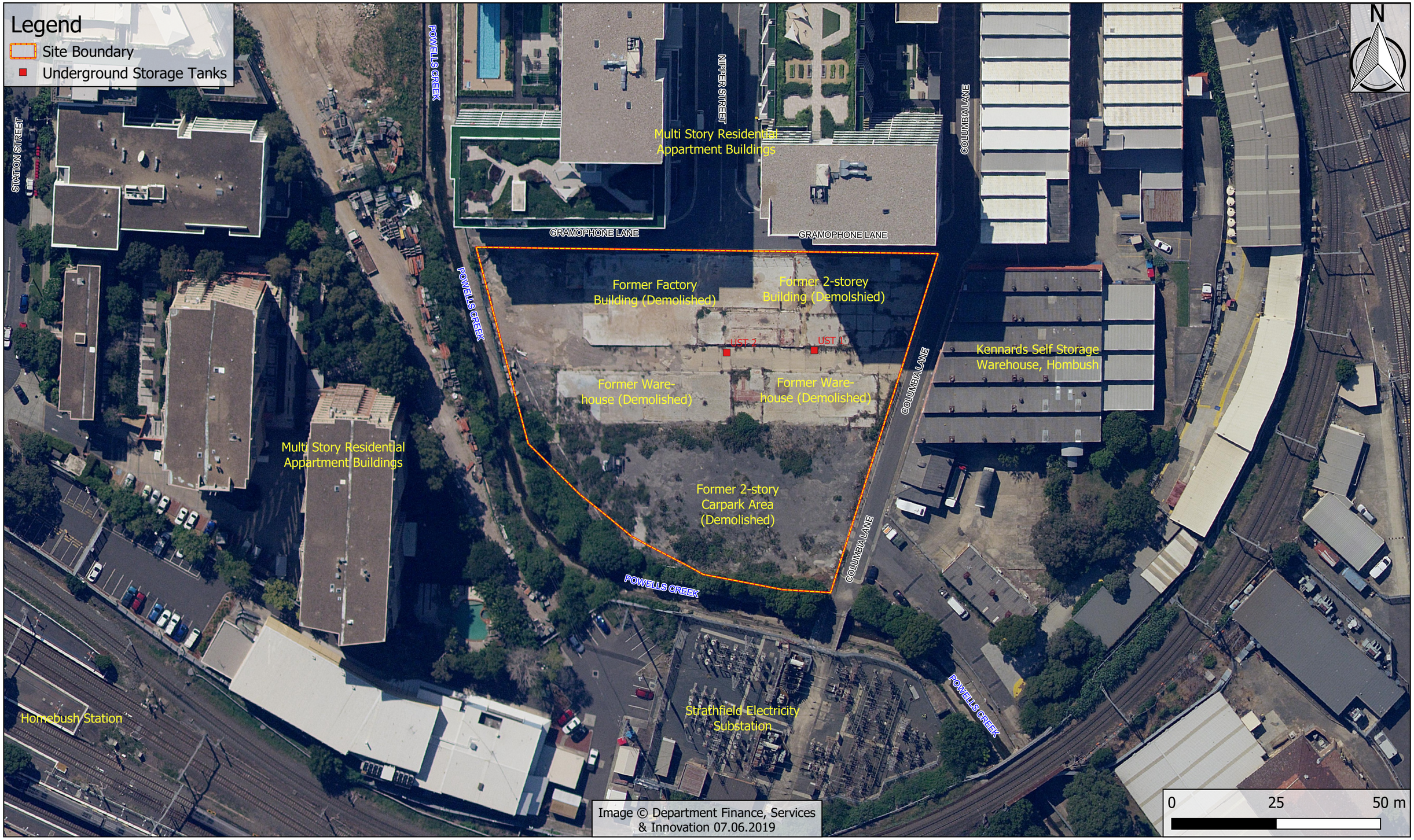
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Site Features



STS GeoEnvironmental Pty

Client: Columbia Lane Developement Pty Ltd

Detailed Site Investigation

11-17 Columbia Lane, Homebush

Project No.: 21024/1934D-E

Date: Jun. 2019 Page Size: A3

Drawing No.: 19/1315/2

Approximate Scale: 1:850

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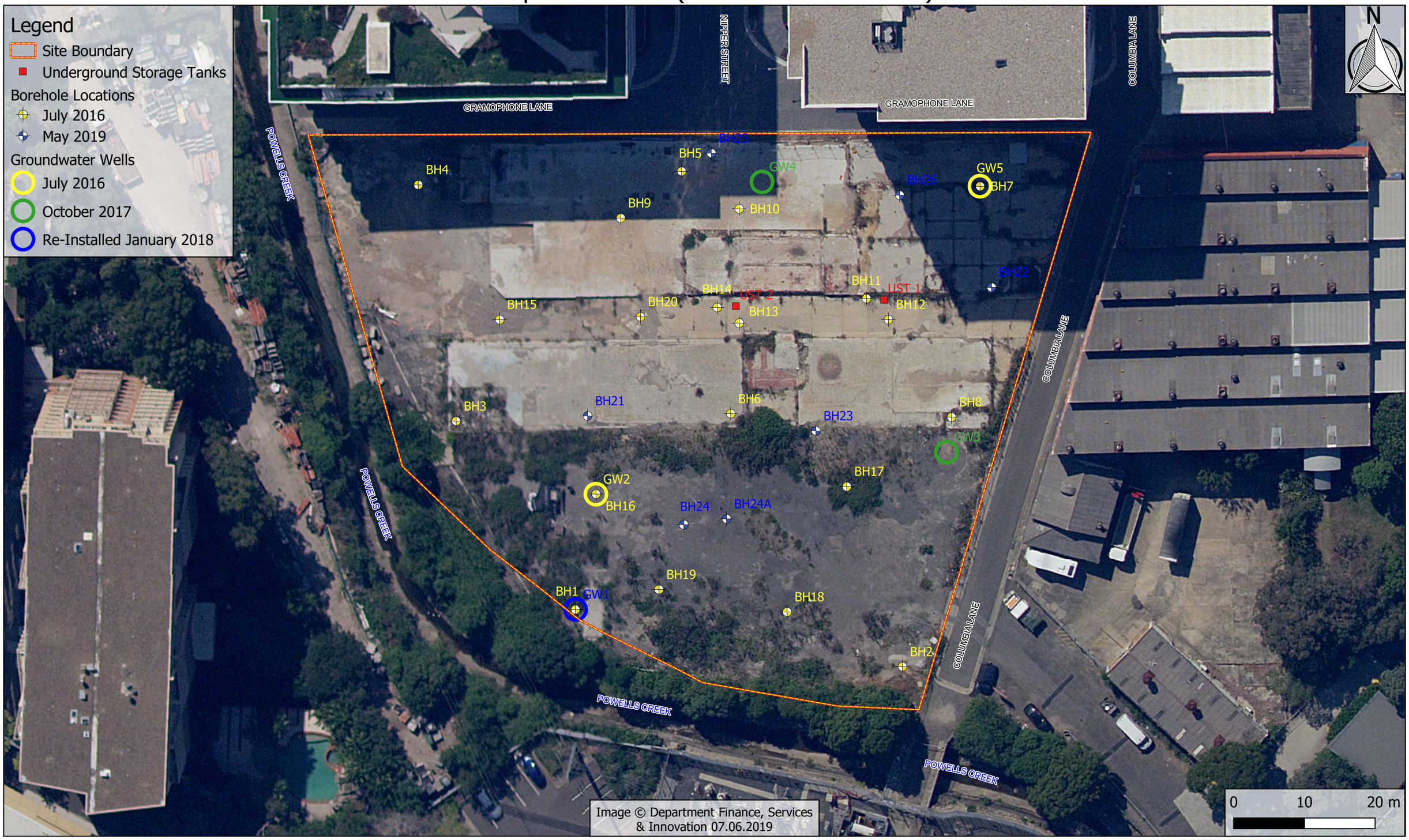
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Sample Locations (Soil and Groundwater)



STS GeoEnvironmental Pty

Client: Columbia Lane Developement Pty Ltd

Detailed Site Investigation

11-17 Columbia Lane, Homebush

Project No.: 21024/1934D-E

Date: Jun. 2019 Page Size: A3

Drawing No.: 19/1315/3

Approximate Scale: 1:500

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TABLES OF RESULTS

Table A Analytical Results for Soil Samples within Proposed Building Area - 2019 Detailed Site Investigation

Analytes	Borehole No./ Site Location:	BH1	BH1	BH1	BH1	BH1	BH2	BH2	BH2	BH2	BH3	BH3	BH3	BH4	NEPM Background Ranges	NEPM 2013 HIL B / HSL B (High Density Residential)	NEPM 2013 EILs/ ESLs (Urban Residential and Public Open Space)	CRC CARE 2011 HSL-B (High Density Residential) Direct Contact	NEPM 2013 Management Limits (Residential, Parkland & Public Open Space)
	Sample No.:	S1	S2	S3	S4	S5	S6	S7	S8	S9	S12	S13	S14	S15					
	Depth:	0.2 m	0.4 m	0.7 m	1.7 m	3.2 m	0.3 m	0.6 m	1.2 m	3.0 m	0.2 m	0.6 m	1.8 m	0.3 m					
	Date Sampled:	04-Jul-16	04-Jul-16	04-Jul-16	04-Jul-16	04-Jul-16	04-Jul-16	04-Jul-16	04-Jul-16	04-Jul-16	05-Jul-16	05-Jul-16	05-Jul-16	06-Jul-16					
Metals																			
Arsenic		<5	<5	41	9	8	13	8	<5	10	<5	8	<5	<5	1-50	500	100 (b), (i)		
Cadmium		<1	<1	<1	<1	<1	4	2	<1	<1	<1	<1	<1	<1	1	150	3 (d)		
Chromium		48	7	12	36	36	23	16	9	38	23	5	13	12	5-1000	500 (m)	550 (c), (o)		
Copper		78	56	76	16	16	167	239	12	14	52	22	13	87	2-100	30,000	95 (c)		
Lead		24	46	1,040	28	28	126	365	13	42	27	20	19	56	2-200	1,200	1,100 (b), (i)		
Mercury		<0.1	0.2	0.6	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.3	0.03 (n)	120 (n)	1 (d),(n)		
Nickel		85	61	6	19	19	96	22	3	5	28	5	3	46	5-500	1,200	200 (c)		
Zinc		82	41	239	41	41	199	240	11	45	42	52	8	251	10-300	60,000	510 (c)		
Monocyclic Aromatic Hydrocarbons (MAHs)																			
Benzene		<0.2	<0.2	-	<0.2	-	<0.2	<0.2	<0.2	-	<0.2	<0.2	-	<0.2		0.7 (g)	65 (h)	140	
Toluene		<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.5		480 (g)	105 (h)	21,000	
Ethylbenzene		<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.5		NL (g), (l)	125 (h)	5,900	
Xylenes		<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.5		110 (g)	45 (h)	17,000	
Napthalene		<1	<1	-	<1	-	<1	<1	<1	-	<1	<1	-	<1		5 (g)	170 (b), (h	2,200	
Total MAHs above detection limits		ND	ND	-	ND	-	ND	ND	ND	-	ND	ND	-	ND					
Volatile Organic Compounds																			
Total VOCs above detection limits		-	-	-	-	-	-	-	ND	-	-	ND	-	-					
Total Petroleum Hydrocarbons (TPHs)																			
Total C_6-C_{10}		<10	<10	-	<10	-	<10	<10	<10	-	<10	<10	-	<10					800 (h)
Total C_{10}-C_{16}		<50	<50	-	<50	-	<50	<50	<50	-	<50	<50	-	<50			120		1,000 (h)
F1 C_6-C_{10} [1] (d)		<10	<10	-	<10	-	<10	<10	<10	-	<10	<10	-	<10		50 (g)	180	5,600	
F2 C_{10}-C_{16} [1] (e)		<50	<50	-	<50	-	<50	<50	<50	-	<50	<50	-	<50		280 (g)		4,200	
F3 >C_{16}-C_{34}		160	<100	-	250	-	120	1,280	<100	-	<100	<100	-	<100			1,300 (h)	5,800	3,500 (h)
F4 >C_{34}-C_{40}		<100	<100	-	<100	-	<100	650	150	-	<100	<100	-	<100			5,600 (h)	8,100	10,000 (h)
Total C_{10}-C_{40}		160	ND	-	250	-	120	1,930	150	-	ND	ND	-	ND					
Polycyclic Aromatic Hydrocarbons (PAHs)																			
Benzo(a)pyrene		0.7	<0.5	-	4.6	-	1.1	17	<0.5	-	<0.5	<0.5	-	<0.5			0.7 (h)		
Carcinogenic PAHs [2]		0.9	<0.5	-	6.6	-	1.4	24	<0.5	-	<0.5	<0.5	-	<0.5		4			
Total PAHs above detection limits		7.2	ND	-	59.7	-	11.8	170	ND	-	ND	ND	-	ND		400			
Organochlorine Pesticides (OCPs)																			
DDT+DDE+DDE		-	<0.05	-	-	-	<0.05	-	-	-	<0.05	-	-	0.17		600	180 (b), (k)		
Aldrin + Dieldrin		-	<0.05	-	-	-	<0.05	-	-	-	<0.05	-	-	<0.05		10			
Chlordane		-	<0.05	-	-	-	<0.05	-	-	-	<0.05	-	-	<0.05		90			
Endosulfan		-	<0.05	-	-	-	<0.05	-	-	-	<0.05	-	-	<0.05		400			
Endrin		-	<0.05	-	-	-	<0.05	-	-	-	<0.05	-	-	<0.05		20			
Heptachlor		-	<0.05	-	-	-	<0.05	-	-	-	<0.05	-	-	<0.05		10			
HCB		-	<0.05	-	-	-	<0.05	-	-	-	<0.05	-	-	<0.05		15			
Methoxychlor		-	<0.2	-	-	-	<0.2	-	-	-	<0.2	-	-	<0.2		500			
Mirex		-	-	-	-	-	-	-	-	-	-	-	-	-		20			
Total OCPs above detection limits		-	ND	-	-	-	ND	-	-	-	ND	-	-	0.17					
Organophosphorus Pesticides (OPPs)																			
Chlorpyrifos			<0.05				<0.05				<0.05			<0.05		340			
Total OPPs above detection limits		-	ND	-	-	-	ND	-	-	-	ND	-	-	ND					
Polychlorinated Biphenyls (PCB)																			
Total PCBs above detection limits		-	ND	-	-	-	ND	-	-	-	ND	-	-	ND		1			
Phenolic Compounds																			
Phenol		-	<0.5	-	-	-	<0.5	-	-	-	<0.5	-	-	<0.5		45,000			
Pentachlorophenol		-	<2	-	-	-	<2	-	-	-	<2	-	-	<2		130			
Cresols		-	<1.5	-	-	-	<1.5	-	-	-	<1.5	-	-	<1.5		4,700			
Total Phenols		-	ND	-	-	-	ND	-	-	-	ND	-	-	ND					
Asbestos																			
Bonded ACM (w/w) (%)		-	-	-	-	-	-	-	-	-	-	-	-	-		0.04			
Friable asbestos (fibrous and fines)(w/w) (%)		<0.001	-	-	-	-	<0.001	-	<0.001	-	-	-	-	<0.001		0.001			
Asbestos Type		No	-	-	-	-	No	-	No	-	-	-	-	No					

Notes: Results in mg/kg unless specified otherwise.

ND = No individual species detected above laboratory detection limits.

No* = No asbestos found at the reporting limit of 0.1 g/kg by polarised light microscopy. Asbestos material detected and identified at conc. below 0.1 g/kg.

[1] Calculated in accordance with Table 1A(3) of NEPM 2013

[2] Combined carcinogenic PAHs with relative potency to benzo(a)pyrene

[3] Duplicate value adopted due to RPD exceedance

Results shaded red exceed the NEPM 2013 HIL B /HSL B (High Density Residential) criteria

Results shaded blue exceed the NEPM 2013 EIL/ESL criteria for an urban residential and public open space setting

Results shaded green exceed the CRC CARE 2011 HSL B (High Density Residential) criteria for direct contact with soil

Results shaded yellow exceed the NEPM 2013 management limits for a residential, parkland and public open space land setting

Results shaded purple exceed both the NEPM 2013 HIL/HSL B (High Density Residential) and the NEPM 2013 EIL/ESL criteria

(a) ANZECC 1992 background ranges used where no NEPM criteria available

(b) NEPM 2013 generic EIL

(c) NEPM 2013 site-specific EIL

(d) NEPM 1999 EIL used where no generic NEPM 2013 criteria are available

(e) F1 TPH = TPH (C6-C10) minus BTEX fraction

(f) F2 TPH = TPH (C10-C16) minus naphthalene fraction

(g) NEPM 2013 HSL criterion for vapour intrusion, 0m to <1m depth in Clay

(h) Criterion for fine texture grade soils

(i) Criterion for 'aged' contamination

(j) Insufficient data available to calculate 'aged' contamination. The values for fresh contamination should be used

(k) Criterion for DDT

(l) NL= Contaminant is not considered to pose a risk to human health through vapour inhalation regardless the concentration

(m) Criterion for chromium VI

(n) Criterion for inorganic mercury

(o) Criterion for chromium III

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Table A Analytical Results for Soil Samples within Proposed Building Area - 2019 Detailed Site Investigation

Analytes	Borehole No./ Site Location:	BH4	BH4	BH4	BH4	BH5	BH5	BH6	BH6	BH6	BH6	BH9	BH9	BH9	NEPM Background Ranges	NEPM 2013 HIL B / HSL B (High Density Residential)	NEPM 2013 EILs/ ESLs (Urban Residential and Public Open Space)	CRC CARE 2011 HSL-B (High Density Residential) Direct Contact	NEPM 2013 Management Limits (Residential, Parkland & Public Open Space)
	Sample No.:	S16	S17	S18	S19	S20	S21	S22	S25	S26	S27	S40	S41	S42					
	Depth:	0.8 m	1.2 m	2.6 m	4.1 m	0.5 m	1.0 m	0.3 m	1.0 m	1.2 m	5.6 m	0.2 m	0.8 m	1.2 m					
	Date Sampled:	06-Jul-16	06-Jul-16	06-Jul-16	06-Jul-16	06-Jul-16	06-Jul-16	07-Jul-16	07-Jul-16	07-Jul-16	07-Jul-16	18-Jul-16	18-Jul-16	18-Jul-16					
Metals																			
Arsenic		8	6	-	-	7	<5	7	5	<5	-	10	<5	<5	1-50	500	100 (b), (i)		
Cadmium		<1	<1	-	-	2	<1	<1	<1	<1	-	<1	<1	<1	1	150	3 (d)		
Chromium		24	11	-	-	11	11	12	10	10	-	15	68	11	5-1000	500 (m)	550 (c), (o)		
Copper		28	13	-	-	89	9	23	26	7	-	9	66	18	2-100	30,000	95 (c)		
Lead		116	15	-	-	101	10	28	36	12	-	56	8	19	2-200	1,200	1,100 (b), (i)		
Mercury		0.1	<0.1	-	-	0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	0.03 (n)	120 (n)	1 (d),(n)		
Nickel		12	3	-	-	84	<2	9	12	<2	-	7	44	6	5-500	1,200	200 (c)		
Zinc		52	9	-	-	222	7	37	52	6	-	25	127	14	10-300	60,000	510 (c)		
Monocyclic Aromatic Hydrocarbons (MAHs)																			
Benzene		<0.2	<0.2	-	-	<0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	-	<0.2		0.7 (g)	65 (h)	140	
Toluene		<0.5	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5		480 (g)	105 (h)	21,000	
Ethylbenzene		<0.5	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5		NL (g), (l)	125 (h)	5,900	
Xylenes		<0.5	<0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5		110 (g)	45 (h)	17,000	
Napthalene		<1	<1	-	-	<1	<1	<1	<1	<1	-	<1	-	<1		5 (g)	170 (b), (h	2,200	
Total MAHs above detection limits		ND	ND	-	-	ND	ND	ND	ND	ND	-	ND	-	ND					
Volatile Organic Compounds																			
Total VOCs above detection limits		-	-	-	-	-	-	-	-	-	-	-	-	ND					
Total Petroleum Hydrocarbons (TPHs)																			
Total C_6-C_{10}		<10	<10	-	-	<10	<10	<10	<10	<10	-	<10	-	<10					800 (h)
Total C_{10}-C_{16}		<50	<50	-	-	<50	<50	<50	<50	<50	-	<50	-	<50			120		1,000 (h)
F1 C_6-C_{10} [1] (d)		<10	<10	-	-	<10	<10	<10	<10	<10	-	<10	-	<10		50 (g)	180	5,600	
F2 C_{10}-C_{16} [1] (e)		<50	<50	-	-	<50	<50	<50	<50	<50	-	<50	-	<50		280 (g)		4,200	
F3 >C_{16}-C_{34}		<100	180	-	-	<100	<100	<100	<100	<100	-	<100	-	<100			1,300 (h)	5,800	3,500 (h)
F4 >C_{34}-C_{40}		<100	<100	-	-	<100	<100	<100	<100	<100	-	<100	-	<100			5,600 (h)	8,100	10,000 (h)
Total C_{10}-C_{40}		ND	180	-	-	ND	ND	ND	ND	ND	-	ND	-	ND					
Polycyclic Aromatic Hydrocarbons (PAHs)																			
Benzo(a)pyrene		1.0	0.6	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5			0.7 (h)		
Carcinogenic PAHs [2]		1.3	0.7	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5		4			
Total PAHs above detection limits		7.0	4.0	-	-	4	ND	ND	ND	ND	-	ND	-	ND		400			
Organochlorine Pesticides (OCPs)																			
DDT+DDE+DDE		-	-	-	-	<0.05	-	-	-	-	-	-	-	-		600	180 (b), (k)		
Aldrin + Dieldrin		-	-	-	-	<0.05	-	-	-	-	-	-	-	-		10			
Chlordane		-	-	-	-	<0.05	-	-	-	-	-	-	-	-		90			
Endosulfan		-	-	-	-	<0.05	-	-	-	-	-	-	-	-		400			
Endrin		-	-	-	-	<0.05	-	-	-	-	-	-	-	-		20			
Heptachlor		-	-	-	-	<0.05	-	-	-	-	-	-	-	-		10			
HCB		-	-	-	-	<0.05	-	-	-	-	-	-	-	-		15			
Methoxychlor		-	-	-	-	<0.2	-	-	-	-	-	-	-	-		500			
Mirex		-	-	-	-	-	-	-	-	-	-	-	-	-		20			
Total OCPs above detection limits		-	-	-	-	ND	-	-	-	-	-	-	-	-					
Organophosphorus Pesticides (OPPs)																			
Chlorpyrifos				-	-	<0.05					-					340			
Total OPPs above detection limits		-	-	-	-	ND	-	-	-	-	-	-	-	-					
Polychlorinated Biphenyls (PCB)																			
Total PCBs above detection limits		-	-	-	-	ND	-	-	-	-	-	-	-	-		1			
Phenolic Compounds																			
Phenol		-	-	-	-	<0.5	-	-	-	-	-	-	-	-		45,000			
Pentachlorophenol		-	-	-	-	<2	-	-	-	-	-	-	-	-		130			
Cresols		-	-	-	-	<1.5	-	-	-	-	-	-	-	-		4,700			
Total Phenols		-	-	-	-	ND	-	-	-	-	-	-	-	-					
Asbestos																			
Bonded ACM (w/w) (%)		-	-	-	-	-	-	-	-	-	-	-	-	-		0.04			
Friable asbestos (fibrous and fines)(w/w) (%)		-	-	-	-	<0.001	-	<0.001	-	-	-	0.0005	-	-		0.001			
Asbestos Type		-	-	-	-	No	-	No	-	-	-	CH	-	-					

Notes Results in mg/kg unless specified otherwise.

ND = No individual species detected above laboratory detection limits.

No* = No asbestos found at the reporting limit of 0.1 g/kg by polarised light microscopy. Asbestos material detected and identified at conc. below 0.1 g/kg.

[1] Calculated in accordance with Table 1A(3) of NEPM 2013

[2] Combined carcinogenic PAHs with relative potency to benzo(a)pyrene

[3] Duplicate value adopted due to RPD exceedance

Results shaded red exceed the NEPM 2013 HIL B /HSL B (High Density Residential) criteria

Results shaded blue exceed the NEPM 2013 EIL/ESL criteria for an urban residential and public open space setting

Results shaded green exceed the CRC CARE 2011 HSL B (High Density Residential) criteria for direct contact with soil

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Results shaded purple exceed both the NEPM 2013 HIL/HSL B (High Density Residential) and the NEPM 2013 EIL/ESL criteria

(a) ANZECC 1992 background ranges used where no NEPM criteria available

(b) NEPM 2013 generic EIL

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(d) NEPM 1999 EIL used where no generic NEPM 2013 criteria are available

(e) F1 TPH = TPH (C6-C10) minus BTEX fraction

(f) F2 TPH = TPH (C10-C16) minus naphthalene fraction

(g) NEPM 2013 HSL criterion for vapour intrusion, 0m to <1m depth in Clay

(h) Criterion for fine texture grade soils

(i) Criterion for 'aged' contamination

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(k) Criterion for DDT

(l) NL= Contaminant is not considered to pose a risk to human health through vapour inhalation regardless the concentration

(m) Criterion for chromium VI

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(o) Criterion for chromium III

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Table A Analytical Results for Soil Samples within Proposed Building Area - 2019 Detailed Site Investigation

Analytes	Borehole No./ Site Location:	BH10	BH13	BH13	BH13	BH14	BH14	BH14	BH15	BH15	BH16	BH16	BH17	BH17	NEPM Background Ranges	NEPM 2013 HIL B / HSL B (High Density Residential)	NEPM 2013 EILs/ ESLs (Urban Residential and Public Open Space)	CRC CARE 2011 HSL-B (High Density Residential) Direct Contact	NEPM 2013 Management Limits (Residential, Parkland & Public Open Space)
	Sample No.:	S43	S54	S55	S56	S61	S62	S65	S66	S67	S68	S69	S70	S73					
	Depth:	0.5 m	0.5 m	1.5 m	3.0 m	0.2 m	1.5 m	3.0 m	0.3 m	0.7m	0.2 m	0.5 m	0.2 m	0.8 m					
	Date Sampled:	18-Jul-16	19-Jul-16	19-Jul-16	19-Jul-16	19-Jul-16	19-Jul-16	19-Jul-16	19-Jul-16	19-Jul-16	19-Jul-16	19-Jul-16	19-Jul-16	19-Jul-16					
Metals																			
Arsenic		<5	<5	<5	6	8	7	<5	12	<5	6	6	<5	<5	1-50	500	100 (b), (i)		
Cadmium		<1	<1	<1	<1	<1	<1	<1	<1	<1	1	<1	<1	<1	1	150	3 (d)		
Chromium		17	8	12	13	6	12[3]	11	19	9	14	14	31	10	5-1000	500 (m)	550 (c), (o)		
Copper		14	25	10	11	<5	<5	6	63	30	129	12	47	10	2-100	30,000	95 (c)		
Lead		14	27	19	18	<5	<5	9	117	25	106	14	25	47	2-200	1,200	1,100 (b), (i)		
Mercury		<0.1	<0.1	<0.1	<.01	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.03 (n)	120 (n)	1 (d),(n)		
Nickel		5	3	3	<2	<2	7[3]	<2	45	5	50	2	36	4	5-500	1,200	200 (c)		
Zinc		5	18	6	<5	20	14[3]	<5	259	37	198	10	88	67	10-300	60,000	510 (c)		
Monocyclic Aromatic Hydrocarbons (MAHs)																			
Benzene		<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-		0.7 (g)	65 (h)	140	
Toluene		<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-		480 (g)	105 (h)	21,000	
Ethylbenzene		<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-		NL (g), (l)	125 (h)	5,900	
Xylenes		<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-		110 (g)	45 (h)	17,000	
Napthalene		<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	<1	-		5 (g)	170 (b), (h	2,200	
Total MAHs above detection limits		ND	ND	ND	ND	-	ND	ND	ND	ND	ND	ND	ND	-					
Volatile Organic Compounds																			
Total VOCs above detection limits		ND	-	ND	-	-	-	ND	-	-	-	ND	ND	-					
Total Petroleum Hydrocarbons (TPHs)																			
Total C_6-C_{10}		<10	<10	<10	<10	-	<10	<10	<10	<10	<10	<10	<10	-					800 (h)
Total C_{10}-C_{16}		<50	<50	<50	<50	-	<50	<50	<50	<50	<50	<50	<50	-			120		1,000 (h)
F1 C_6-C_{10}[1] (d)		<10	<10	<10	<10	-	<10	<10	<10	<10	<10	<10	<10	-		50 (g)	180	5,600	
F2 C_{10}-C_{16}[1] (e)		<50	<50	<50	<50	-	<50	<50	<50	<50	<50	<50	<50	-		280 (g)		4,200	
F3 $>C_{16}$-C_{34}		<100	<100	<100	<100	-	<100	<100	<100	<100	320	<100	160	-			1,300 (h)	5,800	3,500 (h)
F4 $>C_{34}$-C_{40}		<100	<100	<100	<100	-	<100	<100	<100	<100	100	<100	<100	-			5,600 (h)	8,100	10,000 (h)
Total C_{10}-C_{40}		ND	ND	ND	ND	-	ND	ND	ND	ND	420	ND	160	-					
Polycyclic Aromatic Hydrocarbons (PAHs)																			
Benzo(a)pyrene		<0.5	0.9	<0.5	<0.5	-	<0.5	<0.5	0.6	<0.5	2.8	<0.5	1.9[3]	-			0.7 (h)		
Carcinogenic PAHs [2]		<0.5	1.1	<0.5	<0.5	-	<0.5	<0.5	0.7	<0.5	3.7	<0.5	2.5[3]	-		4			
Total PAHs above detection limits		ND	8.1	ND	ND	-	ND	ND	4.5	ND	30.6	ND	22.1[3]	-		400			
Organochlorine Pesticides (OCPs)																			
DDT+DDE+DDE		<0.05	-	<0.05	-	-	-	-	-	<0.05	-	<0.05	-	-		600	180 (b), (k)		
Aldrin + Dieldrin		<0.05	-	<0.05	-	-	-	-	-	<0.05	-	<0.05	-	-		10			
Chlordane		<0.05	-	<0.05	-	-	-	-	-	<0.05	-	<0.05	-	-		90			
Endosulfan		<0.05	-	<0.05	-	-	-	-	-	<0.05	-	<0.05	-	-		400			
Endrin		<0.05	-	<0.05	-	-	-	-	-	<0.05	-	<0.05	-	-		20			
Heptachlor		<0.05	-	<0.05	-	-	-	-	-	<0.05	-	<0.05	-	-		10			
HCB		<0.05	-	<0.05	-	-	-	-	-	<0.05	-	<0.05	-	-		15			
Methoxychlor		<0.2	-	<0.2	-	-	-	-	-	<0.2	-	<0.2	-	-		500			
Mirex		-	-	-	-	-	-	-	-	-	-	-	-	-		20			
Total OCPs above detection limits		ND	-	ND	-	-	-	-	-	ND	-	ND	-	-					
Organophosphorus Pesticides (OPPs)																			
Chlorpyrifos		<0.05		<0.05	-	-	-	-	-	<0.05		<0.05		-		340			
Total OPPs above detection limits		ND	-	ND	-	-	-	-	-	ND	-	ND	-	-					
Polychlorinated Biphenyls (PCB)																			
Total PCBs above detection limits		ND	-	ND	-	-	-	-	-	ND	-	ND	-	-		1			
Phenolic Compounds																			
Phenol		<0.5	-	<0.5	-	-	-	-	-	<0.5	-	<0.5	-	-		45,000			
Pentachlorophenol		<2	-	<2	-	-	-	-	-	<2	-	<2	-	-		130			
Cresols		<1.5	-	<1.5	-	-	-	-	-	<1.5	-	<1.5	-	-		4,700			
Total Phenols		ND	-	ND	-	-	-	-	-	ND	-	ND	-	-					
Asbestos																			
Bonded ACM (w/w) (%)		-	-	-	-	-	-	-	-	-	-	-	-	-		0.04			
Friable asbestos (fibrous and fines)(w/w) (%)		<0.001	<0.001	-	-	-	-	-	-	-	<0.001	-	-	-		0.001			
Asbestos Type		No	No	-	-	-	-	-	-	-	No	-	-	-					

Notes: Results in mg/kg unless specified otherwise.

ND = No individual species detected above laboratory detection limits.

No* = No asbestos found at the reporting limit of 0.1 g/kg by polarised light microscopy. Asbestos material detected and identified at conc. below 0.1 g/kg.

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Results shaded red exceed the NEPM 2013 HIL B /HSL B (High Density Residential) criteria

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(a) ANZECC 1992 background ranges used where no NEPM criteria available

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(c) NEPM 2013 site-specific EIL

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(e) F1 TPH = TPH (C6-C10) minus BTEX fraction

(f) F2 TPH = TPH (C10-C16) minus naphthalene fraction

(g) NEPM 2013 HSL criterion for vapour intrusion, 0m to <1m depth in Clay

(h) Criterion for fine texture grade soils

(i) Criterion for 'aged' contamination

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Table A Analytical Results for Soil Samples within Proposed Building Area - 2019 Detailed Site Investigation

Analytes	Borehole No./ Site Location:	BH18	BH19	BH19	BH20	BH20	BH21	BH21	BH21	BH21	BH24	BH24	BH24	BH24	NEPM Background Ranges	NEPM 2013 HIL B / HSL B (High Density Residential)	NEPM 2013 EILs/ ESLs (Urban Residential and Public Open Space)	CRC CARE 2011 HSL-B (High Density Residential) Direct Contact	NEPM 2013 Management Limits (Residential, Parkland & Public Open Space)
	Sample No.:	S74	S75	S76	S77	S78	S80	S81	S82	S83	S96	S97	S98	S99					
	Depth:	0.2 m	0.2 m	0.4 m	0.3 m	1.0 m	0.2 m	1.5 m	2.0 m	3.0 m	0.2 m	0.5 m	1.5 m	2.5 m					
	Date Sampled:	19-Jul-16	19-Jul-16	19-Jul-16	19-Jul-16	19-Jul-16	20-May-19	20-May-19	20-May-19	20-May-19	20-May-19	20-May-19	20-May-19	20-May-19					
Metals																			
Arsenic		<5	<5	<5	-	-	2	3	-	3	6	4	3	-	1-50	500	100 (b), (i)		
Cadmium		<1	2	<1	-	-	<0.3	<0.3	-	<0.3	1.2	<0.3	<0.3	-	1	150	3 (d)		
Chromium		10	23	14	-	-	30	27	-	3.9	18	15	6.5	-	5-1000	500 (m)	550 (c), (o)		
Copper		8	360	15	-	-	21	39	-	5.2	73	19	4.9	-	2-100	30,000	95 (c)		
Lead		19	148	15	-	-	5	6	-	6	46	14	4	-	2-200	1,200	1,100 (b), (i)		
Mercury		<0.1	<0.1	<0.1	-	-	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	-	0.03 (n)	120 (n)	1 (d),(n)		
Nickel		3	49	2	-	-	41	30	-	3.1	37	7.1	2.4	-	5-500	1,200	200 (c)		
Zinc		11	215	11	-	-	36	35	-	5.6	57	12	4.7	-	10-300	60,000	510 (c)		
Monocyclic Aromatic Hydrocarbons (MAHs)																			
Benzene		<0.2	<0.2	-	-	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	-		0.7 (g)	65 (h)	140	
Toluene		<0.5	<0.5	-	-	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	-		480 (g)	105 (h)	21,000	
Ethylbenzene		<0.5	<0.5	-	-	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	-		NL (g), (l)	125 (h)	5,900	
Xylenes		<0.5	<0.5	-	-	-	<0.3	<0.3	-	<0.3	<0.3	-	<0.3	-		110 (g)	45 (h)	17,000	
Napthalene		<1	<1	-	-	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	-		5 (g)	170 (b), (h	2,200	
Total MAHs above detection limits		ND	ND	-	-	-	ND	ND	-	ND	ND	-	ND	-					
Volatile Organic Compounds																			
Total VOCs above detection limits		-	-	-	-	-	-	-	-	-	-	-	-	-					
Total Petroleum Hydrocarbons (TPHs)																			
Total C_6-C_{10}		<10	<10	-	-	-	<25	<25	-	<25	<25	-	<25	-					800 (h)
Total C_{10}-C_{16}		<50	<50	-	-	-	<25	<25	-	<25	<25	-	<25	-			120		1,000 (h)
F1 C_6-C_{10} [1] (d)		<10	<10	-	-	-	<25	<25	-	<25	<25	-	<25	-		50 (g)	180	5,600	
F2 C_{10}-C_{16} [1] (e)		<50	<50	-	-	-	<25	<25	-	<25	<25	-	<25	-		280 (g)		4,200	
F3 >C_{16}-C_{34}		<100	170	-	-	-	<90	<90	-	<90	<90	-	<90	-			1,300 (h)	5,800	3,500 (h)
F4 >C_{34}-C_{40}		<100	140	-	-	-	<120	<120	-	<120	<120	-	<120	-			5,600 (h)	8,100	10,000 (h)
Total C_{10}-C_{40}		ND	310	-	-	-	ND	ND	-	ND	ND	-	ND	-					
Polycyclic Aromatic Hydrocarbons (PAHs)																			
Benzo(a)pyrene		<0.5	<0.5	-	-	-	<0.1	<0.1	-	<0.1	0.4	-	<0.1	-			0.7 (h)		
Carcinogenic PAHs [2]		<0.5	<0.5	-	-	-	<0.2	<0.2	-	<0.2	0.6	-	<0.2	-		4			
Total PAHs above detection limits		ND	ND	-	-	-	0.1	ND	-	ND	4.1	-	ND	-		400			
Organochlorine Pesticides (OCPs)																			
DDT+DDE+DDE		<0.05	-	-	-	-	-	<0.6	-	-	-	-		-		600	180 (b), (k)		
Aldrin + Dieldrin		<0.05	-	-	-	-	-	<0.3	-	-	-	-		-		10			
Chlordane		<0.05	-	-	-	-	-	<0.2	-	-	-	-		-		90			
Endosulfan		<0.05	-	-	-	-	-	<0.5	-	-	-	-		-		400			
Endrin		<0.05	-	-	-	-	-	<0.2	-	-	-	-		-		20			
Heptachlor		<0.05	-	-	-	-	-	<0.1	-	-	-	-		-		10			
HCB		<0.05	-	-	-	-	-	<0.1	-	-	-	-		-		15			
Methoxychlor		<0.2	-	-	-	-	-	<0.1	-	-	-	-		-		500			
Mirex		-	-	-	-	-	-	<0.1	-	-	-	-		-		20			
Total OCPs above detection limits		ND	-	-	-	-	-	ND	-	-	-	-		-					
Organophosphorus Pesticides (OPPs)																			
Chlorpyrifos		<0.05			-	-	-	<0.2	-	-	-	-		-		340			
Total OPPs above detection limits		ND	-	-	-	-	-	ND	-	-	-	-		-					
Polychlorinated Biphenyls (PCB)																			
Total PCBs above detection limits		ND	-	-	-	-	-	ND	-	-	-	-		-		1			
Phenolic Compounds																			
Phenol		<0.5	-	-	-	-	-	<0.5	-	-	-	-		-		45,000			
Pentachlorophenol		<2	-	-				<0.5								130			
Cresols		<1.5	-	-	-	-	-	<1.5	-	-	-	-		-		4,700			
Total Phenols		ND	-	-	-	-	-	ND	-	-	-	-		-					
Asbestos																			
Bonded ACM (w/w) (%)		-	-	-	-	-	<0.01	<0.01	-	-	-	<0.01	<0.01	-		0.04			
Friable asbestos (fibrous and fines)(w/w) (%)		<0.001	-	-	-	-	<0.001	<0.001	-	-	-	<0.001	<0.001	-		0.001			
Asbestos Type		No	-	-	-	-	No	No	-	-	-	No	No	-					

Notes: Results in mg/kg unless specified otherwise.

ND = No individual species detected above laboratory detection limits.

No* = No asbestos found at the reporting limit of 0.1 g/kg by polarised light microscopy. Asbestos material detected and identified at conc. below 0.1 g/kg.

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Results shaded yellow exceed the NEPM 2013 management limits for a residential, parkland and public open space land setting

Results shaded purple exceed both the NEPM 2013 HIL/HSL B (High Density Residential) and the NEPM 2013 EIL/ESL criteria

(a) ANZECC 1992 background ranges used where no NEPM criteria available

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(c) NEPM 2013 site-specific EIL

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(e) F1 TPH = TPH (C6-C10) minus BTEX fraction

(f) F2 TPH = TPH (C10-C16) minus naphthalene fraction

(g) NEPM 2013 HSL criterion for vapour intrusion, 0m to <1m depth in Clay

(h) Criterion for fine texture grade soils

(i) Criterion for 'aged' contamination

(j) Insufficient data available to calculate 'aged' contamination. The values for fresh contamination should be used

(k) Criterion for DDT

(l) NL= Contaminant is not considered to pose a risk to human health through vapour inhalation regardless the concentration

(m) Criterion for chromium VI

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Table A Analytical Results for Soil Samples within Proposed Building Area - 2019 Detailed Site Investigation

Analytes	Borehole No./ Site Location:	BH24	BH24A	BH24A	BH24A	BH24A	BH24A	NEPM Background Ranges	NEPM 2013 HIL B / HSL B (High Density Residential)	NEPM 2013 EILs/ ESLs (Urban Residential and Public Open Space)	CRC CARE 2011 HSL-B (High Density Residential) Direct Contact	NEPM 2013 Management Limits (Residential, Parkland & Public Open Space)
	Sample No.:	S100	S107	S110	S111	S112	S113					
	Depth:	3.0 m	0.5 m	0.8 m	1.5 m	2.5 m	3.3 m					
	Date Sampled:	20-May-19	21-May-19	21-May-19	21-May-19	21-May-19	21-May-19					
Metals												
Arsenic		-	-	4	-	3	11	1-50	500	100 (b), (i)		
Cadmium		-	-	<0.3	-	<0.3	<0.3	1	150	3 (d)		
Chromium		-	-	12	-	6.4	15	5-1000	500 (m)	550 (c), (o)		
Copper		-	-	15	-	5.3	14	2-100	30,000	95 (c)		
Lead		-	-	13	-	6	31	2-200	1,200	1,100 (b), (i)		
Mercury		-	-	<0.05	-	<0.05	<0.05	0.03 (n)	120 (n)	1 (d),(n)		
Nickel		-	-	1.4	-	2.3	12	5-500	1,200	200 (c)		
Zinc		-	-	7.6	-	6.4	28	10-300	60,000	510 (c)		
Monocyclic Aromatic Hydrocarbons (MAHs)												
Benzene		-	-	<0.1	-	<0.1	-		0.7 (g)	65 (h)	140	
Toluene		-	-	<0.1	-	<0.1	-		480 (g)	105 (h)	21,000	
Ethylbenzene		-	-	<0.1	-	<0.1	-		NL (g), (l)	125 (h)	5,900	
Xylenes		-	-	<0.3	-	<0.3	-		110 (g)	45 (h)	17,000	
Napthalene		-	-	<0.1	-	<0.1	-		5 (g)	170 (b), (h	2,200	
Total MAHs above detection limits		-	-	ND	-	ND	-					
Volatile Organic Compounds												
Total VOCs above detection limits		-	-	-	-	-	-					
Total Petroleum Hydrocarbons (TPHs)												
Total C_6-C_{10}		-	-	<25	-	<25	-					800 (h)
Total C_{10}-C_{16}		-	-	<25	-	<25	-			120		1,000 (h)
F1 C_6-C_{10} [1] (d)		-	-	<25	-	<25	-		50 (g)	180	5,600	
F2 C_{10}-C_{16} [1] (e)		-	-	<25	-	<25	-		280 (g)		4,200	
F3 >C_{16}-C_{34}		-	-	<90	-	<90	-			1,300 (h)	5,800	3,500 (h)
F4 >C_{34}-C_{40}		-	-	<120	-	<120	-			5,600 (h)	8,100	10,000 (h)
Total C_{10}-C_{40}		-	-	ND	-	ND	-					
Polycyclic Aromatic Hydrocarbons (PAHs)												
Benzo(a)pyrene		-	-	<0.1	-	<0.1	-			0.7 (h)		
Carcinogenic PAHs [2]		-	-	<0.2	-	<0.2	-		4			
Total PAHs above detection limits		-	-	ND	-	ND	-		400			
Organochlorine Pesticides (OCPs)												
DDT+DDE+DDE		-	-	<0.6	-	<0.6	-		600	180 (b), (k)		
Aldrin + Dieldrin		-	-	<0.3	-	<0.3	-		10			
Chlordane		-	-	<0.2	-	<0.2	-		90			
Endosulfan		-	-	<0.5	-	<0.5	-		400			
Endrin		-	-	<0.2	-	<0.2	-		20			
Heptachlor		-	-	<0.1	-	<0.1	-		10			
HCB		-	-	<0.1	-	<0.1	-		15			
Methoxychlor		-	-	<0.1	-	<0.1	-		500			
Mirex		-	-	<0.1	-	<0.1	-		20			
Total OCPs above detection limits		-	-	ND	-	ND	-					
Organophosphorus Pesticides (OPPs)												
Chlorpyrifos		-	-	<0.2	-	<0.2	-		340			
Total OPPs above detection limits		-	-	ND	-	ND	-					
Polychlorinated Biphenyls (PCB)												
Total PCBs above detection limits		-	-	ND	-	ND	-		1			
Phenolic Compounds												
Phenol		-	-	<0.5	-	<0.5	-		45,000			
Pentachlorophenol				<0.5		<0.5			130			
Cresols		-	-	<1.5	-	<1.5	-		4,700			
Total Phenols		-	-	ND	-	ND	-					
Asbestos												
Bonded ACM (w/w) (%)		-	-	-	-		-		0.04			
Friable asbestos (fibrous and fines)(w/w) (%)		-	-	-	-		-		0.001			
Asbestos Type		-	-	-	-		-					

Notes Results in mg/kg unless specified otherwise.

ND = No individual species detected above laboratory detection limits.

No* = No asbestos found at the reporting limit of 0.1 g/kg by polarised light microscopy. Asbestos material detected and identified at conc. below 0.1 g/kg.

[1] Calculated in accordance with Table 1A(3) of NEPM 2013

[2] Combined carcinogenic PAHs with relative potency to benzo(a)pyrene

[3] Duplicate value adopted due to RPD exceedance

Results shaded red exceed the NEPM 2013 HIL B /HSL B (High Density Residential) criteria

Results shaded blue exceed the NEPM 2013 EIL/ESL criteria for an urban residential and public open space setting

Results shaded green exceed the CRC CARE 2011 HSL B (High Density Residential) criteria for direct contact with soil

Results shaded yellow exceed the NEPM 2013 management limits for a residential, parkland and public open space land setting

Results shaded purple exceed both the NEPM 2013 HIL/HSL B (High Density Residential) and the NEPM 2013 EIL/ESL criteria

(a) ANZECC 1992 background ranges used where no NEPM criteria available

(b) NEPM 2013 generic EIL

(c) NEPM 2013 site-specific EIL

(d) NEPM 1999 EIL used where no generic NEPM 2013 criteria are available

(e) F1 TPH = TPH (C6-C10) minus BTEX fraction

(f) F2 TPH = TPH (C10-C16) minus naphthalene fraction

(g) NEPM 2013 HSL criterion for vapour intrusion, 0m to <1m depth in Clay

(h) Criterion for fine texture grade soils

(i) Criterion for 'aged' contamination

(j) Insufficient data available to calculate 'aged' contamination. The values for fresh contamination should be used

(k) Criterion for DDT

(l) NL= Contaminant is not considered to pose a risk to human health through vapour inhalation regardless the concentration

(m) Criterion for chromium VI

(n) Criterion for inorganic mercury

(o) Criterion for chromium III

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Table B Analytical Results for Soil Samples within Proposed Public Park Area - 2019 Detailed Site Investigation

Analytes	Borehole No./ Site Location:	BH7	BH7	BH8	BH8	BH8	BH8	BH11	BH11	BH11	BH11	BH12	BH12	BH12	NEPM Background Ranges	NEPM 2013 HIL C / HSL C (Recreational / Public Open Space)	NEPM 2013 EILs/ ESLs (Urban Residential and Public Open Space)	CRC CARE 2011 HSL-C (Recreational / Open Space) Direct Contact	NEPM 2013 Management Limits (Residential, Parkland & Public Open Space)
	Sample No.:	S28	S29	S30	S31	S32	S33	S49	S52	S57	S58	S53	S59	S60					
	Depth:	0.2 m	1.2 m	0.2 m	0.6 m	2.6 m	5.2 m	0.2 m	0.7 m	1.5 m	3 m	0.5 m	1.5 m	3 m					
	Date Sampled:	08-Jul-16	08-Jul-16	11-Jul-16	11-Jul-16	11-Jul-16	11-Jul-16	18-Jul-16	18-Jul-16	18-Jul-16	18-Jul-16	18-Jul-16	18-Jul-16	18-Jul-16					
Metals																			
Arsenic		6	6	8	<5	<5	-	<5	<5	7	<5	5	8	5	1-50	300	100 (b), (i)		
Cadmium		<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	<1	1	90	3 (d)		
Chromium		14	29	16	13	8	-	7	18	18	10	22	24	16	5-1000	300 (m)	550 (c), (o)		
Copper		20	10	173	8	8	-	20	12	15	15	13	29	24	2-100	30,000	95 (c)		
Lead		102	16	116	19	17	-	48	16	19	11	21	29	18	2-200	600	1,100 (b), (i)		
Mercury		0.3	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.03 (n)	80 (n)	1 (d),(n)		
Nickel		13	6	30	4	<2	-	<2	3	2	<2	5	3	2	5-500	1,200	200 (c)		
Zinc		45	10	188	13	<5	-	15	7	5	9	47	22	17	10-300	30,000	510 (c)		
Monocyclic Aromatic Hydrocarbons (MAHs)																			
Benzene		<0.2	<0.2	<0.2	-	<0.2	-	-	<0.2	-	<0.2	<0.2	<0.2	<0.2		NL (g), (l)	65 (h)	120	
Toluene		<0.5	<0.5	<0.5	-	<0.5	-	-	<0.5	-	<0.5	<0.5	<0.5	<0.5		NL (g), (l)	105 (h)	18,000	
Ethylbenzene		<0.5	<0.5	<0.5	-	<0.5	-	-	<0.5	-	<0.5	<0.5	<0.5	<0.5		NL (g), (l)	125 (h)	5,300	
Xylenes		<0.5	<0.5	<0.5	-	<0.5	-	-	<0.5	-	<0.5	<0.5	<0.5	<0.5		NL (g), (l)	45 (h)	15,000	
Napthalene		<1	<1	<1	-	<1	-	-	<1	-	<1	<1	<1	<1		NL (g), (l)	170 (b), (j)	1,900	
Total MAHs above detection limits		ND	ND	ND	-	ND	-	-	ND	-	ND	ND	ND	ND					
Volatile Organic Compounds																			
Total VOCs above detection limits		-	-	-	-	-	-	-	-	-	-	-	-	ND					
Total Petroleum Hydrocarbons (TPHs)																			
Total C_6-C_{10}		<10	<10	<10	-	<10	-	-	<10	-	<10	<10	<10	<10					800 (h)
Total C_{10}-C_{16}		<50	<50	<50	-	<50	-	-	<50	-	<50	<50	<50	<50			120		1,000 (h)
F1 C_6-C_{10} [1] (d)		<10	<10	<10	-	<10	-	-	<10	-	<10	<10	<10	<10		NL (g), (l)	180	5,100	
F2 C_{10}-C_{16} [1] (e)		<50	<50	<50	-	<50	-	-	<50	-	<50	<50	<50	<50		NL (g), (l)		3,800	
F3 $>C_{16}$-C_{34}		<100	<100	160	-	<100	-	-	<100	-	<100	<100	<100	<100			1,300 (h)	5,300	3,500 (h)
F4 $>C_{34}$-C_{40}		<100	<100	<100	-	<100	-	-	<100	-	<100	<100	<100	<100			5,600 (h)	7,400	10,000 (h)
Total C_{10}-C_{40}		ND	ND	160	-	ND	-	-	ND	-	ND	ND	ND	ND					
Polycyclic Aromatic Hydrocarbons (PAHs)																			
Benzo(a)pyrene		1.5	<0.5	1.8	-	<0.5	-	-	<0.5	-	<0.5	<0.5	<0.5	<0.5			0.7 (h)		
Carcinogenic PAHs [2]		2.0	<0.5	2.4	-	<0.5	-	-	<0.5	-	<0.5	<0.5	<0.5	<0.5		3			
Total PAHs above detection limits		18.6	<0.5	21.2	-	<0.5	-	-	<0.5	-	<0.5	<0.5	<0.5	<0.5		300			
Organochlorine Pesticides (OCPs)																			
DDT+DDE+DDE		-	-	<0.05	-	<0.05	-	-	-	-	-	-	-	<0.05		400	180 (b), (k)		
Aldrin + Dieldrin		-	-	<0.05	-	<0.05	-	-	-	-	-	-	-	<0.05		10			
Chlordane		-	-	<0.05	-	<0.05	-	-	-	-	-	-	-	<0.05		70			
Endosulfan		-	-	<0.05	-	<0.05	-	-	-	-	-	-	-	<0.05		340			
Endrin		-	-	<0.05	-	<0.05	-	-	-	-	-	-	-	<0.05		20			
Heptachlor		-	-	<0.05	-	<0.05	-	-	-	-	-	-	-	<0.05		10			
HCB		-	-	<0.05	-	<0.05	-	-	-	-	-	-	-	<0.05		10			
Methoxychlor		-	-	<0.2	-	<0.2	-	-	-	-	-	-	-	<0.2		400			
Mirex		-	-	-	-	-	-	-	-	-	-	-	-	-		20			
Total OCPs above detection limits		-	-	ND	-	ND	-	-	-	-	-	-	-	ND					
Organophosphorus Pesticides (OPPs)																			
Chlorpyrifos		-	-	<0.05	-	<0.05	-	-	-	-	-	-	-	<0.05		250			
Total OPPs above detection limits		-	-	ND	-	ND	-	-	-	-	-	-	-	ND					
Polychlorinated Biphenyls (PCB)																			
Total PCBs above detection limits		-	-	ND	-	ND	-	-	-	-	-	-	-	ND		1			
Phenolic Compounds																			
Phenol		-	-	<0.5	-	<0.5	-	-	-	-	-	-	-	<0.5		40,000			
Pentachlorophenol		-	-	<2	-	<2	-	-	-	-	-	-	-	<2		120			
Cresols		-	-	<1.5	-	<1.5	-	-	-	-	-	-	-	<1.5		4,000			
Total Phenols		-	-	ND	-	ND	-	-	-	-	-	-	-	ND					
Asbestos																			
Bonded ACM (w/w) (%)		-	-	0.11	-	-	-	-	-	-	-	-	-	-		0.02			
Friable asbestos (fibrous and fines)(w/w) (%)		<0.001	-	0.0011	-	-	-	-	-	-	-	<0.001	-	-		0.001			
Asbestos Type		ND	-	CH	-	-	-	-	-	-	-	CH	-	-					

Notes Results in mg/kg unless specified otherwise.

ND = No individual species detected above laboratory detection limits.

No* = No asbestos found at the reporting limit of 0.1 g/kg by polarised light microscopy. Asbestos material detected and identified at conc. below 0.1 g/kg.

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Results shaded red exceed the NEPM 2013 HIL C/HSL C (Recreational / Public Open Space) criteria

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(a) ANZECC 1992 background ranges used where no NEPM criteria available

(b) NEPM 2013 generic EIL

(c) NEPM 2013 site-specific EIL

(d) NEPM 1999 EIL used where no generic NEPM 2013 criteria are available

(e) F1 TPH = TPH (C6-C10) minus BTEX fraction

(f) F2 TPH = TPH (C10-C16) minus naphthalene fraction

(g) NEPM 2013 HSL criterion for vapour intrusion, 0m to <1m depth in clay

(h) Criterion for fine texture grade soils

(i) Criterion for 'aged' contamination

(j) Insufficient data available to calculate 'aged' contamination. The values for fresh contamination should be used

(k) Criterion for DDT

(l) NL= Contaminant is not considered to pose a risk to human health through vapour inhalation regardless the concentration

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(n) Criterion for inorganic mercury

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Table B Analytical Results for Soil Samples within Proposed Public Park Area - 2019 Detailed Site Investigation

Analytes	Borehole No./ Site Location:	BH22	BH22	BH22	BH22	BH22	BH23	BH23	BH23	BH23	BH23	BH25	BH25	BH25	NEPM Background Ranges	NEPM 2013 HIL C / HSL C (Recreational / Public Open Space)	NEPM 2013 EILs/ ESLs (Urban Residential and Public Open Space)	CRC CARE 2011 HSL-C (Recreational / Open Space) Direct Contact	NEPM 2013 Management Limits (Residential, Parkland & Public Open Space)
	Sample No.:	S84	S85	S86	S87	S88	S89	S92	S93	S94	S95	S101	S104	S105					
	Depth:	0.2 m	0.5 m	1.5 m	2.0 m	3.0 m	0.2 m	0.8 m	1.5 m	2.0 m	3.0 m	0.5 m	1.0 m	2.0 m					
	Date Sampled:	20-May-19	20-May-19	20-May-19	20-May-19	20-May-19	20-May-19	20-May-19	20-May-19	20-May-19	20-May-19	20-May-19	20-May-19	20-May-19					
Metals																			
Arsenic		5	4	-	-	2	3	6	-	5	6	7	6	2	1-50	300	100 (b), (i)		
Cadmium		<0.3	<0.3	-	-	<0.3	0.4	0.6	-	<0.3	<0.3	<0.3	<0.3	<0.3	1	90	3 (d)		
Chromium		6.6	10	-	-	3.9	84[3]	10	-	11	7.2	12	14	3.3	5-1000	300 (m)	550 (c), (o)		
Copper		24	8.2	-	-	16	52	28	-	12	9.4	18	7.3	3.0	2-100	30,000	95 (c)		
Lead		55	12	-	-	7	20	73	-	19	9	19	11	2	2-200	600	1,100 (b), (i)		
Mercury		0.07	<0.05	-	-	<0.05	<0.05	0.12	-	<0.05	<0.05	<0.05	<0.05	<0.05	0.03 (n)	80 (n)	1 (d),(n)		
Nickel		6.1	1.9	-	-	7.1	46	9.8	-	2.5	2.4	15	4.3	<0.5	5-500	1,200	200 (c)		
Zinc		50	4.6	-	-	15	110	87	-	8.6	7.6	28	6.7	<2.0	10-300	30,000	510 (c)		
Monocyclic Aromatic Hydrocarbons (MAHs)																			
Benzene		<0.2	-	-	-	<0.1	<0.1	<0.1	-	-	<0.1	<0.1	<0.1	<0.1		NL (g), (l)	65 (h)	120	
Toluene		<0.5	-	-	-	<0.1	<0.1	<0.1	-	-	<0.1	<0.1	<0.1	<0.1		NL (g), (l)	105 (h)	18,000	
Ethylbenzene		<0.5	-	-	-	<0.1	<0.1	<0.1	-	-	<0.1	<0.1	<0.1	<0.1		NL (g), (l)	125 (h)	5,300	
Xylenes		<0.5	-	-	-	<0.3	<0.3	<0.3	-	-	<0.3	<0.3	<0.3	<0.3		NL (g), (l)	45 (h)	15,000	
Napthalene		<1	-	-	-	<0.1	<0.1	<0.1	-	-	<0.1	<0.1	<0.1	<0.1		NL (g), (l)	170 (b), (h	1,900	
Total MAHs above detection limits		ND	-	-	-	ND	ND	ND	-	-	ND	ND	ND	ND					
Volatile Organic Compounds																			
Total VOCs above detection limits		-	-	-	-	-	-	-	-	-	-	-	-	-					
Total Petroleum Hydrocarbons (TPHs)																			
Total C_6-C_{10}		<25	-	-	-	<25	<25	<25	-	-	<25	<25	<25	<25					800 (h)
Total C_{10}-C_{16}		<25	-	-	-	<25	<25	<25	-	-	<25	<25	<25	<25			120		1,000 (h)
F1 C_6-C_{10}[1] (d)		<25	-	-	-	<25	<25	<25	-	-	<25	<25	<25	<25		NL (g), (l)	180	5,100	
F2 C_{10}-C_{16}[1] (e)		<25	-	-	-	<25	<25	<25	-	-	<25	<25	<25	<25		NL (g), (l)		3,800	
F3 >C_{16}-C_{34}		220	-	-	-	<90	<90	110	-	-	<90	<90	<90	<90			1,300 (h)	5,300	3,500 (h)
F4 >C_{34}-C_{40}		<120	-	-	-	<120	<120	<120	-	-	<120	<120	<120	<120			5,600 (h)	7,400	10,000 (h)
Total C_{10}-C_{40}		220	-	-	-	ND	ND	110	-	-	ND	ND	ND	ND					
Polycyclic Aromatic Hydrocarbons (PAHs)																			
Benzo(a)pyrene		7.3	-	-	-	<0.1	2.5[3]	4.0	-	-	<0.1	1.5	<0.1	<0.1			0.7 (h)		
Carcinogenic PAHs [2]		9.0	-	-	-	<0.2	4.1[3]	5.3	-	-	<0.2	2.0	<0.2	<0.2		3			
Total PAHs above detection limits		92	-	-	-	ND	41.4[3]	53.0	-	-	0.8	15	ND	ND		300			
Organochlorine Pesticides (OCPs)																			
DDT+DDE+DDE		-	-	-	-	-	-	<0.6	-	-	<0.6	-	<0.6	-		400	180 (b), (k)		
Aldrin + Dieldrin		-	-	-	-	-	-	<0.3	-	-	<0.3	-	<0.3	-		10			
Chlordane		-	-	-	-	-	-	<0.2	-	-	<0.2	-	<0.2	-		70			
Endosulfan		-	-	-	-	-	-	<0.5	-	-	<0.5	-	<0.5	-		340			
Endrin		-	-	-	-	-	-	<0.2	-	-	<0.2	-	<0.2	-		20			
Heptachlor		-	-	-	-	-	-	<0.1	-	-	<0.1	-	<0.1	-		10			
HCB		-	-	-	-	-	-	<0.1	-	-	<0.1	-	<0.1	-		10			
Methoxychlor		-	-	-	-	-	-	<0.1	-	-	<0.1	-	<0.1	-		400			
Mirex		-	-	-	-	-	-	<0.1	-	-	<0.1	-	<0.1	-		20			
Total OCPs above detection limits		-	-	-	-	-	-	ND	-	-	ND	-	ND	-					
Organophosphorus Pesticides (OPPs)																			
Chlorpyrifos		-	-	-	-	-	-	<0.2	-	-	<0.2	-	<0.2	-		250			
Total OPPs above detection limits		-	-	-	-	-	-	ND	-	-	ND	-	ND	-					
Polychlorinated Biphenyls (PCB)																			
Total PCBs above detection limits		-	-	-	-	-	-	ND	-	-	ND	-	ND	-		1			
Phenolic Compounds																			
Phenol		-	-	-	-	-	-	<0.5	-	-	<0.5	-	<0.5	-		40,000			
Pentachlorophenol		-	-	-	-	-	-	<0.5	-	-	<0.5	-	<0.5	-		120			
Cresols		-	-	-	-	-	-	<1.5	-	-	<1.5	-	<1.5	-		4,000			
Total Phenols		-	-	-	-	-	-	ND	-	-	ND	-	ND	-					
Asbestos																			
Bonded ACM (w/w) (%)		<0.01	<0.01	-	-	-	<0.01	<0.01	-	-	-	<0.01	<0.01	-		0.02			
Friable asbestos (fibrous and fines)(w/w) (%)		<0.001	<0.001	-	-	-	<0.001	<0.001	-	-	-	<0.001	<0.001	-		0.001			
Asbestos Type		ND	ND	-	-	-	ND	ND	-	-	-	ND	ND	-					

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(b) NEPM 2013 generic EIL

(c) NEPM 2013 site-specific EIL

(d) NEPM 1999 EIL used where no generic NEPM 2013 criteria are available

(e) F1 TPH = TPH (C6-C10) minus BTEX fraction

(f) F2 TPH = TPH (C10-C16) minus naphthalene fraction

(g) NEPM 2013 HSL criterion for vapour intrusion, 0m to <1m depth in clay

(h) Criterion for fine texture grade soils

(i) Criterion for 'aged' contamination

(j) Insufficient data available to calculate 'aged' contamination. The values for fresh contamination should be used

(k) Criterion for DDT

(l) NL= Contaminant is not considered to pose a risk to human health through vapour inhalation regardless the concentration

(m) Criterion for chromium VI

(n) Criterion for inorganic mercury

(o) Criterion for chromium III

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Table B Analytical Results for Soil Samples within Proposed Public Park Area - 2019 Detailed Site Investigation

Analytes	Borehole No./ Site Location:	BH25	BH26	BH26	BH26	BH26	BH26	NEPM Background Ranges	NEPM 2013 HIL C / HSL C (Recreational / Public Open Space)	NEPM 2013 EILs/ ESLs (Urban Residential and Public Open Space)	CRC CARE 2011 HSL-C (Recreational / Open Space) Direct Contact	NEPM 2013 Management Limits (Residential, Parkland & Public Open Space)
	Sample No.:	S106	S114	S117	S118	S119	S122					
	Depth:	3.0 m	0.5 m	0.9 m	1.8 m	2.6 m	3.4 m					
	Date Sampled:	20-May-19	21-May-19	21-May-19	21-May-19	21-May-19	21-May-19					
Metals												
Arsenic		3	5	6	-	9	3	1-50	300	100 (b), (i)		
Cadmium		<0.3	<0.3	<0.3	-	<0.3	<0.3	1	90	3 (d)		
Chromium		7.3	14	11	-	16	5.9	5-1000	300 (m)	550 (c), (o)		
Copper		5.1	64	18	-	12	5.3	2-100	30,000	95 (c)		
Lead		4	58	21	-	17	4	2-200	600	1,100 (b), (i)		
Mercury		<0.05	0.08	<0.05	-	<0.05	<0.05	0.03 (n)	80 (n)	1 (d),(n)		
Nickel		0.8	9.6	5.8	-	3.0	0.7	5-500	1,200	200 (c)		
Zinc		2.3	33	16	-	7.5	3.1	10-300	30,000	510 (c)		
Monocyclic Aromatic Hydrocarbons (MAHs)												
Benzene		-	-	<0.1	-	<0.1	<0.1		NL (g), (l)	65 (h)	120	
Toluene		-	-	<0.1	-	<0.1	<0.1		NL (g), (l)	105 (h)	18,000	
Ethylbenzene		-	-	<0.1	-	<0.1	<0.1		NL (g), (l)	125 (h)	5,300	
Xylenes		-	-	<0.3	-	<0.3	<0.3		NL (g), (l)	45 (h)	15,000	
Napthalene		-	-	<0.1	-	<0.1	<0.1		NL (g), (l)	170 (b), (h	1,900	
Total MAHs above detection limits		-	-	ND	-	ND	ND					
Volatile Organic Compounds												
Total VOCs above detection limits		-	-	-	-	-	-					
Total Petroleum Hydrocarbons (TPHs)												
Total C_6-C_{10}		-	-	<25	-	<25	<25					800 (h)
Total C_{10}-C_{16}		-	-	<25	-	<25	<25			120		1,000 (h)
F1 C_6-C_{10} [1] (d)		-	-	<25	-	<25	<25		NL (g), (l)	180	5,100	
F2 C_{10}-C_{16} [1] (e)		-	-	<25	-	<25	<25		NL (g), (l)		3,800	
F3 >C_{16}-C_{34}		-	-	<90	-	<90	<90			1,300 (h)	5,300	3,500 (h)
F4 >C_{34}-C_{40}		-	-	<120	-	<120	<120			5,600 (h)	7,400	10,000 (h)
Total C_{10}-C_{40}		-	-	ND	-	ND	ND					
Polycyclic Aromatic Hydrocarbons (PAHs)												
Benzo(a)pyrene		-	-	1.0	-	<0.1	<0.1			0.7 (h)		
Carcinogenic PAHs [2]		-	-	1.4	-	<0.2	<0.2		3			
Total PAHs above detection limits		-	-	12	-	ND	ND		300			
Organochlorine Pesticides (OCPs)												
DDT+DDE+DDE		-	-	-	-	<0.6	<0.6		400	180 (b), (k)		
Aldrin + Dieldrin		-	-	-	-	<0.3	<0.3		10			
Chlordane		-	-	-	-	<0.2	<0.2		70			
Endosulfan		-	-	-	-	<0.5	<0.5		340			
Endrin		-	-	-	-	<0.2	<0.2		20			
Heptachlor		-	-	-	-	<0.1	<0.1		10			
HCB		-	-	-	-	<0.1	<0.1		10			
Methoxychlor		-	-	-	-	<0.1	<0.1		400			
Mirex		-	-	-	-	<0.1	<0.1		20			
Total OCPs above detection limits		-	-	-	-	ND	ND					
Organophosphorus Pesticides (OPPs)												
Chlorpyrifos		-	-	-	-	<0.2	<0.2		250			
Total OPPs above detection limits		-	-	-	-	ND	ND					
Polychlorinated Biphenyls (PCB)												
Total PCBs above detection limits		-	-	-	-	ND	ND		1			
Phenolic Compounds												
Phenol		-	-	-	-	<0.5	<0.5		40,000			
Pentachlorophenol		-	-	-	-	<0.5	<0.5		120			
Cresols		-	-	-	-	<1.5	<1.5		4,000			
Total Phenols		-	-	-	-	ND	ND					
Asbestos												
Bonded ACM (w/w) (%)		-	<0.01	<0.01	-	-	-		0.02			
Friable asbestos (fibrous and fines)(w/w) (%)		-	<0.001	<0.001	-	-	-		0.001			
Asbestos Type		-	ND	ND	-	-	-					

Notes: Results in mg/kg unless specified otherwise.

ND = No individual species detected above laboratory detection limits.

No* = No asbestos found at the reporting limit of 0.1 g/kg by polarised light microscopy. Asbestos material detected and identified at conc. below 0.1 g/kg.

[1] Calculated in accordance with Table 1A(3) of NEPM 2013

[2] Combined carcinogenic PAHs with relative potency to benzo(a)pyrene

[3] Duplicate value adopted due to RPD exceedance

Results shaded red exceed the NEPM 2013 HIL C/HSL C (Recreational / Public Open Space) criteria

Results shaded blue exceed the NEPM 2013 EIL/ESL criteria for an urban residential and public open space setting

Results shaded green exceed the CRC CARE 2011 HSL C Open Space) criteria for direct contact with soil

Results shaded yellow exceed the NEPM 2013 management limits for a residential, parkland and public open space land setting

Results shaded purple exceed both the NEPM 2013 HIL/HSL C (Recreational / Public Open Space) and the NEPM 2013 EIL/ESL criteria

(a) ANZECC 1992 background ranges used where no NEPM criteria available

(b) NEPM 2013 generic EIL

(c) NEPM 2013 site-specific EIL

(d) NEPM 1999 EIL used where no generic NEPM 2013 criteria are available

(e) F1 TPH = TPH (C6-C10) minus BTEX fraction

(f) F2 TPH = TPH (C10-C16) minus naphthalene fraction

(g) NEPM 2013 HSL criterion for vapour intrusion, 0m to <1m depth in clay

(h) Criterion for fine texture grade soils

(i) Criterion for 'aged' contamination

(j) Insufficient data available to calculate 'aged' contamination. The values for fresh contamination should be used

(k) Criterion for DDT

(l) NL= Contaminant is not considered to pose a risk to human health through vapour inhalation regardless the concentration

(m) Criterion for chromium VI

(n) Criterion for inorganic mercury

(o) Criterion for chromium III

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Table C Analytical Results for Soil Samples - 2019 Detailed Site Investigation

Analytes	Borehole No./ Site Location:	BH1/MW1	BH16/MW2	MW3	MW4	BH7/MW5	NEPM 2013 Groundwater HSLs for Vapour Intrusion	Australian & New Zealand Guidelines for Fresh and Marine Water Quality 2018 Marine Water Values	NHRMC/NRMMC Australian Drinking Water Guidelines 2011 (2018 updated) Health Guidance Value	NHRMC/NRMMC Australian Drinking Water Guidelines 2011 (2018 updated) Aesthetics Value
	Sample No.:	GW1-1	GW2-1	GW3-1	GW4-1	GW5-1				
	Date Sampled:	20-May-19	20-May-19	20-May-19	20-May-19	20-May-19				
Metals										
Arsenic		<1	<1	1	2	<1		2.3 (a), (b)		
Cadmium		<0.1	<0.1	<0.1	<0.1	1.1		5.5	2	
Chromium (Total)		<1	<1	<1	<1	<1		4.4 (c)	50 (c)	
Copper		<1	1	<1	<1	<1		1.3	2,000	
Lead		<1	<1	<1	<1	<1		4.4	10	
Mercury		<0.1	<0.1	<0.1	<0.1	<0.1		0.4 (d)	1	
Nickel		3	<1	11	2	50		70	20	
Zinc		7	8	45	<5	36		15		3,000
Volatile Organic Compounds (VOCs)										
Total Xylenes		<1.5	<1.5	<1.5	<1.5	<1.5	NL (f), (g)		600	20
Total BTEX		<3	<3	<3	<3	<3				
Total VOCs		ND	ND	11	ND	ND				
Fumigants (VOCs)										
2,2-dichloropropane		<0.5	<0.5	<0.5	<0.5	<0.5				
1,2-dichloropropane		<0.5	<0.5	<0.5	<0.5	<0.5		900		
cis-1,3-dichloropropene		<0.5	<0.5	<0.5	<0.5	<0.5		0.8 (l)	100 (l)	
trans-1,3-dichloropropene		<0.5	<0.5	<0.5	<0.5	<0.5		0.8 (l)	100 (l)	
1,2-dibromoethane (EDB)		<0.5	<0.5	<0.5	<0.5	<0.5			1	
Halogenated Aliphatics (VOCs)										
Dichlorodifluromethane (CFC-12)		<5	<5	<5	<5	<5				
Chloromethane		<5	<5	<5	<5	<5				
Chloroethene (Vinyl Chloride)		<0.3	<0.3	<0.3	<0.3	<0.3		100	0.3	
Bromomethane		<10	<10	<10	<10	<10				
Chloroethane		<5	<5	<5	<5	<5				
Trichlorofluoromethane		<1	<1	<1	<1	<1				
Iodomethane		<5	<5	<5	<5	<5				
1,1-dichloroethene		<0.5	<0.5	<0.5	<0.5	<0.5		700	30	
Dichloromethane (Methylene Chloride)		<5	<5	<5	<5	<5		4,000	4	
Allyl Chloride		<2	<2	<2	<2	<2				
trans-1,2-dichloroethene		<0.5	<0.5	<0.5	<0.5	<0.5			60 (m)	
1,1-dichloroethane		<0.5	<0.5	<0.5	<0.5	<0.5				
cis-1,2-dichloroethene		<0.5	<0.5	<0.5	<0.5	<0.5			60 (m)	
Bromochloromethane		<0.5	<0.5	<0.5	<0.5	<0.5				
1,2-dichloroethane		<0.5	<0.5	<0.5	<0.5	<0.5		1,900	3	
1,1,1-Trichloroethane (1,1,1-TCA)		<0.5	<0.5	<0.5	<0.5	<0.5		270		
1,1-dichloropropene		<0.5	<0.5	<0.5	<0.5	<0.5				
Carbon Tetrachloride		<0.5	<0.5	<0.5	<0.5	<0.5		240	3	
Trichloroethene (TCE)		<0.5	<0.5	<0.5	<0.5	<0.5				
1,1,2-trichloroethane		<0.5	<0.5	<0.5	<0.5	<0.5		1,900		
1,3-dichloropropane		<0.5	<0.5	<0.5	<0.5	<0.5		1,100	100	
Tetrachloroethene (PCE)		<0.5	<0.5	<0.5	<0.5	<0.5			50	
1,1,1,2-tetrachloroethane		<0.5	<0.5	<0.5	<0.5	<0.5				
cis-1,4-dichloro-2-butene		<1	<1	<1	<1	<1				
1,1,2,2-tetrachloroethane		<0.5	<0.5	<0.5	<0.5	<0.5		400 (h)		
1,2,3-trichloropropane		<0.5	<0.5	<0.5	<0.5	<0.5				
trans-1,4-dichloro-2-butene		<1	<1	<1	<1	<1				
1,2-dibromo-3-chloropropane		<0.5	<0.5	<0.5	<0.5	<0.5				
Hexachlorobutadiene		<0.5	<0.5	<0.5	<0.5	<0.5			0.7	
Halogenated Aromatics (VOCs)										
Chlorobenzene		<0.5	<0.5	<0.5	<0.5	<0.5			300	
Bromobenzene		<0.5	<0.5	<0.5	<0.5	<0.5				
2-Chlorotoluene		<0.5	<0.5	<0.5	<0.5	<0.5				
4-Chlorotoluene		<0.5	<0.5	<0.5	<0.5	<0.5				
1,3-dichlorobenzene		<0.5	<0.5	<0.5	<0.5	<0.5		260		
1,4-dichlorobenzene		<0.3	<0.3	<0.3	<0.3	<0.3		60	40	
1,2-dichlorobenzene		<0.5	<0.5	<0.5	<0.5	<0.5		160	1,500	
1,2,4-trichlorobenzene		<0.5	<0.5	<0.5	<0.5	<0.5		20	30 (n)	
1,2,3-trichlorobenzene		<0.5	<0.5	<0.5	<0.5	<0.5		3	30 (n)	
Monocyclic Aromatic Hydrocarbons (VOCs)										
Benzene		<0.5	<0.5	<0.5	<0.5	<0.5	5,000	700	1	
Toluene		<0.5	<0.5	<0.5	<0.5	<0.5	NL (f), (g)	180	800	25
Ethylbenzene		<0.5	<0.5	<0.5	<0.5	<0.5	NL (f), (g)	5	300	3
m/p-xylene		<1	<1	<1	<1	<1		75 (e)		
o-xylene		<0.5	<0.5	<0.5	<0.5	<0.5		350		
Vinyl benzene (Styrene)		<0.5	<0.5	<0.5	<0.5	<0.5			30	4
Isopropylbenzene (Cumene)		<0.5	<0.5	<0.5	<0.5	<0.5		30		
n-propylbenzene		<0.5	<0.5	<0.5	<0.5	<0.5				
1,3,5-trimethylbenzene		<0.5	<0.5	<0.5	<0.5	<0.5				
tert-butylbenzene		<0.5	<0.5	<0.5	<0.5	<0.5				
1,2,4-trimethylbenzene		<0.5	<0.5	<0.5	<0.5	<0.5				
sec-butylbenzene		<0.5	<0.5	<0.5	<0.5	<0.5				
p-isopropyltoluene		<0.5	<0.5	<0.5	<0.5	<0.5				
n-butylbenzene		<0.5	<0.5	<0.5	<0.5	<0.5				
Nitrogenous Compounds (VOCs)										
Acrylonitrile		<0.5	<0.5	<0.5	<0.5	<0.5		8		
2-nitropropane		<100	<100	<100	<100	<100				
Oxygenated Compounds (VOCs)										
2-propanone (Acetone)		<10	<10	<10	<10	<10				
Methyl-tert butyl ether (MTBE)		<2	<2	<2	<2	<2				
Vinyl acetate		<10	<10	<10	<10	<10				
2-butanone (MEK)		<10	<10	<10	<10	<10				
4-methyl-2-pentanone (MIBK)		<5	<5	<5	<5	<5				
2-hexanone (MBK)		<5	<5	<5	<5	<5				
Polycyclic VOCs										
naphthalene		<0.5	<0.5	<0.5	<0.5	<0.5				
Sulphonated Compounds (VOCs)										
carbon disulfide		<2	<2	<2	<2	<2		20		
Trihalomethanes (VOCs)										
Chloroform		<0.5	<0.5	<0.5	<0.5	<0.5		370		
Bromodichloromethane		<0.5	<0.5	<0.5	<0.5	<0.5				
Dibromochloromethane		<0.5	<0.5	<0.5	<0.5	<0.5				
Bromoform		<0.5	<0.5	<0.5	<0.5	<0.5				
Trihalomethanes (total)		ND	ND	ND	ND	ND			250	
Total Petroleum Hydrocarbons (TPHs)										
Total C_6-C_{10}		<50	<50	100	50	<50		7 (b)		
Total C_{10}-C_{16}		<60	<60	<60	95	<60				
F1 C_6-C_{10}		<50	<50	100	<50	<50	NL (f), (g)			
F2 C_{10}-C_{16}		<60	<60	<60	94	<60	NL (f), (g)			
F3 >C_{16}-C_{34}		<500	<500	<500	<500	<500				
F4 >C_{34}-C_{40}		<500	<500	<500	<500	<500				
Total C_{10}-C_{40}		ND	ND	100	366	ND		7 (b)		
Polycyclic Aromatic Hydrocarbons (PAHs)										
Naphthalene		<0.1	<0.1	<0.1	<0.1	<0.1		70		
2-methylnaphthalene		<0.1	<0.1	<0.1	<0.1	<0.1				
1-methylnaphthalene		<0.1	<0.1	<0.1	<0.1	<0.1				
Acenaphthylene		<0.1	<0.1	<0.1	<0.1	<0.1				
Acenaphthene		<0.1	<0.1	<0.1	<0.1	<0.1				
Fluorene		<0.1	<0.1	<0.1	<0.1	<0.1				
Phenanthrene		<0.1	<0.1	<0.1	0.3	<0.1		0.6		
Anthracene		<0.1	<0.1	<0.1	<0.1	<0.1		0.1		
Fluorathene		<0.1	<0.1	<0.1	<0.1	<0.1		1		
Pyrene		<0.1	<0.1	<0.1	0.2	<0.1				
Benzo(a)anthracene		<0.1	<0.1	<0.1	0.4	<0.1			0.1 (k)	
Chrysene		<0.1	<0.1	<0.1	0.2	<0.1			1 (k)	
Benzo(b&j)fluorathene		<0.1	<0.1	<0.1	0.1	<0.1			0.1 (k)	
Benzo(k)fluorathene		<0.1	<0.1	<0.1	<0.1	<0.1			0.1 (k)	
Benzo(a)pyrene		<0.1	<0.1	<0.1	<0.1	<0.1		0.1	0.01	
Indeno(1,2,3-cd)pyrene		<0.1	<0.1	<0.1	<0.1	<0.1			0.1 (k)	
dibenzo(ah)anthracene		<0.1	<0.1	<0.1	<0.1	<0.1			0.01 (k)	
Benzo(ghi)perylene		<0.1	<0.1	<0.1	<0.1	<0.1			1 (k)	
Total PAHs above detection limits		ND	ND	ND	1.2	ND				

Notes Results in µg/L unless specified otherwise.

ND = No individual species detected above laboratory detection limits.

[1] Duplicate value adopted due to RPD exceedance

Results shaded Olive exceed the NEPM 2013 Vapour Intrusion GILs HSLA & HSLB for Low-High Desnsity Residentia

Results shaded red exceed the Australian & New Zealand Guidelines for Fresh and Marine Water Quality 2018 - Marine Water Values

Results shaded blue exceed the NHRMC/NRMMC Australian Drinking Water Guidelines 2011 (2018 updated) - Health Guidance Value

Results shaded green exceed the NHRMC/NRMMC Australian Drinking Water Guidelines 2011 (2018 updated) - Aesthetics Value

Results shaded yellow exceed both the Fresh and Marine Water Quality 2018 and the Australian Drinking Water 2011 - Health Guidance Values

Results shaded purple exceed both the Fresh and Marine Water Quality 2018 and the Australian Drinking Water 2011 - Aesthetics Values

Results shaded dark blue exceed both the Australian Drinking Water 2011 - Health Guidance and Aesthetics Values

Results shaded black exceed all assessment criteria

(a) Criterion for Arsenic (As III)
(b) Low reliability criterion (ANZECC 20
(c) Criterion for Chromium (Cr VI)
(d) Criterion for inorganic mercury
(e) Criterion for m-xylene
(f) criterion for clay soils, 2m - <4m
(g) NL = Contaminant is not considered to pose a risk to human health through vapour inhalation regardless the concentration
(h) Freshwater criterion value adopted in lieu of marine water value
(i) F1 = TPH (C_6-C_{10}) minus BTEX fraction
(j) F2 = TPH (C_{10}-C_{16}) minus BTEX fraction
(k) Risk assessment criteria based on carcinogenic potency relative to Benzo(a)pyrene
(l) Criterion for 1,3-dichloropropene (total)
(m) Criterion for 1,2-dichloroethene (total)
(n) Criterion for trichlorobenzene (total)

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Table D Analytical Results for Soil Samples - 2019 Acid Sulfate Soil Assessment

Analytes	Borehole No./ Site Location:	BH21	BH21	BH21	BH21	BH21	BH21	BH21	BH21	BH21	BH21	BH21	BH22	BH22	BH22	BH22	Field ASS Indicator[1]	Acid Sulfate Soil Action Criteria[2]
	Sample No.:	ASS1	ASS2	ASS3	ASS4	ASS5	ASS6	ASS7	ASS8	ASS9	ASS10	ASS11	ASS12	ASS13	ASS14	ASS15		
	Depth:	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	0.5	1.0	1.5	2.0		
	Date Sampled:	20-May-19	20-May-19	20-May-19	20-May-19	20-May-19	20-May-19	20-May-19	20-May-19	20-May-19	20-May-19	20-May-19	20-May-19	20-May-19	20-May-19	20-May-19		
Field ASS / PASS Indicators																		
pH_f (pH units)		10.6	11.0	9.4	10.1	-	9.5	8.4	8.4	8.8	8.4	9.1	7.1	5.7	5.7	5.4	< 4	-
pH_{ox} (pH units)		10.0	10.0	7.1	8.1	-	7.3	6.5	7.0	7.1	6.6	6.9	3.3	2.9	3.1	3.9	< 3	-
Reaction Rate (No unit)		XXXX	XXXX	XXX	XXX	-	XXX	XXX	XX	XX	XXX	XXX	XXX	XXX	XXX	XX	XXX	-
pH Difference (pH units)		0.6	1.0	2.3	2.0	-	2.1	1.9	1.4	1.7	1.8	2.2	3.8	2.8	2.6	1.5	> 1	-
Chromium Reducible Sulphur Suite																		
Chromium Reducible Sulfur (%)		-	-	-	-	-	-	<0.005	-	-	<0.005	-	0.014	0.063	0.022	<0.005	-	-
Net Acidity (Sulfur units) %S		-	-	-	-	-	-	<0.01	-	-	<0.01	-	0.03	0.16	0.08	0.01	-	0.03
Net Acidity (Acidity units) Mol H^+/tonne		-	-	-	-	-	-	<5	-	-	<5	-	21	99	51	9	-	18
Net Acidity Excluding ANC (Acidity units) Mol H^+/tonne		-	-	-	-	-	-	<5	-	-	<5	-	21	99	51	9	-	18
Liming Rate Inc. ANC (kg $CaCO_3$/tonne)		-	-	-	-	-	-	<0.1	-	-	<0.1	-	1.6	7.4	3.8	N/A	-	-
Liming Rate Exc ANC (kg $CaCO_3$/tonne)		-	-	-	-	-	-	<0.1	-	-	<0.1	-	1.6	7.4	3.8	N/A	-	-

Notes : [1] Sullivan et al (2018) *National Acid Sulfate Soils Guidance: National acid sulfate soils sampling and identification methods manual* ; Indicators of ASS materials

[2] ASSMAC *Acid Sulfate Soil Manual (1998)* ; Action Criteria for coarse texture grade soils

Results shaded red exhibit possible field indications of Actual or Potential Acid Sulfate Soils

Results shaded blue exceed the Action Criteria for Acid Sulfate Soils

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Table D Analytical Results for Soil Samples - 2019 Acid Sulfate Soil Assessment

Analytes	Borehole No./ Site Location:	BH22	BH22	BH22	BH23	BH23	BH23	BH23	BH23	BH23	BH23	BH23	BH23	BH23	BH23	BH24	Field ASS Indicator[1]	Acid Sulfate Soil Action Criteria[2]
	Sample No.:	ASS16	ASS17	ASS18	ASS19	ASS20	ASS21	ASS22	ASS23	ASS24	ASS25	ASS26	ASS27	ASS28	ASS29	ASS30		
	Depth:	2.5	3.0	3.5	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	0.5		
	Date Sampled:	20-May-19	20-May-19	20-May-19	20-May-19	20-May-19	20-May-19	20-May-19	20-May-19	20-May-19	20-May-19	20-May-19	20-May-19	20-May-19	20-May-19	20-May-19		
Field ASS / PASS Indicators																		
pH_f (pH units)		6.1	6.4	6.5	7.0	7.8	6.7	5.7	8.2	5.5	6.6	7.1	7.4	7.1	7.3	5.7	< 4	-
pH_{ox} (pH units)		5.6	5.5	6.0	5.3	6.4	3.8	3.5	6.2	4.1	5.7	5.8	6.0	5.9	6.0	4.1	< 3	-
Reaction Rate (No unit)		XX	XX	XX	XX	XX	XXX	XXX	XX	XX	XX	XX	XX	XX	XX	XX	XXX	-
pH Difference (pH units)		0.5	0.9	0.5	1.7	1.3	3.1	2.2	2.0	1.4	0.9	1.3	1.4	1.2	1.4	1.6	> 1	-
Chromium Reducible Sulphur Suite																		
Chromium Reducible Sulfur (%)		-	-	-	-	<0.005	0.014	0.006	-	<0.005	-	-	-	-	-	-	-	-
Net Acidity (Sulfur units) %S		-	-	-	-	<0.01	0.04	0.05	-	0.04	-	-	-	-	-	-	-	0.03
Net Acidity (Acidity units) Mol H^+/tonne		-	-	-	-	<5	26	29	-	25	-	-	-	-	-	-	-	18
Net Acidity Excluding ANC (Acidity units) Mol H^+/tonne		-	-	-	-	<5	26	29	-	25	-	-	-	-	-	-	-	18
Liming Rate Inc. ANC (kg $CaCO_3$/tonne)		-	-	-	-	<0.1	2.0	2.1	-	1.9	-	-	-	-	-	-	-	-
Liming Rate Exc ANC (kg $CaCO_3$/tonne)		-	-	-	-	<0.1	2.0	2.1	-	1.9	-	-	-	-	-	-	-	-

Notes : [1] Sullivan et al (2018) *National Acid Sulfate Soils Guidance: National acid sulfate soils sampling and identification methods manual* ; Indicators of ASS materials

[2] ASSMAC *Acid Sulfate Soil Manual (1998)* ; Action Criteria for coarse texture grade soils

Results shaded red exhibit possible field indications of Actual or Potential Acid Sulfate Soils

Results shaded blue exceed the Action Criteria for Acid Sulfate Soils

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Table D Analytical Results for Soil Samples - 2019 Acid Sulfate Soil Assessment

Analytes	Borehole No./ Site Location:	BH24	BH24	BH24	BH24	BH24	BH24	BH24A	BH24A	BH25	BH25	BH25	BH25	BH25	BH25	BH25	Field ASS Indicator[1]	Acid Sulfate Soil Action Criteria[2]
	Sample No.:	ASS31	ASS32	ASS33	ASS34	ASS35	ASS36	ASS47	ASS48	ASS37	ASS38	ASS39	ASS40	ASS41	ASS42	ASS43		
	Depth:	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	0.5	1.0	1.5	2.0	2.5	3.0	3.5		
	Date Sampled:	20-May-19	20-May-19	20-May-19	20-May-19	20-May-19	20-May-19	20-May-19	20-May-19	20-May-19	20-May-19	20-May-19	20-May-19	20-May-19	20-May-19	20-May-19		
Field ASS / PASS Indicators																		
pH_f (pH units)		5.0	5.9	7.2	7.5	6.9	7.5	7.4	7.5	7.1	6.9	5.1	5.2	5.5	6.5	6.1	< 4	-
pH_{ox} (pH units)		4.0	4.9	5.9	5.9	5.6	6.5	8.0	8.0	4.7	5.0	3.5	4.1	4.6	5.5	5.6	< 3	-
Reaction Rate (No unit)		XX	XX	XX	XX	XX	XXX	XXXX	XXXX	XXX	XX	XX	XX	XX	XX	X	XXX	-
pH Difference (pH units)		1.0	0.7	1.4	1.5	1.3	1.0	-0.6	-0.5	2.4	2.0	1.5	1.1	0.9	1.0	0.4	> 1	-
Chromium Reducible Sulphur Suite																		
Chromium Reducible Sulfur (%)		-	-	-	-	-	-	-	-	-	-	<0.005	<0.005	-	-	-	-	-
Net Acidity (Sulfur units) %S		-	-	-	-	-	-	-	-	-	-	0.18	0.02	-	-	-	-	0.03
Net Acidity (Acidity units) Mol H^+/tonne		-	-	-	-	-	-	-	-	-	-	110	12	-	-	-	-	18
Net Acidity Excluding ANC (Acidity units) Mol H^+/tonne		-	-	-	-	-	-	-	-	-	-	110	12	-	-	-	-	18
Liming Rate Inc. ANC (kg $CaCO_3$/tonne)		-	-	-	-	-	-	-	-	-	-	8.3	N/A	-	-	-	-	-
Liming Rate Exc ANC (kg $CaCO_3$/tonne)		-	-	-	-	-	-	-	-	-	-	8.3	N/A	-	-	-	-	-

Notes : [1] Sullivan et al (2018) *National Acid Sulfate Soils Guidance: National acid sulfate soils sampling and identification methods manual* ; Indicators of ASS materials

[2] ASSMAC *Acid Sulfate Soil Manual (1998)* ; Action Criteria for coarse texture grade soils

Results shaded red exhibit possible field indications of Actual or Potential Acid Sulfate Soils

Results shaded blue exceed the Action Criteria for Acid Sulfate Soils

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Table D Analytical Results for Soil Samples - 2019 Acid Sulfate Soil Assessment

Analytes	Borehole No./ Site Location:	BH25	BH25	BH25	Field ASS Indicator[1]	Acid Sulfate Soil Action Criteria[2]
	Sample No.:	ASS44	ASS45	ASS46		
	Depth:	4.0	4.5	5.0		
	Date Sampled:	20-May-19	20-May-19	20-May-19		
Field ASS / PASS Indicators						
pH_f (pH units)		6.7	6.7	7.2	< 4	-
pH_{ox} (pH units)		5.3	5.8	5.8	< 3	-
Reaction Rate (No unit)		XX	X	XX	XXX	-
pH Difference (pH units)		1.4	1.0	1.4	> 1	-
Chromium Reducible Sulphur Suite						
Chromium Reducible Sulfur (%)		-	-	-	-	-
Net Acidity (Sulfur units) %S		-	-	-	-	0.03
Net Acidity (Acidity units) Mol H^+/tonne		-	-	-	-	18
Net Acidity Excluding ANC (Acidity units) Mol H^+/tonne		-	-	-	-	18
Liming Rate Inc. ANC (kg $CaCO_3$/tonne)		-	-	-	-	-
Liming Rate Exc ANC (kg $CaCO_3$/tonne)		-	-	-	-	-

Notes : [1] Sullivan et al (2018) *National Acid Sulfate Soils Guidance: National acid sulfate soils sampling and identification methods manual* ; Indicators of ASS materials

[2] ASSMAC *Acid Sulfate Soil Manual (1998)* ; Action Criteria for coarse texture grade soils

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Results shaded blue exceed the Action Criteria for Acid Sulfate Soils

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Table E: Results of Quality Control - Intra and Inter-Laboratory Duplicate Soil Samples

Analytes	Sample No.:	S12	S10[1]	RPD (%)	S12	S11[3]	RPD (%)	S22	S23[1]	RPD (%)	S22	S24[3]	RPD (%)	S49	S50[1]	RPD (%)	S49	S51[3]	RPD (%)	S62	S63[1]	RPD (%)
	Date Sampled:	05-Jul-16	05-Jul-16		05-Jul-16	05-Jul-16		07-Jul-16	07-Jul-16		07-Jul-16	07-Jul-16		18-Jul-16	18-Jul-16		18-Jul-16	18-Jul-16		19-Jul-16	19-Jul-16	
Metals																						
Arsenic		<5	<5	<50	<5	<5	<50	7	8	13	7	15	<50	<5	<5	<50	<5	6	<50	7	6	15
Cadmium		<1	<1	<50	<1	<1	<50	<1	<1	<50	<1	<1	<50	<1	<1	<50	<1	<1	<50	<1	<1	<50
Chromium (Total)		23	16	36	23	11	71	12	15	22	12	20	50	7	10	35	7	11	44	5	5	0
Copper		52	58	11	52	36	36	23	18	24	23	19	19	20	10	67	20	24	18	<5	<5	<50
Lead		27	35	26	27	29	7	28	25	11	28	29	4	48	25	63	48	39	21	<5	<5	<50
Mercury		<0.1	<0.1	<50	<0.1	<0.1	<50	<0.1	<0.1	<50	<0.1	<0.1	<50	<0.1	<0.1	<50	<0.1	<0.1	<50	<0.1	<0.1	<50
Nickel		28	19	38	28	5	139	9	6	40	9	5	<50	<2	4	<50	<2	4	<50	<2	<2	<50
Zinc		42	39	7	42	30	33	37	22	51	37	26	35	15	11	31	15	22	38	6	7	15
Monocyclic Aromatic Hydrocarbons (MAHs)																						
Benzene		<0.2	<0.2	<70	<0.2	<0.2	<70	<0.2	<0.2	<70	<0.2	<0.2	<70	-	-	-	-	-	-	-	-	-
Toluene		<0.5	<0.5	<70	<0.5	<0.5	<70	<0.5	<0.5	<70	<0.5	<0.5	<70	-	-	-	-	-	-	-	-	-
Ethylbenzene		<0.5	<0.5	<70	<0.5	<0.5	<70	<0.5	<0.5	<70	<0.5	<0.5	<70	-	-	-	-	-	-	-	-	-
Xylenes		<0.5	<0.5	<70	<0.5	<0.5	<70	<0.5	<0.5	<70	<0.5	<0.5	<70	-	-	-	-	-	-	-	-	-
Napthalene		<1	<1	<70	<1	<1	<70	<1	<1	<70	<1	<1	<70	-	-	-	-	-	-	-	-	-
Total Petroleum Hydrocarbons (TPHs)																						
Total C_6-C_{10}		<10	<10	<70	<10	<10	<70	<10	<10	<70	<10	<10	<70	-	-	-	-	-	-	-	-	-
Total C_{10}-C_{16}		<50	<50	<70	<50	<50	<70	<50	<50	<70	<50	<50	<70	-	-	-	-	-	-	-	-	-
F1 C_6-C_{10}		<10	<10	<70	<10	<10	<70	<10	<10	<70	<10	<10	<70	-	-	-	-	-	-	-	-	-
F2 C_{10}-C_{16}		<50	<50	<70	<50	<50	<70	<50	<50	<70	<50	<50	<70	-	-	-	-	-	-	-	-	-
F3 $>C_{16}$-C_{34}		<100	<100	<70	<100	<100	<70	<100	<100	<70	<100	<100	<70	-	-	-	-	-	-	-	-	-
F4 $>C_{34}$-C_{40}		110	150	31	110	<100	<70	<100	<100	<70	<100	<100	<70	-	-	-	-	-	-	-	-	-
Total C_{10}-C_{40}		110	150	31	110	<50	<70	<50	<50	<70	<50	<50	<70	-	-	-	-	-	-	-	-	-
Polycyclic Aromatic Hydrocarbons (PAHs)																						
Benzo(a)pyrene		<0.5	<0.5	<70	<0.5	<0.5	<70	<0.5	<0.5	<70	<0.5	<0.5	<70	-	-	-	-	-	-	-	-	-
Carcinogenic PAHs		<0.5	<0.5	<70	<0.5	<0.5	<70	<0.5	<0.5	<70	<0.5	<0.5	<70	-	-	-	-	-	-	-	-	-
Total PAHs above detection limits		<0.5	<0.5	<70	<0.5	2.2	<70	<0.5	<0.5	<70	<0.5	<0.5	<70	-	-	-	-	-	-	-	-	-

Notes : Results expressed as mg/kg dry weight unless otherwise indicated

[1] Denotes intra-laboratory field duplicate sample analysed by ALS Sydney

[2] Denotes intra-laboratory field duplicate sample analysed by SGS Sydney

[3] Denotes inter-laboratory field duplicate sample analysed by ALS Brisbane

[4] Denotes inter-laboratory field duplicate sample analysed by ALS Sydney

RPDs shaded grey exceed the acceptance criteria

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Table E: Results of Quality Control - Intra and Inter-Laboratory Duplicate Soil Samples

Analytes	Sample No.:	S62	S64[3]	RPD (%)	S70	S71[1]	RPD (%)	S70	S72[3]	RPD (%)	S89	S90[2]	RPD (%)	S89	S91[4]	RPD (%)	S119	S120[2]	RPD (%)	S119	S121[4]	RPD (%)
	Date Sampled:	19-Jul-16	19-Jul-16		19-Jul-16	19-Jul-16		19-Jul-16	19-Jul-16		20-May-19	20-May-19		20-May-19	20-May-19		21-May-19	21-May-19		21-May-19	21-May-19	
Metals																						
Arsenic		7	8	13	<5	6	<50	<5	5	<50	3	5	50	3	<5	<50	9	8	12	9	6	40
Cadmium		<1	<1	<50	<1	<1	<50	<1	<1	<50	0.4	0.3	29	0.4	<1	<50	<0.3	<0.3	<50	<0.3	<1	<50
Chromium (Total)		5	12	**82**	31	20	43	31	16	**64**	24	25	4	24	59	**84**	16	19	17	16	18	12
Copper		<5	7	<50	47	31	41	47	20	**81**	52	58	11	52	56	7	12	12	0	12	14	15
Lead		<5	8	<50	25	37	39	25	18	33	20	19	5	20	22	10	17	18	6	17	21	21
Mercury		<0.1	<0.1	<50	<0.1	<0.1	<50	<0.1	<0.1	<50	<0.05	<0.05	<50	<0.05	<0.1	<50	<0.05	<0.05	<50	<0.05	<0.1	<50
Nickel		<2	7	<50	36	11	**106**	36	11	**106**	46	48	4	46	73	45	3.0	2.4	22	3.0	2	40
Zinc		6	14	<50	88	84	5	88	24	**114**	110	130	17	110	137	22	7.5	7.8	4	7.5	<5	<50
Monocyclic Aromatic Hydrocarbons (MAHs)																						
Benzene		-	-	-	<0.2	<0.2	<70	<0.2	<0.2	<70	<0.1	<0.1	<70	<0.1	<0.2	<70	<0.1	<0.1	<70	<0.1	<0.2	<70
Toluene		-	-	-	<0.5	<0.5	<70	<0.5	<0.5	<70	<0.1	<0.1	<70	<0.1	<0.5	<70	<0.1	<0.1	<70	<0.1	<0.5	<70
Ethylbenzene		-	-	-	<0.5	<0.5	<70	<0.5	<0.5	<70	<0.1	<0.1	<70	<0.1	<0.5	<70	<0.1	<0.1	<70	<0.1	<0.5	<70
Xylenes		-	-	-	<0.5	<0.5	<70	<0.5	<0.5	<70	<0.3	<0.3	<70	<0.3	0.6	<70	<0.3	<0.3	<70	<0.3	<0.5	<70
Napthalene		-	-	-	<1	<1	<70	<1	<1	<70	<0.1	<0.1	<70	<0.1	<1	<70	<0.1	<0.1	<70	<0.1	<1	<70
Total Petroleum Hydrocarbons (TPHs)													<70									
Total C_6-C_{10}		-	-	-	<10	<10	<70	<10	<10	<70	<20	<20	<70	<20	<10	<70	<20	<20	<70	<20	<10	<70
Total C_{10}-C_{16}		-	-	-	<50	<50	<70	<50	<50	<70	<25	<25	<70	<25	<50	<70	<25	<25	<70	<25	<50	<70
F1 C_6-C_{10}		-	-	-	<10	<10	<70	<10	<10	<70	<25	<25	<70	<25	<10	<70	<25	<25	<70	<25	<10	<70
F2 C_{10}-C_{16}		-	-	-	<50	<50	<70	<50	<50	<70	<25	<25	<70	<25	<50	<70	<25	<25	<70	<25	<50	<70
F3 >C_{16}-C_{34}		-	-	-	160	150	6	160	<100	<70	<90	<90	<70	<90	<100	<70	<90	<90	<70	<90	<100	<70
F4 >C_{34}-C_{40}		-	-	-	<100	<100	<70	<100	<100	<70	<110	<110	<70	<110	<100	<70	<110	<110	<70	<110	<100	<70
Total C_{10}-C_{40}		-	-	-	160	150	6	160	<50	**146**	<210	<210	<70	<210	<50	<70	<210	<210	<70	<210	<50	<70
Polycyclic Aromatic Hydrocarbons (PAHs)																						
Benzo(a)pyrene		-	-	-	<0.5	1.9	**153**	<0.5	<0.5	<70	0.3	0.3	0	0.3	2.5	**157**	<0.1	<0.1	<70	<0.1	<0.5	<70
Carcinogenic PAHs		-	-	-	<0.5	2.5	**164**	<0.5	<0.5	<70	0.5	0.5	0	0.5	3.6	**151**	<0.2	<0.2	<70	<0.2	<0.5	<70
Total PAHs above detection limits		-	-	-	1.2	22.1	**179**	1.2	1.5	22	3.8	4.3	12	3.8	41.4	**166**	<0.8	<0.8	<70	<0.8	<0.5	<70

Notes : Results expressed as mg/kg dry weight unless otherwise indicated

[1] Denotes intra-laboratory field duplicate sample analysed by ALS Sydney

[2] Denotes intra-laboratory field duplicate sample analysed by SGS Sydney

[3] Denotes inter-laboratory field duplicate sample analysed by ALS Brisbane

[4] Denotes inter-laboratory field duplicate sample analysed by ALS Sydney

RPDs shaded grey exceed the acceptance criteria

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Table F: Results of Quality Control - Intra and Inter-Laboratory Duplicate Groundwater Samples

Analytes	Sample No.:	GW2-1	GW2-2[1]	RPD (%)	GW2-1*	GW2-3[2]	RPD (%)
	Date Sampled:	20-May-19	20-May-19		20-May-19	20-May-19	
Metals							
Arsenic		<1	<1	<50	<1	<1	<50
Cadmium		<0.1	<0.1	<50	<0.1	<0.1	<50
Chromium (Total)		<1	<1	<50	<1	<1	<50
Copper		1	2	<50	1	<1	<50
Lead		<1	<1	<50	<1	<1	<50
Mercury		<0.1	<0.1	<50	<0.1	<0.1	<50
Nickel		<1	<1	<50	<1	<1	<50
Zinc		8	6	29	8	<5	<50
Monocyclic Aromatic Hydrocarbons (MAHs)							
Benzene		<0.5	<0.5	<70	<0.5	<1	<70
Toluene		<0.5	<0.5	<70	<0.5	<2	<70
Ethylbenzene		<0.5	<0.5	<70	<0.5	<2	<70
m/p-xylene		<1	<1	<70	<1	<2	<70
o-xylene		<0.5	<0.5	<70	<0.5	<2	<70
Xylenes (total)		<1.5	<1.5	<70	<1.5	<2	<70
Total Petroleum Hydrocarbons (TPHs)							
Total C_6-C_{10}		<40	<40	<70	<40	<20	<70
Total C_{10}-C_{16}		<60	<60	<70	<60	<100	<70
F1 C_6-C_{10}		<50	<50	<70	<50	<20	<70
F2 C_{10}-C_{16}		<60	<60	<70	<60	<100	<70
F3 >C_{16}-C_{34}		<500	<500	<70	<500	<100	<70
F4 >C_{34}-C_{40}		<500	<500	<70	<500	<100	<70
Total C_{10}-C_{40}		<650	<650	<70	<650	<100	<70
Polycyclic Aromatic Hydrocarbons (PAHs)							
Naphthalene		<0.1	<0.1	<70	<0.1	<1.0	<70
Acenaphthylene		<0.1	<0.1	<70	<0.1	<1.0	<70
Acenaphthene		<0.1	<0.1	<70	<0.1	<1.0	<70
Fluorene		<0.1	<0.1	<70	<0.1	<1.0	<70
Phenanthrene		<0.1	<0.1	<70	<0.1	<1.0	<70
Anthracene		<0.1	<0.1	<70	<0.1	<1.0	<70
Fluoranthene		<0.1	<0.1	<70	<0.1	<1.0	<70
Pyrene		<0.1	<0.1	<70	<0.1	<1.0	<70
Benzo(a)anthracene		<0.1	<0.1	<70	<0.1	<1.0	<70
Chrysene		<0.1	<0.1	<70	<0.1	<1.0	<70
Benzo(b&j)fluoranthene		<0.1	<0.1	<70	<0.1	<1.0	<70
Benzo(k)fluoranthene		<0.1	<0.1	<70	<0.1	<1.0	<70
Benzo(a)pyrene		<0.1	<0.1	<70	<0.1	<0.5	<70
Indeno(1,2,3-cd)pyrene		<0.1	<0.1	<70	<0.1	<1.0	<70
Dibenzo(ah)anthracene		<0.1	<0.1	<70	<0.1	<1.0	<70
Benzo(ghi)perylene		<0.1	<0.1	<70	<0.1	<1.0	<70
Total PAHs above detection limits		<1	<1	<70	<1	<0.5	<70

Notes : Results expressed as µg/L unless otherwise indicated

[1] Denotes intra-laboratory field duplicate sample analysed by SGS Sydney

[2] Denotes inter-laboratory field duplicate sample analysed by ALS Sydney

RPDs shaded grey exceed the acceptance criteria

STS GeoEnvironmental Pty Ltd
Geotechnical and Environmental Solutions

Table G Results of Quality Control - Trip Spike and Trip Blank Samples

		Sample Numbers					
	Sample No.:	**Trip Spike**	**Trip Blank**	**Trip Spike**	**Trip Blank**	**Trip Spike**	**Trip Blank**
	Medium:	**Soil**	**Soil**	**Water**	**Water**	**Water**	**Water**
	Unit of Measure:	**%**	**mg/kg**	**%**	**µg/L**	**%**	**mg/kg**
Analyte	**Date Sampled:**	**20-May-19**	**20-May-19**	**20-May-19**	**20-May-19**	**21-May-19**	**21-May-19**
Monocyclic Aromatic Hydrocarbons (MAHs)							
Benzene		97	<0.1	100	<0.5	91	<0.1
Toluene		96	<0.1	93	<0.5	98	<0.1
Ethylbenzene		96	<0.1	98	<0.5	98	<0.1
m/p-Xylenes		96	<0.2	96	<1	92	<0.2
o-Xylenes		91	<0.1	98	<0.5	83	<0.1

Note:

Values that have been shaded exceed the acceptance criteria

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Table H Soil-Specific Ecological Investigation levels

		Sample Numbers					
	Borehole No./ Site Location:	**BH23**	**BH23**	**BH23**	**BH26**	**BH26**	**BH26**
	Sample No.:	**EIL 1**	**EIL 2**	**EIL 3**	**EIL 4**	**EIL 5**	**EIL 6**
	Depth:	**0.0 - 1.0 m**	**1.0 - 2.0 m**	**2.0 - 3.0 m**	**0.9 m**	**1.5 - 2.5 m**	**2.6 - 2.9 m**
	Soil Profile	**Sandy Clay**	**Silty Clay**	**Silty Clay**	**Gravelly Clay**	**Silty Clay**	**Silty Clay**
Analyte	**Date Sampled:**	**20-May-19**	**20-May-19**	**20-May-19**	**21-May-19**	**21-May-19**	**21-May-19**
Clay Content							
Clay Content % (estimate) (b)		25	30	30	25	30	30
Power of Hydrogen							
pH ($CaCl_2$)		7.3	6.1	4.2	8.8	6.6	4.1
Cation Exchange Capacity							
CEC		15	13	9.9	14	14	11
Total Organic Carbon							
TOC %	`	0.90	0.40	0.22	0.43	0.33	0.24
Soil-Specific Ecological Investigation Levels							
Chromium III		550	580	580	550	580	580
Copper		220	95	30	220	100	30
Nickel		220	200	170	210	210	180
Zinc		630	510	180	600	600	170

Notes:

(a) Results in mg/kg unless specified otherwise.

(b) Clay content estimated based on soil description

(c) EILs are generally applicable to a maximum depth of 2m

Values adopted as soil-specific Ecological Investigation Levels

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Geotechnical and Environmental Solutions

APPENDIX A – PRELIMINARY ARCHITECTURAL DRAWINGS



Drawing No:	Description
AP01	Cover Page
AP02	Data
AP03	Site Plan
AP04	Basement 3 & 4
AP05	Basement 2
AP06	Basement 1
AP07	Ground Floor
AP08	Level 1
AP09	Level 2-6
AP10	Level 7
AP11	Level 8
AP12	Level 9-12
AP13	Level 13
AP14	Level 14-16
AP15	Level 17
AP16	Level 18-21
AP17	Levels 22
AP18	Level 23
AP19	Level 24
AP20	Level 25
AP21	Elevation NE
AP22	Elevation N
AP23	Elevation SE
AP24	Elevation SW
AP25	Section A
AP26	Section B
AP27	Adaptable & Livable Units
AP28	Shadow Diagrams 1
AP29	Shadow Diagrams 2

Drawing No:	Description
SP01	Site Analysis
SP02.1	GFA Calculation
SP02.2	GFA Calculation
SP02.3	GFA Calculation
SP02.4	GFA Calculation
SP03.1	ADG Natural Ventilation
SP04.1	ADG Solar Access 3D
SP04.2	ADG Solar Access 3D
SP04.3	ADG Solar Access 2D
SP04.4	ADG Solar Access 2D

11-17 COLUMBIA LANE, HOMEBUSH

PROPOSED MIXED-USE DEVELOPMENT

schedule of finishes



1:
Sydney sandstone
Main entry feature
wall blades



2:
PGH Bricks
'Macarthur Mix Linear'
Podium feature
facade



3:
White metal powdercoat
finish
Feature tower facade



4:
Grey metal wall
cladding finish



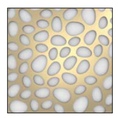
5:
Dark grey powdercoat
finish
Garage door, open
grill commercial door



6:
White paint finish
Balcony upstands
and slab edges



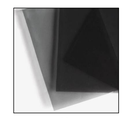
7:
Dark grey paint finish
External walls



8:
Duralloy paperbark
satin powdercoat
finish
Metrix group
riverstone screen
Gallery balustrades



9:
Light grey powdercoat
finish
Aluminium door &
window frames



10:
Glazing
'Grey Laminated'
Windows, doors &
balustrades



11:
Metal vertical blade
courtyard fencing
Black powdercoat
finish



12:
Door & window style
to basix requirements

WORK IN PROGRESS

- ☐ *this drawing is copyright and the property of the author, and must not be retained, copied or used without the authority of mosca pserras architects.*
- ☐ *larger scale drawings and written dimensions take preference.*
- ☐ *do not scale from drawing*
- ☐ *all dimensions to be checked on site before commencement of work.*
- ☐ *all discrepancies to be brought to the attention of the author.*

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w www.moscapserras.com.au

north point:

N

key plan:

notes:

amendments:

Revision	Description	By	Date
P6	Preliminary	GH	15/08/17
P7	Pre-DA	GH	17/08/17
P11	Preliminary Consultant Issue	MA	17/01/18
P12	Preliminary Consultant Issue	SB	17.10.18
P13	Pre-DA Issue	SB	05.11.18
P14	Pre-DA Issue	SB	04.06.19
P17	Preliminary Consultant Issue	MR	09.05.19
P18	Preliminary Consultant Issue	SB	20.05.19
P19	Preliminary Consultant Issue	SB	22.05.19
P22	Preliminary Consultant Issue	SB	04.06.19

mpa
mosca pserras architects

project MIXED USE DEVELOPMENT
location 11-17 Columbia Lane, HOMEBUSH
client Columbina Lane Development Pty. Ltd

drawing title Cover Page

scale	1:50.72 @ A1	project architect	SP / GK	drawn	GH/ MA
job no.	14028	drawing no.	AP01	issue	P22

11-17 COLUMBIA LANE, HOMEBUSH

DATE : 06.06.19

UNIT	APARTMENT TYPE				GFA	NSA										(9-15)	(9-15)	(9-15)	
	1 BED	2 BED	3 BED	NOTES		INTERNAL	TERRACE	MISC	TOTAL	ADAPTABLE	LIVABLE	STORAGE within unit	STORAGE/in asement	SOLAR ACCESS >2HRS	SOLAR ACCESS <2HRS	NO SOLAR ACCESS	CROSS VENTILATION	
GROUND																			
COMM																			
1 AG.01	1B					60	18		78			✓			✓			✓	
2 AG.02	1B					50	18		68			✓	✓		✓			✓	
3 AG.03		2B				75	39		114			✓					✓		
4 AG.04	1B					52	38		90			✓	✓		✓			✓	
5 AG.05		2B		plus office		98	56		154			✓	✓	✓				✓	
6 AG.06		2B		plus office		106	22		128			✓			✓			✓	
7 AG.07	1B			plus office		69	17		86			✓	✓				✓	✓	
8 BG.01		2B				82	40		122	✓	✓	✓	✓		✓			✓	
9 BG.02	1B					50	22		72			✓	✓				✓	✓	
10 BG.03	1B			plus office		69	17		86			✓	✓				✓	✓	
11 BG.04		2B		plus office		106	22		128			✓			✓			✓	
12 BG.05	1B			plus office		72	16		88			✓	✓		✓			✓	
TOTAL	7	5	0		922	889	325		1214	1	1	8						10	
LEVEL 1																			
13 A1.01		2B				78	14		92			✓					✓		
14 A1.02		2B				78	10		88			✓			✓			✓	
15 A1.03	1B					50	9		59			✓	✓	✓				✓	
16 A1.04	1B					50	8		58			✓			✓				
17 A1.05		2B				75	10		85			✓					✓		
18 A1.06		2B				75	11		86			✓	✓						
19 A1.07			3B			98	12		110			✓	✓	✓				✓	
20 A1.08	1B					55	10		65			✓	✓		✓			✓	
21 A1.09	1B					58	13		71			✓	✓				✓	✓	
22 A1.10		2B				78	14		92			✓	✓		✓			✓	
23 B1.01	1B					51	9		60	✓	✓	✓	✓				✓	✓	
24 B1.02		2B				82	11		93	✓	✓	✓	✓		✓			✓	
25 B1.03	1B					50	8		58			✓			✓				
26 B1.04		2B				75	10		85			✓					✓		
27 B1.05		2B				72	15		87			✓	✓	✓				✓	
28 B1.06		2B				72	19		91			✓	✓	✓				✓	
TOTAL	6	9	1		1419	1097	183	0	1280	2	2	9						10	
LEVEL 2																			
29 A2.01		2B				78	14		92			✓					✓		
30 A2.02		2B				78	10		88			✓			✓			✓	
31 A2.03	1B					50	9		59			✓	✓	✓				✓	
32 A2.04	1B					50	8		58			✓			✓				
33 A2.05		2B				75	10		85			✓					✓		
34 A2.06		2B				75	10		85			✓	✓						
35 A2.07			3B			98	12		110			✓	✓	✓				✓	
36 A2.08	1B					55	10		65			✓	✓		✓			✓	
37 A2.09	1B					55	10		65			✓	✓		✓			✓	
38 A2.10		2B				77	10		87			✓	✓		✓			✓	
39 A2.11	1B					58	13		71			✓	✓				✓	✓	
40 A2.12		2B				78	14		92			✓	✓		✓			✓	
41 B2.01	1B					51	9		60	✓	✓	✓	✓				✓	✓	
42 B2.02		2B				82	12		94	✓	✓	✓	✓	✓				✓	
43 B2.03	1B					50	8		58			✓			✓				
44 B2.04		2B				75	10		85			✓					✓		
45 B2.05		2B				77	10		87			✓	✓					✓	
46 B2.06		2B				80	10		90			✓	✓		✓			✓	
47 B2.07	1B					65	22		87	✓	✓	✓	✓	✓				✓	
48 B2.08		2B				82	16		98			✓	✓						
49 B2.09		2B	1			86	10		96			✓	✓	✓				✓	
TOTAL	8	12	1		1647	1475	237	0	1712	3	3	13						13	
LEVEL 3																			
50 A3.01		2B				78	14		92			✓					✓		
51 A3.02		2B				78	10		88			✓			✓			✓	
52 A3.03	1B					50	9		59			✓	✓	✓				✓	
53 A3.04	1B					50	8		58			✓			✓				
54 A3.05		2B				75	10		85			✓					✓		
55 A3.06		2B				75	10		85			✓	✓						
56 A3.07			3B			98	12		110			✓	✓	✓				✓	
57 A3.08	1B					55	10		65			✓	✓		✓			✓	
58 A3.09	1B					55	10		65			✓	✓				✓		
59 A3.10		2B				77	10		87			✓	✓		✓			✓	
60 A3.11	1B					58	13		71			✓	✓				✓	✓	
61 A3.12		2B				78	14		92			✓	✓		✓			✓	
62 B3.01	1B					51	9		60	✓	✓	✓	✓				✓	✓	
63 B3.02		2B				82	12		94	✓	✓	✓	✓	✓				✓	
64 B3.03	1B					50	8		58			✓			✓				
65 B3.04		2B				75	10		85			✓					✓		
66 B3.05		2B				77	10		87			✓	✓					✓	
67 B3.06		2B				80	10		90			✓	✓		✓			✓	
68 B3.07	1B					65	22		87	✓	✓	✓	✓	✓				✓	
69 B3.08		2B				82	16		98			✓	✓						
70 B3.09		2B				86	10		96			✓	✓	✓				✓	
TOTAL	8	12	1		1647	1475	237	0	1712	3	3	13						13	
LEVEL 4																			
71 A4.01		2B				78	14		92			✓					✓		
72 A4.02		2B				78	10		88			✓			✓			✓	
73 A4.03	1B					50	9		59			✓	✓	✓				✓	
74 A4.04	1B					50	8		58			✓			✓				
75 A4.05		2B				75	10		85			✓					✓		
76 A4.06		2B				75	10		85			✓	✓						
77 A4.07			3B			98	12		110			✓	✓	✓				✓	
78 A4.08	1B					55	10		65			✓	✓		✓			✓	
79 A4.09	1B					55	10		65			✓	✓				✓		
80 A4.10		2B				77	10		87			✓	✓		✓			✓	
81 A4.11	1B					58	13		71			✓	✓				✓	✓	
82 A4.12		2B				78	14		92			✓	✓		✓			✓	
83 B4.01	1B					51	9		60	✓	✓	✓	✓				✓	✓	
84 B4.02		2B				82	12		94	✓	✓	✓	✓	✓				✓	
85 B4.03	1B					50	8		58			✓			✓				
86 B4.04		2B				75	10		85			✓					✓		
87 B4.05		2B				77	10		87			✓	✓					✓	
88 B4.06		2B				80	10		90			✓	✓		✓			✓	
89 B4.07	1B					65	22		87	✓	✓	✓	✓	✓				✓	
90 B4.08		2B				82	16		98			✓	✓						
91 B4.09		2B				86	10		96			✓	✓	✓				✓	
TOTAL	8	12	1		1647	1475	237	0	1712	3	3	13						13	
LEVEL 5																			
92 A5.01		2B				78	14		92			✓					✓		
93 A5.02		2B				78	10		88			✓			✓			✓	
94 A5.03	1B					50	9		59			✓	✓	✓				✓	
95 A5.04	1B					50	8		58			✓			✓				
96 A5.05		2B				75	10		85			✓					✓		
97 A5.06		2B				75	10		85			✓	✓						
98 A5.07			3B			98	12		110			✓	✓	✓				✓	
99 A5.08	1B					55	10		65			✓	✓		✓			✓	
100 A5.09	1B					55	10		65			✓	✓				✓		
101 A5.10		2B				77	10		87			✓	✓		✓			✓	
102 A5.11	1B					58	13		71			✓	✓				✓	✓	
103 A5.12		2B				78	14		92			✓	✓		✓			✓	
104 B5.01	1B					51	9		60	✓	✓	✓	✓				✓	✓	
105 B5.02		2B				82	12		94	✓	✓	✓	✓	✓				✓	
106 B5.03	1B					50	8		58			✓			✓				
107 B5.04		2B				75	10		85			✓					✓		
108 B5.05		2B				77	10		87			✓	✓					✓	
109 B5.06		2B				80	10		90			✓	✓		✓			✓	
110 B5.07	1B					65	22		87	✓	✓	✓	✓	✓				✓	
111 B5.08		2B				82	16		98			✓	✓						
112 B5.09		2B				86	10		96			✓	✓	✓				✓	
TOTAL	8	12	1		1647	1475	237	0	1712	2	3	13						13	

11-17 COLUMBIA LANE, HOMEBUSH

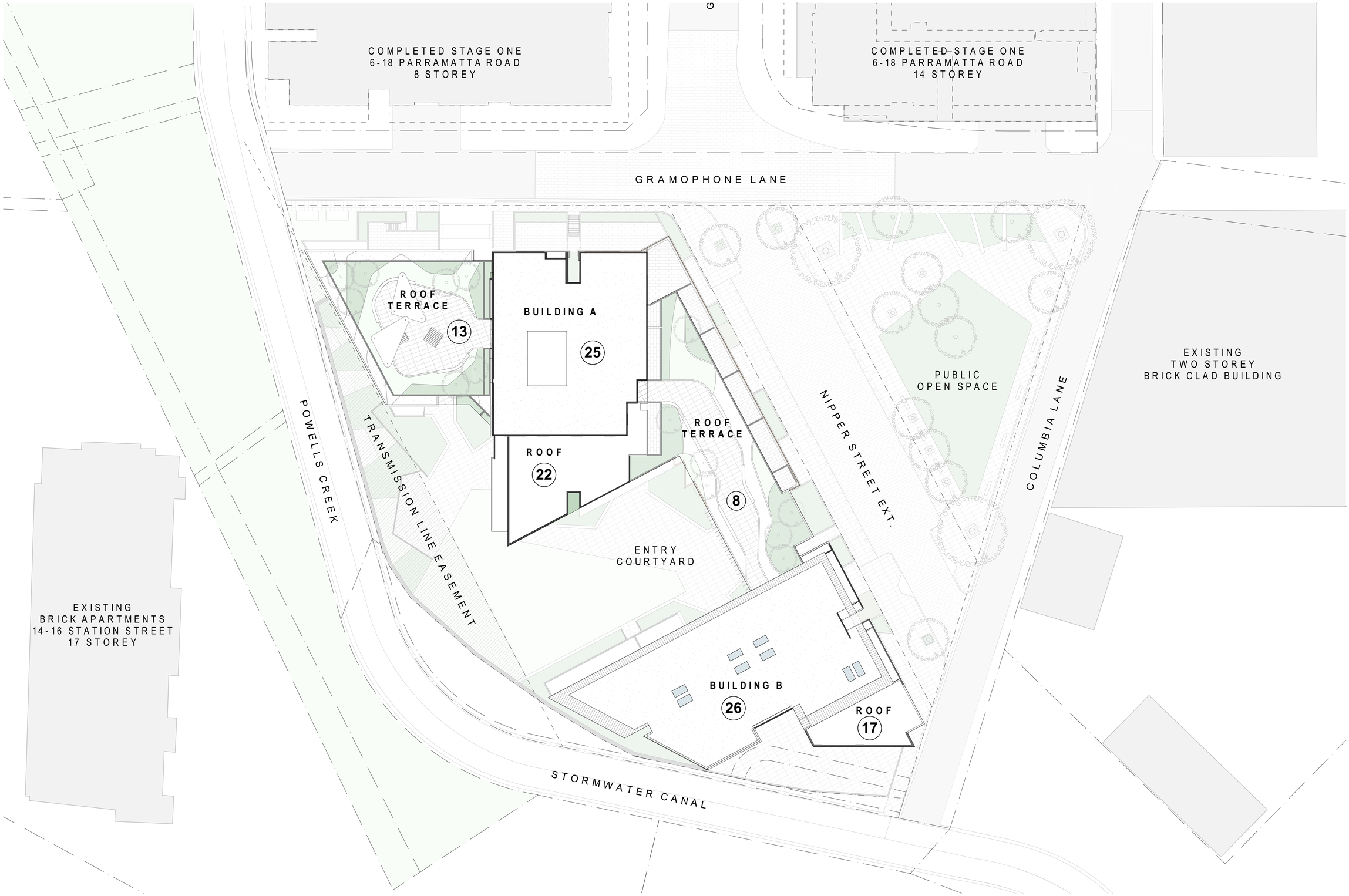
DATE : 06.06.19

UNIT	APARTMENT TYPE				GFA	NSA										(9-15)	(9-15)	(9-15)	
	1 BED	2 BED	3 BED	NOTES		INTERNAL	TERRACE	MISC	TOTAL	ADAPTABLE	LIVABLE	STORAGE within unit	STORAGE/in asement	SOLAR ACCESS >2HRS	SOLAR ACCESS <2HRS	NO SOLAR ACCESS	CROSS VENTILATION	
LEVEL 6																			
113 A6.01		2B				78	14		92			✓					✓		
114 A6.02		2B				78	10		88			✓			✓			✓	
115 A6.03	1B					50	9		59			✓	✓	✓				✓	
116 A6.04	1B					50	8		58			✓			✓				
117 A6.05		2B				75	10		85			✓					✓		
118 A6.06		2B				75	10		85			✓	✓		✓				
119 A6.07			3B			98	12		110			✓	✓	✓				✓	
120 A6.08	1B					55	10		65			✓	✓		✓			✓	
121 A6.09	1B					55	10		65			✓	✓				✓		
122 A6.10		2B				77	10		87			✓	✓		✓			✓	
123 A6.11	1B					58	13		71			✓	✓				✓	✓	
124 A6.12		2B				78	14		92			✓					✓		
125 B6.01	1B					51	9		60	✓	✓	✓	✓				✓	✓	
126 B6.02		2B				82	12		94	✓	✓	✓	✓	✓				✓	
127 B6.03	1B					50	8		58			✓			✓				
128 B6.04		2B				75	10		85			✓					✓		
129 B6.05		2B				77	10		87			✓	✓	✓				✓	
130 B6.06		2B				80	10		90			✓	✓		✓			✓	
131 B6.07	1B					65	22		87	✓	✓	✓	✓				✓	✓	
132 B6.08		2B				82	16		98			✓	✓						
133 B6.09		2B				86	10		96			✓	✓					✓	
TOTAL	8	12	1		1647	1475	237	0	1712	2	3	13						13	
LEVEL 7																			
134 A7.01		2B				78	14		92			✓					✓		
135 A7.02		2B				78	10		88			✓			✓			✓	
136 A7.03	1B					50	9		59			✓	✓	✓				✓	
137 A7.04	1B					50	8		58			✓			✓				
138 A7.05		2B				75	10		85			✓					✓		
139 A7.06		2B				75	10		85			✓	✓						
140 A7.07	1B					58	51		109			✓	✓					✓	
141 A7.08	1B					51	15		66			✓	✓					✓	
142 A7.09	1B					51	15		66			✓	✓	✓				✓	
143 A7.10		2B				72	16		88			✓	✓		✓			✓	
144 A7.11	1B					58	13		71			✓	✓				✓	✓	
145 A7.12		2B				78	14		92			✓					✓		
146 B7.01	1B					51	9		60	✓	✓	✓	✓				✓	✓	
147 B7.02		2B				82	11		93	✓	✓	✓	✓	✓				✓	
148 B7.03	1B					50	8		58			✓	✓						
149 B7.04		2B				75	10		85			✓	✓					✓	
150 B7.05		2B				72	16		88			✓	✓	✓				✓	
151 B7.06		2B				80	10		90			✓	✓		✓			✓	
152 B7.07	1B					65	22		87			✓	✓	✓				✓	
153 B7.08		2B				82	16		98			✓	✓						
154 B7.09		2B				86	10		96			✓	✓	✓				✓	
TOTAL	9	12	0		1583	1417	297	0	1714	2	3	13						13	
LEVEL 8																			
155 A8.01		2B				78	14		92			✓					✓		
156 A8.02		2B				78	10		88			✓			✓			✓	
157 A8.03	1B					50	9		59			✓	✓	✓				✓	
158 A8.04	1B					50	8		58			✓			✓				
159 A8.05		2B				75	10		85			✓					✓		
160 A8.06		2B				75	10		85			✓	✓						
161 A8.07			3B			98	12		110			✓	✓	✓				✓	
162 A8.08	1B					59	16		75			✓			✓				
163 A8.09		2B				84	24		108			✓	✓	✓				✓	
164 A8.10	1B					58	13		71			✓					✓		
165 A8.11		2B				78	14		92			✓				✓		✓	
166 B8.01	1B					51	9		60	✓	✓	✓	✓				✓	✓	
167 B8.02		2B				82	11		93	✓	✓	✓	✓	✓				✓	
168 B8.03	1B					50	8		58			✓			✓				
169 B8.04		2B				75	10		85			✓					✓		
170 B8.05	1B					65	22		87			✓	✓	✓				✓	
171 B8.06		2B				82	16		98			✓	✓						
172 B8.07		2B				86	10		96			✓	✓	✓				✓	
TOTAL	7	11	0		1482	1251	233	0	1484	2	3	7						9	
LEVEL 9																			
173 A9.01		2B				78	14		92			✓					✓		
174 A9.02		2B				78	10		88			✓			✓			✓	
175 A9.03	1B					50	9		59			✓	✓	✓				✓	
176 A9.04	1B					50	8		58			✓			✓				
177 A9.05		2B				75	10		85			✓					✓		
178 A9.06		2B				75	10		85			✓	✓						
179 A9.07			3B			98	12		110			✓	✓	✓				✓	
180 A9.08	1B					55	10		65			✓	✓		✓			✓	
181 A9.09		2B				84	10		94			✓					✓		
182 A9.10	1B					58	13		71			✓					✓		
183 A9.11		2B				78	14		92			✓				✓		✓	
184 B9.01	1B					51	9		60	✓	✓	✓	✓				✓	✓	
185 B9.02		2B				82	11		93	✓	✓	✓	✓	✓				✓	
186 B9.03	1B					50	8		58			✓			✓				
187 B9.04		2B				75	10		85			✓					✓		
188 B9.05			3B			95	13		108			✓	✓	✓				✓	
189 B9.06		2B				82	16		98			✓	✓						
190 B9.07		2B				86	10		96			✓	✓	✓				✓	
TOTAL	5	12	1		1500	1297	198	0	1495	2	3	7						13	
LEVEL 10																			
191 A10.01		2B				78	14		92			✓					✓		
192 A10.02		2B				78	10		88			✓			✓			✓	
193 A10.03	1B					50	9		59			✓	✓	✓				✓	
194 A10.04	1B					50	8		58			✓			✓				
195 A10.05		2B				75	10		85			✓					✓		
196 A10.06		2B				75	10		85			✓	✓						
197 A10.07		2B				75	13		88			✓	✓	✓				✓	
198 A10.08		2B				75	10		85			✓	✓		✓			✓	
199 A10.09		2B				84	10		94			✓					✓		
200 A10.10	1B					58	13		71			✓					✓		
201 A1011		2B				78	14		92			✓				✓		✓	
202 B10.01	1B					51	9		60	✓	✓	✓	✓				✓	✓	
203 B10.02		2B				82	11		93	✓	✓	✓	✓	✓				✓	
204 B10.03	1B					50	8		58			✓			✓				
205 B10.04		2B				75	10		85			✓					✓		
206 B10.05			3B			95	13		108			✓	✓	✓				✓	
207 B10.06		2B				82	16		98			✓	✓						
208 B10.07		2B				86	10		96			✓	✓	✓				✓	
TOTAL	5	12	1		1501	1297	198	0	1495	2	3	7						13	
LEVEL 11																			
209 A11.01		2B				78	14		92			✓					✓		
210 A11.02		2B				78	10		88			✓			✓				
211 A11.03	1B					50	9		59			✓	✓	✓				✓	
212 A11.04	1B					50	8		58			✓			✓				
213 A11.05		2B				75	10		85			✓					✓		
214 A11.06		2B				75	10		85			✓	✓						
215 A11.07		2B				75	13		88			✓	✓	✓				✓	
216 A11.08		2B				75	10		85			✓	✓		✓			✓	
217 A11.09		2B				84	10		94			✓					✓		
218 A11.10	1B					58	13		71			✓					✓		
219 A11.11		2B				78	14		92			✓			✓			✓	
220 B11.01	1B					51	9		60	✓	✓	✓	✓				✓	✓	
221 B11.02		2B				82	11		93	✓	✓	✓	✓	✓				✓	
222 B11.03	1B					50	8		58			✓			✓				
223 B11.04		2B				75	10		85			✓					✓		
224 B11.05			3B			95	13		108			✓	✓	✓				✓	
225 B11.06		2B				82	16		98			✓	✓						
226 B11.07		2B				86	10		96			✓	✓	✓				✓	
TOTAL	5	12	1		1501	1297	198	0	1495	2	3	7						13	

11-17 COLUMBIA LANE, HOMEBUSH

DATE : 06.06.19

UNIT	APARTMENT TYPE				GFA	NSA										(9-15)	(9-15)	(9-15)	
	1 BED	2 BED	3 BED	NOTES		INTERNAL	TERRACE	MISC	TOTAL	ADAPTABLE	LIVABLE	STORAGE within unit	STORAGE/in asement	SOLAR ACCESS >2HRS	SOLAR ACCESS <2HRS	NO SOLAR ACCESS	CROSS VENTILATION	
LEVEL 12																			
227 A12.01		2B				78	14		92			✓					✓		
228 A12.02		2B				78	10		88			✓			✓			✓	
229 A12.03	1B					50	9		59			✓	✓	✓				✓	
230 A12.04	1B					50	8		58			✓			✓				
231 A12.05		2B				75	10		85			✓					✓		
232 A12.06		2B				75	10		85			✓	✓						
233 A12.07		2B				75	13		88			✓	✓	✓				✓	
234 A12.08		2B				75	10		85			✓	✓		✓			✓	
235 A12.09		2B				84	10		94			✓					✓		
236 A12.10	1B					58	13		71			✓				✓			
237 A12.11		2B				78	14		92			✓					✓		
238 B12.01	1B					51	9		60	✓	✓	✓	✓				✓	✓	
239 B12.02		2B				82	11		93	✓	✓	✓	✓	✓				✓	
240 B12.03	1B					50	8		58			✓			✓				
241 B12.04		2B				75	10		85			✓					✓		
242 B12.05			3B			95	13		108			✓	✓	✓				✓	
243 B12.06		2B				82	16		98			✓	✓						
244 B12.07		2B				86	10		96			✓	✓	✓				✓	
TOTAL	5	12	1		1501	1297	198	0	1495	2	3	7						13	
LEVEL 13																			
245 A13.01		2B				75	10		85			✓			✓				
246 A13.02		2B				75	13		88			✓	✓	✓					
247 A13.03		2B				75	10		85			✓	✓		✓				
248 A13.04		2B				84	10		94			✓			✓				
249 A13.05		2B				78	14		92			✓			✓				
250 A13.06		2B				77	10		87	✓	✓	✓	✓	✓					
251 B13.01	1B					51	9		60



Site Plan
1:250

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north point:

N

key plan:

notes:

amendments:

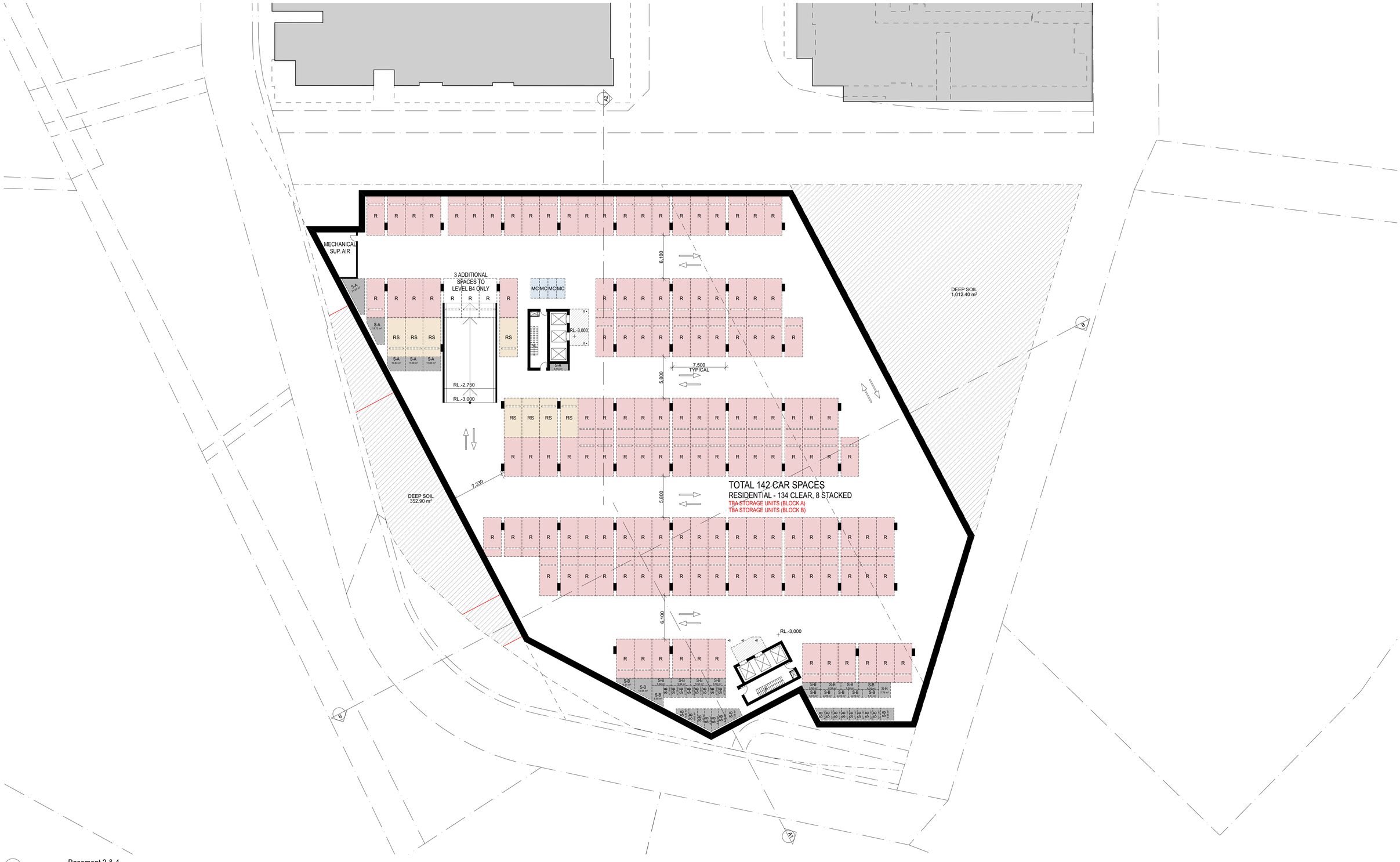
Revision	Description	By	Date
P7	Pre-DA	GH	17/08/17
P9	Podium and tower wing adjustments	MA	19/10/17
P11	Preliminary Consultant Issue	MA	17/01/18
P12	Preliminary Consultant Issue	SB	17.10.18
P13	Pre-DA Issue	SB	05.11.18
P14	Pre-DA Issue	SB	04.06.19
P17	Preliminary Consultant Issue	MR	09.05.19
P18	Preliminary Consultant Issue	SB	20.05.19
P19	Preliminary Consultant Issue	SB	22.05.19
P22	Preliminary Consultant Issue	SB	04.06.19

WORK IN PROGRESS

mosca pserras architects

project	MIXED USE DEVELOPMENT
location	11-17 Columbia Lane, HOMEBUSH
client	Columbina Lane Development Pty. Ltd
drawing title	Site Plan

scale	1:250 @ A1	project architect	SP / GK	drawn	GH/ MA
job no.	14028	drawing no.	AP03	issue	P22



Basement 3 & 4
1:250

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north point:

N

key plan:

notes:

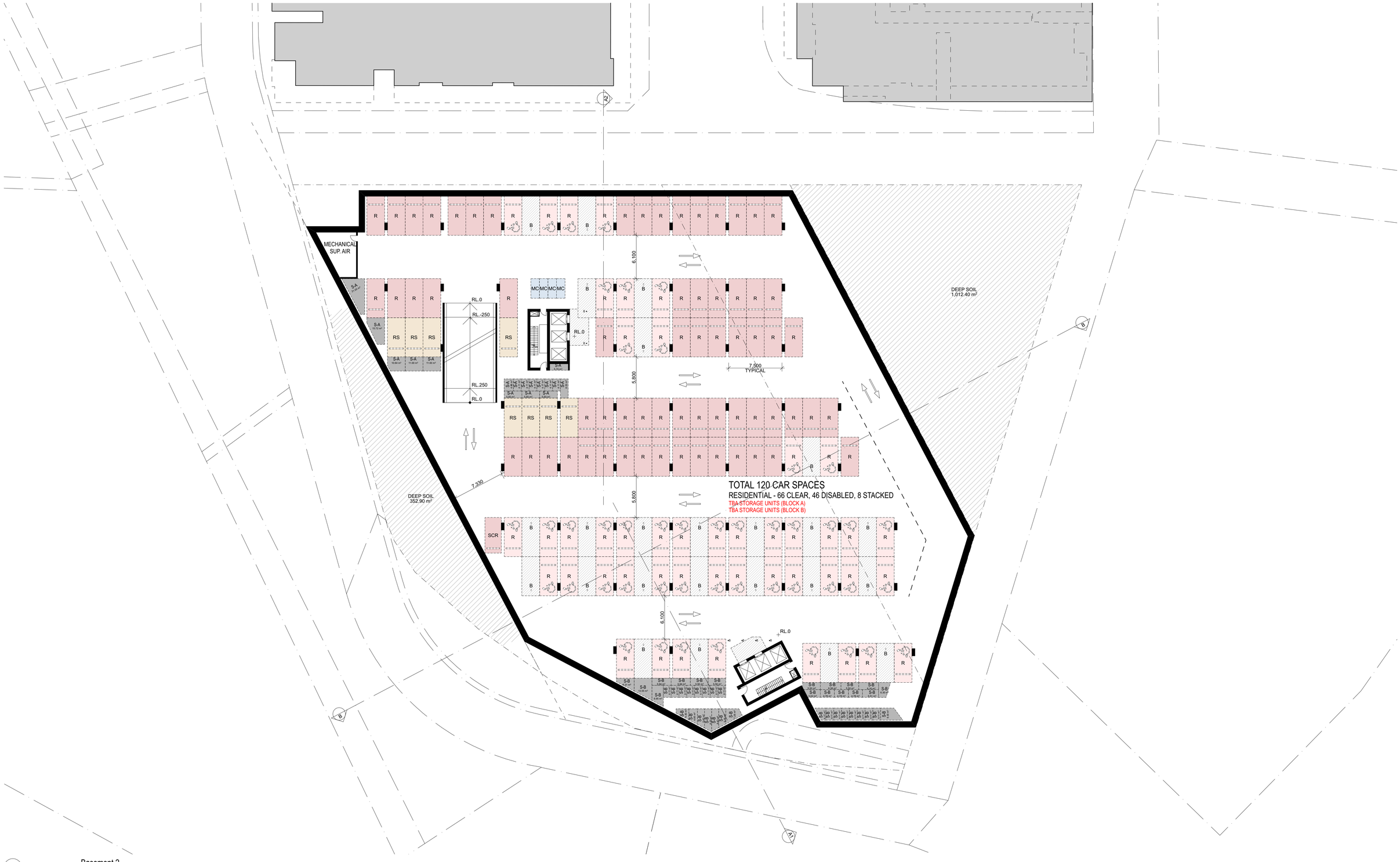
amendments:

Revision	Description	By	Date
P8	Building A Southern podium wing adjustments	MA	03/10/17
P11	Preliminary Consultant Issue	MA	17/01/18
P12	Preliminary Consultant Issue	SB	17.10.18
P13	Pre-DA Issue	SB	05.11.18
P14	Pre-DA Issue	SB	04.06.19
P15	Basement adjustments	MR	06.05.19
P17	Preliminary Consultant Issue	MR	09.05.19
P18	Preliminary Consultant Issue	SB	20.05.19
P19	Preliminary Consultant Issue	SB	22.05.19
P22	Preliminary Consultant Issue	SB	04.06.19

mosca pserras architects

project	MIXED USE DEVELOPMENT
location	11-17 Columbia Lane, HOMEBUSH
client	Columbina Lane Development Pty. Ltd
drawing title	Basement 3 & 4

scale	1:250 @ A1	project architect	SP / GK	drawn	GH/ MA
job no.	14028	drawing no.	AP04	issue	P22



Basement 2
1:250

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- all discrepancies to be brought to the attention of the author.

north point:

N

key plan:

notes:

amendments:

Revision	Description	By	Date
P8	Building A Southern podium wing adjustments	MA	03/10/17
P11	Preliminary Consultant Issue	MA	17/01/18
P12	Preliminary Consultant Issue	SB	17.10.18
P13	Pre-DA Issue	SB	05.11.18
P14	Pre-DA Issue	SB	04.06.19
P15	Basement adjustments	MR	06.05.19
P17	Preliminary Consultant Issue	MR	09.05.19
P18	Preliminary Consultant Issue	SB	20.05.19
P19	Preliminary Consultant Issue	SB	22.05.19
P22	Preliminary Consultant Issue	SB	04.06.19

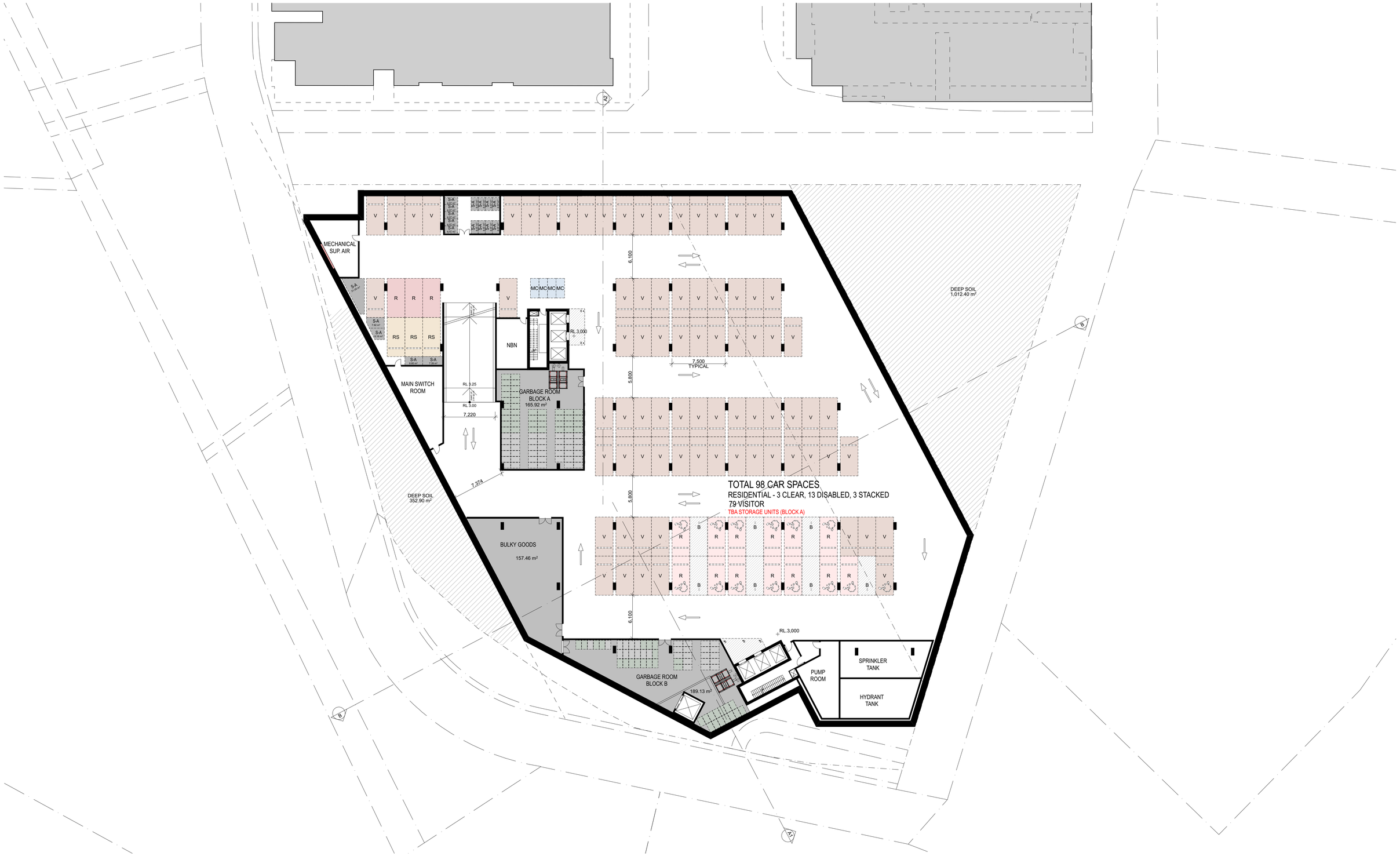
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mosca pserras architects

project MIXED USE DEVELOPMENT
location 11-17 Columbia Lane, HOMEBUSH
client Columbina Lane Development Pty. Ltd

drawing title Basement 2

scale	1:250 @ A1	project architect	SP / GK	drawn	GH/ MA
job no.	14028	drawing no.	AP05	issue	P22



Basement 1
1:250

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north point:

N

key plan:

notes:

amendments:

Revision	Description	By	Date
P8	Building A Southern podium wing adjustments	MA	03/10/17
P11	Preliminary Consultant Issue	MA	17/01/18
P12	Preliminary Consultant Issue	SB	17.10.18
P13	Pre-DA Issue	SB	05.11.18
P14	Pre-DA Issue	SB	04.06.19
P15	Basement adjustments	MR	06.05.19
P17	Preliminary Consultant Issue	MR	09.05.19
P18	Preliminary Consultant Issue	SB	20.05.19
P19	Preliminary Consultant Issue	SB	22.05.19
P22	Preliminary Consultant Issue	SB	04.06.19

mpa
mosca pserras architects

project MIXED USE DEVELOPMENT
location 11-17 Columbia Lane, HOMEBUSH
client Columbina Lane Development Pty. Ltd
drawing title Basement 1

scale 1:250 @ A1 | project architect SP / GK | drawn GH/ MA
job no. 14028 | drawing no. AP06 | issue P22

GRAMOPHONE LANE

POWELLS CREEK

COLUMBIA LANE

NIPPER STREET EXT.

STORMWATER CANAL

SUBSTATIONS

3m clearance

RL 5.190

RL 5.185

RL 5.400

RL 5.917

RL 6.117

RL 5.45

RL 5.75

RL 6.00

RL 6.00

RL 5.75

RL 7.000

RL 6.951

RL 6.900

RL 7.000

5,550

15,000

6171

DRIVEWAY

STORAGE

SA

AG.01
60.16 m²

AG.02
50.05 m²

AG.03
75.72 m²

AG.04
52.23 m²

AG.05
98.62 m²

AG.06
AG.07
AG.08

BG.01
BG.02
BG.03
BG.04
BG.05

LIFT LOBBY A

LIFT LOBBY B

MAIL

ENTRY GATE

OFFICE

COMMUNAL MEETING ROOM

FIRE CONTROL ROOM

PUMP ROOM

SERVICES LOADING AREA

GARBAGE

BIN COLLECTION AREA

GYM
86.43 m²

PUBIC OPEN SPACE

ENTRY COURTYARD

COMMON OPEN SPACE

Ground.
1:250

WORK IN PROGRESS

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all discrepancies to be brought to the attention of the author.

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north point:

N

key plan:

notes:

- 1 BED UNITS
- 2 BED UNITS
- 3 BED UNITS
- LIVE WORK UNITS

amendments:

Revision	Description	By	Date
P8	Building A Southern podium wing adjustments	MA	03/10/17
P11	Preliminary Consultant Issue	MA	17/01/18
P12	Preliminary Consultant Issue	SB	17.10.18
P13	Pre-DA Issue	SB	05.11.18
P14	Pre-DA Issue	SB	04.06.19
P15	Client unit adjustments	MA	30.04.19
P17	Preliminary Consultant Issue	MR	09.05.19
P18	Preliminary Consultant Issue	SB	20.05.19
P19	Preliminary Consultant Issue	SB	22.05.19
P22	Preliminary Consultant Issue	SB	04.06.19

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project MIXED USE DEVELOPMENT
location 11-17 Columbia Lane, HOMEBUSH
client Columbina Lane Development Pty. Ltd

drawing title Ground Floor

scale	1:250 @ A1	project architect	SP / GK	drawn	GH/ MA
job no.	14028	drawing no.	AP07	issue	P22



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north point:

N

key plan:

notes:

- 1 BED UNITS
- 2 BED UNITS
- 3 BED UNITS
- LIVE WORK UNITS

amendments:

Revision	Description	By	Date
P8	Building A Southern podium wing adjustments	MA	03/10/17
P11	Preliminary Consultant Issue	MA	17/01/18
P12	Preliminary Consultant Issue	SB	17.10.18
P13	Pre-DA Issue	SB	05.11.18
P14	Pre-DA Issue	SB	04.06.19
P15	Client unit adjustments	MA	30.04.19
P17	Preliminary Consultant Issue	MR	09.05.19
P18	Preliminary Consultant Issue	SB	20.05.19
P19	Preliminary Consultant Issue	SB	22.05.19
P22	Preliminary Consultant Issue	SB	04.06.19

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project MIXED USE DEVELOPMENT

location 11-17 Columbia Lane, HOMEBUSH

client Columbina Lane Development Pty. Ltd

drawing title Level 1

scale	1:250 @ A1	project architect	SP / GK	drawn	GH/ MA
job no.	14028	drawing no.	AP08	issue	P22



Level 2-6
1:250

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- all discrepancies to be brought to the attention of the author.

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north point:

N

key plan:

notes:

- 1 BED UNITS
- 2 BED UNITS
- 3 BED UNITS
- LIVE WORK UNITS

amendments:

Revision	Description	By	Date
P8	Building A Southern podium wing adjustments	MA	03/10/17
P11	Preliminary Consultant Issue	MA	17/01/18
P12	Preliminary Consultant Issue	SB	17.10.18
P13	Pre-DA Issue	SB	05.11.18
P14	Pre-DA Issue	SB	04.06.19
P15	Client unit adjustments	MA	30.04.19
P17	Preliminary Consultant Issue	MR	09.05.19
P18	Preliminary Consultant Issue	SB	20.05.19
P19	Preliminary Consultant Issue	SB	22.05.19
P22	Preliminary Consultant Issue	SB	04.06.19

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project	MIXED USE DEVELOPMENT
location	11-17 Columbia Lane, HOMEBUSH
client	Columbina Lane Development Pty. Ltd
drawing title	Level 2-6

scale	1:250 @ A1	project architect	SP / GK	drawn	GH/ MA
job no.	14028	drawing no.	AP09	issue	P22



Level 7
1:250

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north point:

N

key plan:

notes:

- 1 BED UNITS
- 2 BED UNITS
- 3 BED UNITS
- LIVE WORK UNITS

amendments:

Revision	Description	By	Date
P8	Building A Southern podium wing adjustments	MA	03/10/17
P11	Preliminary Consultant Issue	MA	17/01/18
P12	Preliminary Consultant Issue	SB	17.10.18
P13	Pre-DA Issue	SB	05.11.18
P14	Pre-DA Issue	SB	04.06.19
P15	Client unit adjustments	MA	30.04.19
P17	Preliminary Consultant Issue	MR	09.05.19
P18	Preliminary Consultant Issue	SB	20.05.19
P19	Preliminary Consultant Issue	SB	22.05.19
P22	Preliminary Consultant Issue	SB	04.06.19

WORK IN PROGRESS

mosca pserras architects

project	MIXED USE DEVELOPMENT
location	11-17 Columbia Lane, HOMEBUSH
client	Columbina Lane Development Pty. Ltd
drawing title	Level 7

scale	1:250 @ A1	project architect	SP / GK	drawn	GH/ MA
job no.	14028	drawing no.	AP10	issue	P22


GRAMOPHONE LANE
POWELLS CREEK
NIPPER STREET EXT.
COLUMBIA LANE
STORMWATER CANAL
COMMON OPEN SPACE
LIFT LOBBY A
LIFT LOBBY B RL 32.350
RL 32.350
NON-TRAFFICABLE ROOF
10.300
21.310
A8.01
A8.02
A8.03
A8.04
A8.05
A8.06
A8.07
A8.08
A8.09
A8.10
A8.11
B8.01
B8.02
B8.03
B8.04
B8.05
B8.06
B8.07
B8.08
B8.09
B8.10
B8.11
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B8.39
B8.40



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north point:

N

key plan:

notes:

- 1 BED UNITS
- 2 BED UNITS
- 3 BED UNITS
- LIVE WORK UNITS

amendments:

Revision	Description	By	Date
P8	Building A Southern podium wing adjustments	MA	03/10/17
P11	Preliminary Consultant Issue	MA	17/01/18
P12	Preliminary Consultant Issue	SB	17.10.18
P13	Pre-DA Issue	SB	05.11.18
P14	Pre-DA Issue	SB	04.06.19
P15	Client unit adjustments	MA	30.04.19
P17	Preliminary Consultant Issue	MR	09.05.19
P18	Preliminary Consultant Issue	SB	20.05.19
P19	Preliminary Consultant Issue	SB	22.05.19
P22	Preliminary Consultant Issue	SB	04.06.19

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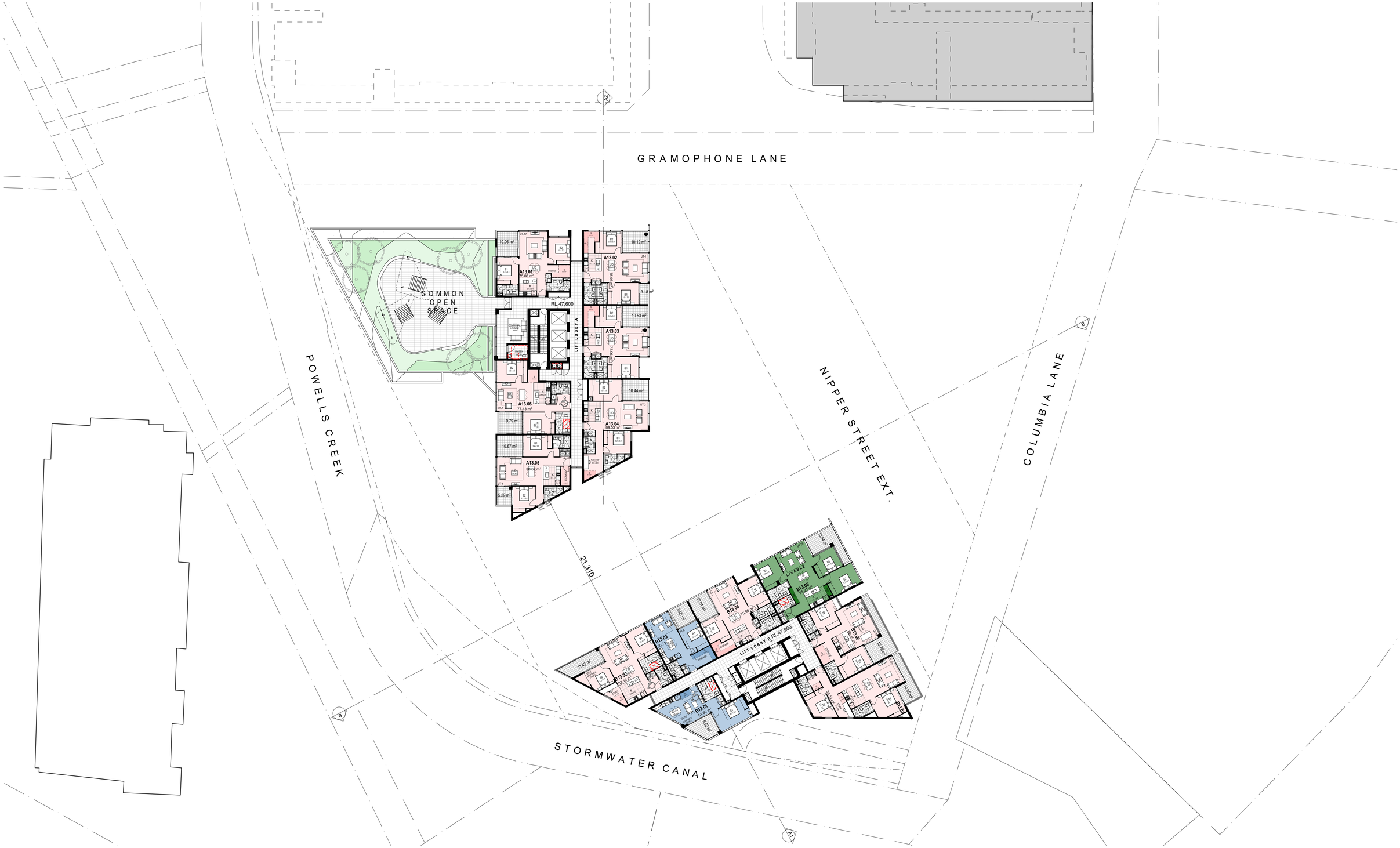
project MIXED USE DEVELOPMENT

location 11-17 Columbia Lane, HOMEBUSH

client Columbina Lane Development Pty. Ltd

drawing title Level 9-12

scale	1:250 @ A1	project architect	SP / GK	drawn	GH/ MA
job no.	14028	drawing no.	AP12	issue	P22



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north point:

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key plan:

notes:

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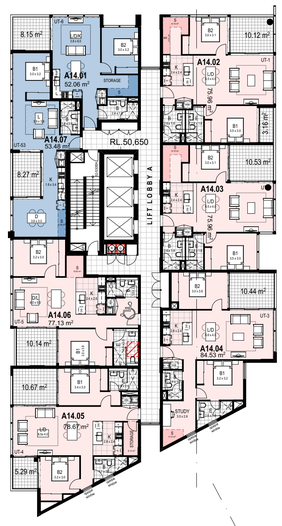
amendments:

Revision	Description	By	Date
P8	Building A Southern podium wing adjustments	MA	03/10/17
P11	Preliminary Consultant Issue	MA	17/01/18
P12	Preliminary Consultant Issue	SB	17.10.18
P13	Pre-DA Issue	SB	05.11.18
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P18	Preliminary Consultant Issue	SB	20.05.19
P19	Preliminary Consultant Issue	SB	22.05.19
P22	Preliminary Consultant Issue	SB	04.06.19

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project	MIXED USE DEVELOPMENT
location	11-17 Columbia Lane, HOMEBUSH
client	Columbina Lane Development Pty. Ltd
drawing title	Level 13

scale	1:250 @ A1	project architect	SP / GK	drawn	GH/ MA
job no.	14028	drawing no.	AP13	issue	P22





Level 14-16
1:250

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north point:

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key plan:

notes:

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- 3 BED UNITS
- LIVE WORK UNITS

amendments:

Revision	Description	By	Date
P12	Preliminary Consultant Issue	SB	17.10.18
P13	Pre-DA Issue	SB	05.11.18
P14	Pre-DA Issue	SB	04.06.19
P15	Client unit adjustments	MA	30.04.19
P17	Preliminary Consultant Issue	MR	09.05.19
P18	Preliminary Consultant Issue	SB	20.05.19
P19	Preliminary Consultant Issue	SB	22.05.19
P22	Preliminary Consultant Issue	SB	04.06.19

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project MIXED USE DEVELOPMENT
location 11-17 Columbia Lane, HOMEBUSH
client Columbina Lane Development Pty. Ltd
drawing title Level 14-16

scale	1:250 @ A1	project architect	SP / GK	drawn	GH/ MA
job no.	14028	drawing no.	AP14	issue	P22



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key plan:

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amendments:

Revision	Description	By	Date
P14	Pre-DA Issue	SB	04.06.19
P15	Client unit adjustments	MA	30.04.19
P17	Preliminary Consultant Issue	MR	09.05.19
P18	Preliminary Consultant Issue	SB	20.05.19
P19	Preliminary Consultant Issue	SB	22.05.19
P22	Preliminary Consultant Issue	SB	04.06.19

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project	MIXED USE DEVELOPMENT
location	11-17 Columbina Lane, HOMEBUSH
client	Columbina Lane Development Pty. Ltd
drawing title	Level 17

scale	1:250 @ A1	project architect	SP / GK	drawn	GH/ MA
job no.	14028	drawing no.	AP15	issue	P22



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north point:

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key plan:

notes:

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- 3 BED UNITS
- LIVE WORK UNITS

amendments:

Revision	Description	By	Date
P14	Pre-DA Issue	SB	04.06.19
P15	Client unit adjustments	MA	30.04.19
P17	Preliminary Consultant Issue	MR	09.05.19
P18	Preliminary Consultant Issue	SB	20.05.19
P19	Preliminary Consultant Issue	SB	22.05.19
P22	Preliminary Consultant Issue	SB	04.06.19

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project MIXED USE DEVELOPMENT
location 11-17 Columbia Lane, HOMEBUSH
client Columbina Lane Development Pty. Ltd
drawing title Level 18-21

scale	1:250 @ A1	project architect	SP / GK	drawn	GH/ MA
job no.	14028	drawing no.	AP16	issue	P22



Level 22
1:250

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key plan:

notes:

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- 3 BED UNITS
- LIVE WORK UNITS

amendments:

Revision	Description	By	Date
P8	Building A Southern podium wing adjustments	MA	03/10/17
P11	Preliminary Consultant Issue	MA	17/01/18
P12	Preliminary Consultant Issue	SB	17.10.18
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P19	Preliminary Consultant Issue	SB	22.05.19
P22	Preliminary Consultant Issue	SB	04.06.19

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project MIXED USE DEVELOPMENT
location 11-17 Columbia Lane, HOMEBUSH
client Columbina Lane Development Pty. Ltd

drawing title Levels 22

scale	1:250 @ A1	project architect	SP / GK	drawn	GH/ MA
job no.	14028	drawing no.	AP17	issue	P22



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north point:

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key plan:

notes:

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- 3 BED UNITS
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amendments:

Revision	Description	By	Date
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P18	Preliminary Consultant Issue	SB	20.05.19
P19	Preliminary Consultant Issue	SB	22.05.19
P22	Preliminary Consultant Issue	SB	04.06.19

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project MIXED USE DEVELOPMENT
location 11-17 Columbia Lane, HOMEBUSH
client Columbina Lane Development Pty. Ltd

drawing title Level 23

scale	1:250 @ A1	project architect	SP / GK	drawn	GH/ MA
job no.	14028	drawing no.	AP18	issue	P22

GRAMOPHONE LANE

POWELLS CREEK

NIPPER STREET EXT.

COLUMBIA LANE

STORMWATER CANAL





Level 24
1:250

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key plan:

notes:

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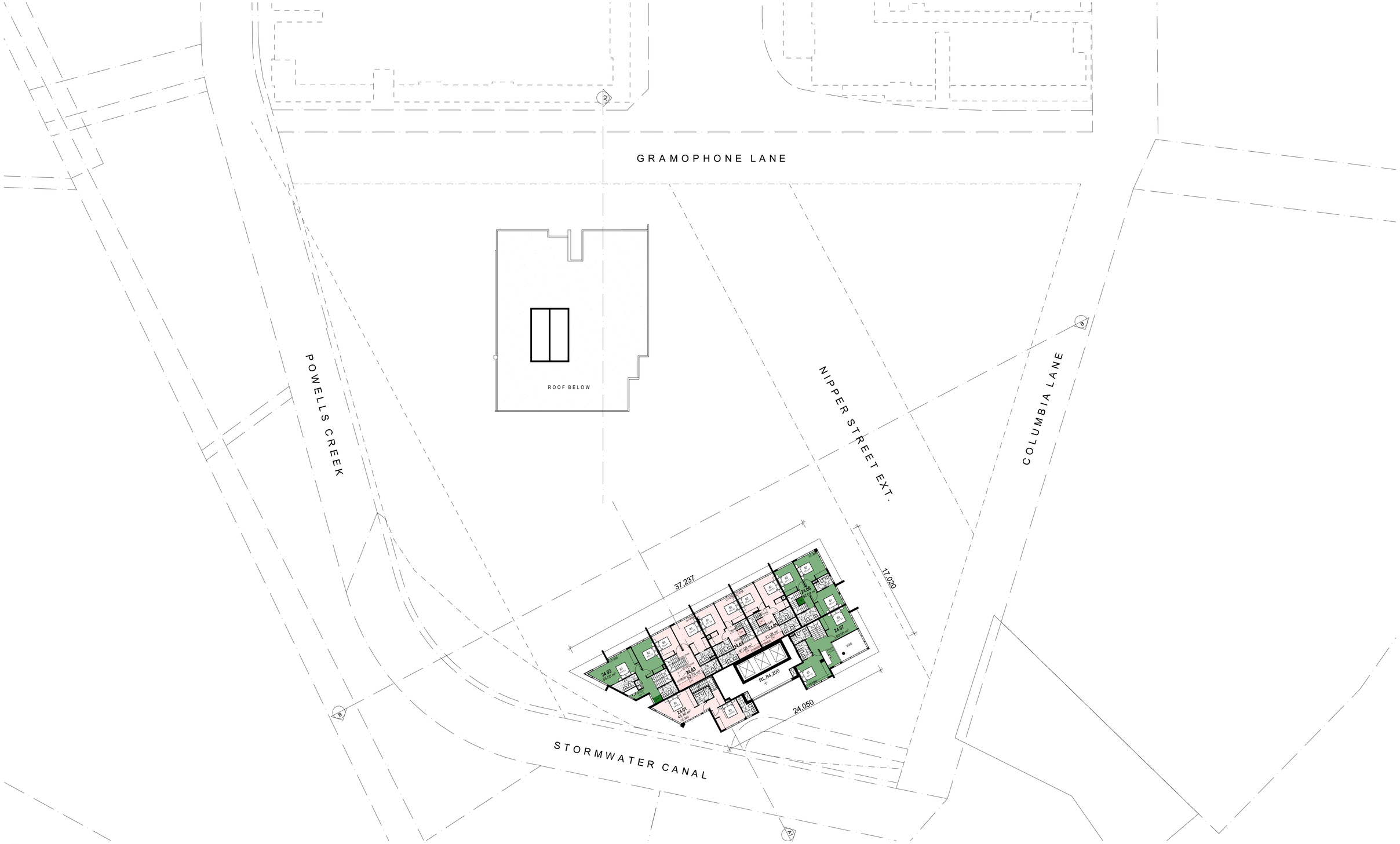
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P11	Preliminary Consultant Issue	MA	17/01/18
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P18	Preliminary Consultant Issue	SB	20.05.19
P19	Preliminary Consultant Issue	SB	22.05.19
P22	Preliminary Consultant Issue	SB	04.06.19

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project	MIXED USE DEVELOPMENT
location	11-17 Columbia Lane, HOMEBUSH
client	Columbina Lane Development Pty. Ltd
drawing title	Level 24

scale	1:250 @ A1	project architect	SP / GK	drawn	GH/ MA
job no.	14028	drawing no.	AP19	issue	P22



Level 25
1:250

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north point:

N

key plan:

notes:

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- 2 BED UNITS
- 3 BED UNITS
- LIVE WORK UNITS

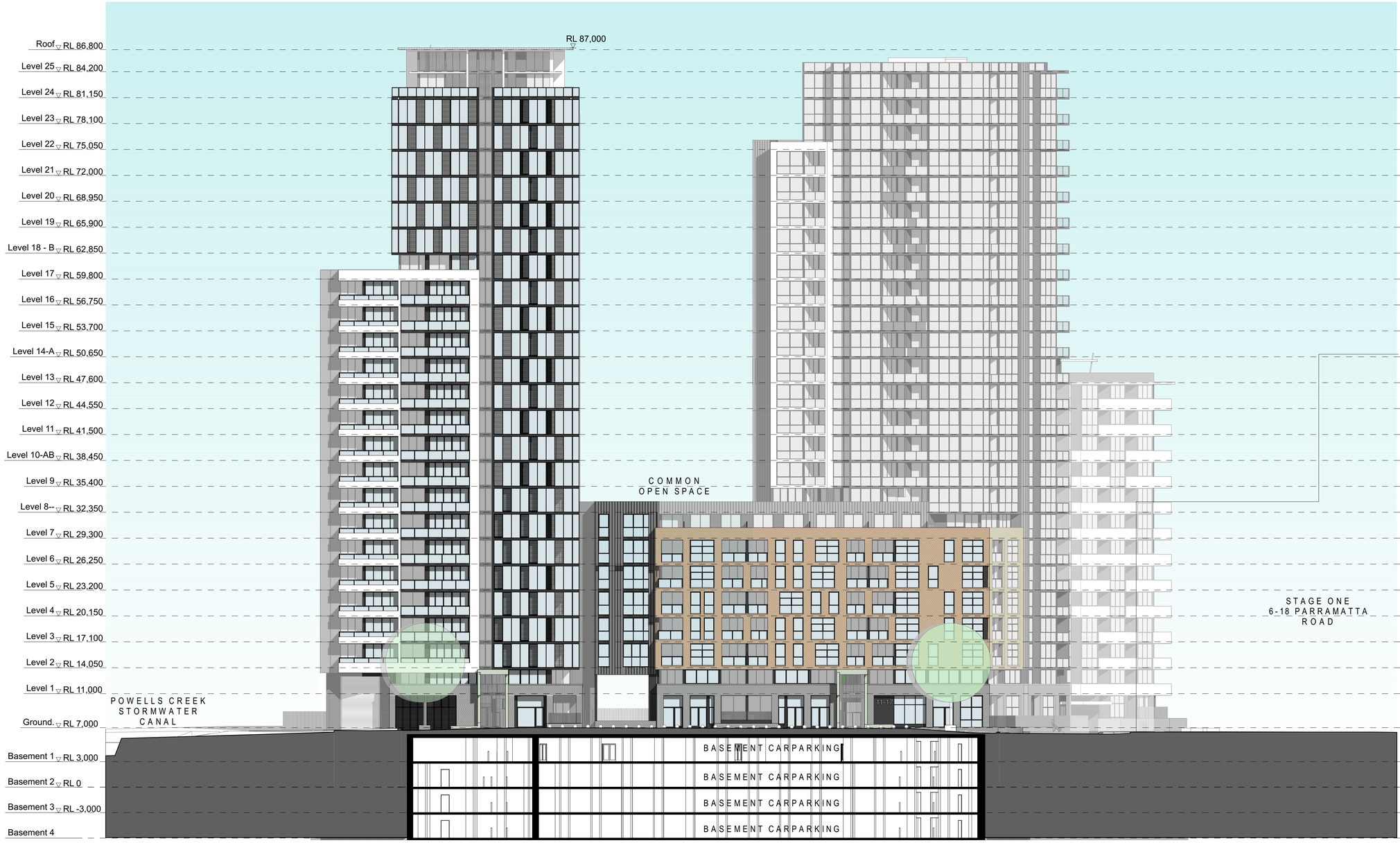
amendments:

Revision	Description	By	Date
P8	Building A Southern podium wing adjustments	MA	03/10/17
P11	Preliminary Consultant Issue	MA	17/01/18
P12	Preliminary Consultant Issue	SB	17.10.18
P13	Pre-DA Issue	SB	05.11.18
P14	Pre-DA Issue	SB	04.06.19
P15	Client unit adjustments	MA	30.04.19
P17	Preliminary Consultant Issue	MR	09.05.19
P18	Preliminary Consultant Issue	SB	20.05.19
P19	Preliminary Consultant Issue	SB	22.05.19
P22	Preliminary Consultant Issue	SB	04.06.19

mosca pserras architects

project	MIXED USE DEVELOPMENT
location	11-17 Columbia Lane, HOMEBUSH
client	Columbina Lane Development Pty. Ltd
drawing title	Level 25

scale	1:250 @ A1	project architect	SP / GK	drawn	GH/ MA
job no.	14028	drawing no.	AP20	issue	P22



North-East Elevation
1:250

1:
Sydney sandstone
Main entry feature wall blades

2:
PGH Bricks 'Macarthur Mix Linear'
Podium feature facade

3:
White powdercoat finish
Feature tower facade

4:
Horizontal interlocking colorbond panel cladding - Basalt
Level 4&5 Podium Facade

5:
Dark grey powdercoat finish
Garage door, open grill commercial door

6:
White paint finish
Balcony upstands and slab edges

7:
Dark grey paint finish
External walls

8:
Duralloy paperbark satin powdercoat finish
Metrix group riverstone screen
External screens

9:
Light grey powdercoat finish
Aluminium door & window frames

10:
Glazing 'Grey Laminated'
Windows, doors & balustrades

11:
Metal vertical blade courtyard fencing
Black powdercoat finish

12:
Door & window style to basix requirements

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north point:

N

key plan:

notes:

amendments:

Revision	Description	By	Date
P6	Preliminary	GH	15/08/17
P7	Pre-DA	GH	17/08/17
P11	Preliminary Consultant Issue	MA	17/01/18
P12	Preliminary Consultant Issue	SB	17.10.18
P13	Pre-DA Issue	SB	05.11.18
P14	Pre-DA Issue	SB	04.06.19
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P19	Preliminary Consultant Issue	SB	22.05.19
P22	Preliminary Consultant Issue	SB	04.06.19

mpa
mosca pserras architects

project: MIXED USE DEVELOPMENT
location: 11-17 Columbia Lane, HOMEBUSH
client: Columbina Lane Development Pty. Ltd
drawing title: Elevation NE

scale	1:250 @ A1	project architect	SP / GK	drawn	GH/ MA
job no.	14028	drawing no.	AP21	issue	P22



North Elevation
1:250



1:
Sydney sandstone
Main entry feature wall blades



2:
PGH Bricks 'Macarthur Mix Linear'
Podium feature facade



3:
White powdercoat finish
Feature tower facade



4:
Horizontal interlocking colorbond panel cladding - Basalt
Level 4&5 Podium Facade



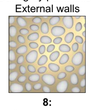
5:
Dark grey powdercoat finish
Garage door, open grill commercial door



6:
White paint finish
Balcony upstands and slab edges



7:
Dark grey paint finish
External walls



8:
Duralloy paperbark satin powdercoat finish
Metrix group riverstone screen
External screens



9:
Light grey powdercoat finish
Aluminium door & window frames



10:
Glazing 'Grey Laminated'
Windows, doors & balustrades



11:
Metal vertical blade courtyard fencing
Black powdercoat finish



12:
Door & window style to basix requirements

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north point:



key plan:

notes:

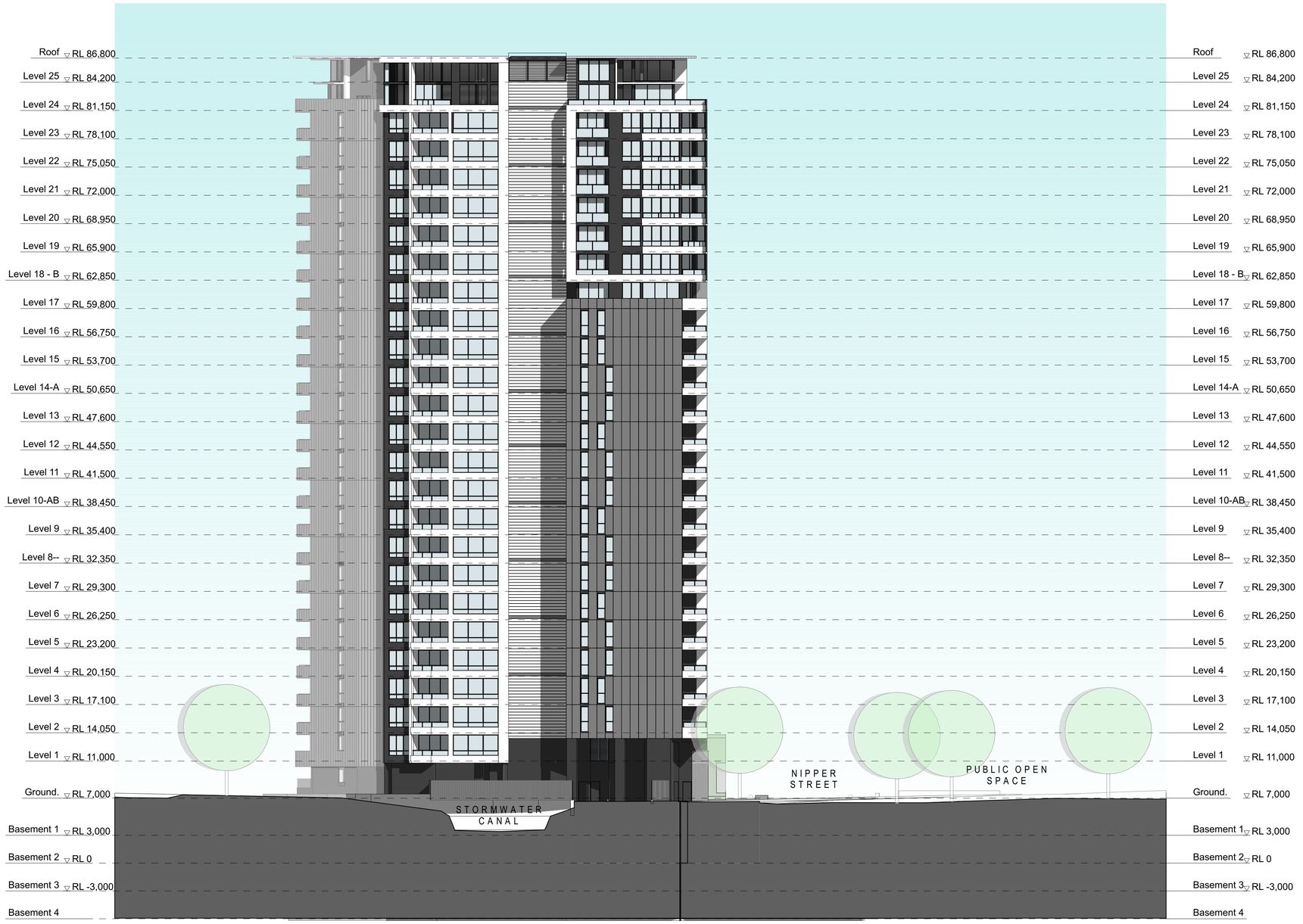
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Revision	Description	By	Date
P6	Preliminary	GH	15/08/17
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P19	Preliminary Consultant Issue	SB	22.05.19
P22	Preliminary Consultant Issue	SB	04.06.19

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mosca pserras architects

project	MIXED USE DEVELOPMENT
location	11-17 Columbia Lane, HOMEBUSH
client	Columbina Lane Development Pty. Ltd
drawing title	Elevation N

scale	1:250 @ A1	project architect	SP / GK	drawn	GH/ MA
job no.	14028	drawing no.	AP22	issue	P22



South-East Elevation
1:250



1:
Sydney sandstone
Main entry feature wall blades



2:
PGH Bricks 'Macarthur Mix Linear'
Podium feature facade



3:
White powdercoat finish
Feature tower facade



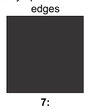
4:
Horizontal interlocking colorbond panel cladding - Basalt
Level 4&5 Podium Facade



5:
Dark grey powdercoat finish
Garage door, open grill commercial door



6:
White paint finish
Balcony upstands and slab edges



7:
Dark grey paint finish
External walls



8:
Duralloy paperbark satin powdercoat finish
Metrix group riverstone screen
External screens



9:
Light grey powdercoat finish
Aluminium door & window frames



10:
Glazing 'Grey' Laminated'
Windows, doors & balustrades



11:
Metal vertical blade courtyard fencing
Black powdercoat finish



12:
Door & window style to basix requirements

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north point:

N

key plan:

notes:

amendments:

Revision	Description	By	Date
P6	Preliminary	GH	15/08/17
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P12	Preliminary Consultant Issue	SB	17.10.18
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P19	Preliminary Consultant Issue	SB	22.05.19
P22	Preliminary Consultant Issue	SB	04.06.19

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mosca pserras architects

project MIXED USE DEVELOPMENT
location 11-17 Columbia Lane, HOMEBUSH
client Columbina Lane Development Pty. Ltd

drawing title Elevation SE

scale 1:250 @ A1 | project architect SP / GK | drawn GH/ MA
job no. 14028 | drawing no. AP23 | issue P22



South-West Elevation
1:250

1:
Sydney sandstone
Main entry feature wall blades

2:
PGH Bricks 'Macarthur Mix Linear'
Podium feature facade

3:
White powdercoat finish
Feature tower facade

4:
Horizontal interlocking colorbond panel cladding - Basalt
Level 4&5 Podium Facade

5:
Dark grey powdercoat finish
Garage door, open grill commercial door

6:
White paint finish
Balcony upstands and slab edges

7:
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External walls

8:
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External screens

9:
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Aluminium door & window frames

10:
Glazing 'Grey Laminated'
Windows, doors & balustrades

11:
Metal vertical blade courtyard fencing
Black powdercoat finish

12:
Door & window style to basix requirements

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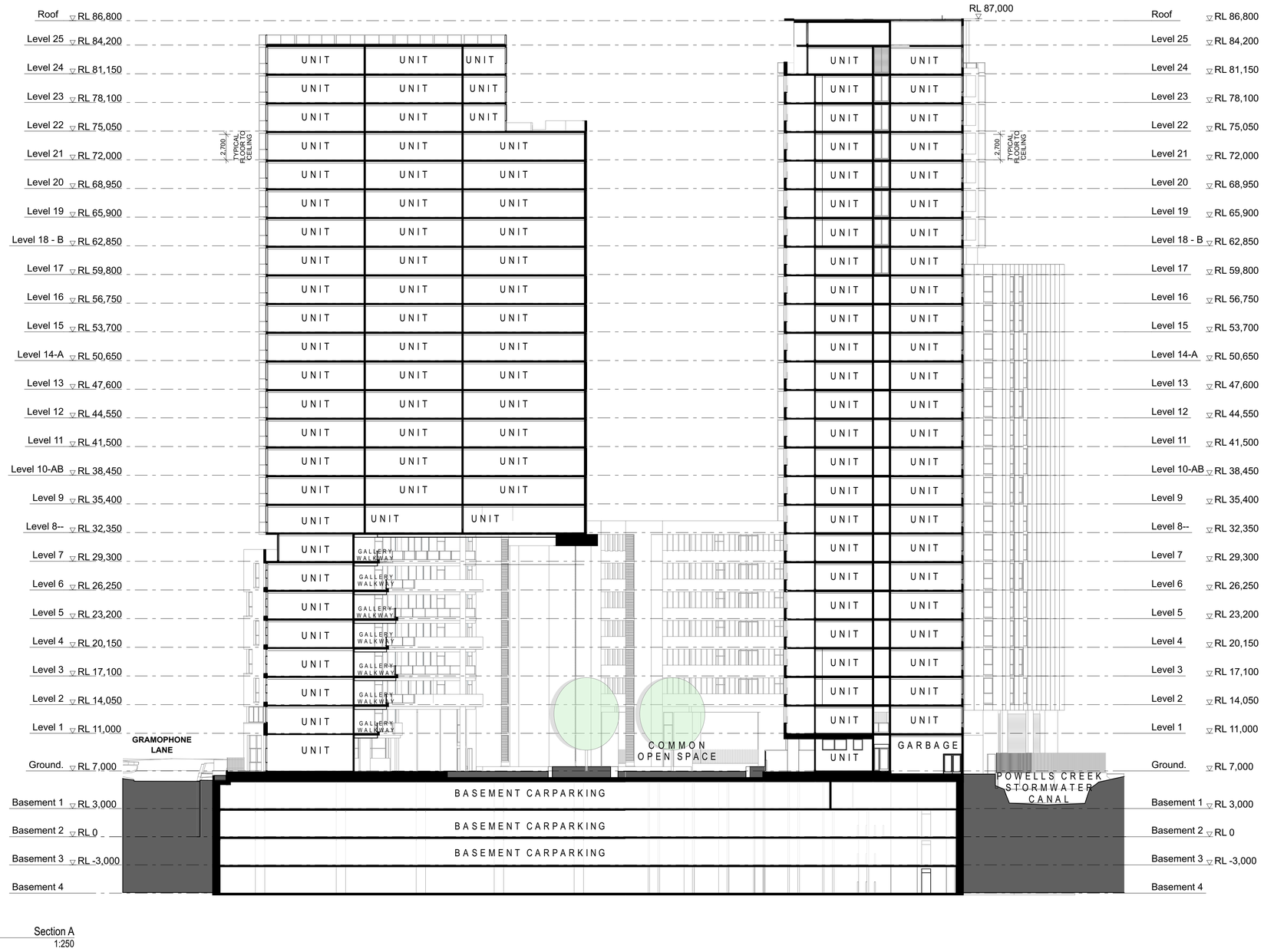
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P12	Preliminary Consultant Issue	SB	17.10.18
P13	Pre-DA Issue	SB	05.11.18
P14	Pre-DA Issue	SB	04.06.19
P17	Preliminary Consultant Issue	MR	09.05.19
P18	Preliminary Consultant Issue	SB	20.05.19
P19	Preliminary Consultant Issue	SB	22.05.19
P22	Preliminary Consultant Issue	SB	04.06.19

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project	MIXED USE DEVELOPMENT
location	11-17 Columbia Lane, HOMEBUSH
client	Columbina Lane Development Pty. Ltd
drawing title	Elevation SW

scale	1:250 @ A1	project architect	SP / GK	drawn	GH/ MA
job no.	14028	drawing no.	AP24	issue	P22



Section A
1:250



1:
Sydney sandstone
Main entry feature wall blades



2:
PGH Bricks 'Macarthur Mix Linear'
Podium feature facade



3:
White powdercoat finish
Feature tower facade



4:
Horizontal interlocking colorbond panel cladding - Basalt
Level 4&5 Podium Facade



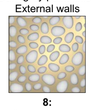
5:
Dark grey powdercoat finish
Garage door, open grill commercial door



6:
White paint finish
Balcony upstands and slab edges



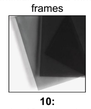
7:
Dark grey paint finish
External walls



8:
Duralloy paperbark satin powdercoat finish
Metrix group riverstone screen
External screens



9:
Light grey powdercoat finish
Aluminium door & window frames



10:
Glazing 'Grey Laminated'
Windows, doors & balustrades



11:
Metal vertical blade courtyard fencing
Black powdercoat finish



12:
Door & window style to basix requirements

WORK IN PROGRESS

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- *all discrepancies to be brought to the attention of the author.*

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w www.moscapserras.com.au

north point:

N

key plan:

notes:

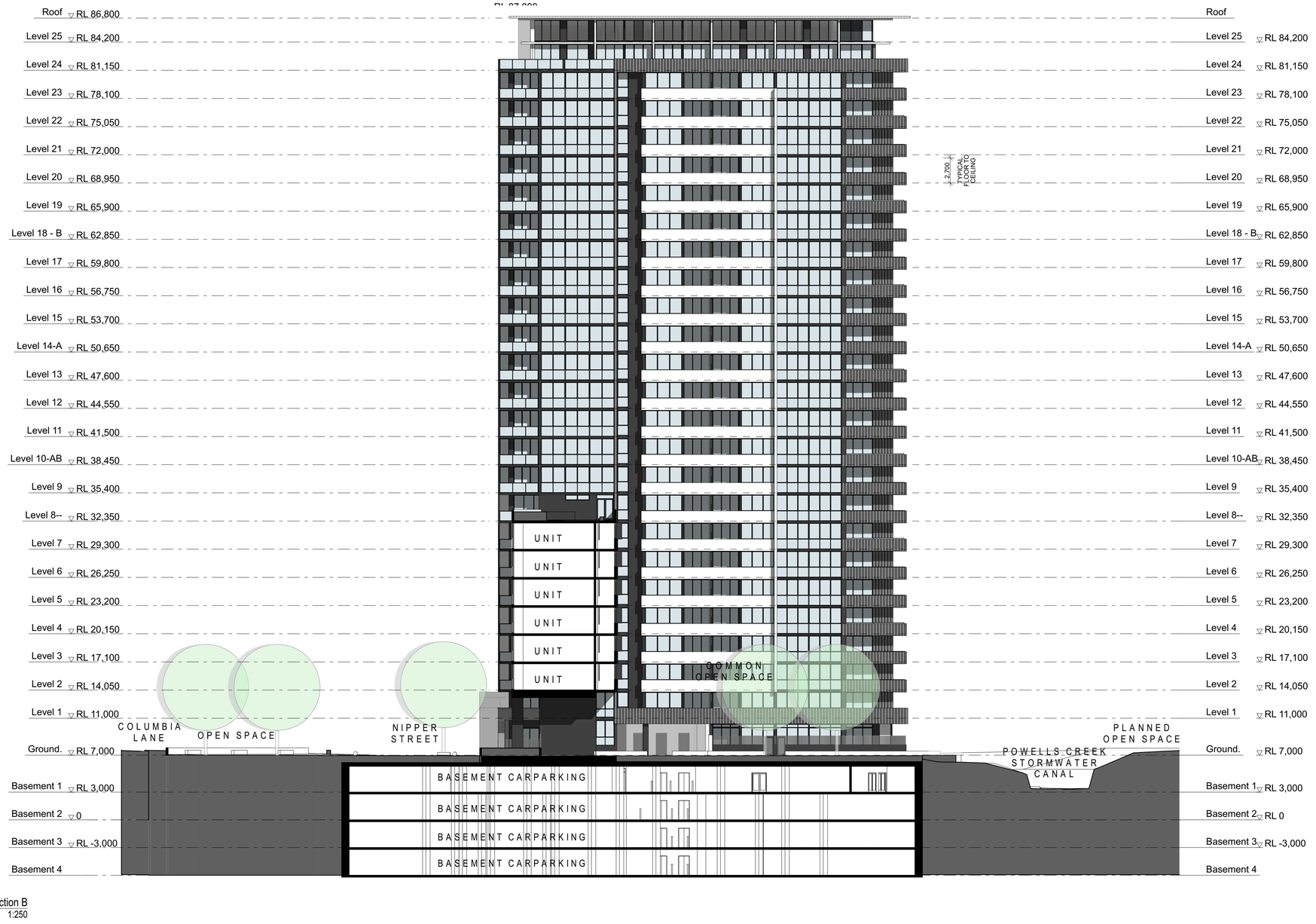
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P7	Pre-DA	GH	17/08/17
P11	Preliminary Consultant Issue	MA	17/01/18
P12	Preliminary Consultant Issue	SB	17.10.18
P13	Pre-DA Issue	SB	05.11.18
P14	Pre-DA Issue	SB	04.06.19
P17	Preliminary Consultant Issue	MR	09.05.19
P18	Preliminary Consultant Issue	SB	20.05.19
P19	Preliminary Consultant Issue	SB	22.05.19
P22	Preliminary Consultant Issue	SB	04.06.19

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project	MIXED USE DEVELOPMENT
location	11-17 Columbia Lane, HOMEBUSH
client	Columbina Lane Development Pty. Ltd
drawing title	Section A

scale	1:250 @ A1	project architect	SP / GK	drawn	GH/ MA
job no.	14028	drawing no.	AP25	issue	P22



Section B
1:250

1:
Sydney sandstone
Main entry feature wall blades

2:
PGH Bricks 'Macarthur Mix Linear'
Podium feature facade

3:
White powdercoat finish
Feature tower facade

4:
Horizontal interlocking colorbond panel cladding - Basalt
Level 4&5 Podium Facade

5:
Dark grey powdercoat finish
Garage door, open grill commercial door

6:
White paint finish
Balcony upstands and slab edges

7:
Dark grey paint finish
External walls

8:
Duralloy paperbark satin powdercoat finish
Metrix group riverstone screen
External screens

9:
Light grey powdercoat finish
Aluminium door & window frames

10:
Glazing 'Grey Laminated'
Windows, doors & balustrades

11:
Metal vertical blade courtyard fencing
Black powdercoat finish

12:
Door & window style to basix requirements

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north point:

N

key plan:

notes:

amendments:

Revision	Description	By	Date
P6	Preliminary	GH	15/08/17
P7	Pre-DA	GH	17/08/17
P11	Preliminary Consultant Issue	MA	17/01/18
P12	Preliminary Consultant Issue	SB	17.10.18
P13	Pre-DA Issue	SB	05.11.18
P14	Pre-DA Issue	SB	04.06.19
P17	Preliminary Consultant Issue	MR	09.05.19
P18	Preliminary Consultant Issue	SB	20.05.19
P19	Preliminary Consultant Issue	SB	22.05.19
P22	Preliminary Consultant Issue	SB	04.06.19

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project MIXED USE DEVELOPMENT
location 11-17 Columbia Lane, HOMEBUSH
client Columbina Lane Development Pty. Ltd
drawing title Section B

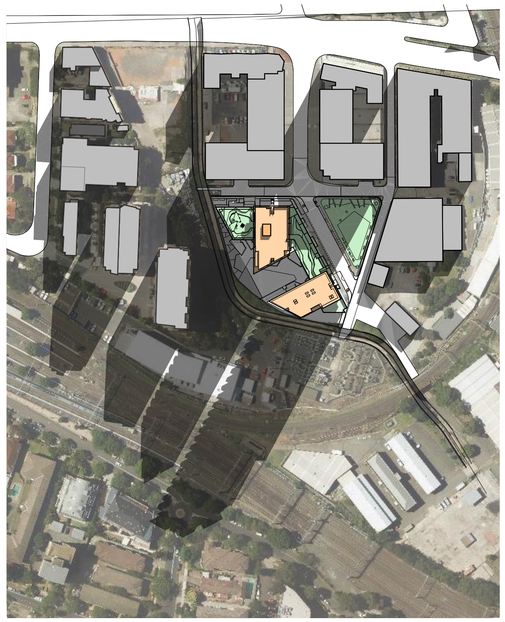
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job no.	14028	drawing no.	AP26	issue	P22



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1:2000



Jun 21 9.30am
1:2000



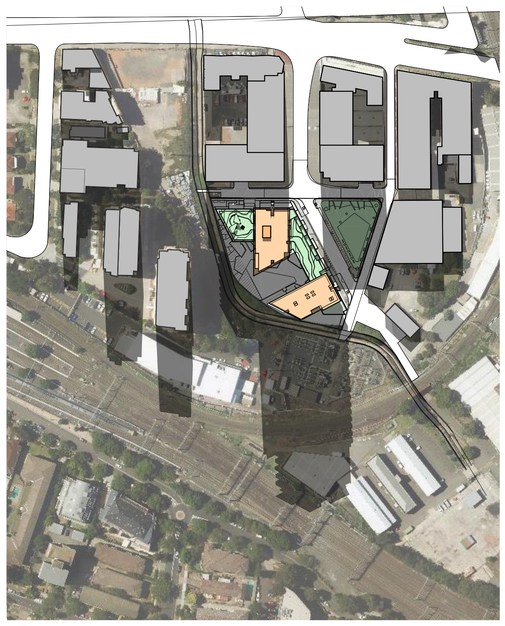
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1:2000



Jun 21 10.30am
1:2000



Jun 21 11am
1:2000



Jun 21 12pm
1:2000

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north point:

N

key plan:

notes:

amendments:

Revision	Description	By	Date
P6	Preliminary	GH	15/08/17
P7	Pre-DA	GH	17/08/17
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P12	Preliminary Consultant Issue	SB	17.10.18
P13	Pre-DA Issue	SB	05.11.18
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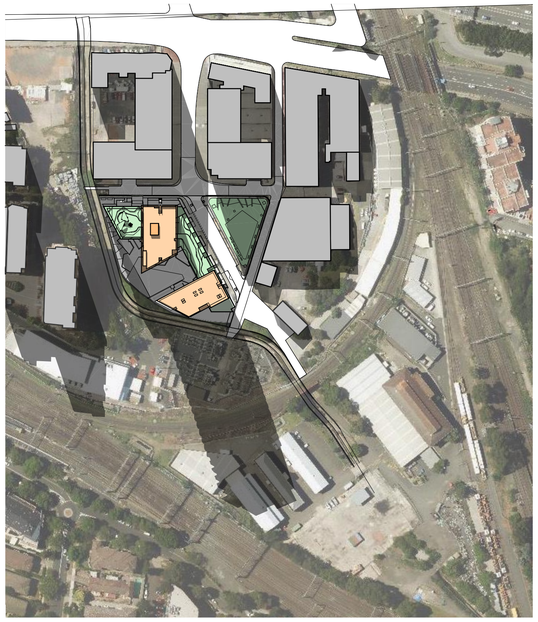
WORK IN PROGRESS

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mosca pserras architects

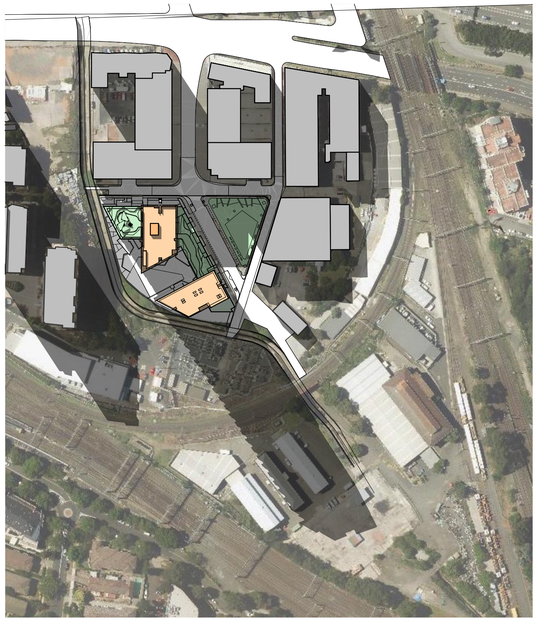
project MIXED USE DEVELOPMENT
location 11-17 Columbia Lane, HOMEBUSH
client Columbina Lane Development Pty. Ltd

drawing title Shadow Diagrams 1

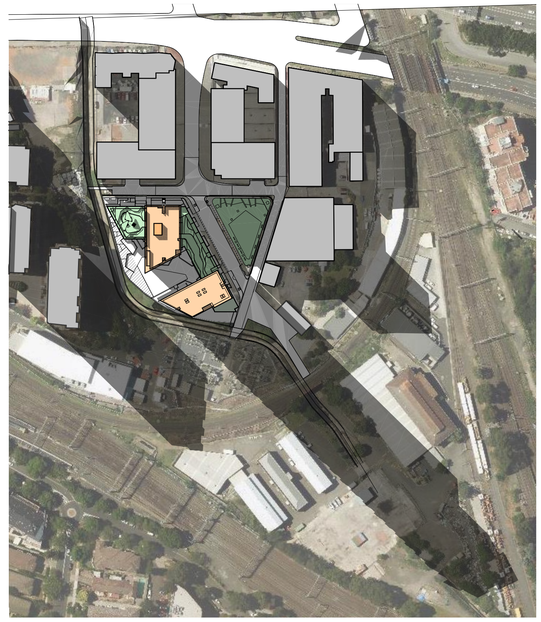
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job no.	14028	drawing no.	AP28	issue	P22



Jun 21 1pm
1:2000



Jun 21 2pm
1:2000



Jun 21 3pm
1:2000

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north point:

N

key plan:

notes:

amendments:

Revision	Description	By	Date
P6	Preliminary	GH	15/08/17
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P11	Preliminary Consultant Issue	MA	17/01/18
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P14	Pre-DA Issue	SB	04.06.19
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P18	Preliminary Consultant Issue	SB	20.05.19
P19	Preliminary Consultant Issue	SB	22.05.19
P22	Preliminary Consultant Issue	SB	04.06.19

WORK IN PROGRESS

mosca pserras architects

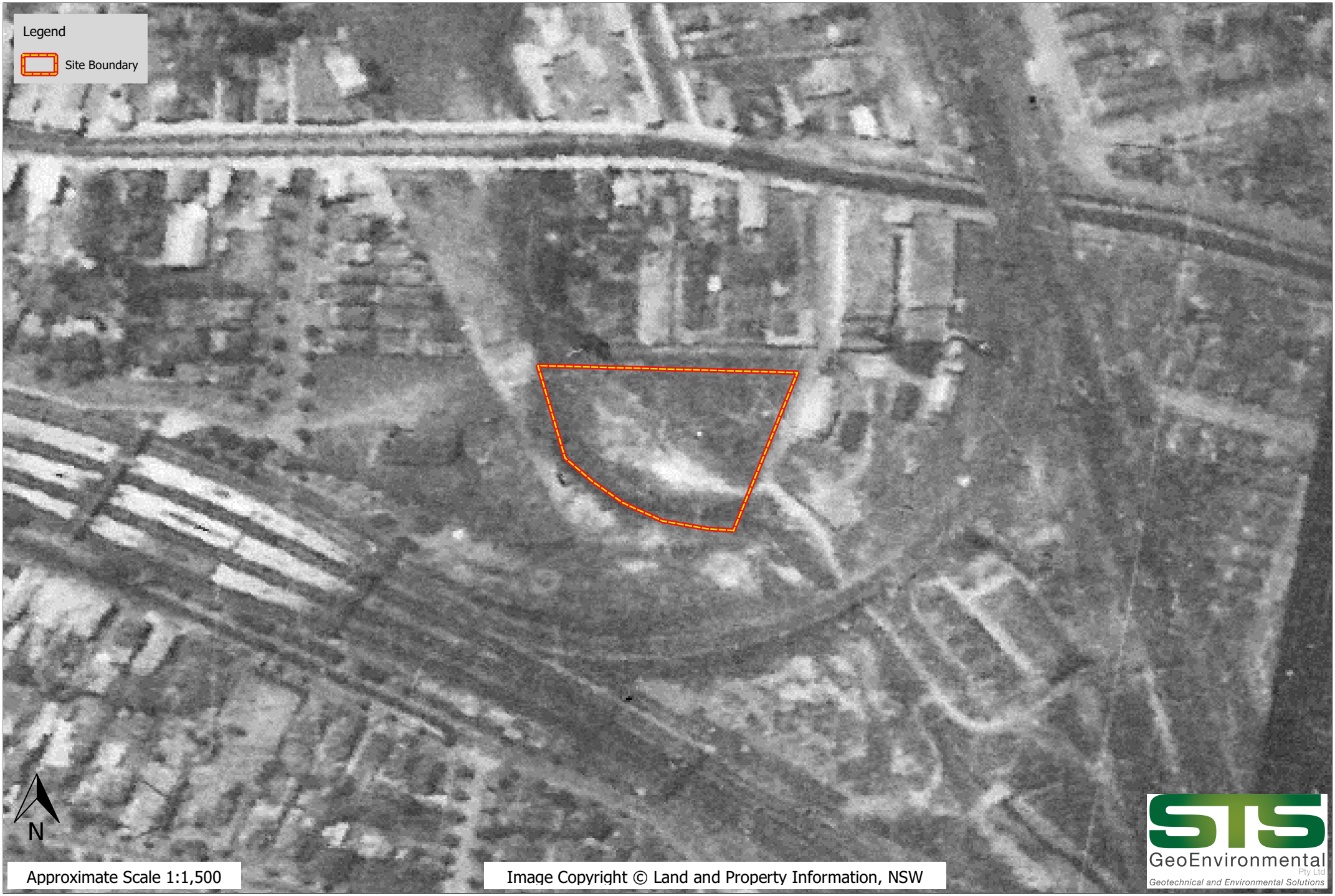
project MIXED USE DEVELOPMENT
location 11-17 Columbia Lane, HOMEBUSH
client Columbina Lane Development Pty. Ltd

drawing title Shadow Diagrams 2

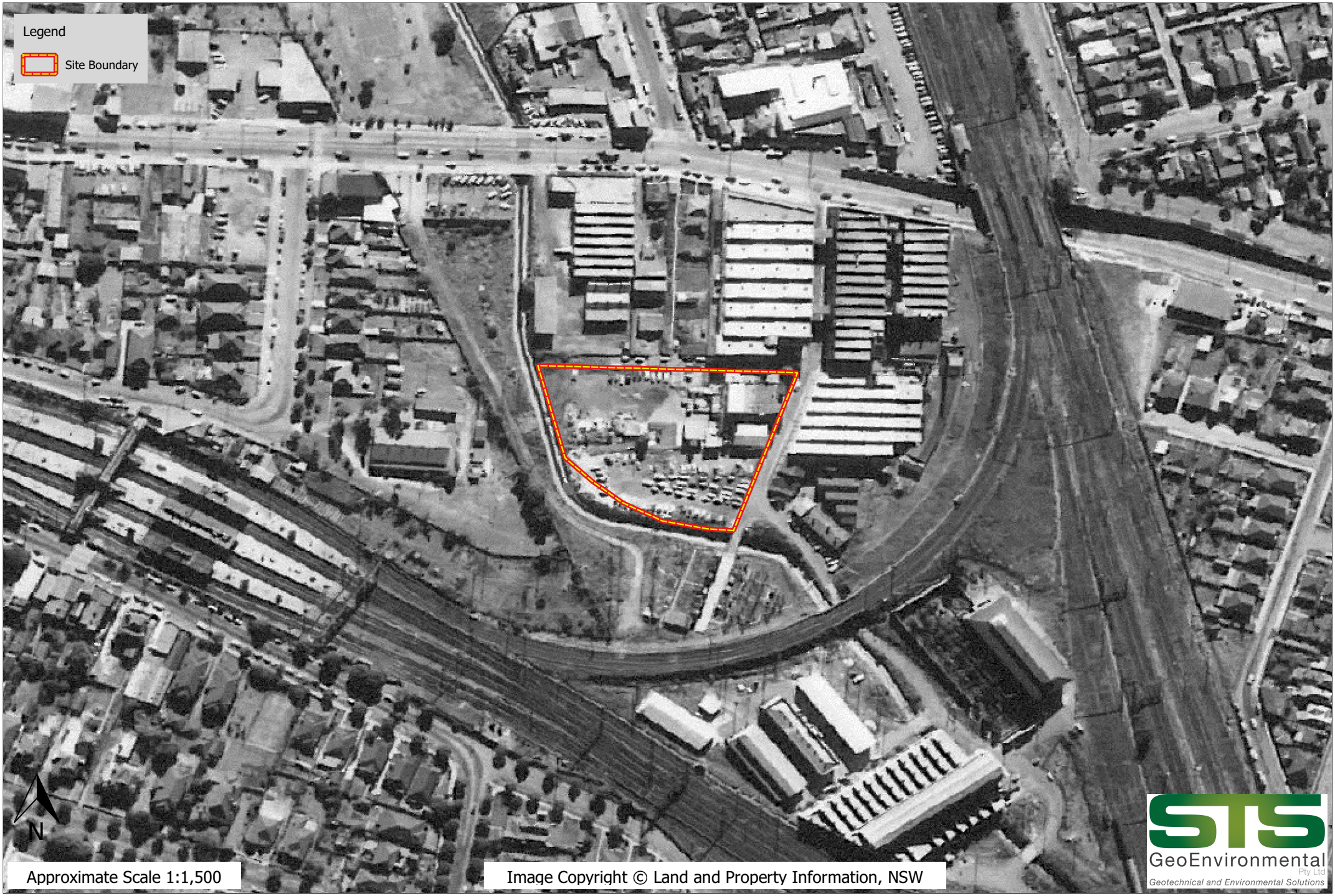
scale	1:2000 @ A1	project architect	SP / GK	drawn	GH/ MA
job no.	14028	drawing no.	AP29	issue	P22

APPENDIX B – AERIAL PHOTOGRAPHS

1930 Aerial Photograph Showing the Site and Surrounds



1961 Aerial Photograph Showing the Site and Surrounds



1970 Aerial Photograph Showing the Site and Surrounds



1986 Aerial Photograph Showing the Site and Surrounds



1994 Aerial Photograph Showing the Site and Surrounds



2003 Aerial Photograph Showing the Site and Surrounds



2014 Aerial Photograph Showing the Site and Surrounds



2018 Aerial Photograph Showing the Site and Surrounds



APPENDIX C – SELECTED SITE PHOTOGRAPHS



Photograph 1: Current site view from north-eastern corner, facing west



Photograph 2: Current site view from north-eastern corner, facing south



Photograph 3: Current site view from ramp, facing south-east



Photograph 4: Current site view from ramp, facing east



Photograph 5: Undercroft within previous northern building foundation



Photograph 6: Current site view from GW3, facing west



Photograph 7: Current site view within southern portion. GW1 in the background



Photograph 8: Current site view within southern portion, facing east



Photograph 9: Overgrown vegetation within south-western corner



Photograph 10: Excavation spoil stockpiled upon northern building slab



Photograph 11: Backfilled excavation (presumed UST2 removal)



Photograph 12: General site debris including brick, timber, sand and tile

APPENDIX D – PLANNING CERTIFICATES

STRATHFIELD COUNCIL

65 Homebush Road, Strathfield NSW 2135
PO Box 120, Strathfield NSW 2135 | **P** 02 9748 9999 | **F** 02 9764 1034
E council@strathfield.nsw.gov.au | **www.strathfield.nsw.gov.au** | ABN 52 719 940 263

PC1176/1516/EN
P051011
Ref: 37386066:61095950

SAI Global Property
Level 3, 355 Spencer Street
West Melbourne VICTORIA 3003

Issue Date	:	21/06/2016
Receipt No.	:	335032
Fee Paid	:	$53.00
Address	:	11-13 COLUMBIA LANE HOMEBUSH NSW 2140
Description	:	LOT 5 DP 261926
Owner	:	JQZ FOUR P/L
Fees	:	Planning Certificate under Section 149(2) - $53.00 Planning Certificate under Section 149(5) - $80.00 Urgency fee - $150.00 (includes GST)

PLANNING CERTIFICATE

Section 149 (2) Environmental Planning & Assessment Act 1979

This certificate refers to the following matters prescribed under s149 (2) of the above Act.

Item 1. Names of relevant environmental planning instruments and development control plans.

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

REPLY: *Strathfield Local Environmental Plan 2012* commenced 29/3/13.
Refer to attachment for relevant State Environmental Planning Policies.

(2) The name of each proposed environmental planning instrument that will apply to the carrying out of development on the land and that is or has been the subject of community consultation or on public exhibition under the Act (unless the Director-General has notified the council that the making of the proposed instrument has been deferred indefinitely or has not been approved). In this clause, proposed environmental planning instrument includes a planning proposal for a LEP or a draft environmental planning instrument.

REPLY: No.

(3) The name of each Development Control Plan (DCP) that applies to the carrying out of development on the land.

REPLY: Refer to attachment for relevant DCPs.

Item 2. Zoning and land use under relevant Local Environmental Plans.

For each environmental planning instrument or proposed instrument referred to in clause 1 (other than a SEPP or proposed SEPP).

(a) The identity of the zone, whether by reference to a name or by reference to a number.

REPLY: R4 - High Density Residential in the Strathfield Local Environmental Plan 2012.

(b) The purposes for which the instrument provides that development may not be carried out without development consent.

(c) The purposes for which the instrument provides that the carrying out of development is prohibited within the zone.

REPLY: Refer to attachment for relevant land use table in the *Strathfield Local Environmental Plan 2012.*

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

REPLY: No.

(e) Whether the land includes or comprises critical habitat.

REPLY: No.

(f) Whether the land is in a heritage conservation area.

REPLY: No.

(g) Whether an item of environmental heritage is situated on the land.

REPLY: No.

Item 2A Zoning and land use under State Environmental Planning Policy (Sydney Region Growth Centres) 2006

Is the land identified within any zone under Part 3 of State Environmental Planning Policy (Sydney Region Growth Centres) 2006, a Precinct Plan, or a Proposed Precinct Plan that is or has been the subject of community consultation or on public exhibition under the Act?

REPLY: No.

Item 3. Complying Development

(1) Whether or not the land is land on which complying development may be carried out under each of the codes for complying development because of the provisions of clauses 1.17A (c) and (d) and 1.19 and (e),(2),(3) and (4),1.18(1),(c3) of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.*

General Housing Code

REPLY: Yes - Complying Development under the General Housing Code may be carried out on this land.

Rural Housing Code

REPLY: No – Complying Development under the Rural Housing Code may not be carried out on this land.

Housing Alterations Code

REPLY: Yes – Complying Development under the Housing Alterations Code may be carried out on this land.

General Commercial and Industrial Code

REPLY: Yes – Complying Development under the General Commercial and Industrial Code may be carried out on this land.

Subdivision Code

REPLY: Yes – Complying Development under the Subdivision Code may be carried out on this land.

General Development Code

REPLY: Yes – Complying Development under the General Development Code may be carried out on this land.

Demolition Code

REPLY: Yes – Complying Development under the Demolition Code may be carried out on this land.

Item 4. Coastal protection

Whether or not the land is affected by the operation of section 38 or 39 of the *Coastal Protection Act 1979*, but only to the extent that the council has been so notified by the Department of Services, Technology and Administration.

REPLY: No.

Item 4A. Certain information relating to beaches and coasts

Strathfield Municipal Council is identified as a coastal council of NSW pursuant to Planning Circular PS-11-001, issued on 24 January 2011, to which the following applies:

In relation to a coastal council:

REPLY: No - Council records at the date of this certificate do not indicate that the subject land is subject to an order under Part 4D of *the Coastal Protection Act 1979* in relation to temporary coastal protection works (within the meaning of that Act) on the land (or on public land adjacent to that land).

(2)(a) Whether the council has been notified under Section 55X of the *Coastal Protection Act* 1979 that temporary coastal protection works (within the meaning of that Act) have been placed on the land (or on public land adjacent to that land).

REPLY: No - Council records at the date of this certificate do not indicate that Council has been notified under Section 55X of the *Coastal Protection Act* 1979 that temporary coastal protection works (within the meaning of the Act) have been placed on the land (or on public land adjacent to that land).

(2)(b) If works have been so placed - whether the council is satisfied that the works have been removed and the land restored in accordance with that Act.

REPLY: Not applicable.

(3) Whether any such information (if any) as required by the regulations under Section 56B of the *Coastal Protection Act 1979* to be included in the planning certificate and of which the council has been notified pursuant to those regulations.

REPLY: No - Council records indicate that Council has not been notified of such information (if any) as required by the regulations under Section 56B of the *Coastal Protection Act 1979* which should be included in the planning certificate.

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

In relation to a coastal council - whether the owner (or any previous owner) of the land has consented in writing to the land being subject to annual charges under Section 496B of *the Local Government Act 1993* for coastal protection works (within the meaning of Section 553B of that Act).

Note: "Existing coastal protection works" are works to reduce the impact of coastal hazards on land (such as seawalls, revetments, groynes and beach nourishment) that existed before the commencement of Section 553B of the *Local Government Act 1993*.

REPLY: No - Council records as at the date of this certificate do not indicate that the owner (or any previous owner) of the subject land has consented in writing to the land being subject to annual charges under Section 496B of the *Local Government Act 1993* for coastal protection services that relate to existing coastal protection works (within the meaning of Section 553B of that Act).

Item 5. Mine subsidence

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

REPLY: No.

Item 6. Road widening and road realignment

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

(a) Division 2 of Part 3 of the *Roads Act 1993*; or

(b) Any environmental planning instrument; or

(c) Any resolution of the Council

REPLY: No.

Item 7. Council and other public authority policies on hazard risk restrictions

Whether or not the land is affected by a policy:

(a) Adopted by the council, or;

(b) Adopted by any other public authority and notified to the council for the express purpose of its adoption by that authority being referred to in planning certificates issued by the council, that restricts the development of the land because of the likelihood of landslip, bushfire, tidal inundation, subsidence, acid sulphate soils or any other risk (other than flooding).

REPLY: Yes – Council has adopted by resolution a policy for the management of development on contaminated land. This policy will restrict development of land:

- Which is affected by contamination;
- Which has been used for certain purposes;
- In respect of which there is not sufficient information about contamination;
- Which is proposed to be used for certain purposes;
- In other circumstances contained in the policy.

Refer to Part K – Development on Contaminated Land of the *Strathfield Consolidated Development Control Plan 2005* for more information.

Item 7A. Flood related development controls information

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

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

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

REPLY: The site is within the '1 - in - 100 flood event' (refer to Council's Interim Flood Policy attached).

Item 8. Land reserved for acquisition

Whether or not any environmental planning instrument or proposed environmental planning instrument referred to in clause 1 makes provision in relation to the acquisition of the land by a public authority, as referred to in section 27 of the Act.

REPLY: No.

Item 9. Contributions plans

The name of each contributions plan applying to the land.

REPLY: Strathfield Indirect Development Contributions Plan 2010 (Amended 3 September 2010).

Strathfield Direct Development Contributions Plan 2010 (Amended 3 September 2010).

Item 9A. Biodiversity certified land

Whether or not the subject land is biodiversity certified land?

REPLY: No – Council is not aware that the subject land is biodiversity certified land (within the meaning of Part 7AA of the Threatened Species Conservation Act 1995)

Item 10. Bio-banking agreements

Whether or not a bio-banking agreement, has been entered in to the subject land?

REPLY: No – Council is not aware of a bio-banking agreement entered in to the subject land under section 127D of the *Threatened Species Conservation Act 1995.*

Item 11. Bush Fire Prone Land

Whether or not the land is bush fire prone land.

REPLY: No - No land in Strathfield LGA is identified as bush fire prone land as defined in the Act.

Item 12. Property vegetation plans

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

REPLY: No.

Item 13. Orders under Trees (Disputes Between Neighbours) Act 2006

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

REPLY: No.

Item 14. Directions under Part 3A

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

REPLY: No, the site has not been identified as a project on the land under Part 4 of the Act.

Item 15. Site compatibility certificates and conditions for seniors housing

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

(a) A statement of whether there is a current site compatibility certificate (seniors housing), of which the Council is aware, in respect of proposed development on the land and, if there is a certificate, the statement is to include:

(i) The period for which the certificate is current, and;

(ii) That a copy may be obtained from the head office of the Department of Planning, and;

(b) A statement setting out any terms of a kind referred to in clause 18(2) of *State Environmental Planning Policy (Housing For Seniors or People with a Disability) 2004* that have been imposed as a condition of consent to a development application granted after 11 October 2007 in respect of the land.

REPLY: No – Council is not aware of a current site compatibility certificate (seniors housing) being issued for subject site in respect of the proposed development on the land.

Item 16. Site compatibility certificates for infrastructure

A statement of whether there is a valid site compatibility certificate (infrastructure), of which the Council is aware, in respect of proposed development on the land, and:

(a) The period for which the certificate is valid, and;

(b) That a copy may be obtained from the head office of the Department of Planning.

REPLY: No – Council is not aware of a valid site compatibility certificate (infrastructure) being issued in respect of the proposed development on the land.

Item 17. Site compatibility certificates and conditions for affordable rental housing

(1) A statement of whether there is a current site compatibility certificate (affordable rental housing), of which the Council is aware, in respect of proposed development on the land, and:

(a) The period for which the certificate is valid, and;

(b) That a copy may be obtained from the head office of the Department of Planning

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

REPLY: No – Council is not aware of a current site compatibility certificate (affordable rental housing) being issued in respect of the proposed development on the land.

Item 18. Site verification certificates

A statement of whether there is a current site verification certificate, of which the Council is aware, in respect of the land and, if there is a certificate, the statement is to include:

(a) the matter certified by the certificate, and

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

(b) the date on which the certificate ceases to be current (if any), and

(c) that a copy may be obtained from the head office of the Department of Planning and Infrastructure.

REPLY: No – Council is not aware of a current site verification certificate (Mining, Petroleum Production and Extractive Industries) 2007 (Mining SEPP) being issued in respect of the proposed development on the land.

Item 19. Matters arising under the Contaminated Land Management Act 1997

Section 59(2) of the *Contaminated Land Management Act 1997* prescribes the following additional matters to be specified in planning certificates:

(a) At the date of this certificate, is the land to which this certificate relates significantly contaminated land?

REPLY: No - Council records as at the date of this certificate do not indicate that the subject land is declared by the Environment Protection Authority to be significantly contaminated land as defined under the Contaminated Land Management Act 1997.

(b) At the date of this certificate, is the land to which this certificate relates subject to a management order?

REPLY: No – Council records as at the date of this certificate do not indicate that the subject land is subject to a management order.

(c) At the date of this certificate, is the land to which this certificate relates the subject of an approved voluntary management proposal?

REPLY: No – Council records do not indicate at the date of this certificate that the land to which this certificate relates is the subject of an approved voluntary management proposal.

(d) At the date of this certificate, is the land to which this certificate relates subject to an ongoing maintenance order?

REPLY: No – Council records do not indicate at the date of this certificate that the land to which this certificate relates is subject to an ongoing maintenance order.

(e) At the date of this certificate, is the land to which this certificate relates the subject of a site audit statement and a copy of such a statement has been provided to the Council?

REPLY: No - Council records do not indicate at the date of this certificate that the land to which this certificate relates is subject of a site audit statement and a copy of such a statement has been provided to the Council.



SILVIO FALATO
A / DIRECTOR INFRASTRUCTURE AND DEVELOPMENT

STRATHFIELD
COUNCIL

TREE PRESERVATION ORDER

In accordance with the Tree Preservation Order applying to the Strathfield Council area, no tree having a height greater than 4.0 metres or a girth greater than 0.5 metres measured at a point 1.0 metres above ground level, shall be ringbarked, cut down, topped, lopped, removed, injured or willfully destroyed without prior written consent of Council.

NOTE:

1) Any person who contravenes or causes or permits to be contravened the provisions of the Tree Preservation Order shall be guilty of an offence.

2) **PENALTY:** Section 126 of the Environmental Planning and Assessment Act. 1979

A person guilty of an offence against this Act shall, for every such offence, be liable to the penalty expressly imposed and, if no penalty is so imposed, to a penalty not exceeding $1,100,000. The Court may also direct that new trees and vegetation be planted and that a security be paid to ensure their establishment.

Strathfield Municipal Council
Residential Zoned Sites

Attachments referred to in Section 149 Certificate

Attachment referred to in Item 1 (1)

SEPP (State and Regional Development) 2011 – published 28.9.11
The aims of this Policy are to identify development that is State significant development, to identify development that is State significant infrastructure and critical State significant infrastructure and to confer functions on joint regional planning panels to determine development applications.

SEPP (Affordable Rental Housing) 2009 – published 31.07.09
Establishes a consistent planning regime for the provision of affordable rental housing. The policy provides incentives for new affordable rental housing, facilitates the retention of existing affordable rentals, and expands the role of not-for-profit providers. It also aims to support local centres by providing housing for workers close to places of work, and facilitate development of housing for the homeless and other disadvantaged people.

SEPP (Exempt and Complying Development Codes) 2008 - gazetted 12.12.08. The policy provides exempt and complying development codes that have State-wide application, identifying, in the General Exempt Development Code, types of development that may be carried out without the need for development consent; and, in the General Housing Code, types of complying development that may be carried out in accordance with a complying development certificate as defined in the *Environmental Planning and Assessment Act 1979*.

State Environmental Planning Policy (Building Sustainability Index) 2004 – gazetted 25.06.04. This SEPP operates in conjunction with Environmental Planning and Assessment Amendment (Building Sustainability Index: BASIX) Regulation 2004 to ensure the effective introduction of BASIX in NSW. The SEPP ensures consistency in the implementation of BASIX by overriding competing provisions in other environmental planning instruments and development control plans, and specifying that SEPP 1 does not apply in relation to any development standard arising under BASIX.

SEPP (Housing for Seniors or People with a Disability) 2004 - gazetted 31.03.04. Encourages the development of high quality accommodation for our ageing population and for people who have disabilities - housing that is in keeping with the local neighbourhood. Note the name of this policy was changed from SEPP (Seniors Living) 2004 to SEPP (Housing for Seniors or People with a Disability) 2004 effective 12.10.07

State Environmental Planning Policy No.55 - Remediation of land (gazetted 28.8.98) **-** Introduces state-wide planning controls for the remediation of contaminated land. If the land is unsuitable, remediation must take place before the land is developed. The policy defines when consent is required, requires all remediation to comply with standards, ensures land is

investigated if contamination is suspected, and requires councils to be notified of all remediation proposals.

State Environmental Planning Policy No.64 - Advertising and Signage - gazetted 16.3.01 aims to ensure that signage including advertising is compatible with the desired amenity and visual character of an area, provides effective communication in suitable locations and is of a high quality and design. The policy prohibits advertisements in certain locations and sets controls for advertisements along major roads and waterways. The SEPP was amended in August 2007 regarding outdoor advertising in transport corridors (eg freeways, tollways and rail corridors).

State Environmental Planning Policy No.65 - Design Quality of Residential Flat Development - gazetted 26.7.02 and amended 20.12.02 aims to improve the design and quality of residential flat developments. The policy identifies certain performance criteria which must be taken into account when determining an application and also makes provision for Design Review Panels to provide independent expert advice to councils on the merit of residential flat development.

SEPP (Temporary Structures) 2007 – gazetted 28.09.07
Provides for the erection of temporary structures and the use of places of public entertainment while protecting public safety and local amenity. Note the name of this policy was changed from SEPP (Temporary Structures and Places of Public Entertainment) 2007 to SEPP (Temporary Structures) 2007 effective 26.10.09.

SEPP (Major Development) 2005 – gazetted 01.08.05
Defines certain developments that are major projects to be assessed under Part 3A of the Environmental Planning and Assessment Act 1979 and determined by the Minister for Planning. It also provides planning provisions for State significant sites. In addition, the SEPP identifies the council consent authority functions that may be carried out by joint regional planning panels (JRPPs) and classes of regional development to be determined by JRPPs. Note: This SEPP was formerly known as State Environmental Planning Policy (Major Projects) 2005.

SEPP (infrastructure) 2007
Gazetted 21.12.07 - provides a consistent planning regime for infrastructure and the provision of services across NSW, along with providing for consultation with relevant public authorities during the assessment process. The SEPP supports greater flexibility in the location of infrastructure and service facilities along with improved regulatory certainty and efficiency.

Attachment referred to in Item 1 (2)

Refer to **attachment**

Attachment referred to in Item 1 (3)

Strathfield Consolidated Development Control Plan 2005 Part A- Dwelling Houses and Ancillary Structures.

Strathfield Consolidated Development Control Plan 2005 Part B - Dual Occupancy Developments.

Strathfield Consolidated Development Control Plan 2005 Part C - Multiple Unit Housing (applies to Residential B zone only)

Strathfield Consolidated Development Control Plan 2005 Part E Child Care Centres

Strathfield Consolidated Development Control Plan 2005 Part F - Bed and Breakfast Establishments

Strathfield Consolidated Development Control Plan 2005 Part H - Waste Management

Strathfield Consolidated Development Control Plan 2005 Part I - Provision of Off-Street Parking Facilities.

Strathfield Consolidated Development Control Plan 2005 Part J - Erection and Display of and Advertising Signs and Structures.

Strathfield Consolidated Development Control Plan 2005 Part K - Development on Contaminated Land

Strathfield Consolidated Development Control Plan 2005 Part L - Public Notification Requirements for Development and Complying Development Applications

Strathfield Consolidated Development Control Plan 2005 Part M - Educational Establishments

Strathfield Consolidated Development Control Plan 2005 Part N – Water Sensitive Urban Design

Development Control Plan No. 20 - Parramatta Road Corridor Area (Site Specific DCP) (3.5.06)

Development Control Plan No. 25 - 79 Courallie Avenue, Homebush West (Site Specific DCP) (3.5.06)

***Codes** - Council has adopted codes relating to hospitals and landscaping.

Attachment referred to in Items 2 (d)

Refer to **attached** "LAND USE TABLE - RESIDENTIAL ZONES"

LAND USE TABLE - RESIDENTIAL ZONES

Zone R2 Low Density Residential

1. Objectives of zone

- To provide for the housing needs of the community within a low density residential environment.
- To enable other land uses that provide facilities or services to meet the day to day needs of residents.
- To ensure that development of housing does not adversely impact the heritage significance of adjacent heritage items and conservation areas.

2. Permitted without consent

Home occupations

3. Permitted with consent

Attached dwellings; Bed and breakfast accommodation; Boarding houses; Building identification signs; Business identification signs; Child care centres; Community facilities; Dwelling houses; Environmental protection works; Group homes; Health consulting rooms; Home businesses; Home industries; Places of public worship; Public administration buildings; Recreation areas; Residential care facilities; Respite day care centres; Roads; Secondary dwellings; Semi-detached dwellings; Water recycling facilities

4. Prohibited

Any development not specified in item 2 or 3

Zone R3 Medium Density Residential

1. Objectives of zone

- To provide for the housing needs of the community within a medium density residential environment.
- To provide a variety of housing types within a medium density residential environment.
- To enable other land uses that provide facilities or services to meet the day to day needs of residents.

2. Permitted without consent

Home occupations

3. Permitted with consent

Attached dwellings; Bed and breakfast accommodation; Boarding houses; Building identification signs; Business identification signs; Child care centres; Community facilities; Dual occupancies; Dwelling houses; Environmental protection works; Group homes; Home businesses; Multi dwelling housing; Neighbourhood shops; Places of public worship; Recreation areas; Residential care facilities; Residential flat buildings; Respite day care centres; Roads; Secondary dwellings; Semi-detached dwellings; Seniors housing; Water recycling facilities

4. Prohibited

Any development not specified in item 2 or 3

Zone R4 High Density Residential

1. Objectives of zone

- To provide for the housing needs of the community within a high density residential environment.
- To provide a variety of housing types within a high density residential environment.
- To enable other land uses that provide facilities or services to meet the day to day needs of residents.

2. Permitted without consent

Home occupations

3. Permitted with consent

Boarding houses; Child care centres; Community facilities; Hotel or motel accommodation; Neighbourhood shops; Places of public worship; Residential flat buildings; Respite day care centres; Roads; Shop top housing; Any other development not specified in item 2 or 4

4. Prohibited

Advertising structures; Agriculture; Air transport facilities; Airstrips; Amusement centres; Animal boarding or training establishments; Attached dwellings; Boat building and repair facilities; Boat launching ramps; Boat sheds; Camping grounds; Caravan parks; Cemeteries; Charter and tourism boating facilities; Commercial premises; Correctional centres; Crematoria; Depots; Dual occupancies; Dwelling houses; Eco-tourist facilities; Entertainment facilities; Environmental facilities; Exhibition homes; Exhibition villages; Extractive industries; Farm buildings; Forestry; Freight transport facilities; Function centres; Heavy industrial storage establishments; Helipads; Highway service centres; Home occupations (sex services); Industrial retail outlets; Industrial training facilities; Industries; Jetties; Marinas; Mooring pens; Moorings; Mortuaries; Open cut mining; Passenger transport facilities; Port facilities; Public administration buildings; Recreation facilities (indoor); Recreation facilities (major); Recreation facilities (outdoor); Registered clubs; Research stations; Restricted premises; Rural industries; Rural workers' dwellings; Semi-detached dwellings; Service stations; Sex services premises; Storage premises; Tourist and visitor accommodation; Transport depots; Truck depots; Vehicle body repair workshops; Vehicle repair stations; Veterinary hospitals; Warehouse or distribution centres; Water recreation structures; Water treatment facilities; Wholesale supplies

STRATHFIELD LEP 2012 - EXEMPT AND COMPLYING DEVELOPMENT

The LEP identifies the types of development which are exempt and complying development within the Strathfield Municipality.

Exempt development consists of development that has minimal impact and complies with the set criteria listed in Part 3 of the Strathfield LEP 2012. No development consent is required for exempt development.

Complying development consists of development that is more complex than exempt and does require development consent by either Council or an Accredited Certifier. Development is only complying development if it meets all the specified criteria in Part 3 of the Strathfield LEP 2012.

Details of exempt and complying development can be obtained by contacting the Customer Service Staff on 9748-9999 during business hours.

* * * * * * * *

PC1176/1516/EN
P051011
Ref: 37386066:61095950

Attachment referred to in Item 7 - Section 149 Certificate

- Council is currently preparing a policy for Development of Flood Prone Lands.

- Preliminary indications are that the subject land may be affected by overland flow to a depth which may affect any proposed development on site.

- On 7 December 1999 Council adopted an "Interim Residential Development Flood Prone Land" to guide future development on land so affected.

- If you are contemplating any redevelopment of the site either long or short term, you should contact Council's Drainage & Development Engineer (02) 9748-9999 to determine whether the subject land is affected by the Interim Policy – Residential Development Flood Prone Land.

STRATHFIELD COUNCIL

65 Homebush Road, Strathfield NSW 2135
PO Box 120, Strathfield NSW 2135 | **P** 02 9748 9999 | **F** 02 9764 1034
E council@strathfield.nsw.gov.au | **www.strathfield.nsw.gov.au** | ABN 52 719 940 263

PC1177/1516/EN
P051015
Ref: 37386108:61095993

SAI Global Property
Level 3, 355 Spencer St
West Melbourne, VICTORIA 3003

Issue Date : 21/06/2016
Receipt No. : 335032
Fee Paid : $53.00

Address : 15-17 COLUMBIA LANE HOMEBUSH NSW 2140
Description : LOT 4 DP 261926
Owner : JQZ FOUR P/L

Fees : Planning Certificate under Section 149(2) - $53.00
Planning Certificate under Section 149(5) - $80.00
Urgency fee - $150.00 (includes GST)

PLANNING CERTIFICATE

Section 149 (2) Environmental Planning & Assessment Act 1979

This certificate refers to the following matters prescribed under s149 (2) of the above Act.

Item 1. Names of relevant environmental planning instruments and development control plans.

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

REPLY: *Strathfield Local Environmental Plan 2012* commenced 29/3/13.
Refer to attachment for relevant State Environmental Planning Policies.

(2) The name of each proposed environmental planning instrument that will apply to the carrying out of development on the land and that is or has been the subject of community consultation or on public exhibition under the Act (unless the Director-General has notified the council that the making of the proposed instrument has been deferred indefinitely or has not been approved). In this clause, proposed environmental planning instrument includes a planning proposal for a LEP or a draft environmental planning instrument.

REPLY: No.

(3) The name of each Development Control Plan (DCP) that applies to the carrying out of development on the land.

REPLY: Refer to attachment for relevant DCPs.

Item 2. Zoning and land use under relevant Local Environmental Plans.

For each environmental planning instrument or proposed instrument referred to in clause 1 (other than a SEPP or proposed SEPP).

(a) The identity of the zone, whether by reference to a name or by reference to a number.

REPLY: R4 - High Density Residential in the Strathfield Local Environmental Plan 2012.

(b) The purposes for which the instrument provides that development may not be carried out without development consent.

(c) The purposes for which the instrument provides that the carrying out of development is prohibited within the zone.

REPLY: Refer to attachment for relevant land use table in the *Strathfield Local Environmental Plan 2012.*

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

REPLY: No.

(e) Whether the land includes or comprises critical habitat.

REPLY: No.

(f) Whether the land is in a heritage conservation area.

REPLY: No.

(g) Whether an item of environmental heritage is situated on the land.

REPLY: No.

Item 2A Zoning and land use under State Environmental Planning Policy (Sydney Region Growth Centres) 2006

Is the land identified within any zone under Part 3 of State Environmental Planning Policy (Sydney Region Growth Centres) 2006, a Precinct Plan, or a Proposed Precinct Plan that is or has been the subject of community consultation or on public exhibition under the Act?

REPLY: No.

Item 3. Complying Development

(1) Whether or not the land is land on which complying development may be carried out under each of the codes for complying development because of the provisions of clauses 1.17A (c) and (d) and 1.19 and (e),(2),(3) and (4),1.18(1),(c3) of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.*

General Housing Code

REPLY: Yes - Complying Development under the General Housing Code may be carried out on this land.

Rural Housing Code

REPLY: No – Complying Development under the Rural Housing Code may not be carried out on this land.

Housing Alterations Code

REPLY: Yes – Complying Development under the Housing Alterations Code may be carried out on this land.

General Commercial and Industrial Code

REPLY: Yes – Complying Development under the General Commercial and Industrial Code may be carried out on this land.

Subdivision Code

REPLY: Yes – Complying Development under the Subdivision Code may be carried out on this land.

General Development Code

REPLY: Yes – Complying Development under the General Development Code may be carried out on this land.

Demolition Code

REPLY: Yes – Complying Development under the Demolition Code may be carried out on this land.

Item 4. Coastal protection

Whether or not the land is affected by the operation of section 38 or 39 of the *Coastal Protection Act 1979*, but only to the extent that the council has been so notified by the Department of Services, Technology and Administration.

REPLY: No.

Item 4A. Certain information relating to beaches and coasts

Strathfield Municipal Council is identified as a coastal council of NSW pursuant to Planning Circular PS-11-001, issued on 24 January 2011, to which the following applies:

In relation to a coastal council:

REPLY: No - Council records at the date of this certificate do not indicate that the subject land is subject to an order under Part 4D of *the Coastal Protection Act 1979* in relation to temporary coastal protection works (within the meaning of that Act) on the land (or on public land adjacent to that land).

(2)(a) Whether the council has been notified under Section 55X of the *Coastal Protection Act* 1979 that temporary coastal protection works (within the meaning of that Act) have been placed on the land (or on public land adjacent to that land).

REPLY: No - Council records at the date of this certificate do not indicate that Council has been notified under Section 55X of the *Coastal Protection Act* 1979 that temporary coastal protection works (within the meaning of the Act) have been placed on the land (or on public land adjacent to that land).

(2)(b) If works have been so placed - whether the council is satisfied that the works have been removed and the land restored in accordance with that Act.

REPLY: Not applicable.

(3) Whether any such information (if any) as required by the regulations under Section 56B of the *Coastal Protection Act 1979* to be included in the planning certificate and of which the council has been notified pursuant to those regulations.

REPLY: No - Council records indicate that Council has not been notified of such information (if any) as required by the regulations under Section 56B of the *Coastal Protection Act 1979* which should be included in the planning certificate.

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

In relation to a coastal council - whether the owner (or any previous owner) of the land has consented in writing to the land being subject to annual charges under Section 496B of *the Local Government Act 1993* for coastal protection works (within the meaning of Section 553B of that Act).

Note: "Existing coastal protection works" are works to reduce the impact of coastal hazards on land (such as seawalls, revetments, groynes and beach nourishment) that existed before the commencement of Section 553B of the *Local Government Act 1993*.

REPLY: No - Council records as at the date of this certificate do not indicate that the owner (or any previous owner) of the subject land has consented in writing to the land being subject to annual charges under Section 496B of the *Local Government Act 1993* for coastal protection services that relate to existing coastal protection works (within the meaning of Section 553B of that Act).

Item 5. Mine subsidence

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

REPLY: No.

Item 6. Road widening and road realignment

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

(a) Division 2 of Part 3 of the *Roads Act 1993*; or

(b) Any environmental planning instrument; or

(c) Any resolution of the Council

REPLY: No.

Item 7. Council and other public authority policies on hazard risk restrictions

Whether or not the land is affected by a policy:

(a) Adopted by the council, or;

(b) Adopted by any other public authority and notified to the council for the express purpose of its adoption by that authority being referred to in planning certificates issued by the council, that restricts the development of the land because of the likelihood of landslip, bushfire, tidal inundation, subsidence, acid sulphate soils or any other risk (other than flooding).

REPLY: Yes – Council has adopted by resolution a policy for the management of development on contaminated land. This policy will restrict development of land:

- Which is affected by contamination;
- Which has been used for certain purposes;
- In respect of which there is not sufficient information about contamination;
- Which is proposed to be used for certain purposes;
- In other circumstances contained in the policy.

Refer to Part K – Development on Contaminated Land of the *Strathfield Consolidated Development Control Plan 2005* for more information.

Item 7A. Flood related development controls information

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

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

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

REPLY: The site is within the '1 - in - 100 flood event' (refer to Council's Interim Flood Policy attached).

Item 8. Land reserved for acquisition

Whether or not any environmental planning instrument or proposed environmental planning instrument referred to in clause 1 makes provision in relation to the acquisition of the land by a public authority, as referred to in section 27 of the Act.

REPLY: No.

Item 9. Contributions plans

The name of each contributions plan applying to the land.

REPLY: Strathfield Indirect Development Contributions Plan 2010 (Amended 3 September 2010).

Strathfield Direct Development Contributions Plan 2010 (Amended 3 September 2010).

Item 9A. Biodiversity certified land

Whether or not the subject land is biodiversity certified land?

REPLY: No – Council is not aware that the subject land is biodiversity certified land (within the meaning of Part 7AA of the Threatened Species Conservation Act 1995)

Item 10. Bio-banking agreements

Whether or not a bio-banking agreement, has been entered in to the subject land?

REPLY: No – Council is not aware of a bio-banking agreement entered in to the subject land under section 127D of the *Threatened Species Conservation Act 1995.*

Item 11. Bush Fire Prone Land

Whether or not the land is bush fire prone land.

REPLY: No - No land in Strathfield LGA is identified as bush fire prone land as defined in the Act.

Item 12. Property vegetation plans

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

REPLY: No.

Item 13. Orders under Trees (Disputes Between Neighbours) Act 2006

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

REPLY: No.

Item 14. Directions under Part 3A

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

REPLY: No, the site has not been identified as a project on the land under Part 4 of the Act.

Item 15. Site compatibility certificates and conditions for seniors housing

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

(a) A statement of whether there is a current site compatibility certificate (seniors housing), of which the Council is aware, in respect of proposed development on the land and, if there is a certificate, the statement is to include:

(i) The period for which the certificate is current, and;

(ii) That a copy may be obtained from the head office of the Department of Planning, and;

(b) A statement setting out any terms of a kind referred to in clause 18(2) of *State Environmental Planning Policy (Housing For Seniors or People with a Disability) 2004* that have been imposed as a condition of consent to a development application granted after 11 October 2007 in respect of the land.

REPLY: No – Council is not aware of a current site compatibility certificate (seniors housing) being issued for subject site in respect of the proposed development on the land.

Item 16. Site compatibility certificates for infrastructure

A statement of whether there is a valid site compatibility certificate (infrastructure), of which the Council is aware, in respect of proposed development on the land, and:

(a) The period for which the certificate is valid, and;

(b) That a copy may be obtained from the head office of the Department of Planning.

REPLY: No – Council is not aware of a valid site compatibility certificate (infrastructure) being issued in respect of the proposed development on the land.

Item 17. Site compatibility certificates and conditions for affordable rental housing

(1) A statement of whether there is a current site compatibility certificate (affordable rental housing), of which the Council is aware, in respect of proposed development on the land, and:

(a) The period for which the certificate is valid, and;

(b) That a copy may be obtained from the head office of the Department of Planning

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

REPLY: No – Council is not aware of a current site compatibility certificate (affordable rental housing) being issued in respect of the proposed development on the land.

Item 18. Site verification certificates

A statement of whether there is a current site verification certificate, of which the Council is aware, in respect of the land and, if there is a certificate, the statement is to include:

(a) the matter certified by the certificate, and

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

(b) the date on which the certificate ceases to be current (if any), and

(c) that a copy may be obtained from the head office of the Department of Planning and Infrastructure.

REPLY: No – Council is not aware of a current site verification certificate (Mining, Petroleum Production and Extractive Industries) 2007 (Mining SEPP) being issued in respect of the proposed development on the land.

Item 19. Matters arising under the Contaminated Land Management Act 1997

Section 59(2) of the *Contaminated Land Management Act 1997* prescribes the following additional matters to be specified in planning certificates:

(a) At the date of this certificate, is the land to which this certificate relates significantly contaminated land?

REPLY: No - Council records as at the date of this certificate do not indicate that the subject land is declared by the Environment Protection Authority to be significantly contaminated land as defined under the Contaminated Land Management Act 1997.

(b) At the date of this certificate, is the land to which this certificate relates subject to a management order?

REPLY: No – Council records as at the date of this certificate do not indicate that the subject land is subject to a management order.

(c) At the date of this certificate, is the land to which this certificate relates the subject of an approved voluntary management proposal?

REPLY: No – Council records do not indicate at the date of this certificate that the land to which this certificate relates is the subject of an approved voluntary management proposal.

(d) At the date of this certificate, is the land to which this certificate relates subject to an ongoing maintenance order?

REPLY: No – Council records do not indicate at the date of this certificate that the land to which this certificate relates is subject to an ongoing maintenance order.

(e) At the date of this certificate, is the land to which this certificate relates the subject of a site audit statement and a copy of such a statement has been provided to the Council?

REPLY: No - Council records do not indicate at the date of this certificate that the land to which this certificate relates is subject of a site audit statement and a copy of such a statement has been provided to the Council.



SILVIO FALATO
A / DIRECTOR INFRASTRUCTURE AND DEVELOPMENT

STRATHFIELD
COUNCIL

TREE PRESERVATION ORDER

In accordance with the Tree Preservation Order applying to the Strathfield Council area, no tree having a height greater than 4.0 metres or a girth greater than 0.5 metres measured at a point 1.0 metres above ground level, shall be ringbarked, cut down, topped, lopped, removed, injured or willfully destroyed without prior written consent of Council.

NOTE:

1) Any person who contravenes or causes or permits to be contravened the provisions of the Tree Preservation Order shall be guilty of an offence.

2) **PENALTY:** Section 126 of the Environmental Planning and Assessment Act. 1979

A person guilty of an offence against this Act shall, for every such offence, be liable to the penalty expressly imposed and, if no penalty is so imposed, to a penalty not exceeding $1,100,000. The Court may also direct that new trees and vegetation be planted and that a security be paid to ensure their establishment.

Strathfield Municipal Council
Residential Zoned Sites

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SEPP (Exempt and Complying Development Codes) 2008 - gazetted 12.12.08. The policy provides exempt and complying development codes that have State-wide application, identifying, in the General Exempt Development Code, types of development that may be carried out without the need for development consent; and, in the General Housing Code, types of complying development that may be carried out in accordance with a complying development certificate as defined in the *Environmental Planning and Assessment Act 1979*.

State Environmental Planning Policy (Building Sustainability Index) 2004 – gazetted 25.06.04. This SEPP operates in conjunction with Environmental Planning and Assessment Amendment (Building Sustainability Index: BASIX) Regulation 2004 to ensure the effective introduction of BASIX in NSW. The SEPP ensures consistency in the implementation of BASIX by overriding competing provisions in other environmental planning instruments and development control plans, and specifying that SEPP 1 does not apply in relation to any development standard arising under BASIX.

SEPP (Housing for Seniors or People with a Disability) 2004 - gazetted 31.03.04. Encourages the development of high quality accommodation for our ageing population and for people who have disabilities - housing that is in keeping with the local neighbourhood. Note the name of this policy was changed from SEPP (Seniors Living) 2004 to SEPP (Housing for Seniors or People with a Disability) 2004 effective 12.10.07

State Environmental Planning Policy No.55 - Remediation of land (gazetted 28.8.98) **-** Introduces state-wide planning controls for the remediation of contaminated land. If the land is unsuitable, remediation must take place before the land is developed. The policy defines when consent is required, requires all remediation to comply with standards, ensures land is

investigated if contamination is suspected, and requires councils to be notified of all remediation proposals.

State Environmental Planning Policy No.64 - Advertising and Signage - gazetted 16.3.01 aims to ensure that signage including advertising is compatible with the desired amenity and visual character of an area, provides effective communication in suitable locations and is of a high quality and design. The policy prohibits advertisements in certain locations and sets controls for advertisements along major roads and waterways. The SEPP was amended in August 2007 regarding outdoor advertising in transport corridors (eg freeways, tollways and rail corridors).

State Environmental Planning Policy No.65 - Design Quality of Residential Flat Development - gazetted 26.7.02 and amended 20.12.02 aims to improve the design and quality of residential flat developments. The policy identifies certain performance criteria which must be taken into account when determining an application and also makes provision for Design Review Panels to provide independent expert advice to councils on the merit of residential flat development.

SEPP (Temporary Structures) 2007 – gazetted 28.09.07
Provides for the erection of temporary structures and the use of places of public entertainment while protecting public safety and local amenity. Note the name of this policy was changed from SEPP (Temporary Structures and Places of Public Entertainment) 2007 to SEPP (Temporary Structures) 2007 effective 26.10.09.

SEPP (Major Development) 2005 – gazetted 01.08.05
Defines certain developments that are major projects to be assessed under Part 3A of the Environmental Planning and Assessment Act 1979 and determined by the Minister for Planning. It also provides planning provisions for State significant sites. In addition, the SEPP identifies the council consent authority functions that may be carried out by joint regional planning panels (JRPPs) and classes of regional development to be determined by JRPPs. Note: This SEPP was formerly known as State Environmental Planning Policy (Major Projects) 2005.

SEPP (infrastructure) 2007
Gazetted 21.12.07 - provides a consistent planning regime for infrastructure and the provision of services across NSW, along with providing for consultation with relevant public authorities during the assessment process. The SEPP supports greater flexibility in the location of infrastructure and service facilities along with improved regulatory certainty and efficiency.

Attachment referred to in Item 1 (2)

Refer to **attachment**

Attachment referred to in Item 1 (3)

Strathfield Consolidated Development Control Plan 2005 Part A- Dwelling Houses and Ancillary Structures.

Strathfield Consolidated Development Control Plan 2005 Part B - Dual Occupancy Developments.

Strathfield Consolidated Development Control Plan 2005 Part C - Multiple Unit Housing (applies to Residential B zone only)

Strathfield Consolidated Development Control Plan 2005 Part E Child Care Centres

Strathfield Consolidated Development Control Plan 2005 Part F - Bed and Breakfast Establishments

Strathfield Consolidated Development Control Plan 2005 Part H - Waste Management

Strathfield Consolidated Development Control Plan 2005 Part I - Provision of Off-Street Parking Facilities.

Strathfield Consolidated Development Control Plan 2005 Part J - Erection and Display of and Advertising Signs and Structures.

Strathfield Consolidated Development Control Plan 2005 Part K - Development on Contaminated Land

Strathfield Consolidated Development Control Plan 2005 Part L - Public Notification Requirements for Development and Complying Development Applications

Strathfield Consolidated Development Control Plan 2005 Part M - Educational Establishments

Strathfield Consolidated Development Control Plan 2005 Part N – Water Sensitive Urban Design

Development Control Plan No. 20 - Parramatta Road Corridor Area (Site Specific DCP) (3.5.06)

Development Control Plan No. 25 - 79 Courallie Avenue, Homebush West (Site Specific DCP) (3.5.06)

***Codes** - Council has adopted codes relating to hospitals and landscaping.

Attachment referred to in Items 2 (d)

Refer to **attached** "LAND USE TABLE - RESIDENTIAL ZONES"

LAND USE TABLE - RESIDENTIAL ZONES

Zone R2 Low Density Residential

1. Objectives of zone

- To provide for the housing needs of the community within a low density residential environment.
- To enable other land uses that provide facilities or services to meet the day to day needs of residents.
- To ensure that development of housing does not adversely impact the heritage significance of adjacent heritage items and conservation areas.

2. Permitted without consent

Home occupations

3. Permitted with consent

Attached dwellings; Bed and breakfast accommodation; Boarding houses; Building identification signs; Business identification signs; Child care centres; Community facilities; Dwelling houses; Environmental protection works; Group homes; Health consulting rooms; Home businesses; Home industries; Places of public worship; Public administration buildings; Recreation areas; Residential care facilities; Respite day care centres; Roads; Secondary dwellings; Semi-detached dwellings; Water recycling facilities

4. Prohibited

Any development not specified in item 2 or 3

Zone R3 Medium Density Residential

1. Objectives of zone

- To provide for the housing needs of the community within a medium density residential environment.
- To provide a variety of housing types within a medium density residential environment.
- To enable other land uses that provide facilities or services to meet the day to day needs of residents.

2. Permitted without consent

Home occupations

3. Permitted with consent

Attached dwellings; Bed and breakfast accommodation; Boarding houses; Building identification signs; Business identification signs; Child care centres; Community facilities; Dual occupancies; Dwelling houses; Environmental protection works; Group homes; Home businesses; Multi dwelling housing; Neighbourhood shops; Places of public worship; Recreation areas; Residential care facilities; Residential flat buildings; Respite day care centres; Roads; Secondary dwellings; Semi-detached dwellings; Seniors housing; Water recycling facilities

4. Prohibited

Any development not specified in item 2 or 3

Zone R4 High Density Residential

1. Objectives of zone

- To provide for the housing needs of the community within a high density residential environment.
- To provide a variety of housing types within a high density residential environment.
- To enable other land uses that provide facilities or services to meet the day to day needs of residents.

2. Permitted without consent

Home occupations

3. Permitted with consent

Boarding houses; Child care centres; Community facilities; Hotel or motel accommodation; Neighbourhood shops; Places of public worship; Residential flat buildings; Respite day care centres; Roads; Shop top housing; Any other development not specified in item 2 or 4

4. Prohibited

Advertising structures; Agriculture; Air transport facilities; Airstrips; Amusement centres; Animal boarding or training establishments; Attached dwellings; Boat building and repair facilities; Boat launching ramps; Boat sheds; Camping grounds; Caravan parks; Cemeteries; Charter and tourism boating facilities; Commercial premises; Correctional centres; Crematoria; Depots; Dual occupancies; Dwelling houses; Eco-tourist facilities; Entertainment facilities; Environmental facilities; Exhibition homes; Exhibition villages; Extractive industries; Farm buildings; Forestry; Freight transport facilities; Function centres; Heavy industrial storage establishments; Helipads; Highway service centres; Home occupations (sex services); Industrial retail outlets; Industrial training facilities; Industries; Jetties; Marinas; Mooring pens; Moorings; Mortuaries; Open cut mining; Passenger transport facilities; Port facilities; Public administration buildings; Recreation facilities (indoor); Recreation facilities (major); Recreation facilities (outdoor); Registered clubs; Research stations; Restricted premises; Rural industries; Rural workers' dwellings; Semi-detached dwellings; Service stations; Sex services premises; Storage premises; Tourist and visitor accommodation; Transport depots; Truck depots; Vehicle body repair workshops; Vehicle repair stations; Veterinary hospitals; Warehouse or distribution centres; Water recreation structures; Water treatment facilities; Wholesale supplies

STRATHFIELD LEP 2012 - EXEMPT AND COMPLYING DEVELOPMENT

The LEP identifies the types of development which are exempt and complying development within the Strathfield Municipality.

Exempt development consists of development that has minimal impact and complies with the set criteria listed in Part 3 of the Strathfield LEP 2012. No development consent is required for exempt development.

Complying development consists of development that is more complex than exempt and does require development consent by either Council or an Accredited Certifier. Development is only complying development if it meets all the specified criteria in Part 3 of the Strathfield LEP 2012.

Details of exempt and complying development can be obtained by contacting the Customer Service Staff on 9748-9999 during business hours.

* * * * * * * *

PC1177/1516/EN
P051015
Ref: 37386108:61095993

Attachment referred to in Item 7 - Section 149 Certificate

- Council is currently preparing a policy for Development of Flood Prone Lands.

- Preliminary indications are that the subject land may be affected by overland flow to a depth which may affect any proposed development on site.

- On 7 December 1999 Council adopted an "Interim Residential Development Flood Prone Land" to guide future development on land so affected.

- If you are contemplating any redevelopment of the site either long or short term, you should contact Council's Drainage & Development Engineer (02) 9748-9999 to determine whether the subject land is affected by the Interim Policy – Residential Development Flood Prone Land.

APPENDIX E – HISTORICAL LAND TITLE EXTRACTS

SEARCH REPORT

SUBJECT LAND:

11-13 Columbia Lane, Homebush NSW 2140
Lot 5 Deposited Plan 261926

15-17 Columbia Lane, Homebush NSW 2140
Lot 4 Deposited Plan 261926

TITLES:

(1)
Volume 01034 Folio 105
Volume 06577 Folio 233
Volume 11044 Folio 125
Volume 15337 Folio 045
4/261926

(2)
Volume 06577 Folio 234
Volume 07117 Folio 207
Volume 10971 Folio 238
Volume 15054 Folio 081
5/261926

OWNERSHIP:

from 6.11.1914 to 9.10.1936	George Robert Knight
from 9.10.1936 to 9.10.1936	Joseph Leslie Pegler, Company manager
from 9.10.1936 to 9.10.1936	Independent Manufacturing Proprietary Limited
from 24.5.1949 to 22.10.1952 **(1)** to 22.6.1966 **(2)**	Richmond Products Pty Ltd (Formerly Barretts Food Company Proprietary Limited)

OWNERSHIP: 1

from 22.10.1952 to 20.7.1977	Hayes Properties Proprietary Limited
from 20.7.1977 to 15.8.1994	E.M.I. Properties Pty Limited
from 15.8.1994 to 15.8.1994	Southern Cross Mowers Pty Limited
from 15.8.1994 to 2.6.2014	David Lhuede Pty Limited
from 2.6.2014 to Date	JQZ Four Pty Limited

OWNERSHIP: 2

from 22.6.1966 to 25.10.1988	Mauri Brothers & Thomson (Aust) Pty Ltd
from 25.10.1988 to 20.2.1998	Vercast Pty Limited
from 20.2.1998 to 21.8.2015	Hai Phong Properties Proprietary Limited
from 21.8.2015 to Date	JQZ Four Pty Limited

LEASES: IN 2

AE171584 Reg'd; 8.10.2008	Sydney Yonsei Central Church Incorporated

28th June 2016

SAI GLOBAL PROPERTY

Disclaimer
While all due skill and care has been taken in the preparation of this report, SAI Global Property Division Pty Ltd does not warrant that its contents (that have been obtained from publicly available resources at a particular point in time) are accurate, complete, up to date or fit for any particular purpose

Req:R915317 /Doc:CT 01034-105 CT /Rev:31-Jul-2012 /Sts:OK.OK /Prt:21-Jun-2016 09:00 /Seq:1 of 2
Ref: /Src:U

CERTIFICATE OF TITLE.

(C.) **New South Wales.**

[Appn. No. 8491.]

REGISTER BOOK,

Vol. 1034 Folio 105

CANCELLED

Eustace Edmund Fosbery of the City of Sydney Solicitor 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 on Powells Creek in the Parish of Concord and County of Cumberland containing one acre two roods twenty perches or thereabouts commencing on the right Bank of Powells Creek at its intersection with a Lane twenty four feet wide and bounded thence on the north west by that lane bearing south easterly three hundred and thirty nine feet eleven inches to another lane twenty four feet wide on the south east by that lane bearing South Westerly two hundred and eighty two feet four inches to Powells Creek aforesaid and on the south on the south West and on the West by that Creek downwards to the point of commencement as shown on the Plan hereon and thereon edged red being Lots ten and eleven of Chadleys subdivision and part of Seven hundred and fifty acres delineated on the Public Map of the said Parish deposited in the Office of the Surveyor General originally granted to Thomas Rowley by Crown Grant dated the ninth day of August One thousand eight hundred and three

In witness whereof, I have hereunto signed my name and affixed my Seal, this thirty first day of October one thousand eight hundred and ~~eighty~~ ninety one.

Signed the 31st day of October 1891,
in the presence of

Registrar General.

Scale 100 feet to One inch



The land designated (A) is ~~coloured~~ hatched BLUE

NOTIFICATION REFERRED TO.

No. A5288 TRANSFER dated 11th December 1912 from the said Eustace Edmund Fosbery To Board of Water Supply and Sewerage of an easement over part of the land within described

Produced and entered 30th January 1913 at 10 o'clock in the fore noon

REGISTRAR GENERAL

No. A320 88 TRANSFER dated 4th June 1913 from the said Eustace Edmund Fosbery to Minister for Public Works an Easement over part being the land colored blue on Plan 13th June 1913 of the land within described

Produced and entered 24th June 1913 at 4 o'clock in the after noon

REGISTRAR GENERAL

A320 88K

III 28413 TRANSFER dated 3rd November 191
from the said Eustace Edmund Cayley to George Robert Knight of Beecroft Company Manager
of the land within described
Produced and entered 6th November 191
at 12 o'clock in the after noon
REGISTRAR GENERAL

No. C 139985 Notice of Resumption An easement over that part of the land within described now shown by blue hatching in the plan hereon has become vested in The Minister for Public Works as Constructing Authority for the purposes of the Public Works Act 1912 by operation of the said Act and in pursuance of the Gazette Notice in connection therewith. Produced 13th September 1932 and entered 8th November 1932 at 12 o'clock noon.
Easmt now worked in m.r. S.& D. Board Rec Req: 13.5.49 Fol. 1352 Am. N. 20.5.49
Registrar General

No C 433811 Caveat dated 6th May 1936
Produced and entered 6th May 1936 at 20 mts pt 2 o'clock in the after noon
Registrar General

No. C 472356 WITHDRAWAL of the within Caveat
No. C 433811 dated 14th September 1936
Produced 17th September 1936 and entered 9th October 1936
at 3 o'clock in the after noon.
REGISTRAR GENERAL

No. C 472357 TRANSFER dated 11 September 1936
from the said George Robert Knight to Joseph Leslie Pegler of Beecroft Company Manager
of the land within described
Produced 17th September 1936 and entered 9th October 1936
at 3 o'clock in the after noon.
REGISTRAR GENERAL

No. C 472358 TRANSFER dated 14th September 1936
from the said Joseph Leslie Pegler to Independent Manufacturing Proprietary Limited
of the land within described
Produced 17th September 1936 and entered 9th October 1936
at 3 o'clock in the after noon.
REGISTRAR GENERAL

No. C 512331 MORTGAGE dated 4th February 1937
from the said Independent Manufacturing Proprietary Limited to The Bank of Australasia
Produced and entered 15th February 1937
at 9 mts pt 2 o'clock in the after noon.
REGISTRAR GENERAL

D 131264 Caveat dated 21st May 1942.
Produced and entered 22nd May 1942 at 59 mts pt 2 o'clock in the afternoon
Registrar General

No. F 12434 WITHDRAWAL of the within Caveat
No. D 131264 dated 18th May 1949
Produced 19th May 1949 and entered 24th May 1949
at 12 o'clock in the noon.
REGISTRAR GENERAL

No. F 7181 DISCHARGE of within mortgage
C 512331 dated 5th October 1948
Produced 9th May 1949 and entered 24th May 1949
at 12 o'clock in the noon.
REGISTRAR GENERAL

No. F 7182 TRANSFER dated 5th October 1948
from the said Independent Manufacturing Proprietary Limited to Barrett's Food Company Proprietary Limited
of the land within described
Produced 9th May 1949 and entered 24th May 1949
at 12 o'clock in the noon.
REGISTRAR GENERAL

No. F 9226 TRANSFER dated 5th May 19[illegible]
from the said Barrett's Food Company Proprietary Limited to Hayes Properties Proprietary Limited OF PART.
of the land within described
Produced 4th July 19[illegible] and entered 22 October 19[illegible]
at 12 o'clock in the noon.
As to this transfer the Certificate is cancelled and new Certificate issued
Vol. 6577 Fol. 233
REGISTRAR GENERAL

This Deed is Cancelled and Certificate of Title issued
Vol. 6577 Fol. 234
for the residue
O. F685790 REGISTRAR GENERAL

Req:R915255 /Doc:CT 06577-233 CT /Rev:09-Aug-2012 /Sts:OK.OK /Prt:21-Jun-2016 08:55 /Seq:1 of 2
Ref: /Src:U

202.

Appn. No. 8491

Reference to last Certificate

Vol. 1034 Fol. 105

New South Wales.

99907 1.52 K 2006—2 A. H. Pettifer, Government Printer.

[CERTIFICATE OF TITLE.]

CANCELLED W

Register Book.

Vol. 6577 Fol. 233

HAYES PROPERTIES PROPRIETARY LIMITED, Transferee under Instrument of Transfer No.F692260 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 Strathfield. Parish of Concord , and County of Cumberland containing Two roods twenty two and one quarter perches or thereabouts as shown in the plan hereon and therein edged red being Lot B in plan annexed to the said Instrument of Transfer No. F692260 and being part of 750 acres (Portion 246 of Parish) originally granted to Thomas Rowley by Crown Grant dated the 9th day of August 1803.

In witness whereof I have hereunto signed my name and affixed my Seal, this Twenty-third day of October , 1952

Signed in the presence of G. McKern

J. Wells

Registrar-General.



Scale: 60 feet to one inch.

NOTIFICATION REFERRED TO

Nos. A5288 and A32088 Grants of easements to the Board of Water Supply and Sewerage and The Minister for Public Works respectively affecting the piece of land coloured blue in the plan hereon.

J. Wells

Registrar General

No.C139985 Resumption of an Easement in favour of The Minister for Public Works affecting the piece of land coloured brown in the plan hereon.

J. Wells

Registrar General

No. G109007 NOTICE OF RESUMPTION
The Electricity Commission of New South Wales
is the proprietor of an easement affecting that part of the land within described shown by brown and pink colour colour on the plan hereon, freed from all other interests.
Produced 13th July, 1954, and entered 19th August, 1954, at 12 o'clock ~~in the~~ noon.

J. Wells
Registrar General

No. G800970 MORTGAGE dated 16th September 1957
from the said Hayes Properties Proprietary Limited to
The Prudential Assurance Company Limited

Entered 23rd October 1957

J. Wells
REGISTRAR GENERAL

This deed is cancelled as to Stone
New Certificates of Title have issued on 8-5-1964
for lots in Deposited Plan No. 236648 as follows:-
Lots 7 & 11 Vol. 10414 Fol. 125-125 respectively.

J. Watson
REGISTRAR GENERAL

F692260.

Pk required for easement for transmission line 9.3.54 Pcs 10466/7 Gaz 19/4/54 p 1046

G109007 N/A part

G800970 MR CT 22-6-58 DP236648 CN1 part 2/5 CT 19/12/68 L3 2131 (Lot 7 D.P. 236648 (Lot 11)) Reqd part of 11/2 356 CT 2/5

Req:R915255 /Doc:CT 06577-233 CT /Rev:09-Aug-2012 /Sts:OK.OK /Prt:21-Jun-2016 08:55 /Seq:2 of 2
Ref: /Src:U

Req:R915269 /Doc:CT 06577-234 CT /Rev:09-Aug-2012 /Sts:OK.OK /Prt:21-Jun-2016 08:57 /Seq:1 of 2
Ref: /Src:U

202.

Appn. No. 8491

Reference to last Certificate

Vol. 1034 Fol. 105

New South Wales.

99907 1.52 K 2006—2 A. H. Pettifer, Government Printer.

[CERTIFICATE OF TITLE.]

ORDER NO.F685790

CANCELLED W

Register Book.

Vol. 6577 Fol. 234

BARRETTS FOOD COMPANY PROPRIETARY LIMITED, by virtue of Certificate of Title Volume 1034 Folio 105 now surrendered 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 Strathfield Parish of Concord , and County of Cumberland containing One acre one perch or thereabouts as shown in the plan hereon and therein edged red being Lot A in plan annexed to Instrument of Transfer No. F692260 and being part of 750 acres (Portion 246 of Parish) originally granted to Thomas Rowley by Crown Grant dated the 9th day of August 1803.

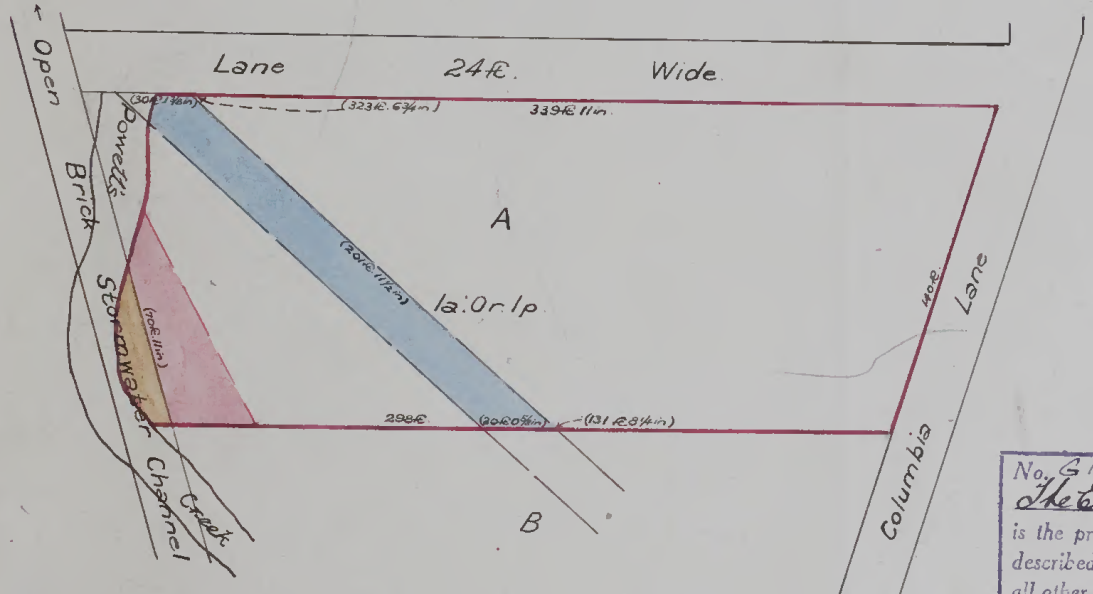
In witness whereof I have hereunto signed my name and affixed my Seal, this Twenty-third day of October , 1952

Signed in the presence of G. McKern

J. Wells

Registrar-General.

REGISTRAR GENERAL * NEW SOUTH WALES *



Scale: 60 feet to one inch.

NOTIFICATION REFERRED TO

Nos. A5288 and A32088 Grants of easements to the Board of Water Supply and Sewerage and The Minister for Public Works respectively affecting the piece of land coloured blue in the plan hereon.

J. Wells

Registrar General

No.C139985 Resumption of an easement in favour of The Minister for Public Works affecting the piece of land coloured brown in the plan hereon.

J. Wells

Registrar General

No. G190007 NOTICE OF RESUMPTION

The Electricity Commission of New South Wales is the proprietor of an easement affecting that part of the land within described shown by brown and pink colour colour on the plan hereon, freed from all other interests.

Produced 13th July, 1954, and entered 19th August, 1954, at 12 o'clock ~~in the~~ noon.

J. Wells

Registrar General.

This Deed is Cancelled and Certificate of Title issued Vol. 7117 Fol. 207.

J. Wells

G438487 REGISTRAR GENERAL.

F685790

Scale: 60 feet to one inch.

53/4r 38p of land coloured pink vide F 892553 - Request (New Cert.) to transfer easement for transmission line AB 1046/7 for 3-4-54 AB 11/6/54

G190007 N/R part.

Req:R915269 /Doc:CT 06577-234 CT /Rev:09-Aug-2012 /Sts:OK.OK /Prt:21-Jun-2016 08:57 /Seq:2 of 2
Ref: /Src:U

Req:R915254 /Doc:CT 07117-207 CT /Rev:10-Aug-2012 /Sts:OK.OK /Prt:21-Jun-2016 08:55 /Seq:1 of 2
Ref: /Src:U

202

Primary Appn. No. 8491

Reference to Last Title

Vol. 6577 Fol. 234

New South Wales.

[CERTIFICATE OF TITLE.]

CANCELLED W

CANCELLED

REGISTER BOOK.

VOL. 7117 FOL. 207

Issued on Order No.G438487

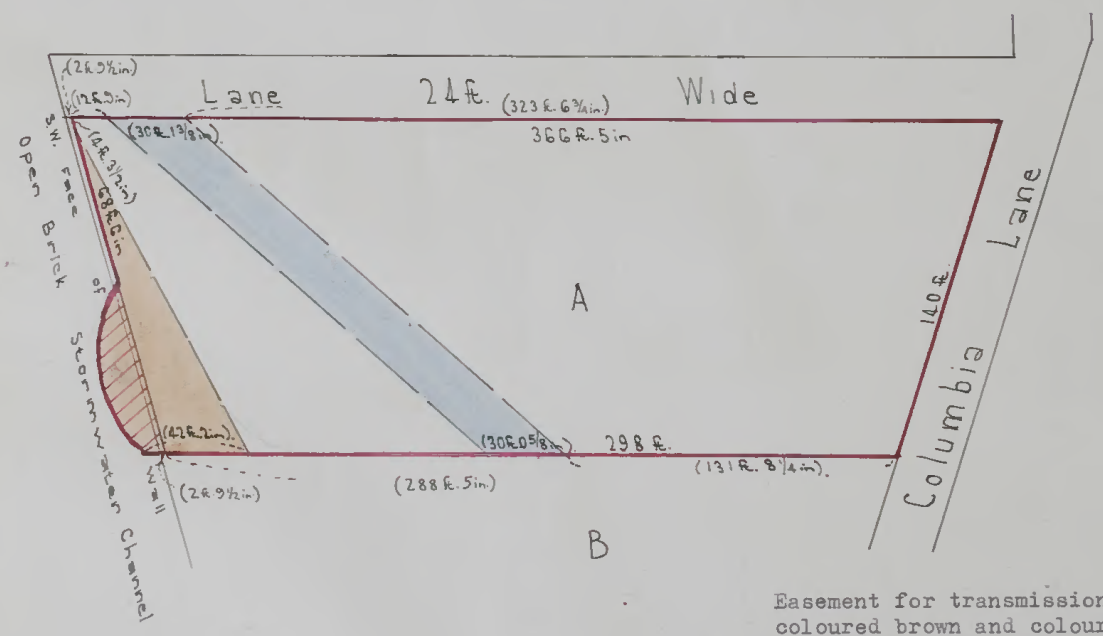
BARRETTS FOOD COMPANY PROPRIETARY LIMITED, isnow the proprietor of an Estate in Fee Simple, subject nevertheless to the reservations and conditions, if any, contained in the Grant hereinafter referred to, and also subject to such encumbrances, liens, and interests as are notified hereon, in That piece of land in the Municipality of Strathfield Parish of Concord , and County of Cumberland shown in the plan hereon and therein edged red and also shown in plan lodged with Order No.G438487 being Lot A in plan lodged with Transfer No.F692260 being part of Portion 246 granted to Thomas Rowley on 9th August 1803.

In witness whereof I have hereunto signed my name and affixed my Seal, this Eighth day of May , 19 56

Signed in the presence of G. W. Moss

J. Wells

Registrar-General.



Area:- 1ac. 0rd. 4 1/4per
Scale:- 60 feet to one inch

C438487 uK. Draft HS.

NOTIFICATION REFERRED TO

Easements affecting the piece of land coloured blue in the plan hereon created by Transfers Nos.A5288 and A32088.

J. Wells

Registrar General.

Easement affecting the piece of land coloured brown hatched red in the plan hereon created by Resumption No.C139985.

J. Wells

Registrar General.

Easement for transmission line affecting the pieces of land coloured brown and coloured brown hatched red in the plan hereon created by Resumption No.C109007.

J. Wells

Registrar General.

No. G836790 MORTGAGE dated 4th October 1957 from the said Barretts Food Company Proprietary Limited to Australian Mutual Provident Society

Entered 20th November 1957

J. Wells

REGISTRAR GENERAL

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

15975 5.55 K 2006—1 A. H. PETTMAN, GOVERNMENT PRINTER.

Req:R915254 /Doc:CT 07117-207 CT /Rev:10-Aug-2012 /Sts:OK.OK /Prt:21-Jun-2016 08:55 /Seq:2 of 2
Ref: /Src:U

MORTGAGE No. G836190 has been discharged.
See J284336 Entered 15th March 1963

Jan Watson
REGISTRAR GENERAL

Change name notify

The name of the within mentioned Registered Proprietor is now Richmond Products Pty ~~Limited~~ Ltd
See J959551 Entered 30th April 1965

Jan Watson
Registrar General

T.S. 45.11

Maui Brothers & Thomson (Aust.) Pty. Ltd. is

now the registered proprietor of the land within described.

See TRANSFER No. K340321 dated 12th May 1966

Entered 22nd June 1966

Jan Watson
REGISTRAR GENERAL

The easements created by Transfers Nos. A5288 and A32088 have been released
See Transfer L 56753
Entered 20th June 1968

Jan Watson
Registrar General

This deed is cancelled as to whole
New Certificates of Title have issued on 22-1-69
for lots in Deposited Plan No. 236648 as follows:-
Lots 6 & 10 Vol. 10971 Fol 237 & 238 respectively.

Jan Watson
REGISTRAR GENERAL

K340321 TC R
L56753 Release A5288 A32088 R
DP236648 (Lots within)
C.T. 13/11/68
L260587 T. Part 6 DP236648.
DP236648 29/1/69
Prog. held on DP 236648 (whole)

Req:R915228 /Doc:CT 10971-238 CT /Rev:10-Jan-2011 /Sts:OK.SC /Pgs:ALL /Prt:21-Jun-2016 08:53 /Seq:1 of 2
Ref: /Src:U

[redacted]

10971238

NEW SOUTH WALES

[redacted]FICATE OF TITLE

[redacted]OPERTY ACT, 1900, as amended.

Application No. 8491
Prior Title Volume 7117 Folio 207

Vol. 10971 Fol. 238

ID Edition issued 22-1-1969.

CANCELLED

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

Witness M Flint

Registrar General.

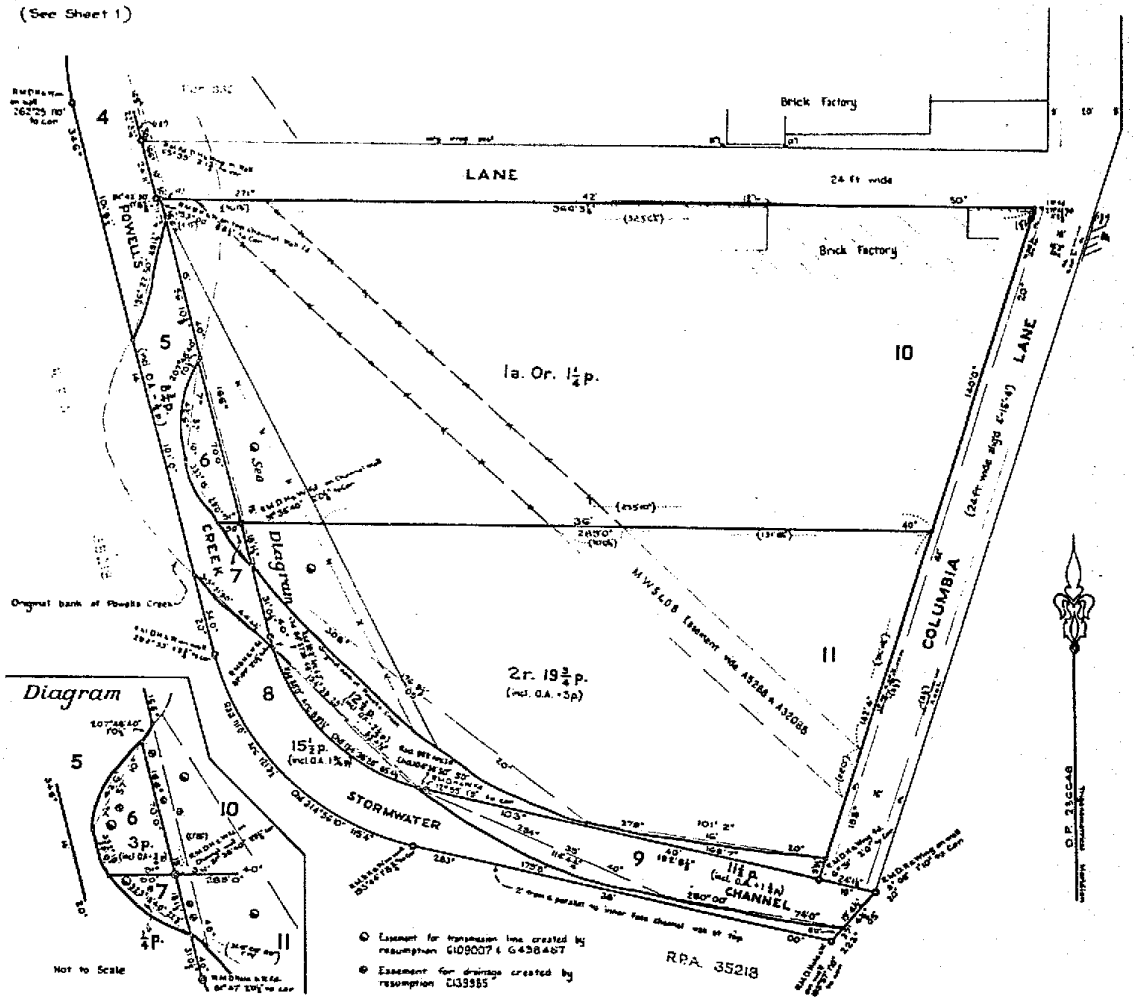
REGISTRAR GENERAL NEW SOUTH WALES

(Page 1) Vol. 10971 Fol. 238

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.

PLAN SHOWING LOCATION OF LAND



ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 10 in Deposited Plan 236648 at Strathfield in the Municipality of Strathfield Parish of Concord and County of Cumberland being part of Portion 246 granted to Thomas Rowley on 9-8-1803.

FIRST SCHEDULE

~~MAURI BROTHERS & THOMSON (AUST.) PTY. LTD.~~

SECOND SCHEDULE

1. Reservations and conditions, if any, contained in the Crown Grant above referred to.
2. Easement for Drainage created by Resumption No.C139985 ~~affecting the part of the land above described~~ shown as "Easement for drainage created by Resumption C139985" in the plan hereon.
3. Easement for Transmission Line created by Resumption No.G109007 affecting the ~~part of the land above described~~ shown as "Easement for transmission line created by Resumption G109007" in the plan hereon.

Registrar General

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

Req:R915228 /Doc:CT 10971-238 CT /Rev:10-Jan-2011 /Sts:OK.SC /Pgs:ALL /Prt:21-Jun-2016 08:53 /Seq:2 of 2
Ref: /Src:U

D226193
CT. 13·12·8
T402426 T
Lot 2 DP 261926

Vol. 10971 Fol 238 -

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	ENTERED	Signature of Registrar General
Metropolitan Water Sewerage and Drainage Board as regards lot 2 in D.P.261926, and Mauri Brothers & Thomson (Aust.) Pty. Limited as regards the residue being lot 5 in D.P.261926. by Transfer T402426. Registered 23-3-1983.					

As to Part being Lot 2 in DP 261926
this Deed is cancelled and New Certificate of Title issued.
Vol. 15054 fol. 80 dated 19·5·1983
Vide T402426

REGISTRAR GENERAL

As to Residue being Lot 5 in DP 261926
this Deed is cancelled and New Certificate of Title issued.
Vol. 15054 fol. 81 dated 19·5·1983
Vide T402426 Co

REGISTRAR GENERAL

SECOND SCHEDULE (continued)

INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	PARTICULARS	ENTERED	Signature of Registrar General	CANCELLATION		

(Page 2 of 2 pages)

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

Req:R915227 /Doc:CT 11044-125 CT /Rev:13-Jan-2011 /Sts:OK.SC /Pgs:ALL /Prt:21-Jun-2016 08:53 /Seq:1 of 2
Ref: /Src:U

[redacted]

11044-125

NEW SOUTH WALES

[redacted]ICATE OF TITLE

[redacted]OPERTY ACT, 1900, as amended.

Application No. 8491

Prior Title Volume 6577 Folio 233

Vol. 11044 Fol. 125

CANCELLED

Edition issued 8-5-1969

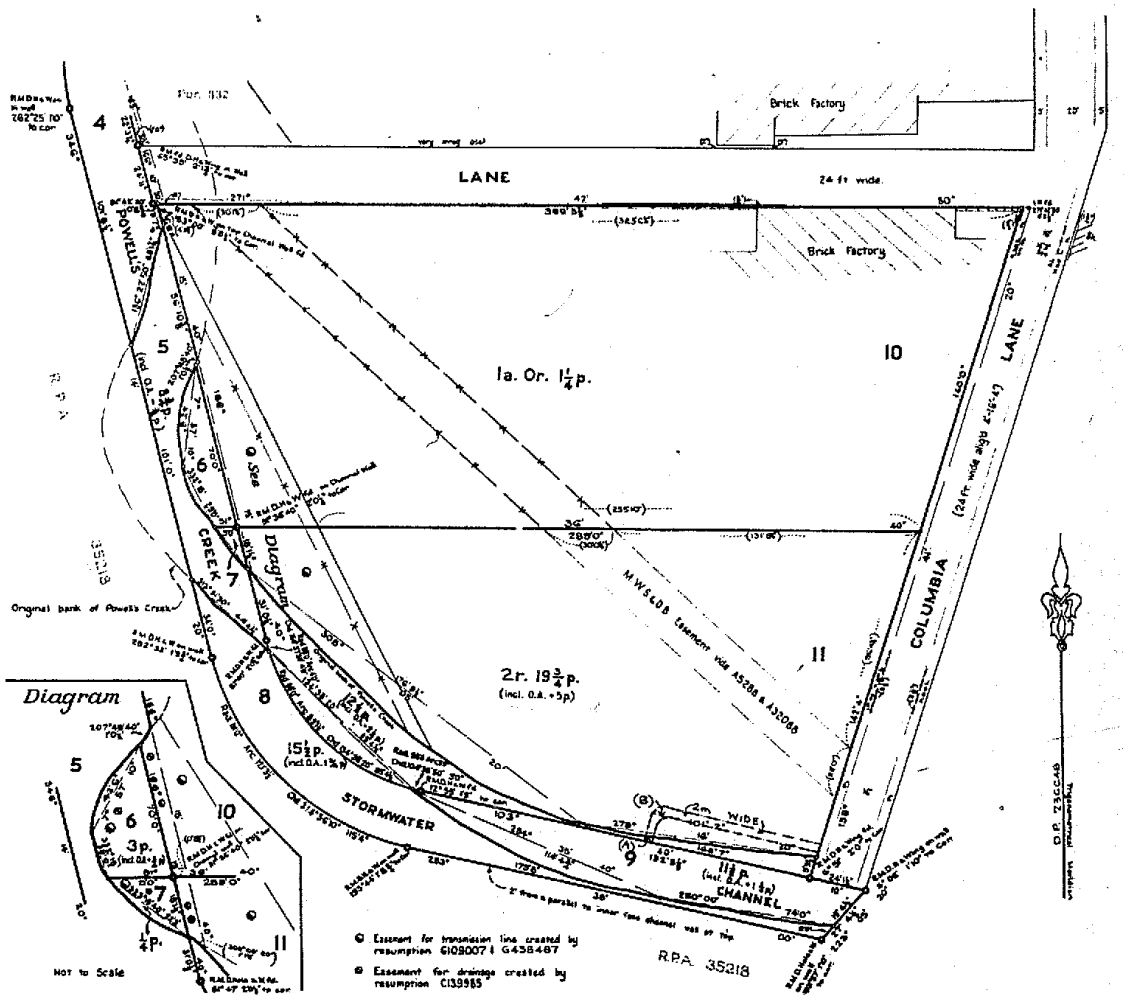
I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown in the Second Schedule.

Witness M Flint

Registrar General.

REGISTRAR GENERAL NEW SOUTH WALES

PLAN SHOWING LOCATION OF LAND



ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 11 in Deposited Plan 236648 at Strathfield in the Municipality of Strathfield Parish of Concord and County of Cumberland being part of Portion 246 granted to Thomas Rowley on 9-8-1803.

FIRST SCHEDULE

10 ~~HAYES PROPERTIES PROPRIETARY LIMITED~~.

REG. GEN. 19-8-1977

SECOND SCHEDULE

1. Reservations and conditions, if any, contained in the Crown Grant above referred to.
2. Easements created by Transfers Nos.A5288 and A32088 affecting the part of the land above described shown as "M.W.S.& D.B. Easement vide A5288 & A32088" in the plan hereon.
3. Easement created by Resumption No.C139985 affecting the part of the land above described shown as "Easement for drainage created by resumption C139985" in the plan hereon.
4. Easement created by Resumption No.G109007 affecting the part of the land above described shown as "Easement for transmission line created by Resumption G109007 & G438487" in the plan hereon.
5. ~~Mortgage No.G800970 to The Prudential Assurance Company Limited Entered 23-10-1957~~. T312599.

Registrar General.

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

(Page 1) Vol. 11044 Fol. 125

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. 11044 Fol 125

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	ENTERED	Signature of Registrar General
E.M.I Properties Pty Limited The Metropolitan Water sewerage and Drainage Board as to Lots 3 and 6 in D.P.261926 and E.M.I.Properties Pty Limited as to Lot 4 in D.P.261926. Registered 13-3-1985.	Application	Q229088	—	20-7-1977	

As to part being Lot 4 in DP261926 this Deed is cancelled and New Certificate of Title Issued. Vol. 15337 Fol. 45 dated 27-5-1985 Vide V545502

As to residue being Lots 3 and 6 in DP261926 this Deed is cancelled and New Certificate of Title Issued. Vol. 15337 Fol. 44 dated 27-4-1985 Vide V545502

CT 25-7
d 229088 TG.
T3:25992 to R
CT 9 JAN
V545500 R
- 581 Ec(pt) A

SECOND SCHEDULE (continued)

INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	PARTICULARS	ENTERED	Signature of Registrar General	CANCELLATION
Transfer	Q229088	—	Easement for Electricity Purposes (as more fully set out in the said instrument) affecting that part of the land within described shown as "2m wide" designated (A) and (B) in the plan hereon	20-7-1977		

(Page 2 of 2 pages)

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

Ref: /Src:U Req:R915227 /Doc:CT 11044-125 CT /Rev:13-Jan-2011 /Sts:OK.SC /Pgs:ALL /Prt:21-Jun-2016 08:53 /Seq:2 of 2

Req:R915188 /Doc:CT 15054-081 CT /Rev:28-Feb-2011 /Sts:OK.SC /Pgs:ALL /Prt:21-Jun-2016 08:50 /Seq:1 of 2
Ref: /Src:U

[redacted]FICATE OF TITLE

NEW SOUTH WALES — [redacted]L PROPERTY ACT, 1900

15054081

Vol. 15054 Fol. 81

First Title Old System

Prior Title Vol. 10971 Fol. 238

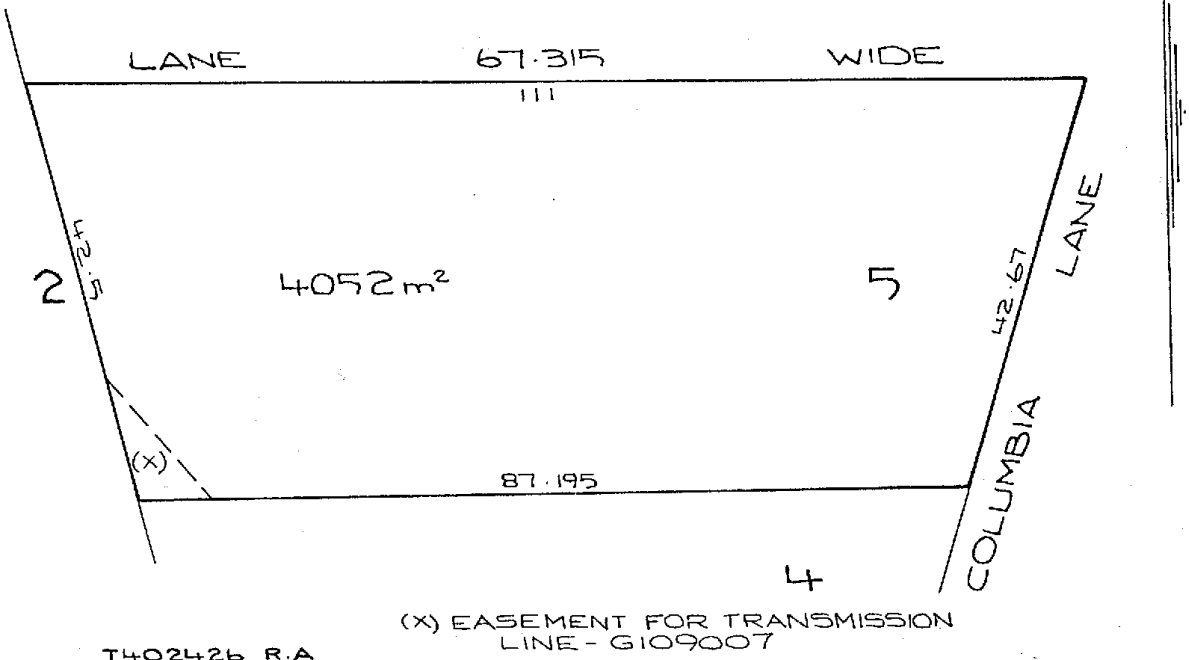
EDITION ISSUED 20 5 1983

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

Registrar General.

PLAN SHOWING LOCATION OF LAND

LENGTHS ARE IN METRES



(X) EASEMENT FOR TRANSMISSION LINE - G109007

T402426 R.A

S

LAND REFERRED TO

Lot 5 in Deposited Plan 261926 at Strathfield in the Municipality of Strathfield Parish of Concord County of Cumberland.

FIRST SCHEDULE

MAURI BROTHERS & THOMSON (AUST.) PTY. LIMITED.

SECOND SCHEDULE

1. Reservations and conditions, if any, contained in the Crown grant.
2. G109007 Easement for transmission line affecting the land shown so burdened in the plan hereon.

GRY

ET(SB)

PERSONS ARE CAUTIONED AGAINST ALTERING OR ADDING TO THIS CERTIFICATE OR ANY NOTIFICATION HEREON (Page 1) Vol. 15054 Fol. 81

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

Vol. 15054 Fol. 81

L.O. 1066 D. West, Government Printer

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	Registrar General

SECOND SCHEDULE (continued)

PARTICULARS	Registrar General	CANCELLATION

NOTATIONS AND UNREGISTERED DEALINGS

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

Req:R915188 /Doc:CT 15054-081 CT /Rev:28-Feb-2011 /Sts:OK.SC /Pgs:ALL /Prt:21-Jun-2016 08:50 /Seq:2 of 2
Ref: /Src:U

Req:R915187 /Doc:CT 15337-045 CT /Rev:04-Mar-2011 /Sts:OK.SC /Pgs:ALL /Prt:21-Jun-2016 08:50 /Seq:1 of 2
Ref: /Src:U

[redacted]FICATE OF TITLE

NEW SOUTH WALES [redacted]L PROPERTY ACT, 1900

15337045

Vol. 15337 Fol. 45

First Title Old System

Prior Title Vol. 11044 Fol. 125

ISSUED 27 5 1935

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

Registrar General.

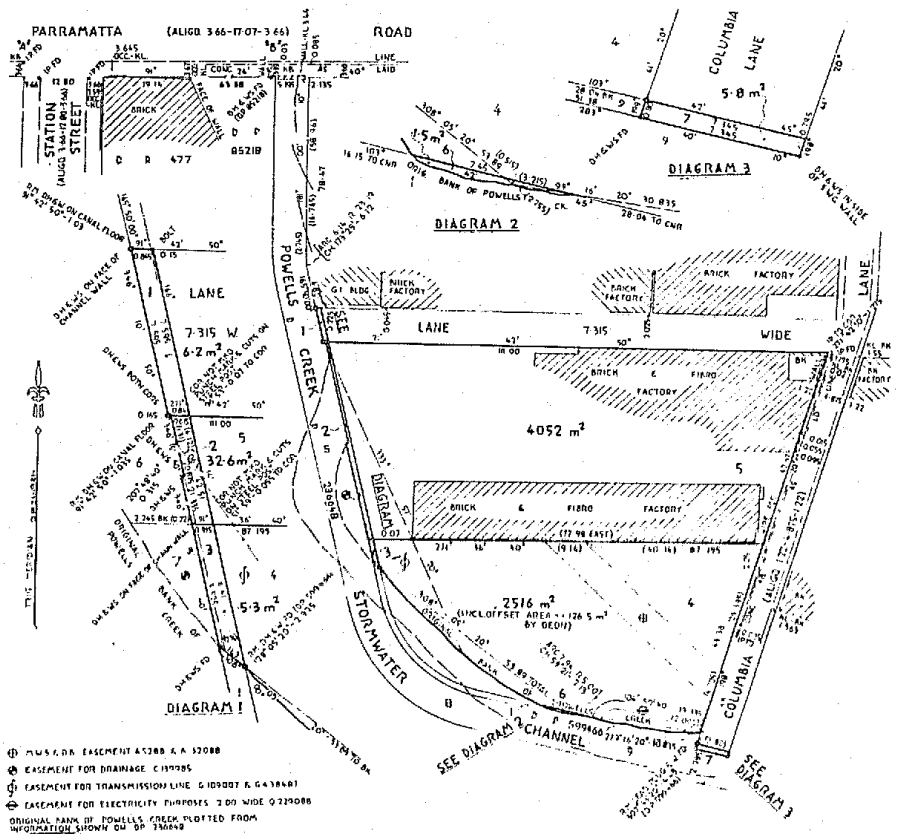
CANCELLED

(Page 1) Vol. 15337 Fol. 45

PLAN SHOWING LOCATION OF LAND

LENGTHS ARE IN METRES

SEE AUTO FOLIO



LAND REFERRED TO

Lot 4 in Deposited Plan 261926 at Strathfield in the Municipality of Strathfield Parish of Concord County of Cumberland.

FIRST SCHEDULE

E.M.I. PROPERTIES PTY. LIMITED.

SECOND SCHEDULE

1. Reservations and conditions in the Crown grant.
2. A5288 Easement affecting part of the land within described shown as "MWS&DB Easement A5288 and A32088" in Deposited Plan 261926.
3. G109007 Easement affecting part of the land above described shown as "Easement for Transmission Line G109007 and G438487" in Deposited Plan 261926.
4. Q229088 Easement for electricity purposes affecting part of the land above described shown "2 wide" in Deposited Plan 450775.

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

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

RG 2/64

Vol 15337 Fol 45

GOVERNMENT PRINTER FOR SOUTH AUSTRALIA 4082B–4036

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	Registrar General

SECOND SCHEDULE (continued)

PARTICULARS	Registrar General	CANCELLATION

NOTATIONS AND UNREGISTERED DEALINGS

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

Req:R915187 /Doc:CT 15337-045 CT /Rev:04-Mar-2011 /Sts:OK.SC /Pgs:ALL /Prt:21-Jun-2016 08:50 /Seq:2 of 2
Ref: /Src:U

Req:R963335 /Doc:DL 3811575 /Rev:23-Feb-1998 /Sts:NO.OK /Pgs:ALL /Prt:28-Jun-2016 15:18 /Seq:1 of 5

Ref: /Src:U Form: 97-01T
Licence: AUS/0634/96

TRANSFE

New South Wales
Real Property Act 190

3811575 V

ly

Instructions for filling out this form are available from the Land Titles Office

Office of State Revenue use only

N.S.W. STAMP DUTY
$2.00 04 20137622 3/03 8125 161297

(A) **LAND TRANSFERRED**
If appropriate, specify the share or part transferred.

FOLIO IDENTIFIER 5/261926

(B) **LODGED BY**

LTO Box	Name, Address or DX and Telephone
24J	Commonwealth Bank of Australia Cnr. Pitt Street & Martin Place Sydney NSW 2000 Phone: 9312 2000 DX 434 Reference (15 character maximum): 433860-TE97

(C) **TRANSFEROR** VERCAST PTY LIMITED ACN 003 488 766

(D) acknowledges receipt of the consideration of $950,000.00
and as regards the land specified above transfers to the transferee an estate in fee simple.

(E) Encumbrances (if applicable): 1. ..... 2. ..... 3. .....

(F) **TRANSFEREE**

(G)

T TS (s713 LGA) TW (Sheriff)	HAI PHONG PROPERTIES PTY LIMITED ACN 080 118 225 **TENANCY:** S

(H) We certify this dealing correct for the purposes of the Real Property Act 1900. **DATE** 19 DECEMBER 1997

Signed in my presence by the transferor who is personally known to me.

THE COMMON SEAL of VERCAST PTY. LIMITED was hereunto affixed by authority of its Board of Directors in the presence of:

VERCAST PTY. LIMITED A.C.N. 003 488 766 Common Seal

Signature of Witness

Name of Witness (BLOCK LETTERS)

Address of Witness Secretary

Director Signature of Transferor

Signed in my presence by the transferee who is personally known to me.

Signature of Witness

Name of Witness (BLOCK LETTERS)

Address of Witness

HELEN NOLAN SOLICITOR FOR Signature of Transferee

If signed on the transferee's behalf by a solicitor or licensed conveyancer, show the signatory's full name in block letters.

Checked by (LTO use) .....

Ref: /Src:U 97-07L

Licence: LAW/0537/98

LEASE

New South Wales
Real Property Act 1900

AE171584J

STAMP DUTY Office of State Revenue use only

Office of State Revenue NSW Treasury
Client No: 92565434 1579
Duty: $1,925- Trans No: 4660140
Acct details:

(A) **TORRENS TITLE**

Property leased: if appropriate, specify the part or premises

5/261926 BEING THAT PART OF THE PROPERTY SITUATE AT 11-13 COLUMBIA LANE HOMEBUSH SHOWN ~~SHADED~~ HATCHED ON THE PLAN ANNEXED AND MARKED "B"

(B) **LODGED BY**

LTO Box	Name, Address or DX and Telephone	CODE
119W	ABELITIS SOLICITORS 60 HARDY STREET, DOVER HEIGHTS 2030 Reference (optional): IA:12661	**L**

(C) **LESSOR**

HAI PHONG PROPERTIES PTY LIMITED (ACN 080 118 225)

The Lessor leases to the Tenant the property referred to above.

(D) Encumbrances (if applicable): 1. 2. 3.

(E) **TENANT**

SYDNEY YONSEI CENTRAL CHURCH INCORPORATED

(F) **TENANCY:**

(G) 1. **TERM:** **THREE (3) YEARS**

2. **COMMENCING DATE:** **12 OCTOBER, 2007**

3. **TERMINATING DATE:** **11 OCTOBER, 2010**

4. With an **OPTION TO RENEW** for a period of **TWO (2) YEARS** set out in **Clause 15** of Annexure **"A"**

5. With an **OPTION TO PURCHASE** set out in **Not applicable**

6. Together with and reserving the **RIGHTS** set out in **Not applicable**

7. Incorporates the provisions set out in **ANNEXURE "A"** hereto.

8. Incorporates the provisions set out in **MEMORANDUM** filed in the Land Titles Office as No. **Not applicable**

9. The **RENT** is set out in clause 3 of **ANNEXURE "A"** hereto.

CT prod 22/8/08 10428 G

EXECUTION PAGE

DATED: 31 OCTOBER, 2007

Certified correct for the purpose of the Real Property Act 1900 by the Lessor:

EXECUTED by **HAI PHONG PROPERTIES PTY LIMITED** (ACN 001 332 654) pursuant to the provisions of Section 127 of the Corporations Act 2001:)

.....
Sole Director/Secretary
George Gialouris

EXECUTED by **SYDNEY YONSEI CENTRAL CHURCH INCORPORATED** pursuant to its Constitution in the presence office:)

Name Juhym Park	Name
Director	
Office Held	Office Held
11G/19-21 George St North Strathfield NSW 2137	
Address	Address

SIGNED by **JU HYUN PARK** (Guarantor) in the presence of:)

.....
Signature of Witness

.....

ANNEXURE 'A' TO THE LEASE

LESSOR: HAI PHONG PROPERTIES PTY LIMITED
TENANT: SYDNEY YONSEI CENTRAL CHURCH INCORPORATED

This Annexure consists of 21 pages

---

1. DEFINITIONS & INTERPRETATION

In this Lease:

(a) *Lessor* and *Landlord* means the Lessor, its successors and assigns or in the case of a person the Lessor, his executors, administrators and assigns and the servants and agents of the Lessor;

(b) *Tenant* and *Lessee* means, where only one Tenant is a party, the Tenant, his executors, administrators and permitted assigns and, in the case of a company, the Tenant and its successors and permitted assigns and the servants and agents of the Tenant;

(c) *Premises* means the land leased together with all improvements on the land up to and including the outside face of external walls and the centre line of any dividing walls and includes all fixtures, fittings, furnishings, plant, machinery and equipment, if any, now or in the future installed by the Lessor and also its grounds and gardens;

(d) any covenant or agreement by more than one person binds them jointly and severally;

(e) words importing the singular number include the plural and vice versa;

(f) words importing one gender include every gender;

(g) a reference to a person includes a corporation and vice versa;

(h) references to statutes, instruments, regulations, ordinances or by-laws extend to all statutes, instruments, regulations, ordinances or by-laws amending consolidating or replacing them; and

(i) headings and marginal notes have been inserted for guidance only and do not form any part of the context of the Lease.

2. EXCLUSION OF STATUTORY PROVISIONS

2.1. The covenants powers and provisions implied in leases by virtue of Sections 84, 84A, 85 and 86 of the Conveyancing Act 1919 do not apply to this Lease and are expressly negatived.

2.2. The employment in this Lease of words in any of the forms of words contained in the first column of Part II of Schedule IV to the Conveyancing Act 1919 do not imply any covenant under Section 86 of that Act.

2.3. To the extent permitted by law the application to this Lease of any moratorium or other Act whether State or Federal having the effect of extending the term, reducing or postponing the payment of rent, or otherwise affecting the operation of the terms of this Lease to the detriment of the Lessor is expressly excluded and negatived.

2.4. Any provision of this Lease which is in breach of any statute, regulation, by-law or ordinance and in consequence of such breach or for any other reason is void, voidable, unenforceable or invalid will in any such case be severable from this Lease and this Lease is to be read as though such provision did not form part of it at any time.

3. RENT AND RENT REVIEW

The Tenant covenants to pay rent to the Lessor during the term of this Lease free of all deductions at the rate reserved.

3.1. Rent subject to CPI adjustment

(a) The Tenant will pay to the Lessor a rent as follows:-

(i) the sum of **$154,100.00** per annum (plus GST), (pro rata) the first instalment to be paid on **12 January 2008** in the sum of **$12,841.67 15**, and thereafter on the 12th day of each month ;

(ii) the monthly rent is to be paid by means of electronic funds transfer to a bank account as nominated by the Lessor;

(iii) in the second and subsequent years an amount of **$4,100.00** will be added to the base rent of $154,100.00 totalling $158,100.00 which shall be the adjustable amount in respect of the reviews in the second and subsequent years.

(b) The rent will be reviewed on the first and each subsequent anniversary of the Commencing date of the term (*date of review*). The rent payable by the Tenant for the year following each date of review will be determined:

(i) in the case of the first review, by multiplying the rent payable on the Commencing date of the term by a fraction the numerator of which will be the Price Index applicable on the date of review and the denominator of which will be the Price Index applicable on the Commencing date of the term or one hundred and four per cent (104%) whichever is the greater; and

(ii) in the case of each and every review subsequent to the first review by multiplying the rent payable for the year immediately prior to the date of review by a fraction the numerator of which will be the Price Index applicable on that date of review and the denominator of which will be the Price Index applicable on the immediately preceding date of review or one hundred and four per cent (104%) whichever is the greater.

PROVIDED THAT if after performing the calculation as herein before set out, the substituted rent so calculated shall be less than 104% of the minimum rental payable during the previous 12 months then the rental payable for the ensuing 12 month period shall be 104% of the rental for the previous 12 months.

In this clause *Price Index* means the All Groups Consumer Price Index applicable to Sydney kept by the Commonwealth Statistician and in the event of such Price Index being discontinued or abolished then such Price Index as the Commonwealth Statistician substitutes for it and if no Price Index is substituted for it by the Commonwealth Statistician, then any Price Index kept by the Commonwealth or New South Wales Statistician as the Lessor may in its absolute discretion select.

4. **GST**

(a) The Tenant must pay to the Lessor on demand any tax or impost in the nature of a consumption or goods and services tax or tax on supply levied or imposed on the rent or any other amounts payable by the Tenant to the Lessor.

(b) From the date when the Tenant becomes liable for goods and services tax in respect of rent operating/outgoings expenses or any other services or facilities provided by the Lessor to the Tenant under this Lease or any renewal or extension of this Lease the Lessor shall be entitled to include as operating/outgoings expenses for which the Tenant is liable under this Lease the tax paid or payable by the Lessor during each annual period for which operating/outgoings expenses are calculated.

5. **OUTGOINGS**

The Tenant will pay to the Lessor the sum of $19,176.00 (plus GST) in the first year of the term of the Lease in respect of:

(a) all rates, taxes (excluding income tax), charges, assessments, duties, impositions and fees payable to any Government, Local Government, Semi-Government, Public or other competent body, department, institution or authority assessed upon the Premises or upon the Lessor on account of them provided that any land tax payable by the Tenant will be that amount as assessed by the Office of State Revenue in respect of the Premises;

(b) all commercially realistic going market rates payable by the Lessor for insuring against loss or damage by fire, flood, lightning, storm, tempest or earthquake the Premises for their full insurable value with an insurance office chosen by the Lessor;

(c) and of water, drainage, sewerage and water consumption rates;

(d) all commercially realistic real estate management fees in respect of the rental management of the Premises; and

(e) for the purpose of this clause all calculations will be made on the basis that such outgoings accrue from day to day and will be apportioned in respect of time accordingly. The Tenant will pay to the Lessor not later than 30 days after request all amounts payable under this clause without any deduction and it will not be a condition precedent to the Tenant's obligation to make such payment that the Lessor will have first paid such outgoings.

(f) the said amount of $19,176.00 shall be increased each year in accordance with the increases in the rates, levies and charges as imposed by the respective authorities and or corporations.

6. USE OF PREMISES

6.1. The Tenant must not use the Premises otherwise than for the purpose of a church, offices and social administration.

6.2. The Tenant acknowledges and agrees that the Lessor and its servants and agents have not in any way warranted or represented that the Premises are or will remain suitable or adequate for any of the purposes of the Tenant and the Tenant will be deemed to have satisfied itself in that regard prior to entering into this Lease and to the fullest extent permitted by law all warranties and all representations howsoever made as to suitability and as to adequacy otherwise applicable to this Lease or the Premises are expressly negatived.

6.3. Should the use to which the Premises are put by the Tenant require the Licence consent or approval of any competent Authority then the Tenant warrants to the Lessor that it has prior to entering into this Lease obtained such licence, consent or approval and the Tenant will at its expense maintain such licence, consent or approval as valid and operative during its occupation of the Premises. The Tenant will comply with all conditions attaching to any such licence, consent or approval.

6.4. The Tenant will pay to the proper Authorities all charges for utility and other services connected to the Premises (if separately metered) and should the Tenant default in payment of such charges the Lessor may pay the same and immediately recover the amount paid as if it were rent in arrears payable by the Tenant.

6.5. The Tenant must not:

(a) use or permit to be used for other than for their designed purposes any of the fixtures or fittings in the Premises;

(b) store or use inflammable or dangerous substances upon the Premises (except as may be necessary for the ordinary conduct of the permitted use of the Premises);

(c) do or permit to be done on the Premises anything which in the opinion of the Lessor may become a nuisance or a disturbance, obstruction or cause of damage to the Lessor or to adjoining or nearby owners or occupiers or use the Premises in any noisy, noxious or offensive manner;

(d) permit any sign, advertisement, name or notice to be placed on any part of the Premises where such sign, advertisement, name or notice is of an incongruous or unsightly nature having regard to the character and use of the Premises and adjoining lands and prior to the installation or placement of any sign, advertisement, name or notice the Tenant will at its expense:

(i) obtain the Lessor's prior written consent (which consent will not unreasonably be withheld); and

(ii) obtain the prior consent of any relevant competent Authority;

(e) do anything by which the working or efficiency of any plant or other equipment servicing the Premises may be affected;

(f) hold or permit to be held any auction sale upon the Premises; and

(g) place or store in or upon the Premises goods or articles heavier than the floor or walls will safely carry or support or do or permit to be done anything by which the Premises or any part thereof may be damaged or strained or its walls or floors caused to sag from the right lines.

7. MAINTENANCE, REPAIRS, ALTERATIONS AND ADDITIONS

7.1. The Tenant will keep the Premises and all fixtures and fittings installed or provided by the Lessor in good repair having regard to their condition as at the date of commencement of this Lease and at the expiration or sooner determination of the term of this Lease will yield up the Premises and the fixtures and fittings of the Lessor in good repair.

7.2. The obligations of the Tenant stated in clause 7.1 do not include responsibility for fair wear and tear and any damage caused by flood, fire, storm and tempest where such damage is not attributable to any act or omission on the part of the Tenant and persons under its control.

7.3. The Tenant will keep such of the plant or machinery located within the Premises maintained, serviced and in good repair having regard to their condition as at the date of commencement of this Lease and will enter into and keep current at the Tenant's expense such maintenance, service and repair contracts as are reasonably required by the Lessor for that purpose with contractors approved by the Lessor.

7.4. The Tenant will at the Tenant's expense:

(a) keep the Premises clean and ensure that all wastes and rubbish are promptly and properly removed;

(b) immediately make good any damage to any part of the Premises or any part thereof caused by the Tenant and persons under its control;

(c) immediately replace all glass broken by the Tenant and persons under its control;

(d) replace all damaged or non-operative light globes and tubes within the Premises;

(e) take any steps necessary to control any pest infestation occurring within the Premises and if required by the Lessor engage for that purpose a pest exterminator approved by the Lessor;

(f) repair or where appropriate replace heating, lighting, electrical or plumbing fittings installed in the Premises broken or damaged by the Tenant and persons under its control;

(g) comply with all statutes, regulations, by-laws or ordinances affecting the Premises or any fixtures or fittings installed by the Tenant therein and where the Premises are used as a place of work the Tenant will take all necessary steps to comply with the provisions of the Occupational Health and Safety Act (1983) or its regulations and the Tenant will indemnify the Lessor against any failure on the part of the Tenant and/or persons under its control to comply with the provisions of this sub-clause;

(h) comply with any notices or orders which may be given by any competent Authority in respect of the Premises or their use by the Tenant and indemnify the Lessor in respect of all such matters provided that the Tenant will be under no liability in respect of any structural alterations required in terms of this sub- clause and the preceding sub-clause unless that liability arises out of the Tenant's use or occupation of the Premises;

(i) keep and maintain the waste pipes, drains and water closets within or servicing the Premises in a clean, clear and operative condition and will employ licensed tradesmen to clear any blockages which may occur therein. In addition the Tenant will regularly clean and service any grease trap provided for the use of the Premises; and

(j) effectively maintain and keep in good working order and condition any fire protection and safety equipment servicing the Premises including all sprinklers, alarms, hose cocks, hoses and reels, extinguishers, detectors and the like to the standards prescribed or recommended by the Board of Fire Commissioners and/or the Standards Association of Australia.

7.5. Should the Lessor at the request of the Tenant agree to provide a cleaning service for the Premises then the Lessor will not be liable for any loss or damage to the property business or effects of the Tenant caused or alleged to have been caused by the operators of such service.

7.6. The Tenant will immediately give notice to the Lessor of:

(a) any damage to and of any accident or defects in the Premises or in any of the services or other facilities provided by the Lessor in the Premises; and

(b) any circumstance likely to occasion any damage or injury occurring within the Premises.

7.7. The Tenant will redecorate having regard to the condition of the premises at the date of commencement of this Lease the Premises throughout to the satisfaction of the Lessor within 3 months prior to the termination date of this Lease. The term *redecorate* includes the washing down of the whole of the Premises including all partitions or additions made to the Premises and the treatment as previously treated of all surfaces of the Premises by painting, staining, polishing or other method approved by the Lessor, and also the replacing of all carpet or floor tiles which are worn or damaged otherwise than by fair wear and tear and in need of replacement.

7.8. Should the Tenant fail to redecorate the Premises by the date specified in clause 7.7 the Lessor may undertake that redecoration at the Tenant's expense and the Tenant will repay amounts so expended by the Lessor on demand.

7.9. The Tenant will not install or use in the Premises internal partitions other than of a standard as to type, quality and size as the Lessor will approve.

7.10. The Tenant will not make alterations or additions to the Premises nor install or alter any partitioning nor install or place any heavy equipment fitting or fixture or machinery likely to disturb the efficient operation of the air conditioning or other system servicing the Premises without the Lessor's prior written approval and:

(a) in seeking the Lessor's approval to any proposed alteration addition or installation the Tenant will submit plans and specifications of the proposed work; and

(b) the Lessor may require as a condition of its approval that:

(i) any such proposed work will be supervised by a person or consultant nominated by the Lessor;

(ii) any such proposed work will be executed by contractors or tradesmen as are approved by the Lessor (which approval will not unreasonably be withheld);

(iii) the Tenant pay on demand all costs incurred by the Lessor in considering the proposed work, and in the supervision of that work including the fees of architects or other Estate consultants employed by the Lessor;

(iv) the Tenant obtain at its expense from any competent Authority all necessary approvals or permits necessary to enable such proposed work to be lawfully executed and on request by the Lessor produce for inspection to the Lessor copies of all such approvals and permits from any such competent Authority;

(v) upon completion of the proposed works the Tenant will produce to the Lessor in regard to the works or if so required in regard to the Premises a Building Certificate from the relevant Local Council and/or such other evidence or certificate from the Council or any other relevant Authority as the Lessor may stipulate as a condition of its consent; and

(vi) the Tenant reimburse the Lessor any cost or expense as may be incurred by the Lessor as a result of the installation operation or removal of any such equipment, fixture, fittings or machinery.

7.11. The Tenant will prior to the expiration of the term of this Lease remove all partitions, alterations, additions or other fixtures or fittings installed or made by the Tenant and make good any damage to the Premises caused by such removal and where the term of this Lease will be determined prior to the termination date the Tenant will effect such removal and making good of damage within a reasonable time after such determination.

7.12. If the Tenant has not completed such removal and making good on the expiration of the term of this Lease (or in the case of the determination of the term of this Lease within a reasonable time after such determination) specified in clause 7.11 then the Lessor may remove and store such partitions, alterations, additions or other fixtures, fittings or goods as the Tenant has failed to remove and the Tenant undertakes to repay on demand all costs and expenses incurred by the Lessor in so doing and the Lessor may alternatively elect not to effect such removal in which case the Lessor will by notice in writing given to the Tenant notify the Tenant that unless the Tenant has effected such removal within 14 days after the date on which such notice is given requiring such removal then those partitions, alterations, additions or other fixtures, fittings or goods as have not been removed by the Tenant will be forfeit to the Lessor and will at the expiration of such 14 day period become the property of the Lessor.

7.13. Until such time as the removal and making good required by clause 7.11 so as to permit re-letting of the Premises is completed by the Tenant or by the Lessor upon the Tenant's default in that regard then the Tenant will pay or allow to the Lessor by way of liquidated damages in relation to any such default a sum equivalent to the rent payable by the Tenant immediately prior to the expiration or determination of the term of this Lease for the period until the Premises are made fit for re-letting.

7.14. The Tenant will from time to time during the term of this Lease keep up the fences of or belonging to the Premises and renew any parts thereof that may be required to be made new in a good and workmanlike manner.

8. INSURANCE RELEASES AND INDEMNITY

8.1. The Tenant must keep current at all times during its occupation of the Premises:

(a) a policy of public risk insurance applicable to the Premises and the business carried on therein in the joint names of the Lessor and the Tenant for an amount not less than $20 million (being the amount which may be paid arising out of any one single accident or event) or such higher amount as the Lessor may from time to time require;

(b) an insurance policy in the joint names of the Lessor and the Tenant for the full insurable value on a replacement basis against all insurable risks of all glass (including plate glass) in or enclosing the Premises; and

(c) an insurance policy for the full insurable value of all plant, fittings and stock of the Tenant against loss or damage sustained thereto by fire, fire fighting activities, flooding, fusion, explosion, lighting, civil commotion, storm, tempest, earthquake, burglary, malicious damage or other insurable risk.

Such insurance policies must be effected with an insurance company approved by the Lessor (which approval will not unreasonably be withheld) and the Tenant will if so requested by the Lessor provide the Lessor with copies of such policies and from time to time with a certificate of currency for such policies.

8.2. The Tenant and persons under its control must not do or permit to be done anything upon the Premises by which any insurance effected by the Lessor or by the Tenant may be rendered void or voidable or (except with the Lessor's prior written approval) by which the premium payable on any such insurance is liable to increase. The Tenant will as and when required by the Lessor pay all extra premiums payable by the Lessor on account of extra risk caused by the use to which the Premises are put by the Tenant.

8.3. The Tenant covenants at all times and in all respects to comply with the requirements of the Insurance Council of Australia, the Board of Fire Commissioners of New South Wales and with the requirements of any relevant statute, regulation or other notice issued by any similar Authority and without limiting the foregoing in particular with all fire equipment and emergency ventilation requirements.

8.4. The Tenant agrees to occupy and use the Premises at the Tenant's risk and releases to the fullest extent permitted by law the Lessor its servants, agents and contractors from all claims and demands of any kind and from all liability which may arise in respect of any accident, damage or injury occurring to any person or property in or about the Premises, except to the extent that such accident damage injury or death is caused or contributed by the Lessor's negligence.

8.5. The Tenant will indemnify the Lessor against all claims, actions, losses and expenses of any nature which the Lessor may suffer or incur or for which the Lessor may become liable in respect of or arising out of:

(a) the negligent or careless use or misuse by the Tenant and persons under its control of the Premises or any of the utility or other services to the Premises or arising out of any faulty fixture or fitting of the Tenant; and

(b) any accident or damage to property or injury or death suffered by any person arising from any occurrence in or near the Premises to any person or property using or near the Premises.

9. ASSIGNMENT AND SUB-LETTING

9.1. Subject to the following, the Tenant will not during the continuance of the Lease assign or transfer this Lease or demise, sub-let, part with, share the possession of, or grant any licence affecting, or mortgage, charge or otherwise deal with, or dispose of the Premises or any part thereof, or by any act or deed procure the Premises or any part thereof to be assigned, transferred, demised, sub-let unto shared or put into possession of any person or persons.

9.2. The Tenant will be entitled to assign or transfer this Lease or sub-let the Premises or part thereof with the prior written consent of the Lessor which consent will not be unreasonably withheld if:

(a) the Tenant is not in default in the observance and performance of the covenants and agreements on the part of the Tenant herein contained or implied; and

(b) the Tenant proposes to assign or transfer this Lease or sub-let the Premises to a person who:

(i) proves to the satisfaction of the Lessor that he is a respectable, responsible and solvent person or company and is capable of adequately complying with the covenants and agreements on the Tenant's part herein contained;

(ii) enters into a covenant with the Lessor in a form reasonably required by the Lessor that he or it will duly perform and keep the covenants and agreements on the Tenant's part herein contained;

(iii) furnishes to the Lessor such guarantee or guarantees of the performance of his obligations under this Lease as the Lessor requires; and

(iv) pays to the Lessor its administrative costs and its legal costs and disbursements (including stamp duty and the costs and disbursements of obtaining any necessary mortgagee's consent) of and incidental to the giving of its consent and the preparation and execution of the covenant referred to above.

9.3. If the Tenant is a company other than a company whose shares are listed on any Australian Stock Exchange the Tenant must not without the prior written consent of the Lessor register record or enter in its books any transfer of any share or shares in the capital of the Tenant or deals with any beneficial interest in any such share or shares or issue any new share or shares or take or attempt to take any action having the effect of altering the effective control of the Tenant or having the effect that the shareholders of the Tenant at the date hereof together beneficially hold or control less than 51% of the voting rights of capital in the Tenant.

9.4. Notwithstanding anything contained elsewhere in this clause the Lessor may withhold its consent to any transfer, assignment or sublease if in the Lessor's absolute discretion it considers the identity of the Transferee, Assignee or SubTenant would or could create a security risk to the Premises or to the occupiers of the adjoining or neighbouring lands.

10. RENT ABATEMENT AND DAMAGE TO BUILDING

10.1. In case the whole or any part of the Premises is damaged by fire or other cause so as to render the Premises unfit for occupation and use by the Tenant then provided such damage is not occasioned by any act or neglect of the Tenant and/or persons under its control:

(a) the rent reserved by this Lease and the Tenant's obligation to pay outgoings or a proportionate part thereof according to the nature and extent of the damage will abate; and

(b) any remedies for recovery of rent falling due after such destruction or damage will be suspended until the Premises have been made fit for occupation by the Tenant.

Any dispute arising under this provision as to the amount of rent to be abated will be determined by a qualified valuer nominated by the parties or failing such nomination then by the President for the time being of the New South Wales Division of the Australian Property Institute (Inc) or a qualified valuer nominated by him for that purpose who will make a final determination of the amount by which the rent reserved is to be abated and of the duration of such abatement and in making such determination such valuer will be deemed to be acting as an expert and not as an arbitrator and the costs incurred in having such determination made will be borne equally by the parties.

10.2. If the Premises are totally destroyed or rendered wholly or substantially unfit for use and occupation by the Tenant then:

(a) the Lessor may notwithstanding anything herein contained or implied terminate this Lease by giving not less than one month's notice in writing to the Tenant and at the expiration of that notice this Lease will be at an end;

(b) except where the destruction has been caused by the act or omission of the Tenant or of any person under the Tenant's control the Tenant may terminate this Lease by giving not less than one month's notice in writing to the Lessor and at the expiration of that notice this Lease will be at an end;

(c) no liability will attach to either the Lessor or the Tenant by reason of termination of this Lease pursuant to clauses 10.2(a) or 10.2(b) but except as aforesaid that any termination will be without prejudice to the rights of either party in respect of any antecedent breach or non-observance of any covenant or provision of this Lease; and

(d) nothing herein contained or implied will be deemed to impose any obligation on the Lessor to rebuild or re-instate or make fit for occupation the Premises or upon the happening of such destruction.

11. HOLDING-OVER

Should the Tenant with the consent of the Lessor continue to occupy the Premises beyond the expiration of the term of this Lease (otherwise than pursuant to the grant of a further lease) he will do so as a monthly Tenant only at a rent payable monthly in advance, the first such payment to be made on the day following the termination date equal to one-twelfth of the sum of the following amounts:

(a) the annual amount of the rent payable under this Lease immediately prior to the expiration of the term of this Lease; and

(b) the annual amount of the Tenant's payment or contribution to the outgoings referred to in clause 5 of this Lease

plus five (5%) per cent.

The Lessor and the Tenant acknowledge that such increase in rental during the holding-over period is a fair and reasonable assessment of the rental payable in respect of a short term lease or licence and no objection shall be raised by either party as to the quantum or appropriateness thereof.

Such tenancy will be subject to the terms and conditions of this Lease as far as they can be applied to a monthly tenancy and the tenancy so created will be determinable at any time by either party by giving one month's notice in writing to that effect to the other party.

12. DEFAULT

12.1. In the event that:

(a) the rent reserved or any part thereof or any other money payable by the Tenant to the Lessor remains unpaid for a period of 14 days after the date on which the same ought to have been paid (although no formal or legal demand will have been made);

(b) the Tenant commits permits or suffers to occur any default in or breach of the due and punctual observance and performance of the provisions of this Lease and such default is continued for 2 weeks after the Lessor serves on the Tenant a notice specifying the breach and if the breach is capable of remedy requiring the Tenant to remedy the breach and if not, then requiring the Tenant to make compensation in money for the breach, or in case the repairs required by such notice are not completed within the time therein specified;

(c) if the Tenant is a company, an order is made or a resolution is passed for the winding up of the Tenant (except for the purpose of reconstruction or amalgamation with the prior written consent of the Lessor which will not be unreasonably withheld) or if the Tenant goes into liquidation or makes an assignment for the benefit of or enters into an arrangement or composition with its creditors or stops payment of or is unable to pay its debts within the meaning of the Corporations Law or if a manager or receiver of any of its assets be appointed or an inspector be appointed pursuant to the Corporations Law;

(d) if the Tenant being an individual, becomes bankrupt or commits an act of bankruptcy or brings his estate within the operation of any law relating to bankruptcy; or

(e) if the execution is levied against the Tenant,

then in any one or more of such events the Lessor will have the right by itself or its authorised agent at any time thereafter and without notice to or demand on the Tenant and notwithstanding prior waiver or failure by the Lessor to take action in respect of any such matter thing or default whether past or continuing to re-enter into and upon the Premises or any part thereof in the name of the whole and thereby determine the estate of the Tenant but without prejudice to any action or other remedy which the Lessor has or may have for arrears of rent or breach of any covenant or provision or for damages as a result of any such event and thereupon the Lessor will be freed and discharged from any action suit claim or demand by or obligation to the Tenant under or by virtue of this Lease.

12.2. In the case of the happening of any event whereby the Lessor may become entitled to re-enter and take possession of the Premises and to determine this Lease after necessary compliance with any relevant statutory provision as to the

exercise of rights of forfeiture (of which the statutory declaration of any officer of the Lessor will be conclusive evidence for the purpose of the Registrar General) the Tenant for himself and his successors in title irrevocably appoints the Lessor and each of its Attorneys and their respective substitutes and the successors in title of the Lessor severally to be the Attorney of the Tenant (including any successor or assign) for him in his name and as his act and deed from time to time if and when such Attorney thinks fit for the purpose of giving full effect to the power of re-entry to execute a surrender of the Lease and to procure the registration thereof and to record this Power of Attorney and procure to be done any act matter or thing which may be requisite or proper for giving full effect thereto according to the Real Property Act 1900, or any law or usage for the time being in force in the State of New South Wales and all such Attorney may lawfully do or purport to do or cause to be done by virtue of the appointment is by this deed ratified and confirmed.

12.3. On each and every occasion in which the Tenant omits or neglects to pay any money or to do or effect anything which the Tenant has herein covenanted to pay do or effect then the Lessor may without prejudice to any rights and powers arising from such default pay such money or do or effect such thing by itself its Architects agents contractors and workmen as if it were the Tenant and for that purpose the Lessor its Architects contractors and workmen and agents may enter upon the whole or any part of the Premises and there remain for the purpose of doing or effecting any such thing and the Lessor may recover from the Tenant the amount expenses and costs of such payment doing or effecting forthwith.

12.4. If any rent or other money payable by the Tenant under this Lease remains unpaid for 14 days after their due date then the Tenant will pay to the Lessor interest on that money at the annual percentage rate equivalent to the prime overdraft rate for the time being applied by the Commonwealth Bank of Australia (*Bank*) in respect of an overdraft limit in excess of $100,000 (or in the event of the Bank ceasing to quote such a rate then such a rate as in the opinion of the Bank is equivalent thereto in respect of similar overdraft accommodation afforded to prime borrowers) plus 4% per annum calculated from the due date to the date of payment (both dates included) and the Lessor will be entitled to recover that money and/or that interest as if the same were rent in arrears.

13. ESSENTIAL TERMS

13.1. It is expressly agreed notwithstanding anything else herein contained that each of the following covenants are essential terms of the Lease:

(a) clause 3 relating to the payment of the annual rent throughout the term and during any period of holding over at a date no later than 14 days after the due date for payment of each monthly instalment;

(b) clause 6 relating to the Tenant's use of the Premises;

(c) clause 7 relating to the maintenance and repair of the Premises; and

(d) clause 9 relating to assignment and sub-letting.

13.2. In respect of the Tenant's obligation to pay rent, the acceptance by the Lessor of arrears or of any late payment of rent will not constitute a waiver of the essentiality of the Tenant's obligation to pay rent in respect of those arrears or of the late payments or in respect of the Tenant's continuing obligation to pay rent during the lease term.

13.3. The Tenant covenants to compensate the Lessor in respect of any breach of an essential term of this Lease and the Lessor is entitled to recover damages from the Tenant in respect of such breaches. The Lessor's entitlement under this clause 13 is in addition to any other remedy or entitlement to which the Lessor is entitled (including to terminate this Lease).

13.4. In the event that the Tenant's conduct (whether acts or omissions) constitutes a repudiation of the Lease (or of the Tenant's obligations under the Lease) or constitutes a breach of any lease covenants, the Tenant covenants to compensate the Lessor for the loss or damage suffered by reason of the repudiation or breach.

13.5. The Lessor will be entitled to recover damages against the Tenant in respect of repudiation or breach of covenant for the damage suffered by the Lessor during the entire term of this Lease.

13.6. The Lessor's entitlement to recover damages will not be affected or limited by any of the following:

(a) if the Tenant abandons or vacates the Premises;

(b) if the Lessor elects to re-enter or to terminate the Lease;

(c) if the Lessor accepts the Tenant's repudiation; or

(d) if the parties' conduct constitutes a surrender by operation of law.

13.7. The Lessor will be entitled to institute legal proceedings claiming damages against the Tenant in respect of the entire lease term, including the periods before and after the Tenant has vacated the Premises, and before and after the abandonment, termination, repudiation, acceptance of repudiation or surrender by operation of law referred to in clause 13.6 whether the proceedings are instituted either before or after such conduct.

13.8. In the event of the Tenant vacating the Premises, whether with or without the Lessor's consent, the Lessor will be obliged to take reasonable steps to mitigate his damages and to endeavour to lease the Premises at a reasonable rent and on reasonable terms. The Lessor's entitlement to damages will be assessed on the basis that the Lessor should have observed the obligation to mitigate damages contained in this clause13.8. The Lessor's conduct taken in pursuance of the duty to mitigate damages will not by itself constitute acceptance of the Tenant's breach or repudiation or a surrender by operation of law.

14. COSTS AND EXPENSES

The Tenant will pay:

(a) the Lessor's legal costs and all duties, fees, charges and expenses of or incidental to the preparation, completion, stamping and registration of the Lease (including any costs and disbursements involved in obtaining the consent of any mortgagee of the Premises or the land) and any renewal thereof and any agreement for lease and any application for the consent of the Lessor; and

(b) the Lessor's legal costs and all duties, fees, charges and expenses of or incidental to any and every breach or default by the Tenant, including any expenses incurred in obtaining the consent of any mortgagee, and/or incidental to the exercise or attempted exercise of any right, power, privilege, authority or remedy of the Lessor under or by virtue of this Lease and the fees of all professional consultants (including the Lessor's managing agent) properly incurred by the Lessor in consequence of or in connection with the breach or default by the Tenant.

15. OPTION TO RENEW

Should the Tenant wish to take a further lease of the Premises for a further term of two (2) years from the expiration of the term of this Lease and of such wish will prior to the expiration of the term give to the Lessor not less than three (3) months' notice in writing and will in the meantime duly and punctually pay the rent reserved by this Lease at the times appointed for payment and will duly perform and observe the covenants and agreements by and on the part of the Tenant contained in this Lease up to the expiration of the term granted the Lessor will at the expense of the Tenant demise to the Tenant the Premises for a further term of two (2) years at a rent to be agreed upon by the parties but to be not less than the rent payable immediately prior to the expiration of the term granted plus 4%. In the event of the parties failing to agree on the rent then at such market rent being not less than the rent payable immediately prior to the expiration of the term granted plus 4% as will be determined by a qualified valuer nominated by the parties or failing such nomination then by the President for the time being of the New South Wales Division of the Australian Property Institute (Inc) or a qualified valuer nominated by him for that purpose. In making such determination the following provisions will apply:

(a) the valuer will act as an expert and not as an arbitrator; and

(b) the fees and costs of the valuer will be borne by the parties as determined by the valuer.

15.1 The further lease for the second term will be subject to the same conditions and covenants as this Lease except for the terms and conditions as contained in clause 15.

16. LESSOR'S COVENANTS

16.1. The Tenant paying the rent reserved and duly and punctually observing and performing the covenants, obligations and provisions in this Lease on the part of the Tenant to be observed and performed will and may peaceably possess and enjoy the Premises for the term granted without any interruption or disturbance from the Lessor or any other person or persons lawfully claiming by from or under the Lessor.

17. RIGHTS RESERVED BY THE LESSOR

17.1. The Lessor reserves the right to use maintain and repair all services and/or associated fixtures and fittings passing through the Premises.

17.2. The Lessor will have the right (but not the obligation) to enter upon the Premises with all necessary materials and equipment at all reasonable times and on reasonable notice (but at any time and without notice in the case of an emergency):

(a) to enter and view the state of repair of the Premises and to ascertain whether or not there has been any breach of the terms of this Lease;

(b) to carry out repairs or other works to the Premises or any services therein or to any adjacent building;

(c) to execute any work required to remedy a defect which is the Tenant's duty to repair if the Tenant has not within 21 days of the date of receipt by the Tenant of written notice from the Lessor requiring such defect to be repaired taken steps to remedy the defect and without prejudice to other remedies the Lessor may recover the costs of such repairs from the Tenant forthwith on demand;

(d) for the purpose of complying with the terms of any present or future legislation affecting the Premises or of any notice served on the Lessor or Tenant by any competent Authority for which the Tenant is not responsible in terms of this Lease;

(e) in the event the Premises are either destroyed or damaged for the purposes of rebuilding or restoration;

(f) for the purpose of carrying out any repairs alterations or other works to the utility or other services provided to the Tenant; and

(g) at all reasonable times to exhibit to prospective Tenants or purchasers the Premises and at all times within 3 months immediately preceding the termination of this Lease to affix and exhibit where the Lessor will think fit at any time the usual 'For Sale' and the usual 'To be Let' notices and in each case with the name and address of the Lessor and/or its agent thereon and the Tenant will not remove any such notice without the written consent of the Lessor.

In exercising such rights the Lessor will use its best endeavours to minimise any disturbance caused to the Tenant in its occupation and use of the Premises.

18. NOTICES AND SERVICE

Any notice to be given to or demand to be made upon the Tenant by or on behalf of the Lessor will be deemed to be duly given or made if the same be signed by the Lessor or the solicitors for the Lessor or if the Lessor is a company on behalf of the Lessor by any director, manager, assistant manager, secretary or other officer of the Lessor or by the solicitors for the Lessor and served in the manner set out under Section 170 of the Conveyancing Act, 1919 or if the Tenant is a company by leaving such notice or demand or sending it by post addressed to the Tenant at its address appearing in this Lease or at its place of business last known to the Lessor (or, if more than one place of business, at one of such places of business) or at its registered or principal office last known to the Lessor AND if served by post will be deemed served on the day following the date of posting whether actually received or not.

19. WAIVER, REPRESENTATIONS AND WARRANTIES

19.1. Waiver

No waiver by the Lessor of any breach of any of the Tenant's obligations will be construed as a continuing waiver nor will it operate as a waiver of another breach of the same or any other obligation of the Tenant and to be effective against the Lessor any such waiver will be in writing expressed and signed by or on behalf of the Lessor by its duly authorised agent and will take effect subject to any terms or conditions contained therein.

19.2. Representations

The Tenant expressly acknowledges that this Lease contains the entire agreement as concluded between the parties notwithstanding any negotiations or discussions prior to its execution and notwithstanding anything contained in any brochure, report or other document and the Tenant acknowledges by the execution of the Lease that it has not been induced to enter into the same by any representation verbal or otherwise made by or on behalf of the Lessor but the Lessor has relied entirely on its own skill and judgment.

19.3. Warranties excluded

The Lessor does not expressly or impliedly warrant that the Premises are or will remain suitable or adequate for all or any of the purposes of the Tenant and all warranties (if any) as to suitability and adequateness of the Premises implied by law are expressly negatived.

20. BOND OR BANK GUARANTEE

20.1. Bond

(a) The Tenant will on the execution hereof pay to the Lessor a bond or security deposit in the sum of $38,525.00 plus GST being the equivalent of three month's rent in respect of the Premises;

(b) On the anniversary of this Lease the bond referred to in sub-clause (a) above shall be reviewed and increased by the Tenant to the equivalent of three (3) months rent as payable in the second and subsequent years of the term of the Lease plus GST.

(c) The bond shall be held as security against failure by the Tenant to comply with those conditions of the Lease relating to the care or repair of the premises or the payment of rent or charges. In the event of such failure the Lessor is entitled to make deductions from the bond to cover any loss or damage sustained. Any such appropriation by the Lessor will not be deemed to and will not operate to waive the Tenant's breach and will not prejudice any other right of the Lessor arising from such breach.

(d) Within fourteen (14) days after termination of this Lease the Lessor or his agent shall return to the Tenant:
   (i) the full amount of the bond; or
   (ii) the balance of the bond after the deductions referred to in sub-clause (c) hereof have been made.

   Written details of all amounts deducted together with copies of relevant quotations and/or accounts and/or receipts shall be supplied at the time of the return of the balance of the bond.

(e) The Tenant shall not apply the bond as part of the rent without the prior written consent of the Lessor.

21. GUARANTEE

In consideration of the grant of this Lease by the Lessor at the request of the Guarantor **JU HYUN PARK** of Unit 11G/19-21 George Street, North Strathfield in the State of New South Wales (hereinafter called "the Guarantor") to the Tenant, the Guarantor, as evidenced by the Guarantor's execution hereof, guarantees (and if more than one jointly and each of them severally) to the Lessor the due and punctual payment of all rent and the due and punctual performance and observance by the Tenant of all other terms covenants conditions and provisions on the part of the Tenant to be performed and observed under this Lease and any extension thereof or holding over thereunder and under any further Lease entered into pursuant to any option or options herein contained for renewal of the term of this Lease (all of which options for renewal are included in the expression "this Lease" where appearing in

this clause) and to the extent (if at all) that this guarantee may be void or unenforceable by reason of the fact that all or any obligations of the Tenant to the Lessor to pay rent or perform terms covenants conditions and provisions as aforesaid may not be or may cease to be enforceable against the Tenant the Guarantor unconditionally indemnifies the Lessor in respect of any failure of the Tenant to make any payment or perform any covenant or obligation as aforesaid and it is agreed and declared between the Guarantor and the Lessor as follows:-

(a) this guarantee shall be a continuing guarantee (it being the intent of the Lessor and the Guarantor that this guarantee and the obligations of the Guarantor hereunder shall be absolute and unconditional in any and all circumstances) and shall be irrevocable and shall remain in full force and effect until the obligations of the Tenant under this Lease shall have been fully satisfied;

(b) this guarantee shall not be considered as wholly or partially discharged by the payment at any time hereafter of any moneys on account or by any time credit or any indulgence or concession extended by the Lessor to the Tenant or the Guarantor or any other person or by any compounding compromise release abandonment waiver variation relinquishment or renewal of any rights of the Lessor against the Tenant or the Guarantor or any other person or by the neglect or omission of the Lessor to enforce any such rights or by any other dealing matter or thing whatsoever which but for this paragraph could or might operate to abrogate prejudice or affect this guarantee or by any alteration modification variation or addition to this Lease;

(c) this guarantee is in addition to and not in substitution for any other rights which the Lessor may have under or by virtue of this Lease and may be enforced against the Guarantor without first having recourse to any such rights and without taking any steps or proceedings against the Tenant;

(d) this guarantee shall not prejudicially affect or be prejudicially affected by any security or guarantee now or hereafter held by the Lessor for any moneys for the time being owing pursuant to this Lease but such security shall be deemed to be collateral and the Guarantor shall not against the Lessor in any way claim the benefit or seek the transfer of any security or any part thereof;

(e) this guarantee shall not be affected by any assignment transfer sub-letting or parting with possession by the Tenant (whether with or without the Lessor's consent) of the whole or any part of the Premises but shall continue in full force and effect.

Req:R963442 /Doc:DL AE171584 /Rev:09-Oct-2008 /Sts:SC.OK /Pgs:ALL /Prt:28-Jun-2016 15:23 /Seq:23 of 27
Ref: /Src:U

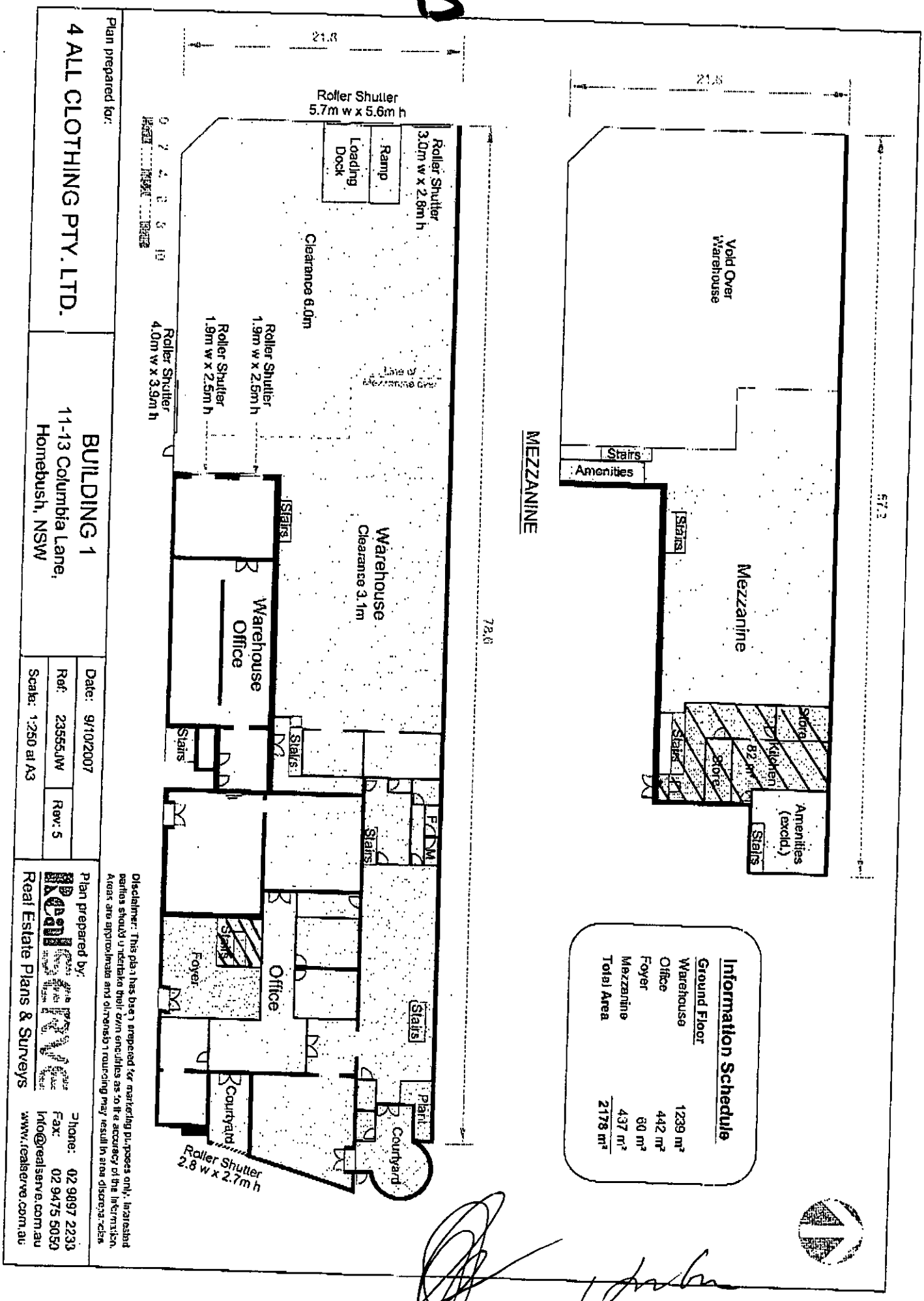
22. WORK TO BE EFFECTED TO THE DEMISED PREMISES BY THE LESSOR

22.1 The Lessor shall carry out in a fit and proper workmanlike manner and in accordance with the standards and requirements of the Building Code of Australia and using suitable materials, perform the work, restoration, refurbishment, repairs and maintenance on and within the Premises, of the work as listed in the schedule, which is annexed hereto and marked "C" ("the Work").

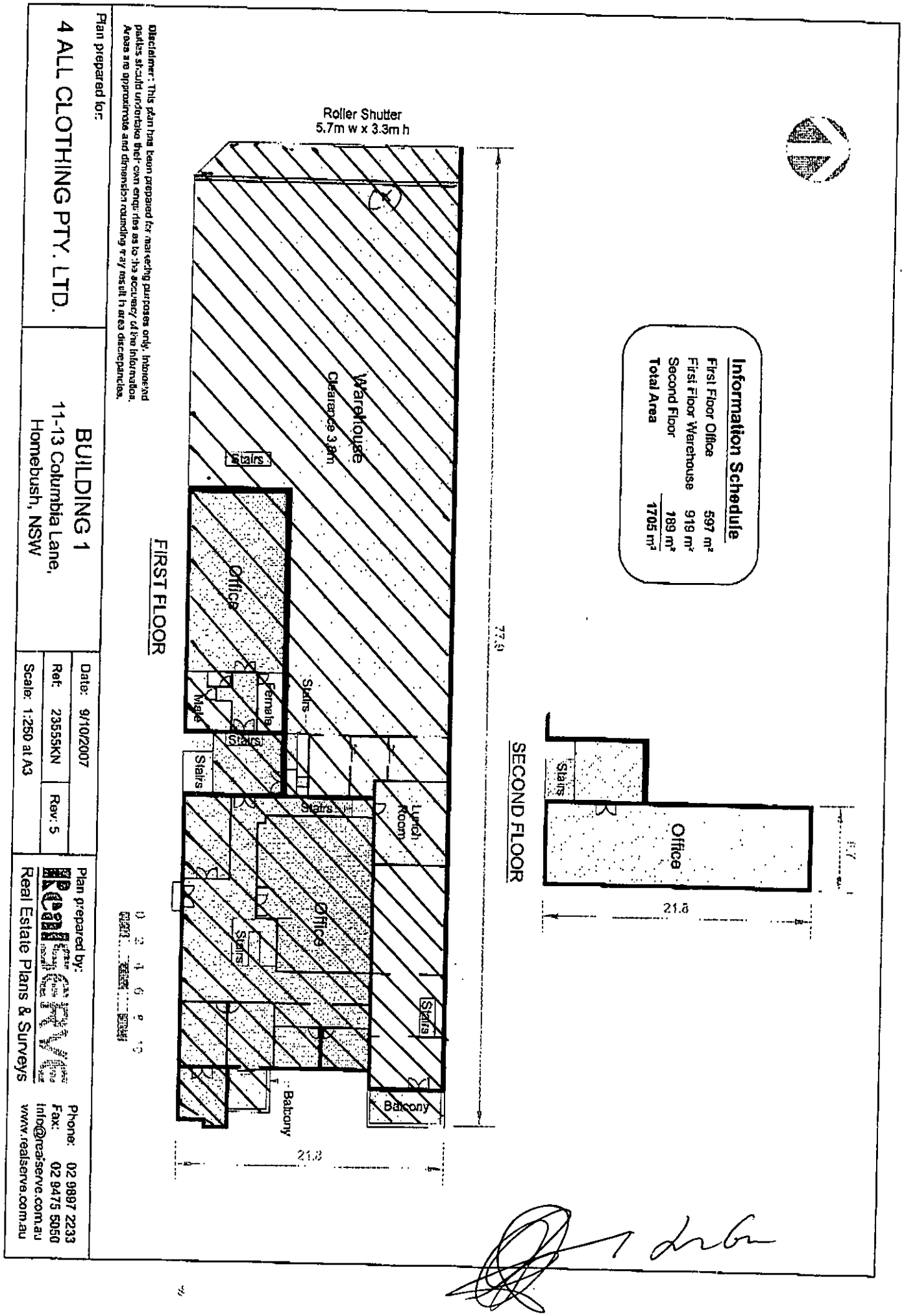
22.2 The Lessor shall apply for and obtain at its own expense all the necessary consents, approvals and authorisations from the relevant authorities as may be necessary to carry out the Work.



"B"



Page 24 of 27


Roller Shutter
5.7m w x 3.3m h
Warehouse
Clearance 3.8m
Stairs
Office
Female
Male
Stairs
Stairs
Stairs
Lunch Room
Stairs
Office
Stairs
Stairs
Balcony
Balcony
21.8
77.9
FIRST FLOOR
Information Schedule
First Floor Office 597 m²
First Floor Warehouse 919 m²
Second Floor 189 m²
Total Area 1705 m²
Stairs
Office
21.8
SECOND FLOOR
Disclaimer: This plan has been prepared for marketing purposes only. Interested parties should undertake their own enquiries as to the accuracy of the information. Areas are approximate and dimension rounding may result in area discrepancies.
Plan prepared for:
4 ALL CLOTHING PTY. LTD.
BUILDING 1
11-13 Columbia Lane,
Homebush, NSW
Date: 9/10/2007
Ref: 23555KN
Rev: 5
Scale: 1:250 at A3
Plan prepared by:
Real Estate Plans & Surveys
Phone: 02 9887 2233
Fax: 02 9475 5050
info@realserve.com.au
www.realserve.com.au

"C"

WORK TO BE CARRIED OUT BY THE LESSOR

1. carpet first floor warehouse area;

2. Construct and fit false ceiling to undercroft of roof;

3. Erect and install gyprock wall to the area marked and designated "X" on plan annexed and marked "B";

4. Repair or replace wire grill to external fire-exit hand rails.



SUNCORP METWAY LIMITED ABN 66 010 831 722 consent under mortgage number AD663763 to the lease between Hai Phong Properties Pty Ltd ACN 080 118 225 as Lessor and Sydney Yonsei Central Church Incorporation INC9889883 as Lessee for Lease dated / / .

Suncorp Metway Limited ABN 66 010 831 722
by it's duly constituted Attorney Christopher Guy Laffan Level 1 pursuant to Power of Attorney Registration Book 3859 Number 372 and who certifies that they have received no notice that the said Power of Attorney has been revoked

Signature of witness:

Name of witness: Brian Anthony Jones

Address of witness: Level 32, 266 George St, Brisbane QLD 4000

Req:R962799 /Doc:DL C472358 /Rev:28-Apr-2014 /Sts:OK.OK /Pgs:ALL /Prt:28-Jun-2016 14:49 /Seq:1 of 3
Ref: /Src:U

REGISTRAR-GENERAL · NEW SOUTH WALES

Real Property Act

MEMORANDUM OF TRANSFER

(REAL PROPERTY ACT, 1900).

DULY STAMPED SOUTH WALES STAMP DUTY

FEES:— £ s. d.
Lodgment ... 1 0
Endorsement
Certificate 1 0
17 SEP 1936
£ : :

C 5936 T

C 5936 T

C472358

(Trusts must not be disclosed in the transfer.)

I, JOSEPH LESLIE PEGLER of Beecroft in the State of New South Wales, Company Manager ---------- (herein called transferror) being registered as the proprietor of an estate in *fee simple*[a] in the land hereinafter described, subject however, to such encumbrances, liens and interests as are notified hereunder in consideration of Eight hundred and fifty pounds ---------- (£850---) (the receipt whereof is hereby acknowledged) paid to me by INDEPENDENT MANUFACTURING PROPRIETARY LIMITED a Company duly incorporated in New South Wales with its registered office at Sydney ----------

---------- (herein called transferree)

do hereby transfer to the said transferree[b]
ALL such my Estate and Interest in ALL THE land mentioned in the schedule following:—

(c) County.	Parish.	State if Whole or Part.	Vol.	Fol.
Cumberland	Concord	Whole	1034	105

~~And the transferee covenants with the transferor~~[d]

[a] If a less estate, strike out " in *fee simple*," and interline the required alteration.

[b] If to two or more, state whether as joint tenants or tenants in common.

[c] If all the references cannot be conveniently inserted, a form of annexure (obtainable at L.T.O.) may be added. Any annexure must be signed by the parties and their signatures witnessed. These references will suffice if the whole land in the grant or certificate be transferred. If part only add " and being *lot* sec. D.P. " or " being the land shown in the plan annexed hereto," or " being the residue of the land in certificate (or grant) registered Vol. Fol. Where the consent of the local council is required to a subdivision the certificate and plan mentioned in the L.G. Act, 1919, should accompany the transfer.

[d] Strike out if unnecessary. Covenants should comply with Section 88 of the Conveyancing Act, 1919-1932. Here also should be set forth any right-of-way or easement or exception. Any provision in addition to or modification of the covenants implied by the Act may also be inserted.

[e] A very short note will suffice.

ENCUMBRANCES, &c., REFERRED TO.[e]

A.5288 Transfer to Metropolitan Water & Sewerage Board of easement over part
A.32088 Transfer to Minister for Public Works of an easement over part
C.139985 Notice of Resumption by Minister for Public Works of part

Signed at Sydney the fourteenth day of September 1936.

Signed in my presence by the transferror JOSEPH LESLIE PEGLER ----------
WHO IS PERSONALLY KNOWN TO ME

R. E. Sanders
Solicitor, Sydney.

Joseph Pegler
Transferror.

[f] If executed within the State this instrument should be signed or acknowledged before the Registrar-General, or Deputy Registrar-General, or a Notary Public, a J.P., or Commissioner for Affidavits, to whom the Transferror is known, otherwise the attesting witness must appear before one of the above functionaries to make a declaration in the annexed form. As to instruments executed elsewhere, see page 2.

[g] Repeat attestation if necessary.

If the Transferror or Transferee signs by a mark, the attestation must state " that the instrument was read over and explained to him, and that he appeared fully to understand the same."

[g] The Common Seal of Independent Manufacturing Proprietary Limited was affixed by Montague Stuart Adams & Frank Laurence Adams Directors in the presence of

Signed in my presence by the transferree WHO IS PERSONALLY KNOWN TO ME

J. Pickworth Secretary

†Accepted, and I hereby certify this Transfer to be correct for the purposes of the Real Property Act.

The Common Seal of Independent Manufacturing Proprietary Limited

Transferree.

* If signed by virtue of any power of attorney, the original power must be registered, and produced with each dealing, and the memorandum of non-revocation on page 2 signed by the attorney before a witness.

† N.B.—Section 117 requires that the above Certificate be signed by Transferree or his Solicitor, and renders any person falsely or negligently certifying liable to a penalty of £50; also to damages recoverable by parties injured. If the Solicitor signs he must sign his own name and not that of his firm.

No alterations should be made by erasure. The words rejected should be scored through with the pen, and those substituted written over them, the alteration being verified by signature or initials in the margin, or noticed in the attestation.

4379 St 4651

Req:R962799 /Doc:DL C472358 /Rev:28-Apr-2014 /Sts:OK.OK /Pgs:ALL /Prt:28-Jun-2016 14:49 /Seq:2 of 3

Ref: /Src:U) C472358

LODGED BY

CONSENT OF MORTGAGEE.

I, mortgagee under Mortgage No. release and discharge the land comprised in the within transfer from such mortgage and all claims thereunder but without prejudice to my rights and remedies as regards the balance of the land comprised in such mortgage.

Dated at this
day of 19 .
Signed in my presence by
who is personally known to me.

Mortgagee.

MEMORANDUM AS TO NON-REVOCATION OF POWER OF ATTORNEY.[i]

(To be signed at the time of executing the within instrument.)

Memorandum whereby the undersigned states that he has no notice of the revocation of the Power of Attorney registered No. Miscellaneous Register under the authority of which he has just executed the within transfer.[j]

Signed at the day of 19 .

Signed at the place and on the date above-mentioned, in the presence of—

i This form is not appropriate in cases of delegation by trustees.

j Strike out unnecessary words. Add any other matter necessary to show that the power is effective.

FORM OF DECLARATION BY ATTESTING WITNESS.[k]

Appeared before me at , the day of , one thousand nine hundred and thirty the attesting witness to this instrument, and declared that he personally knew the person signing the same, and whose signature thereto he has attested; and that the name purporting to be such signature of the said is own handwriting, and that he was of sound mind and freely and voluntarily signed the same.

k May be made before either Registrar-General, Deputy Registrar-General, a Notary Public, J.P., or Commissioner for Affidavits. Not required if the instrument itself be made or acknowledged before one of these parties.

MEMORANDUM OF TRANSFER of

1 Acres 2 roods 20 perches.
Lots 10 & 11 Shirley Section
at Powells Creek
Shire
Municipality
Parish Concord County

Independent Manufacturing Proprietary Limited Transferee.

DOCUMENTS LODGED HEREWITH.

To be filled in by person lodging dealing.

Nature.	No.	Reg'd Propr., M't'gor, etc.

Particulars entered in Register Book, Vol. 1034 Fol. 105

the 9th day of October 1936;
at ~~minutes~~ 3 o'clock in the afternoon.

Registrar-General.

PROGRESS RECORD.

	Initials.	Date.
Sent to Survey Branch ...		21/10
Received from Records...		
Draft written ...		
Draft examined ...		
Diagram prepared ...		
Diagram examined ...		
Draft forwarded ...		
Supt. of Engrossers ...		
Cancellation Clerk ...		

Vol.	Fol.
Diagram Fees ...	
Additional Folios ...	

If the parties be resident without the State, but in any other part of the British Dominions, the instrument must be signed or acknowledged before the Registrar-General or Recorder of Titles of such Possession, or before any Judge, Notary Public, Justice of the Peace for New South Wales, or Commissioner for taking affidavits for New South Wales, or the Mayor or Chief Officer of any municipal or local government corporation of such part, or the Governor, Government Resident, or Chief Secretary of such part or such other person as the Chief Justice of New South Wales may appoint.

If resident in the United Kingdom then before the Mayor or Chief Officer of any corporation or a Notary Public.

If resident at any foreign place, then the parties should sign or acknowledge before a British Minister, Ambassador, Envoy, Minister Chargé d'Affaires, Secretary of the Embassy or Legation, Consul-General, Consul, Vice-Consul, Acting-Consul, Pro-Consul, or Consular Agent, who should affix his seal of office, or the attesting witness may make a declaration of the due execution thereof before one of such persons (who should sign and affix his seal to such declaration), or such other person as the said Chief Justice may appoint.

The fees are :—Lodgment fee 12/6 (includes endorsement on first certificate), and 2/6 for each additional certificate included in the Transfer, and £1 for every new Certificate of Title issued, unless the consideration is over £1,000, in which case the Certificate fee will be £1 5s. Additional fees, however, may be necessary in cases involving more than a simple diagram or more than six folios of engrossing.

Tenants in common must receive separate Certificates.

If part only of the land is transferred a new Certificate must issue, but the old Certificate may remain in the Office, or the Transferor may take out a new Certificate for the residue.

St 4052

A. J. KENT, I.S.O. Govt. Printer.

Req:R962799 /Doc:DL C472358 /Rev:28-Apr-2014 /Sts:OK.OK /Pgs:ALL /Prt:28-Jun-2016 14:49 /Seq:3 of 3
Ref: /Src:U

REGISTRAR-GENERAL · NEW SOUTH WALES

Regd. New South Wales

MEMORANDUM OF TRANSFER

(REAL PROPERTY ACT, 1900).

Regd. 15 9 36 T

DUTY PAID SOUTH WALES STAMP

Regd. 15 9 36 T

57 (3)

FEES:— £ s. d.
Lodgment ... :
Endorsement 1 1 0
Certificate :

17 SEP 1936

£ : :

C472358

(Trusts must not be disclosed in the transfer.)

I, JOSEPH LESLIE PEGLER of Beecroft in the State of New South Wales, Company Manager ---------- (herein called transferror) being registered as the proprietor of an estate in *fee simple*[a] in the land hereinafter described, subject however, to such encumbrances, liens and interests as are notified hereunder in consideration of Eight hundred and fifty pounds ---------- (£850---) (the receipt whereof is hereby acknowledged) paid to me by INDEPENDENT MANUFACTURING PROPRIETARY LIMITED a Company duly incorporated in New South Wales with its registered office at Sydney ---------- (herein called transferree) do hereby transfer to the said transferree[b] ALL such my Estate and Interest in ALL THE land mentioned in the schedule following:—

a If a less estate, strike out "in *fee simple*," and interline the required alteration.

b If to two or more, state whether as joint tenants or tenants in common.

(c) County.	Parish.	State if Whole or Part.	Vol.	Fol.
Cumberland	Concord	Whole	1034	105

c If all the references cannot be conveniently inserted, a form of annexure (obtainable at L.T.O.) may be added. Any annexure must be signed by the parties and their signatures witnessed. These references will suffice if the whole land in the grant or certificate be transferred. If part only add "and being lot sec. D.P. " or "being the land shown in the plan annexed hereto," "being the residue of land in certificate (or grant) registered Vol. Fol. " Where the consent of the local council is required to a subdivision the certificate and plan mentioned in the L.G. Act, 1919, should accompany the transfer.

~~And the transferee covenants with the transferor~~

d Strike out if unnecessary. Covenants should comply with Section 88 of the Conveyancing Act, 1919-1932. Here also should be set forth any right-of-way or easement or exception. Any provision in addition to or modification of the covenants implied by the Act may also be inserted.

ENCUMBRANCES, &c., REFERRED TO.[e]

A.5288 Transfer to Metropolitan Water & Sewerage Board of easement over par
A.32088 Transfer to Minister for Public Works of an easement over part
C.139985 Notice of Resumption by Minister for Public Works of part

e A very short note will suffice.

Signed at Sydney the fourteenth day of September 1936.

Signed in my presence by the transferror JOSEPH LESLIE PEGLER ----------
WHO IS PERSONALLY KNOWN TO ME
R. F. Sanders
Solicitor, Sydney.

Joseph Pegler
Transferror.

[f] Signed

f If executed within the State this instrument should be signed or acknowledged before the Registrar-General, or Deputy Registrar-General, or a Notary Public, a J.P., or Commissioner for Affidavits, to whom the Transferror is known, otherwise the attesting witness must appear before one of the above functionaries to make a declaration in the annexed form. As to instruments executed elsewhere, see page 2.

Repeat attestation if necessary.

If the Transferror or Transferee signs by a mark, the attestation must state "that the instrument was read over and explained to him, and that he appeared fully to understand the same."

~~The Common Seal of Independent Manufacturing Proprietary Limited was hereto affixed by Quartus Stuart Adams & Leonard Laurence Adams Directors in the presence of~~
~~Signed in my presence by the transferree~~
~~WHO IS PERSONALLY KNOWN TO ME~~

J. Pickworth Secretary.

†Accepted and I hereby certify this Transfer to be correct for the purposes of the Real Property Act.

The Common Seal of Independent Manufacturing Proprietary Limited was hereto affixed in the presence of

1-1-6

Transferree.

* If signed by virtue of any power of attorney, the original power must be registered, and produced with each dealing, and the memorandum of non-revocation on page 2 signed by the attorney before a witness.

†N.B.—Section 117 requires that the above Certificate be signed by Transferree or his Solicitor, and renders any person falsely or negligently certifying liable to a penalty of £50; also to damages recoverable by parties injured. If the Solicitor signs he must sign his own name and not that of his firm.

No alterations should be made by erasure. The words rejected should be scored through with the pen, and those substituted written over them, the alteration being verified by signature or initials in the margin, or noticed in the attestation.

Req:R963135 /Doc:DL U529591 /Rev:26-Mar-2010 /Sts:OK.SC /Pgs:ALL /Prt:28-Jun-2016 15:04 /Seq:1 of 2
Ref: /Src:U

97-01T

TRANSFER

Real Property Act, 1900

U 529591 V

Office of State Revenue use only

(A) **LAND TRANSFERRED**

Show no more than 20 References to Title. If appropriate, specify the share transferred.

Folio Identifiers
2/635483, 1/523775, 9/68910, 8/60261, 1/437118,
Auto Consol 4550-81 and Folio Identifier 4/261926

(B) **LODGED BY**

OFFICE: Z992713 Re: Short Dec. Box

L.T.O. Box	Name, Address or DX and Telephone
24J	COMMONWEALTH BANK OF AUSTRALIA BRANCH LENDING SUPPORT PHONE: 227-7618 DX 1020 REFERENCE (max. 15 characters): 012993-TE93

(C) **TRANSFEROR** EMI PROPERTIES PTY. LIMITED

A.C.N. 004 192 438

(D) acknowledges receipt of the consideration of $3,000,000.00

and as regards the land specified above transfers to the Transferee an estate in fee simple

(E) subject to the following **ENCUMBRANCES** 1. Z992713 Surplusage 2. Z169048 3. E212702

(F) **TRANSFEREE**

T

SOUTHERN CROSS MOWERS PTY. LIMITED A.C.N. 062 931 775

(G) ~~TENANCY:~~

(H) We certify this dealing correct for the purposes of the Real Property Act, 1900. **DATED** 19th July 1994

Signed in my presence by the Transferor who is personally known to me

EMI PROPERTIES PTY LIMITED A.C.N. 004 192 438 Common Seal

The common seal of the Transferor was affixed to this instrument in the presence of:

Prue Kitzler
~~Signature of Witness~~

PRUE KITZLER, Secretary
~~Name of Witness (BLOCK LETTERS)~~

~~Address of Witness~~

~~Signature of Transferor~~

GERALD BONG, Director

Signed in my presence by the Transferee who is personally known to

Signature of Witness

Name of Witness (BLOCK LETTERS)

Address of Witness

R.S.C. Hosie Signature of Transferee's Solicitor

INSTRUCTIONS FOR FILLING OUT THIS FORM ARE AVAILABLE FROM THE LAND TITLES OFFICE

CHECKED BY (office use only)

9 short Dec attached

Req:R963135 /Doc:DL U529591 /Rev:26-Mar-2010 /Sts:OK.SC /Pgs:ALL /Prt:28-Jun-2016 15:04 /Seq:2 of 2
Ref: /Src:U

film with U 529591

STATUTORY DECLARATION

I, PRUNELLA KITZLER
of 59 MARGARET STREET, PETERSHAM
do hereby solemnly and sincerely declare as follows;

1. I am ~~a Director~~ Company Secretary of E.M.I. Properties Pty. Limited

2. E.M.I. Properties Pty. Limited is the Registered Proprietor of property known as Nos. 2 - 18 Parramatta Road, Homebush.

3. I declare that Lease No. Z992713 to Entertainment Distributors Company Pty. Limited in respect of the following titles:

   Folio Identifiers 9/68910, 8/60261, 1/437118, 2/635483 and 1/523775

   expired on 18th March, 1994 and the option for renewal therein was not exercised.

AND I MAKE this declaration conscientiously believing the same to be true and by virtue of the provisions of the Oaths Act, 1900.

SUBSCRIBED AND DECLARED
at SYDNEY
this 19TH day of JULY
1994. Before me:

Prunella Kitzler

Justice of the Peace

¢ Stamp duty 1993

Req:R963136 /Doc:DL U529592 /Rev:26-Mar-2010 /Sts:OK.SC /Pgs:ALL /Prt:28-Jun-2016 15:04 /Seq:1 of 1

Ref: /Src:U

97-01 T

[redacted]

TRANSFER

Real Property Act, 1900

U 529592 T

Office of State Revenue use only $10.00

(A) **LAND TRANSFERRED**

Show no more than 20 References to Title.
If appropriate, specify the share transferred.

Folio Identifiers
2/635483, 1/523775, 9/68910, 8/60261, 1/437118,
Auto Consol 4550-81 and Folio Identifier 4/261926

(B) **LODGED BY**

L.T.O. Box	Name, Address or DX and Telephone
24J	COMMONWEALTH BANK OF AUSTRALIA BRANCH LENDING SUPPORT PHONE: 227-7618 DX 1020 REFERENCE (max. 15 characters): 012993-TE93

(C) **TRANSFEROR** SOUTHERN CROSS MOWERS PTY. LIMITED A.C.N. 062 931 775

(D) acknowledges receipt of the consideration of $10.00

and as regards the land specified above transfers to the Transferee an estate in fee simple

(E) subject to the following **ENCUMBRANCES** 1. Z992713 2. Z169048 3. E212702 Sec 88(2)

(F) **TRANSFEREE**

T

DAVID LHUEDE PTY. LIMITED A.C.N. 001 435 936

(G) **TENANCY:**

(H) We certify this dealing correct for the purposes of the Real Property Act, 1900. **DATED** 19-7-94

Signed in my presence by the Transferor who is personally known to me.

THE COMMON SEAL OF SOUTHERN CROSS MOWERS PTY LTD A.C.N. 062 931 775 WAS HEREUNTO AFFIXED BY AUTHORITY OF THE BOARD OF DIRECTORS IN THE PRESENCE OF

Common Seal SOUTHERN CROSS MOWERS PTY. LTD. A.C.N. 062 931 775

Signature of Witness

Name of Witness (BLOCK LETTERS)

Address of Witness

Signature of Transferor

Signed in my presence by the Transferee who is personally known to

Signature of Witness

Name of Witness (BLOCK LETTERS)

Address of Witness

R.S.C. Hosie

Signature of Transferee's Solicitor

19/7/94

CHECKED BY (office use only)

INSTRUCTIONS FOR FILLING OUT THIS FORM ARE AVAILABLE FROM THE LAND TITLES OFFICE

Ausdoc Commercial and Law Stationers 1991

Req:R963334 /Doc:DL X938723 /Rev:31-Aug-2010 /Sts:OK.OK /Pgs:ALL /Prt:28-Jun-2016 15:18 /Seq:1 of 1

Ref: /Src:U

STAMP DUTY [redacted]

X938723

$1-00

TRANSFER

REAL PROPERTY ACT, 1900

T. 61 of 1 X

$ 42

Torrens Title Reference	If Part Only, Delete Whole and Give Details	Location
Folio Identifier 5/261926	WHOLE	Homebush

DESCRIPTION OF LAND Note (a)

TRANSFEROR Note (b)

MAURI BROTHERS & THOMSON (AUST.) PTY. LIMITED of 7 Bridge Street, Sydney

ESTATE Note (c)

(the abovenamed TRANSFEROR) hereby acknowledges receipt of the consideration of $ 1,250,000.00 and transfers an estate in fee simple in the land above described to the TRANSFEREE

TRANSFEREE Note (d)

VERCAST PTY. LIMITED of 32A Oxford Street, Sydney

OFFICE USE ONLY 5

TENANCY Note (e)

as joint tenants/tenants in common

PRIOR ENCUMBRANCES Note (f)

subject to the following PRIOR ENCUMBRANCES 1. ..... 2. ..... 3. .....

DATE 14/10/88

We hereby certify this dealing to be correct for the purposes of the Real Property Act, 1900.

EXECUTION Note (g)

Signed in my presence by the transferor who is personally known to me

..... Signature of Witness

..... Name of Witness (BLOCK LETTERS)

..... Address and occupation of Witness

..... Occupation of Witness

The Common Seal of MAURI BROTHERS & THOMSON (AUST) PTY. LIMITED was affixed hereunto by authority of the Board of Directors and in the presence of

..... DIRECTOR

..... SECRETARY

..... Signature of Transferor

Signed in my presence by the transferee who is personally known to me

Note (g)

..... Signature of Witness

..... Name of Witness (BLOCK LETTERS)

..... Address and occupation of Witness

..... Occupation of Witness

..... Signature of Transferee

Solicitor - Mr. R. Ebner

TO BE COMPLETED BY LODGING PARTY Notes (h) and (i)

587

LODGED BY Michael Tuinstra L C

Delivery Box Number 2664

Checked	Passed
EC9R7	
Signed	Extra Fee

REGISTERED - -19

LOCATION OF DOCUMENTS	CT	OTHER
Herewith		
In L.T.O. with		
Produced by		
Secondary Directions		
Delivery Directions	C.T. 266H	

OFFICE USE ONLY

$42

NSW $*******1.00 STAMP-DUTY 12/10/88 26141 C CHQ 8

Order number: 37403375
Your Reference: 37402944
21/06/2016

© State of New South Wales through Land and Property Information (2016)

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE
21/6/2016 8:48AM

FOLIO: 4/261926

First Title(s): SEE PRIOR TITLE(S)
Prior Title(s): VOL 15337 FOL 45

Recorded	Number	Type of Instrument	C.T. Issue
5/6/1987		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
22/6/1987		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
12/3/1993	Z944756	REQUEST	
15/8/1994	U529591	TRANSFER	
15/8/1994	U529592	TRANSFER	
15/8/1994	U529593	MORTGAGE	EDITION 1
9/12/1999	6406340	DISCHARGE OF MORTGAGE	EDITION 2
24/5/2000	6805376	MORTGAGE	EDITION 3
17/10/2012	AH305991	DEPARTMENTAL DEALING	
14/3/2013	AH609793	CAVEAT	
27/5/2013	AH754028	DISCHARGE OF MORTGAGE	EDITION 4
2/6/2014	AI625730	TRANSFER	EDITION 5

*** END OF SEARCH ***

PRINTED ON 21/6/2016

SAI Global Property Division an approved NSW Information Broker 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.

Order number: 37403375
Your Reference: 37402944
21/06/2016

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LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE
21/6/2016 8:48AM

FOLIO: 5/261926

First Title(s): SEE PRIOR TITLE(S)
Prior Title(s): VOL 15054 FOL 81

Recorded	Number	Type of Instrument	C.T. Issue
5/6/1987		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
17/11/1987		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
25/10/1988	X938723	TRANSFER	EDITION 1
12/3/1993	Z944756	REQUEST	
14/1/1994	I947493	MORTGAGE	EDITION 2
27/1/1994	I977777	DEPARTMENTAL DEALING	EDITION 3
20/2/1998	3811574	DISCHARGE OF MORTGAGE	
20/2/1998	3811575	TRANSFER	
20/2/1998	3811576	MORTGAGE	EDITION 4
11/8/1998	5188190	CAVEAT	
10/11/1999	6335318	WITHDRAWAL OF CAVEAT	
10/11/1999	6335319	DISCHARGE OF MORTGAGE	
10/11/1999	6335320	MORTGAGE	EDITION 5
10/4/2003	9520240	DISCHARGE OF MORTGAGE	
10/4/2003	9520241	MORTGAGE	EDITION 6
27/12/2007	AD663762	DISCHARGE OF MORTGAGE	
27/12/2007	AD663763	MORTGAGE	EDITION 7
8/10/2008	AE171584	LEASE	EDITION 8
15/5/2014	AI576337	CAVEAT	
21/8/2015	AJ717939	WITHDRAWAL OF CAVEAT	
21/8/2015	AJ698058	DISCHARGE OF MORTGAGE	
21/8/2015	AJ698059	TRANSFER	EDITION 9

*** END OF SEARCH ***

PRINTED ON 21/6/2016

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LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: 5/261926

SEARCH DATE	TIME	EDITION NO	DATE
28/6/2016	3:18 PM	9	21/8/2015

LAND

LOT 5 IN DEPOSITED PLAN 261926
AT STRATHFIELD
LOCAL GOVERNMENT AREA STRATHFIELD
PARISH OF CONCORD COUNTY OF CUMBERLAND
TITLE DIAGRAM DP261926

FIRST SCHEDULE

JQZ FOUR PTY LIMITED (T AJ698059)

SECOND SCHEDULE (2 NOTIFICATIONS)

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
2 G109007 EASEMENT FOR TRANSMISSION LINE AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM
Z944756 TRANSFER OF EASEMENT TO SYDNEY ELECTRICITY

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

PRINTED ON 28/6/2016

* Any entries preceded by an asterisk do not appear on the current edition of the Certificate of Title. Warning: the information appearing under notations has not been formally recorded in the Register.
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SAI Global Property Division an approved NSW Information Broker 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.

APPENDIX F – SAFEWORK NSW RECORDS SEARCH

SafeWork NSW
92-100 Donnison Street, Gosford, NSW, 2250
Locked Bag 2906, Lisarow, NSW, 2252 |
Customer Service Centre **13 10 50**
licensing@safework.nsw.gov.au | www.safework.nsw.gov.au

Our Ref: D16/616790
Your Ref: David Yonge

29 June 2016

Attention: David Yonge
SMEC Testing Services Pty Ltd
PO Box 6989
WETHERILL PARK NSW 2164

Dear Mr Yonge

RE SITE: 11-17 Columbia Lane, Homebush NSW 2127

I refer to your site search request received by SafeWork NSW on 20 June 2016 requesting information on Storage of Hazardous Chemicals for the above site.

Enclosed are copies of the documents that SafeWork NSW holds on record number 35/016104relating to the storage of Hazardous Chemicals at the above-mentioned premises.

For further information or if you have any questions, please call our Customer Service Centre on 13 10 50 or email licensing@safework.nsw.gov.au

Yours sincerely,

Sally Anderson obo Brent Jones
Customer Service Officer
Customer Service Centre - Operations
SafeWork NSW

ME.37.
F[illegible] B

Register No. 16104

INFLAMMABLE LIQUID ACT, 1915 (AS AMENDED)

Application for Registration of Premises or Store License under Division A **or for the transfer, alteration or amendment of any such Registration or License, for the keeping of Inflammable Liquid and/or Dangerous Goods, in accordance with the provisions of the Inflammable Liquid Act, 1915 (as amended), for the ensuing year.**

EXPLANATORY

Inflammable Liquid—

Mineral Oil—includes kerosene, mineral turpentine and white spirit (for cleaning), and compositions containing same.
Mineral Spirit—includes petrol, benzene, benzolene, benzol and naphtha, and compositions containing same.

Dangerous Goods—

Class 1.—Acetone, amyl acetate, butyl acetate, carbon bisulphide; any combination of substances of an inflammable character suitable for use as an industrial solvent and having a true flashing point of less than 73 degrees Fahrenheit.

Class 2.—Nitro-cellulose (also known as "pyroxylin" and "collodion cotton") moistened with an alcohol, butyl alcohol (also known as "butanol"), methylated spirits, vegetable turpentine; and any liquid or solid containing methylated spirits, having a true flashing point of less than 150 degrees Fahrenheit. RENEWAL & AMENDMENT A16104

Class 3.—Nitro-cellulose product.

Class 4.—Compressed or dissolved acetylene contained in a porous substance. @ 25/1/69.

DIRECTIONS

1. Applications must be forwarded to the Chief Inspector of Inflammable Liquid, Explosives Department, Department of Mines, Sydney, and must be accompanied by the prescribed fee, as set out hereunder:—

Registration of Premises (Fee $ 3.00 **p.a.).**—For quantities not exceeding 300 gallons of mineral oil and 100 gallons of mineral spirit, if kept together; or 800 gallons of mineral oil and 100 gallons of mineral spirit, if kept in separate depots; or 500 gallons of mineral spirit, if kept in an underground tank depot; or 800 gallons of mineral oil and 500 gallons of mineral spirit, if mineral spirit is kept in an underground tank depot.

In addition to, or in lieu of the above, similar quantities of Dangerous Goods of Classes 1 and 2 may be kept under the like conditions; reading Dangerous Goods of Class 1 for the words Mineral Spirit and Dangerous Goods of Class 2 for the words Mineral Oil.

Store License, Div. A (Fee, $ 6.50 **p.a.).**—For quantities in excess of those stated above, but not exceeding 4,000 gallons mineral oil and/or mineral spirit, and/or Dangerous Goods of Classes 1 and 2.

Store License, Div. B (Fees, See Regulation 7).—For quantities exceeding 4,000 gallons of mineral and/or mineral spirit, and/or dangerous goods of Classes 1 and 2, and/or dangerous goods of Class 3.
For the keeping of Dangerous Goods of Classes 3 and/or 4. ($ 15.00 **p.a.).**

2. The certificate of inspection at foot hereof must be signed by an Inspector under the Inflammable Liquid Act, 1915 (as amended), or Police Officer, or other officer duly authorised in that behalf, and where the premises are situated outside the Metropolitan Area of Sydney, it is requested that such certificate be obtained prior to forwarding application.

1. Name in full of occupier ... MBT FLAVOURINGS & AROMATICS CO. (DIV of) MAURI BROS & THOMSON (AUST) P/L

2. Occupation ... ESSENCE & FOOD FLAVOURING MANUFACTURERS

3. Locality of the premises in which the depot or depots are situated ... No. or Name ____ Street COLUMBIA LANE Town HOMEBUSH. 2140.

4. Nature of premises (Dwelling, Garage, Store, etc.) ... Factory

5. Will mineral spirit be kept in a prescribed underground tank depot? No.

6. Particulars of construction of depots and maximum quantities of inflammable liquid and/or Dangerous Goods to be kept at any one time.

Depot No.	Construction of Depots: Walls	Roof	Floor	Inflammable Liquid: Mineral Spirit Gallons	Mineral Oil Gallons	Dangerous Goods: Class 1 Gallons	Class 2 Gallons	Class 3 lb.	Class 4 cub. ft.
1	Underground Tank.						1000		
2							1000		
3	Brick	Concrete	Concrete		1500				
4									
5									
6									
7									
8									
9									
10									

PUBLIC R[illegible]
Cash 6.50
30/1/68
6680

Date of Application 15 - 1 - 1968

Signature of Applicant MBT FLAVOURINGS & AROMATICS CO. Accountant

Postal Address BOX 64 PO

ME.37.
FORM B

Register No. 16104

INFLAMMABLE LIQUID ACT, 1915 (AS AMENDED)

Application for Registration of Premises or Store License under Division A or for the transfer, alteration or amendment of any such Registration or License, for the keeping of Inflammable Liquid and/or Dangerous Goods, in accordance with the provisions of the Inflammable Liquid Act, 1915 (as amended), for the ensuing year.

EXPLANATORY

Inflammable Liquid—

Mineral Oil—includes kerosene, mineral turpentine and white spirit (for cleaning), and compositions containing same.
Mineral Spirit—includes petrol, benzene, benzolene, benzol and naphtha, and compositions containing same.

Dangerous Goods—

Class 1.—Acetone, amyl acetate, butyl acetate, carbon bisulphide; any combination of substances of an inflammable character suitable for use as an industrial solvent and having a true flashing point of less than 73 degrees Fahrenheit.

Class 2.—Nitro-cellulose (also known as "pyroxylin" and "collodion cotton") moistened with an alcohol, butyl alcohol (also known as "butanol"), methylated spirits, vegetable turpentine; and any liquid or solid containing methylated spirits, having a true flashing point of less than 150 degrees Fahrenheit.

Class 3.—Nitro-cellulose product.

Class 4.—Compressed or dissolved acetylene contained in a porous substance.

DIRECTIONS

1. Applications must be forwarded to the Chief Inspector of Inflammable Liquid, Explosives Department, Department of Mines, Sydney, and must be accompanied by the prescribed fee, as set out hereunder:—

Registration of Premises (Fee $ 3.00 p.a.).—For quantities not exceeding 300 gallons of mineral oil and 100 gallons of mineral spirit, if kept together; or 800 gallons of mineral oil and 100 gallons of mineral spirit, if kept in separate depots; or 500 gallons of mineral spirit, if kept in an underground tank depot; or 800 gallons of mineral oil and 500 gallons of mineral spirit, if mineral spirit is kept in an underground tank depot.

In addition to, or in lieu of the above, similar quantities of Dangerous Goods of Classes 1 and 2 may be kept under the like conditions; reading Dangerous Goods of Class 1 for the words Mineral Spirit and Dangerous Goods of Class 2 for the words Mineral Oil.

Store License, Div. A (Fee, $ 6.50 p.a.).—For quantities in excess of those stated above, but not exceeding 4,000 gallons mineral oil and/or mineral spirit, and/or Dangerous Goods of Classes 1 and 2.

Store License, Div. B (Fees, See Regulation 7).—For quantities exceeding 4,000 gallons of mineral and/or mineral spirit, and/or dangerous goods of Classes 1 and 2, and/or dangerous goods of Class 3.
For the keeping of Dangerous Goods of Classes 3 and/or 4. ($ 15.00 p.a.).

2. The certificate of inspection at foot hereof must be signed by an Inspector under the Inflammable Liquid Act, 1915 (as amended), or Police Officer, or other officer duly authorised in that behalf, and where the premises are situated outside the Metropolitan Area of Sydney, it is requested that such certificate be obtained prior to forwarding application.

1. Name in full of occupier ... ... Mauri Bros & Thomson (Aust.) Pty Ltd. T/A MBT Flavourings & Aeromatics Co.

2. Occupation ... ...

3. Locality of the premises in which the depot or depots are situated ... No. or Name ____ Street Columbia Lane. Town HOMEBUSH

4. Nature of premises (Dwelling, Garage, Store, etc.) ... ...

5. Will mineral spirit be kept in a prescribed underground tank depot?

6. Particulars of construction of depots and maximum quantities of inflammable liquid and/or Dangerous Goods to be kept at any one time.

Depot No.	Construction of Depots			Inflammable Liquid		Dangerous Goods			
	Walls	Roof	Floor	Mineral Spirit Gallons	Mineral Oil Gallons	Class 1 Gallons	Class 2 Gallons	Class 3 lb.	Class 4 cub. ft.
1	Underground Tank.						1000		
2		✓					1000		
3									
4									
5									
6									
7									
8									
9									
10									

PUBLIC MINERALS Mic
Lodg 1 6.50
20/1/67.
(Date)
Receipt No 7767

MBT FLAVOURINGS & AROMATICS CO.

Signature of Applicant

Date of Application 2/2/67 19

Postal Address Box 64, P.O., HOMEBUSH

ME.37.
FORM B

Register No. 16104

INFLAMMABLE LIQUID ACT, 1915 (AS AMENDED)

Application for Registration of Premises or Store License under Division A 1 or for the transfer, alteration or amendment of any such Registration or License, for the keeping of Inflammable Liquid and/or Dangerous Goods, in accordance with the provisions of the Inflammable Liquid Act, 1915 (as amended), for the ensuing year.

EXPLANATORY

Inflammable Liquid—

Mineral Oil—includes kerosene, mineral turpentine and white spirit (for cleaning), and compositions containing same.
Mineral Spirit—includes petrol, benzene, benzolene, benzol and naphtha, and compositions containing same.

Dangerous Goods—

Class 1.—Acetone, amyl acetate, butyl acetate, carbon bisulphide; any combination of substances of an inflammable character suitable for use as an industrial solvent and having a true flashing point of less than 73 degrees Fahrenheit.

Class 2.—Nitro-cellulose (also known as "pyroxylin" and "collodion cotton") moistened with an alcohol, butyl alcohol (also known as "butanol"), methylated spirits, vegetable turpentine; and any liquid or solid containing methylated spirits, having a true flashing point of less than 150 degrees Fahrenheit.

Class 3.—Nitro-cellulose product.

Class 4.—Compressed or dissolved acetylene contained in a porous substance.

new license

DIRECTIONS

1. Applications must be forwarded to the Chief Inspector of Inflammable Liquid, Explosives Department, 2nd Floor, 82 Pitt Street, Sydney (Box 48, G.P.O.), and must be accompanied by the prescribed fee, as set out hereunder:—

Registration of Premises (Fee £1 10s. 0d. p.a.).—For quantities not exceeding 300 gallons of mineral oil and 100 gallons of mineral spirit, if kept together; or 800 gallons of mineral oil and 100 gallons of mineral spirit, if kept in separate depots; or 500 gallons of mineral spirit, if kept in an underground tank depot; or 800 gallons of mineral oil and 500 gallons of mineral spirit, if mineral spirit is kept in an underground tank depot.

In addition to, or in lieu of the above, similar quantities of Dangerous Goods of Classes 1 and 2 may be kept under the like conditions; reading Dangerous Goods of Class 1 for the words Mineral Spirit and Dangerous Goods of Class 2 for the words Mineral Oil.

Store License, Div. A (Fee, £3 5s. 0d. p.a.).—For quantities in excess of those stated above, but not exceeding 4,000 gallons mineral oil and/or mineral spirit, and/or Dangerous Goods of Classes 1 and 2.

Store License, Div. B (Fees, See Regulation 7).—For quantities exceeding 4,000 gallons of mineral and/or mineral spirit, and/or dangerous goods of Classes 1 and 2, and/or dangerous goods of Class 3.
For the keeping of Dangerous Goods of Classes 3 and/or 4. **(£7 10s. 0d. p.a.).**

2. The certificate of inspection at foot hereof must be signed by an Inspector under the Inflammable Liquid Act, 1915 (as amended), or Police Officer, or other officer duly authorised in that behalf, and where the premises are situated outside the Metropolitan Area of Sydney, it is requested that such certificate be obtained prior to forwarding application.

1. Name in full of occupier ... Mavis Bros & Thompson Pty Ltd. T/A MBT Flowerings & Aromatics Co

2. Occupation ... Manufacturers

3. Locality of the premises in which the depot or depots are situated ... No. or Name 20 1
Street Columbia Lane
Town Homebush.

4. Nature of premises (Dwelling, Garage, Store, etc.) ... Factory

5. Will mineral spirit be kept in a prescribed underground tank depot? no.

6. Particulars of construction of depots and maximum quantities of inflammable liquid and/or Dangerous Goods to be kept at any one time.

Depot No.	Construction of Depots			Inflammable Liquid		Dangerous Goods			
	Walls	Roof	Floor	Mineral Spirit Gallons	Mineral Oil Gallons	Class 1 Gallons	Class 2 Gallons	Class 3 lb.	Class 4 cub. ft.
1	Underground Tank						1000		
2	"	"					1000		
3									
4									
5							Cheq	65/-	
6							Public Revenue Account		
7							(Date)	20-1-66.	
8									6513
9							Receipt No.		
10									

Date of Application 19/1/1966

Signature of Applicant X J Stewart

Postal Address P.O Box 64
Homebush

ORIGINAL

NOTICE TO OCCUPIER

NEW SOUTH WALES

DANGEROUS GOODS ACT 1975

OCCUPIER Macri Flooring & Aromatic

ADDRESS Columbia Lane Homebush

LICENCE NO. 16104

TYPE OF PREMISES Factory

DATE OF VISIT 15-10-80

TAKE NOTICE THAT THE FOLLOWING DIRECTIONS MUST BE CARRIED OUT TO COMPLY WITH THE **DANGEROUS GOODS** ACT. THIS NOTICE IS TO BE SIGNED AND RETURNED IMMEDIATELY AFTER THE DIRECTIONS HAVE BEEN CARRIED OUT.

TIME ALLOWED TO COMPLY 28 DAYS.

(1) The impreso & epoxy ventilation system of flammable liquid stds to have a metal guard placed around them to prevent damage from drums when being moved.

(2) The hole which pierces the wall of depot to be sealed off.

(3) The vent pipe from underground tank to be extended by 1 metre above roof line.

Nothing in this Notice shall be regarded as in any way relieving the occupier of any premises from full compliance with any of the provisions of the said Act and Regulations.

DANGEROUS GOODS BRANCH
P.O. BOX 846
DARLINGHURST N.S.W. 2010

INSPECTOR G Blacker

*DISTRICT OFFICE Darlinghurst

*See reverse side for address

THE ABOVE DIRECTIONS HAVE BEEN CARRIED OUT.

SIGNED D Macri

DATE 24/10/80

68567 D. WEST, GOVERNMENT PRINTER

FORM DG1

LICENCE No. 01 35 016104 9

DANGEROUS GOODS ACT, 1975

APPLICATION FOR LICENCE (or AMENDMENT or TRANSFER of LICENCE) FOR THE KEEPING OF DANGEROUS GOODS

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

Recorded

Name of Applicant in full (see over)	Surname..... Given Names.....
Trading name or occupier's name (if any)	MBT FLAVOURINGS & AROMATICS CO.
Postal address	DIV OF MAURI Bros & THOMPSON Pty Ltd Postcode 2140
Telephone number of applicant	STD Code Number 1643466
Address of the premises in or on which the depot or depots are situated (including street number, if any)	Colombia Lane Homebush. Postcode 2140.
Nature of premises (see over)	Factory & Office

PLEASE ATTACH SITE PLAN

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 LITRE	Dangerous goods: Product being stored	Dangerous goods: C & C Office use only
1	Brick/Concrete/Cement	7500	WHITE SPIRIT	
2	Underga. Tank	5000		
3				
4				
5				
6				
7				
8				
9			PUBLIC REVENUE A/c.	
10			NO FEE IS CORRECTION ONLY	
11				
12				

Name of company supplying flammable liquid (if any) CSR.

Have premises previously been licensed? YES

If known, state name of previous occupier AS ABOVE Licence No. 16104-1

Signature of applicant M.R. Newton Date 17/8/78.

For external explosives magazine(s), please fill in side 2.

FOR OFFICE USE ONLY

APPENDIX G – BOREHOLE LOGS

STS GeoEnvironmental Pty Ltd

GEOTECHNICAL LOG - NON CORE BOREHOLE

Client: Columbia Lane Development Pty Limited
Project: 11 - 17 Columbia Lane, Homebush
Location: Refer to Drawing No. 19/1315

Project: 21024 / 7145C
Date : 04/07/2016
Logged: MG

BOREHOLE NO.: BH 1

Sheet 1 of 3

WATER TABLE	SAMPLES	DEPTH (m)	DESCRIPTION OF DRILLED PRODUCT (Soil type, colour, grain size, plasticity, minor components, observations)	SYMBOL	CONSISTENCY (cohesive soils) or RELATIVE DENSITY (sands and gravels)	MOISTURE
	S1 @ 0.2 m		SILTY GRAVELLY SAND: dark grey, fine to coarse grained FILL	SP		D
	S2 @ 0.4 m		GRAVELLY SILTY SAND: dark grey, fine grained	CL		D
	SPT 0.5-0.95 m 4, 8, 8 N=16		FILL			
	S3 @ 0.7 m	1.0	GRAVELLY SANDY SILTY CLAY: red brown with brown and grey, some glass/ash/concrete	CL		
	SPT 1.5-1.95 m 4, 5, 6 N=11		FILL			
	S4 @ 1.7 m		SILTY SANDY CLAY: pale grey and mottled orange, low plasticity, MC<PL	CL	STIFF	D-M
			PP = >600			
		2.0	SANDY SILTY CLAY: pale grey and mottled orange, medium plasticity, MC>PL	CL	FIRM TO STIFF	VM
	S5 @ 3.2 m	3.0				
	SPT 3.0-3.45 m 5, 5, 10 N=15		PP = 120			
			GRAVELLY SILTY CLAY: orange and red with mottled grey, medium to high plasticity, ironstone gravel, MC=PL	CH	STIFF TO VERY STIFF	M
		4.0				
	SPT 4.5-4.95 m 4, 7, 11 N=18					
			SILTY CLAY: dark grey with mottled orange, high plasticity, MC=PL	CH	HARD	D-M
		5.0	PP = >600			
			WEATHERED SHALE: dark grey		EXTREMELY LOW STRENGTH	D
			BOREHOLE DISCONTINUED AT 6.0 M For cored details, refer to cored log sheet			

NOTES: D - disturbed sample U - undisturbed tube sample B - bulk sample
WT - level of water table or free water N - Standard Penetration Test (SPT)

See explanation sheets for meaning of all descriptive terms and symbols

Contractor: Terratest
Equipment: Hydropower Scout
Hole Diameter (mm): 100
Angle from Vertical (°) 0

SMEC Testing Services Pty Ltd — **GEOTECHNICAL LOG - CORED BOREHOLE**

Client: Columbia Lane Development Pty Limited
Project: 11-17 Columbia Lane, Homebush
Location: Refer to Drawing No. 19/1315
Project / STS No.: 21024/7145C
Date : 04/07/2016
Logged: MG
Checked By: MG

BOREHOLE NO.: BH 1
Sheet 2 of 3

DRILLING				MATERIAL STRENGTH										DISCONTINUITIES		
						Estimated Rock Strength							Joint Spacing (mm)			
Method	Water	Recovery	Depth (m)	Rock Type (Colour, Grain Size, Structure & Minor Components)	Weathering	Extremely Low	Very Low	Low	Medium	High	Very High	Extremely High	20 40 100 300 1000	Visual	Additional Data (Joints, partings, seams, zones etc. Description, orientation, infilling, or coating, shape, roughness, thickness, other)

Method	Water	Recovery	Depth (m)	Rock Type (Colour, Grain Size, Structure & Minor Components)	Weathering	Additional Data (Joints, partings, seams, zones etc. Description, orientation, infilling, or coating, shape, roughness, thickness, other)
NMLC CORING				START CORING AT 6.0 M	Hw	6.15 m, Sm, 0 deg, clay, 10mm
				For non cored details, refer to non cored log		6.36 m, Pt, 0 deg, 2mm
				WEATHERED SHALE: pale grey, laminations		6.45 m, Pt, 3 deg, 1mm
						6.85 m, Sm, 0 deg, Ew, 20mm
			7.0			
						7-11 m, HB
						7.40 m, HB
		100%				7.67 m, HB
						7.82 m, HB
			8.0			
	100%					8.02 m, HB
						8.28 m, HB
						8.54 m, HB
						8.70 m, Sm, 0 deg, carbon, 1mm
						8.81 m, HB
					Fr	
			9.0			
						9.31 m, HB
						9.61 m, Pt x 2, 0 deg, 2mm
						9.86 m, HB
						9.91 m, Pt, 0 deg, 1mm
						9.93 m, Pt, 0 deg, 1mm
						9.96 m, Pt, 0 deg, 3mm
						9.98 m, HB
			10.0			
						10.15 m, HB
		100%				10.3 m, Jt, 65 deg, Pl, Ro
						10.43 m, Jt, 30 deg, Pl, Ro
						10.70 m, Jt, 60 deg, Un, Ro
						10.84 m, Fz, 15 mm
						10.97 m, HB
			11.0			
						11.07 m, Jt, 50 deg, Pl, Ro
						11.20 m, HB
						11.28 m, HB
						11.40 m, Fz, 30 mm
						11.49 m, Jt, 40 deg, Pl, Ro
						11.75 m, Jt, 80 deg, Un, Ro
						11.90 m, Jt, 70 deg, Pl, Ro, Sm
		100%				

Notes:

Contractor: Terratest
Equipment: Hydropower Scout
Hole Diameter (mm):
Angle from Vertical (°):

See explanation sheets for meaning of all descriptive terms and symbols

SMEC Testing Services Pty Ltd — **GEOTECHNICAL LOG - CORED BOREHOLE**

Client: Columbia Lane Development Pty Limited
Project: 11-17 Columbia Lane, Homebush
Location: Refer to Drawing No. 19/1315

Project / STS No.: 21024/7145C
Date : 04/07/2016
Logged: MG — Checked By: MG

BOREHOLE NO.: BH 1
Sheet 3 of 3

DRILLING				MATERIAL STRENGTH										DISCONTINUITIES		
						Estimated Rock Strength							Joint Spacing (mm)			
Method	Water	Recovery	Depth (m)	Rock Type (Colour, Grain Size, Structure & Minor Components)	Weathering	Extremely Low	Very Low	Low	Medium	High	Very High	Extremely High	20 40 100 300 1000	Visual	Additional Data (Joints, partings, seams, zones etc. Description, orientation, infilling, or coating, shape, roughness, thickness, other)
N M L C	100%	100%		WEATHERED SHALE: dark grey with pale grey, laminations	Fr										12.05 m, Jt, 70 deg, Pl, Sm 12.17, Jt, 45 deg, Pl, Sm 12.20 m, Jt, cut, Sm 12.25 m, Jt, 80 deg, Pl, Sm
			13.0												
				END CORING AT 12.94 M Standpipe Piezometer Installed											
			14.0												
			15.0												
			16.0												
			17.0												

Notes:

Contractor: Terratest
Equipment: Hydropower Scout
Hole Diameter (mm):
Angle from Vertical (°):

See explanation sheets for meaning of all descriptive terms and symbols

STS GeoEnvironmental Pty Ltd

GEOTECHNICAL LOG - NON CORE BOREHOLE

Client: Columbia Lane Development Pty Limited
Project: 11 - 17 Columbia Lane, Homebush
Location: Refer to Drawing No. 19/1315

Project: 21024 / 7145C
Date : 04/07/2016
Logged: MG

BOREHOLE NO.: BH 2

Sheet 1 of 4

WATER TABLE	SAMPLES	DEPTH (m)	DESCRIPTION OF DRILLED PRODUCT (Soil type, colour, grain size, plasticity, minor components, observations)	SYMBOL	CONSISTENCY (cohesive soils) or RELATIVE DENSITY (sands and gravels)	MOISTURE
			ASPHALTIC CONCRETE: to 25 mm			
	S6 @ 0.3 m SPT 0.5-0.95 m 3, 5, 3 N = 8		GRAVELLY SILTY SANDY CLAY: grey brown, medium plasticity, concrete/brick/glass/road base	CI/SP		D
	S7 @ 0.6 m		FILL			
		1.0	SANDY SILTY CLAY: orange and mottled grey, MC>PL	CH	FIRM TO STIFF	M
	S8 @ 1.2 m SPT 1.5-1.95 2, 3, 3 N=6		PP = 100			
			SANDY CLAY: pale grey with mottled orange, low to medium plasticity	CI	FIRM	VM
			PP = 70			
		2.0				
	S9 @ 3.0 m SPT	3.0				
WT	3.0-3.45 1, 3, 13 N = 16		GRAVELLY SILTY CLAY: red brown and mottled grey, medium to high plasticity, MC>PL	CH	STIFF TO VERY STIFF	W
			PP = 300			
		4.0				
	SPT 4.5-4.95 m 11, 8, 9 N = 17		PP = 400			
		5.0				
			WEATHERED SHALE: brown and dark grey		EXTREMELY LOW STRENGTH	D

NOTES: D - disturbed sample U - undisturbed tube sample B - bulk sample
WT - level of water table or free water N - Standard Penetration Test (SPT)

See explanation sheets for meaning of all descriptive terms and symbols

Contractor: Terratest
Equipment: Hydropower Scout
Hole Diameter (mm): 100
Angle from Vertical (°) 0

STS GeoEnvironmental Pty Ltd

GEOTECHNICAL LOG - NON CORE BOREHOLE

Client: Columbia Lane Development Pty Limited
Project: 11 - 17 Columbia Lane, Homebush
Location: Refer to Drawing No. 19/1315

Project: 21024 / 7145C
Date : 04/07/2016
Logged: MG

BOREHOLE NO.: BH 2

Sheet 2 of 4

WATER TABLE	SAMPLES	DEPTH (m)	DESCRIPTION OF DRILLED PRODUCT (Soil type, colour, grain size, plasticity, minor components, observations)	SYMBOL	CONSISTENCY (cohesive soils) or RELATIVE DENSITY (sands and gravels)	MOISTURE
	SPT 6.0-3.35 6, 11, >25 N = >36		WEATHERED SHALE: brown to dark grey		EXTREMELY LOW STRENGTH	D
			BOREHOLE DISCONTINUED AT 6.4 M For cored details, refer to cored log sheet			
		7.0				
		8.0				
		9.0				
		10.0				
		11.0				

NOTES: D - disturbed sample U - undisturbed tube sample B - bulk sample
WT - level of water table or free water N - Standard Penetration Test (SPT)

See explanation sheets for meaning of all descriptive terms and symbols

Contractor: Terratest
Equipment: Hydropower Scout
Hole Diameter (mm): 100
Angle from Vertical (°) 0

SMEC Testing Services Pty Ltd — **GEOTECHNICAL LOG - CORED BOREHOLE**

Client: Columbia Lane Development Pty Limited
Project: 11-17 Columbia Lane, Homebush
Location: Refer to Drawing No. 19/1315
Project / STS No.: 21024/7145C
Date : 04/07/2016
Logged: MG
Checked By: MG

BOREHOLE NO.: BH2
Sheet 3 of 4

DRILLING				MATERIAL STRENGTH										DISCONTINUITIES								
						Estimated Rock Strength							Joint Spacing (mm)									
Method	Water	Recovery	Depth (m)	Rock Type (Colour, Grain Size, Structure & Minor Components)	Weathering	Extremely Low	Very Low	Low	Medium	High	Very High	Extremely High	20	40	100	300	1000		Visual	Additional Data (Joints, partings, seams, zones etc. Description, orientation, infilling, or coating, shape, roughness, thickness, other)
				For non cored details, refer to non cored log sheet START CORING AT 6.4 M																
N M L C C O R I N G			7.0 8.0 9.0 10.0 11.0	WEATHERED SHALE: dark grey with grey	Ew Fr															6.71 m, Sm, Cy, 10 mm 9.61 m, Sm, Cy, 5 mm 7.00 m, HB 7.20 m, HB 7.44 m, HB 7.75 m, HB 7.88 m, Sm, Ew, 30mm 8.10 m, HB 8.22 m, HB 8.52 m, HB 8.86 m, Pt, 0 deg, Pl, Ro 8.90 m, Pt, 0 deg, Pl, Ro 9.28 m, Jt, 2 deg, Pl, Ro 9.55 m, Pt, 0 deg, Ro 9.89 m, Pt, 0 deg, Pl, Ro 10.08-10.11 m, Jt, 4 deg, Pl, Ro 10.21-10.29 m, Cz, veneer 10.31 m, Pl, 0 deg, Pl, Ro 10.39 m, Pl, 0 deg, Pl, Ro 10.75-10.78 m, Jt, Ir, Ro 10.76-10.83 m, Jt, 85 deg, Ir, Ro 10.99-11.08 m, Jt, Ir, Ro, Fractured 11.29-11.32 m, Jt, Ir, Ro 11.53 m, Pt, 0 deg, Pl, Sm 11.69 m, Jt, 0 deg, Pl, Ro, Cy veneer 11.76 m, Pt, 0 deg, Pl, Sn 11.85 m, Pt, 0 deg, Pl. Pw

Notes:

Contractor: Terratest
Equipment: Hydropower Scout
Hole Diameter (mm):
Angle from Vertical (°):

See explanation sheets for meaning of all descriptive terms and symbols

SMEC Testing Services Pty Ltd — **GEOTECHNICAL LOG - CORED BOREHOLE**

Client: Columbia Lane Development Pty Limited
Project: 11-17 Columbia Lane, Homebush
Location: Refer to Drawing No. 19/1315
Project / STS No.: 21024/7145C
Date : 04/07/2016
Logged: MG
Checked By: MG

BOREHOLE NO.: BH 2
Sheet 4 of 4

DRILLING				MATERIAL STRENGTH										DISCONTINUITIES								
						Estimated Rock Strength							Joint Spacing (mm)									
													20	40	100	300	1000					
Method	Water	Recovery	Depth (m)	Rock Type (Colour, Grain Size, Structure & Minor Components)	Weathering	Extremely Low	Very Low	Low	Medium	High	Very High	Extremely High							Visual	Additional Data (Joints, partings, seams, zones etc. Description, orientation, infilling, or coating, shape, roughness, thickness, other)		
N M L C				WEATHERED SHALE: dark grey with grey	Fr															12.36 m, Jt, 0 deg, Pl, Ro 12.54 m, Pt, 0 deg, Pl, Sm		
			13.0																			
			14.0																			
			15.0																			
			16.0																			
			17.0																			

Notes:

Contractor: Terratest
Equipment: Hydropower Scout
Hole Diameter (mm):
Angle from Vertical (°):

See explanation sheets for meaning of all descriptive terms and symbols

STS GeoEnvironmental Pty Ltd

GEOTECHNICAL LOG - NON CORE BOREHOLE

Client: Columbia Lane Development Pty Limited
Project: 11 - 17 Columbia Lane, Homebush
Location: Refer to Drawing No. 19/1315

Project: 21024 / 7145C
Date : 05/07/2016
Logged: JK

BOREHOLE NO.: BH 3

Sheet 1 of 4

WATER TABLE	SAMPLES	DEPTH (m)	DESCRIPTION OF DRILLED PRODUCT (Soil type, colour, grain size, plasticity, minor components, observations)	SYMBOL	CONSISTENCY (cohesive soils) or RELATIVE DENSITY (sands and gravels)	MOISTURE
	S10/11/12		ASPHALTIC CONCRETE: to 40 mm			
	@ 0.2 m		CLAYEY SILTY SAND: light brown, fine grained, low plasticity, occasional gravel	CL		D
	S13					
	@ 0.6 m					
	SPT					
	1.0-1.45 m		PP = 50 FILL			
	3, 3, 5		SILTY CLAY: light grey with orange brown, dark grey and red brown, medium to high plasticity, traces of gravel	CL/CH		M
	N=8	1.0				
			PP = 400			
			FILL			
	S14		SILTY CLAY: orange brown with light grey and occasional red brown, medium to high plasticity, traces of gravel	CL/CH		M
	@ 1.8 m	2.0				
	SPT					
	2.5-2.95					
	5, 6, 8		PP = 350			
	N=14	3.0				
	SPT	4.0				
	4.0-4.30					
	10, 22, R		WEATHERED SHALE: dark grey and brown with light grey, clay seams		EXTREMELY LOW STRENGTH	D
		5.0				
			BOREHOLE DISCONTINUED AT 4.8 M			

NOTES: D - disturbed sample U - undisturbed tube sample B - bulk sample
WT - level of water table or free water N - Standard Penetration Test (SPT)

See explanation sheets for meaning of all descriptive terms and symbols

Contractor: Terratest
Equipment: Hydropower Scout
Hole Diameter (mm): 100
Angle from Vertical (°) 0

SMEC Testing Services Pty Ltd — **GEOTECHNICAL LOG - CORED BOREHOLE**

Client: Columbia Lane Development Pty Limited
Project: 11-17 Columbia Lane, Homebush
Location: Refer to Drawing No. 19/1315

Project / STS No.: 21024/7145C
Date : 05/07/2016
Logged: JK — Checked By: MG

BOREHOLE NO.: BH 3
Sheet 2 of 4

DRILLING				MATERIAL STRENGTH										DISCONTINUITIES		
						Estimated Rock Strength							Joint Spacing (mm)			
Method	Water	Recovery	Depth (m)	Rock Type (Colour, Grain Size, Structure & Minor Components)	Weathering	Extremely Low	Very Low	Low	Medium	High	Very High	Extremely High	20 40 100 300 1000	Visual	Additional Data (Joints, partings, seams, zones etc. Description, orientation, infilling, or coating, shape, roughness, thickness, other)
			1.0												
			2.0												
			3.0												
			4.0												
			5.0	For non cored details, refer to non cored log sheet START CORING AT 5.60 M											
N M L C				WEATHERED SHALE: dark grey with light grey	Mw										5.60-6.14 m, Cz + Cy,

Notes:

Contractor: Terratest
Equipment: Hydropower Scout
Hole Diameter (mm):
Angle from Vertical (°):

See explanation sheets for meaning of all descriptive terms and symbols

SMEC Testing Services Pty Ltd — **GEOTECHNICAL LOG - CORED BOREHOLE**

Client: Columbia Lane Development Pty Limited
Project: 11-17 Columbia Lane, Homebush
Location: Refer to Drawing No. 19/1315
Project / STS No.: 21024/7145C
Date : 05/07/2016
Logged: JK
Checked By: MG

BOREHOLE NO.: BH 3
Sheet 3 of 4

DRILLING				MATERIAL STRENGTH										DISCONTINUITIES		
						Estimated Rock Strength							Joint Spacing (mm)			
Method	Water	Recovery	Depth (m)	Rock Type (Colour, Grain Size, Structure & Minor Components)	Weathering	Extremely Low	Very Low	Low	Medium	High	Very High	Extremely High	20 40 100 300 1000	Visual	Additional Data (Joints, partings, seams, zones etc. Description, orientation, infilling, or coating, shape, roughness, thickness, other)
				WEATHERED SHALE: dark grey with light grey	Fr										6.28 m, Jt, 2 deg, Pl, Ro, Cy veneer
															6.52 m, Jt, 12 deg, Ir, Ro, minor Cy
															6.69 m, Pt, 0 deg, Pl, Ro
			7.0												7.00-7.05 m, Cz
															7.17-7.22 m, Jt, Ir, Ro
															7.26 m, Pt, 0 deg, Pl, Ro
															7.49-7.68 m, Cz, fractured
															7.75-7.84 m, Jt, Ir, Ro, Cy
			8.0												8.08 m, Pt, 3 deg, Pl, Ro
															8.40 m, Pt, 3 deg, Pl, Ro
															8.48 m, Pt, 3 deg, Pl, Sm
															8.66 m, Pt, 3 deg, Pl, Sm
															8.86 m, Jt, 3 deg, Pl, Sm
															8.94 m, Jt, 0 deg, Pl, Ro
			9.0												9.07 m, Pt, 3 deg, Pl, Sm
															9.23 m, Jt, 0 deg, Pl, Ro
															9.39 m, Jt, 0 deg, Pl, Ro
															9.64-9.67 m, Jt, Ir, Ro
															9.71 m, Jt, 5 Deg, Pl, Ro
															9.79 m, Pt, 2 deg, Pl, Sm
															9.96 m, Pt, 2 deg, Pl, Ro
			10.0												10.17 m, Pt, 2 deg, Pl, Sm
															10.24 m, Pt, 2 deg, Pl, Sm
															10.39 m, Pt, 2 deg Pl, Sm
															10.51 m, Pt, 2 deg, Pl, Sm
															10.55-10.64 m, Jt, Ir, Ro, Cy
															10.74 m, Jt, 2 deg, Pl, Ro
															10.96 m, Pt, 0 deg. Pl, Ro
			11.0												11.17 m, Pt, 2 deg, Pl, Sm
															11.34 m, Jt, 0 deg, Pl, Ro
															11.70 m, Jt, 5 deg, Pl, Ro
															11.92 m, Pt, 0 deg, Pl, Sm

Notes:

Contractor: Terratest
Equipment: Hydropower Scout
Hole Diameter (mm):
Angle from Vertical (°):

See explanation sheets for meaning of all descriptive terms and symbols

SMEC Testing Services Pty Ltd — **GEOTECHNICAL LOG - CORED BOREHOLE**

Client: Columbia Lane Development Pty Limited
Project: 11-17 Columbia Lane, Homebush
Location: Refer to Drawing No. 19/1315
Project / STS No.: 21024/7145C
Date : 05/07/2016
Logged: JK
Checked By: MG

BOREHOLE NO.: BH 3
Sheet 4 of 4

DRILLING				MATERIAL STRENGTH										DISCONTINUITIES			
						Estimated Rock Strength							Joint Spacing (mm)						
													20	40	100	300	1000		
Method	Water	Recovery	Depth (m)	Rock Type (Colour, Grain Size, Structure & Minor Components)	Weathering	Extremely Low	Very Low	Low	Medium	High	Very High	Extremely High						Visual	Additional Data (Joints, partings, seams, zones etc. Description, orientation, infilling, or coating, shape, roughness, thickness, other)
N M L C				WEATHERED SHALE: dark grey with light grey	Fr														12.03 m, Pt, 0 deg, Pl, Ro 12.19-12.30 m, Cz + Cy 12.36-12.39 m, Jt, 45 deg, Ir, Ro 12.48-12.53 m, Cz + Cy, Fractured 12.64-12.92 m, Cz + Cy, Fractured 12.95-13.00 m, Jt, 45 deg, Pl, Sm
			13.0																
				CORING DISCONTINUED AT 13.0 M															
			14.0																
			15.0																
			16.0																
			17.0																

Notes:

Contractor: Terratest
Equipment: Hydropower Scout
Hole Diameter (mm):
Angle from Vertical (°):

See explanation sheets for meaning of all descriptive terms and symbols

STS GeoEnvironmental Pty Ltd

GEOTECHNICAL LOG - NON CORE BOREHOLE

Client: Columbia Lane Development Pty Limited
Project: 11 - 17 Columbia Lane, Homebush
Location: Refer to Drawing No. 19/1315

Project: 21024 / 7145C
Date : 06/07/2016
Logged: JK

BOREHOLE NO.: BH 4

Sheet 1 of 3

WATER TABLE	SAMPLES	DEPTH (m)	DESCRIPTION OF DRILLED PRODUCT (Soil type, colour, grain size, plasticity, minor components, observations)	SYMBOL	CONSISTENCY (cohesive soils) or RELATIVE DENSITY (sands and gravels)	MOISTURE
	S15		ASPHALT: to 20 mm			
	@ 0.3 m		SANDY GRAVEL: black, fine grained	GW		M
			FILL			
	S16		SILTY CLAY: light brown, medium plasticity, traces of gravel	CL		M-VM
	@ 0.8 m					
	SPT	1.0	FILL			
	1.50-1.45 m		SILTY CLAY: orange brown with light grey, low plasticity, traces of fine grained sand	CL		M-VM
	2, 2, 1					
	N = 3		PP = 30			
	S17					
	@ 1.2 m					
		2.0				
	SPT		GRAVELLY SILTY CLAY: orange brown with red brown an dlight grey, medium to high plasticity, some gravel	CL/CH		M
	2.5-2.95 m					
	17, 11, 10					
	N = 21		PP = 200			
	S18					
	@ 2.6 m					
		3.0				
			SILTY SANDY CLAY: light grey with orange brown, fine grained sand, medium plaasticity	CL		M
	SPT	4.0				
	4.0-4.45 m					
	3, 3, 3					
	N = 6		PP = 150			
	S19					
	@ 4.1 m					
		5.0				
			WEATHERED SHALE: dark grey with dark brown and orange brown, clay seams		EXTREMELY LOW STRENGTH	M-D
			BOREHOLE DISCONTINUED AT 5.5 M			
			For cored details refer to cored log sheet			

NOTES: D - disturbed sample U - undisturbed tube sample B - bulk sample
WT - level of water table or free water N - Standard Penetration Test (SPT)

See explanation sheets for meaning of all descriptive terms and symbols

Contractor: Terratest
Equipment: Hydropower Scout
Hole Diameter (mm): 100
Angle from Vertical (°) 0

SMEC Testing Services Pty Ltd — **GEOTECHNICAL LOG - CORED BOREHOLE**

Client: Columbia Lane Development Pty Limited
Project: 11-17 Columbia Lane, Homebush
Location: Refer to Drawing No. 19/1315

Project / STS No.: 21024/7145C
Date : 06/07/2016
Logged: JK — Checked By: MG

BOREHOLE NO.: BH 4
Sheet 2 of 3

DRILLING				MATERIAL STRENGTH										DISCONTINUITIES		
						Estimated Rock Strength							Joint Spacing (mm)			
Method	Water	Recovery	Depth (m)	Rock Type (Colour, Grain Size, Structure & Minor Components)	Weathering	Extremely Low	Very Low	Low	Medium	High	Very High	Extremely High	20 40 100 300 1000	Visual	Additional Data (Joints, partings, seams, zones etc. Description, orientation, infilling, or coating, shape, roughness, thickness, other)
			1.0												
			2.0												
			3.0												
			4.0												
			5.0												
				For non cored details, refer to non cored log sheet											
				START CORING AT 5.5 M											
N M L C				WEATHERED SHALE: dark grey with light grey	Fr/ St										5.50-6.15 m, Numerous Jt/Pt, Ir, Ro, some clay infill, Fractured

Notes:

Contractor: Terratest
Equipment: Hydropower Scout
Hole Diameter (mm):
Angle from Vertical (°):

See explanation sheets for meaning of all descriptive terms and symbols

SMEC Testing Services Pty Ltd — **GEOTECHNICAL LOG - CORED BOREHOLE**

Client: Columbia Lane Development Pty Limited
Project: 11-17 Columbia Lane, Homebush
Location: Refer to Drawing No. 19/1315
Project / STS No.: 21024/7145C
Date : 06/07/2016
Logged: JK
Checked By: MG

BOREHOLE NO.: BH 4
Sheet 3 of 3

DRILLING				MATERIAL STRENGTH										DISCONTINUITIES		
						Estimated Rock Strength							Joint Spacing (mm)			
Method	Water	Recovery	Depth (m)	Rock Type (Colour, Grain Size, Structure & Minor Components)	Weathering	Extremely Low	Very Low	Low	Medium	High	Very High	Extremely High	20 40 100 300 1000	Visual	Additional Data (Joints, partings, seams, zones etc. Description, orientation, infilling, or coating, shape, roughness, thickness, other)
N M L C C O R I N G			7.0	WEATHERED SHALE: dark grey with light grey	Fr/ St										6.15 m, Jt, 2 deg, Pl, Sm
															6.29 m, Jt, 2 deg, Pl, Sm
															6.45-6.50 m, Jt, 50 deg
															6.58-7.04 m, Jt, Pt, Ir, Ro, Minor clay (Fractured)
					Fr										
															7.43-7.46 m, Jt, 45 deg, Pl, Ro
															7.93 m, Jt, 0 deg, Pl, Ro
															7.98-8.04 m, Jt, 60 deg, Pl, Ro
			8.0												8.06 m, Jt, 0 deg, Pl, Ro
															8.09-8.13 m, Jt, 50 deg, Ir, Ro
															8.19 m, Jt, 0 deg, Pl, Ro
															8.24 m, Jt, Ir, Ro
															8.30-8.35 m, Jt, Pt, Ir, Ro, Clay infill
															8.58-8.70 m, Jt, 80 deg, Ir, Ro, Fractured
															8.77-8.80, Pt, Ir, Ro
															8.88-8.95 m, Jt, 80, Ir, Ro
															8.98-9.02 m, Jt, 20 deg, Pl, Ro
			9.0												9.09-9.11 m, Jt, 20 deg, Pl, Ro
															9.13-9.14 m, Jt, 15 deg, Pl, Ro
															9.18-9.21 m, Jt, 20 deg, Pl, Ro
															9.30-9.31 m, Jt, 20 deg, Pl, Ro
															9.40-9.45 m, Jt, Pt, Ir, Ro, fractured
															9.50-9.55 m, Jt, Ir, Ro
															9.86 m, Jt, 0 deg, Pl, Ro
															9.89-9.93 m, Jt, 45 deg, Pl, Sm
			10.0												10.04-10.16 m, Pt, 0 deg, Pl, Ro
															10.48-10.50 m, Jt, 10 deg, Pl, Ro
															10.52-10.59 m, Jt, 5 deg, Pl, Ro
															10.75 m, Jt, 3 deg, Pl, Sm
			11.0												11.14 m, Jt, 3 deg, Pl, Ro
															11.31-11.62 m, Numerous Jt/Pt, Clay infill
															11.67-11.73 m, Jt, 85 deg, Pl, Ro
															11.77 m, Jt, Ir, Ro
				Standpipe Piezometer Installed											
				CORING DISCONTINUED AT 11.93 M											

Notes:

Contractor: Terratest
Equipment: Hydropower Scout
Hole Diameter (mm):
Angle from Vertical (°):

See explanation sheets for meaning of all descriptive terms and symbols

STS GeoEnvironmental Pty Ltd

GEOTECHNICAL LOG - NON CORE BOREHOLE

Client: Columbia Lane Development Pty Limited
Project: 11 - 17 Columbia Lane, Homebush
Location: Refer to Drawing No. 19/1315

Project: 21024 / 7145C
Date : 06/07/2016
Logged: JK

BOREHOLE NO.: BH 5

Sheet 1 of 4

WATER TABLE	SAMPLES	DEPTH (m)	DESCRIPTION OF DRILLED PRODUCT (Soil type, colour, grain size, plasticity, minor components, observations)	SYMBOL	CONSISTENCY (cohesive soils) or RELATIVE DENSITY (sands and gravels)	MOISTURE
			CONCRETE: 340 mm thick			
	S20 @ 0.5 m		Gravelly sandy clay, black, fine grained, low plasticity, some gravel FILL	CL		M
	S21 @ 1.0 m SPT 1.0-1.45 m 1, 2, 2 N = 3	1.0	SILTY CLAY: light grey and brown with orange brown, medium to high plasticity PP = 30	CL/CH		M
		2.0	SILTY CLAY: orange brown with light grey, medium to high plasticity	CL/CH		M
	SPT 2.5-2.95 m 6, 6, 4 N = 10		SILTY CLAY: light grey with orange brown, medium plasticity, traces of fine sand PP = 250	CL		M
		3.0				
	SPT 4.0-4.45 m 3, 2, 2 N = 4	4.0	PP = 100			M-VM
		5.0				
	SPT 5.50-5.95 m 12, 8, 11 N = 19		PP = 300			
			SILTY CLAY: light grey with orange brown and light brown, medium to high plasticity, traces of gravel	CL/CH		M

NOTES: D - disturbed sample U - undisturbed tube sample B - bulk sample
WT - level of water table or free water N - Standard Penetration Test (SPT)

See explanation sheets for meaning of all descriptive terms and symbols

Contractor: Terratest
Equipment: Hydropower Scout
Hole Diameter (mm): 100
Angle from Vertical (°) 0

STS GeoEnvironmental Pty Ltd

GEOTECHNICAL LOG - NON CORE BOREHOLE

Client: Columbia Lane Development Pty Limited
Project: 11 - 17 Columbia Lane, Homebush
Location: Refer to Drawing No. 19/1315

Project: 21024 / 7145C
Date : 06/07/2016
Logged: JK

BOREHOLE NO.: BH 5

Sheet 2 of 4

WATER TABLE	SAMPLES	DEPTH (m)	DESCRIPTION OF DRILLED PRODUCT (Soil type, colour, grain size, plasticity, minor components, observations)	SYMBOL	CONSISTENCY (cohesive soils) or RELATIVE DENSITY (sands and gravels)	MOISTURE
			SILTY CLAY: light grey with orange brown and light brown, medium to high plasticity, traces of gravel	CL/CH		M
			WEATHERED SHALE: dark grey and brown with orange brown, clay seams		EXTREMELY LOW STRENGTH	D
		7.0	BOREHOLE DISCONTINUED AT 7.0 M For cored details, refer to cored log sheet			
		8.0				
		9.0				
		10.0				
		11.0				

NOTES: D - disturbed sample U - undisturbed tube sample B - bulk sample
WT - level of water table or free water N - Standard Penetration Test (SPT)

See explanation sheets for meaning of all descriptive terms and symbols

Contractor: Terratest
Equipment: Hydropower Scout
Hole Diameter (mm): 100
Angle from Vertical (°) 0

SMEC Testing Services Pty Ltd — **GEOTECHNICAL LOG - CORED BOREHOLE**

Client: Columbia Lane Development Pty Limited
Project: 11-17 Columbia Lane, Homebush
Location: Refer to Drawing No. 19/1315
Project / STS No.: 21024/7145C
Date : 07/07/2016
Logged: JK
Checked By: MG

BOREHOLE NO.: BH 5
Sheet 3 of 4

DRILLING				MATERIAL STRENGTH															DISCONTINUITIES	
						Estimated Rock Strength							Joint Spacing (mm)							
Method	Water	Recovery	Depth (m)	Rock Type (Colour, Grain Size, Structure & Minor Components)	Weathering	Extremely Low	Very Low	Low	Medium	High	Very High	Extremely High	20	40	100	300	1000		Visual	Additional Data (Joints, partings, seams, zones etc. Description, orientation, infilling, or coating, shape, roughness, thickness, other)
				For non cored details, refer to non cored log sheet																
			7.0	START CORING AT 7.0 M																
N M L C CORING				WEATHERED SHALE: dark grey with light grey	Fr/ St															7.00-9.04 m, Numerous Jt/Pt, Ir, Ro, Fractured -minor clay infill
			8.0		Fr															
			9.0																	9.13 m, Pt, 0 deg, Pl, Ro 9.15-9.49 m, Jt, 90 deg, Ir, Ro 9.64 m, Jt, 5 deg, Pl, Sm 9.76-9.83 m, Jt, Und, Ro 9.94 m, Jt, 2 deg, Pl, Sm
			10.0																	10.04-10.10, Jt, 90 deg, Ir, Ro 10.26 m, Jt, 0 deg, Pl, Ro 10.37-10.44 m, Jt, Pt, Ir, Ro 10.64 m, Jt, 2 deg, Pl, Sm 10.74 m, Pt, 5 deg, Pl, Sm 10.89 m, Jt, 2 deg, Pl, Sm, Cy veneer 10.93-10.95 m, Jt, 20 deg, Ir, Ro
			11.0																	11.04-12.18 m, Numerous Jt/Pt, Ir, Ro

Notes:

Contractor: Terratest
Equipment: Hydropower Scout
Hole Diameter (mm):
Angle from Vertical (°):

See explanation sheets for meaning of all descriptive terms and symbols

SMEC Testing Services Pty Ltd — **GEOTECHNICAL LOG - CORED BOREHOLE**

Client: Columbia Lane Development Pty Limited
Project: 11-17 Columbia Lane, Homebush
Location: Refer to Drawing No. 19/1315
Project / STS No.: 21024/7145C
Date : 07/07/2016
Logged: JK
Checked By: MG

BOREHOLE NO.: BH 5
Sheet 4 of 4

DRILLING				MATERIAL STRENGTH										DISCONTINUITIES		
						Estimated Rock Strength							Joint Spacing (mm)			
Method	Water	Recovery	Depth (m)	Rock Type (Colour, Grain Size, Structure & Minor Components)	Weathering	Extremely Low	Very Low	Low	Medium	High	Very High	Extremely High	20 40 100 300 1000	Visual	Additional Data (Joints, partings, seams, zones etc. Description, orientation, infilling, or coating, shape, roughness, thickness, other)
N M L C			13.0	WEATHERED SHALE: dark grey with light grey	Fr										12.26 m, Pt, 0 deg, Pl, Ro 12.55 m, Pt, Ir, Ro 12.63-12.75 m, Jt/Pt, Ir, Ro 12.80-12.92 m, Jt, 0 deg, Pl, Ro
			14.0 15.0 16.0 17.0	CORING DISCONTINUED AT 13.00 M											

Notes:

Contractor: Terratest
Equipment: Hydropower Scout
Hole Diameter (mm):
Angle from Vertical (°):

See explanation sheets for meaning of all descriptive terms and symbols

STS GeoEnvironmental Pty Ltd

GEOTECHNICAL LOG - NON CORE BOREHOLE

Client: Columbia Lane Development Pty Limited
Project: 11 - 17 Columbia Lane, Homebush
Location: Refer to Drawing No. 19/1315

Project: 21024 / 7145C
Date : 07/07/2016
Logged: JK

BOREHOLE NO.: BH 6

Sheet 1 of 4

WATER TABLE	SAMPLES	DEPTH (m)	DESCRIPTION OF DRILLED PRODUCT (Soil type, colour, grain size, plasticity, minor components, observations)	SYMBOL	CONSISTENCY (cohesive soils) or RELATIVE DENSITY (sands and gravels)	MOISTURE
			CONCRETE: 160 mm thick			
	S22/23/24 @ 0.3 m		GRAVELLY SILTY CLAY: dark brown with orange brown and light grey, medium plasticity, some gravel	CL		M
	S25 @ 1.0 m	1.0	FILL			
	SPT 1.0-1.45 m, 1, 0, 1 N=1		SILTY CLAY: light brown and orange brown with light grey and occasional black, medium to high plasticity	CL/CH		M-VM
	S26 @ 1.2 m					
		2.0				
WT			CLAYEY SILTY SAND: orange brown with light grey, fine to medium grained	SC		WET
	SPT 2.5-2.95 m 5, 5, 5 N=10		SILTY CLAY: orange brown and orange brown with light grey and occasional black, medium to high plasticity PP = 250	CL/CH		M
		3.0				
			SILTY CLAY: light grey with yellow brown and orange brown, medium to high plasticity	CL/CH		M
	SPT 4.0-4.45 m 4, 5, 6 N=11	4.0	PP = 350			
		5.0				
	SPT 5.5-5.95 m 5, 6, 7 N=13					
	S27 @ 5.6 m					

NOTES: D - disturbed sample U - undisturbed tube sample B - bulk sample
WT - level of water table or free water N - Standard Penetration Test (SPT)

See explanation sheets for meaning of all descriptive terms and symbols

Contractor: Terratest
Equipment: Hydropower Scout
Hole Diameter (mm): 100
Angle from Vertical (°) 0

STS GeoEnvironmental Pty Ltd

GEOTECHNICAL LOG - NON CORE BOREHOLE

Client: Columbia Lane Development Pty Limited
Project: 11 - 17 Columbia Lane, Homebush
Location: Refer to Drawing No. 19/1315

Project: 21024 / 7145C
Date : 07/07/2016
Logged: JK

BOREHOLE NO.: BH 6

Sheet 2 of 4

WATER TABLE	SAMPLES	DEPTH (m)	DESCRIPTION OF DRILLED PRODUCT (Soil type, colour, grain size, plasticity, minor components, observations)	SYMBOL	CONSISTENCY (cohesive soils) or RELATIVE DENSITY (sands and gravels)	MOISTURE
			SILTY CLAY: light grey with yellow brown and orange brown, medium to high plasticity	CL/CH		M
			WEATHERED SHALE: dark grey and brown with orange brown, clay seams		EXTREMELY LOW STRENGTH	M-D
			BOREHOLE DISCONTINUED AT 6.4 M For cored details, refer to cored log sheet			
		7.0				
		8.0				
		9.0				
		10.0				
		11.0				

NOTES: D - disturbed sample U - undisturbed tube sample B - bulk sample
WT - level of water table or free water N - Standard Penetration Test (SPT)

See explanation sheets for meaning of all descriptive terms and symbols

Contractor: Terratest
Equipment: Hydropower Scout
Hole Diameter (mm): 100
Angle from Vertical (°) 0

SMEC Testing Services Pty Ltd — **GEOTECHNICAL LOG - CORED BOREHOLE**

Client: Columbia Lane Development Pty Limited
Project: 11-17 Columbia Lane, Homebush
Location: Refer to Drawing No. 19/1315
Project / STS No.: 21024/7145C
Date : 07/07/2016
Logged: JK
Checked By: MG

BOREHOLE NO.: BH 6
Sheet 3 of 4

DRILLING				MATERIAL STRENGTH										DISCONTINUITIES								
						Estimated Rock Strength							Joint Spacing (mm)									
													20	40	100	300	1000					
Method	Water	Recovery	Depth (m)	Rock Type (Colour, Grain Size, Structure & Minor Components)	Weathering	Extremely Low	Very Low	Low	Medium	High	Very High	Extremely High							Visual	Additional Data (Joints, partings, seams, zones etc. Description, orientation, infilling, or coating, shape, roughness, thickness, other)		
				For non cored details, refer to non cored log sheet START CORING AT 6.4 M																		
N M L C C O R I N G			7.0 8.0 9.0 10.0 11.0	WEATHERED SHALE: dark grey with light grey	Fr															6.40 m, Jt, 0 deg, Pl, Ro 6.41 m, Jt, 0 deg, Pl, Ro 6.42 m, Jt, 0 deg, Pl, Ro 6.50 m, Jt, 0 deg, Pl, Ro, Cy veneer 6.61 m, Jt, 0 deg, Pl, Ro 6.62 m, Jt, 0 deg, Pl, Ro, Cy veneer 6.77 m, Jt, 0 deg, Pl, Ro 6.89 m, Jt, 0 deg, Pl, Ro 6.93 m, Jt, 0 deg, Pl, Ro 7.18 m, Pt, 0 deg, Pl, Sm 7.37 m, Pt, 0 deg, Pl, Ro 7.48-7.56 m, Jt, Ro, minor Cy 7.78 m, Pt, 0 deg, Pl, Ro 7.93 m, Pt, 0 deg, Pl, Sm 8.03 m, Pt, 0 deg, Pl, Sm 8.30-8.36 m, Jt, 70 deg, Ir, Ro 8.36-8.50 m, Jt, 85 deg, Ir, Ro 8.58 m, Pt, 0 deg, Pl, Sm 8.68 m, Pt, 0 deg, Pl, Sm 8.81 m, Pt, 0 deg, Pl, Sm 8.90 m, Pt, 0 deg, Pl, Sm 9.11-9.16 m, Jt, 50 deg, Pl, Ro 9.46 m, Pt, 0 deg, Pl, Sm 9.96 m, Pt, 0 deg, Pl, Sm 10.08 m, Pt, 0 deg, Pl, Sm 10.41 m, Pt, 0 deg, Pl, Sm 10.58 m, Pt, 10 deg, Pl, Sm 10.90-11.17 m, Jt, 85 deg, Ir, Ro, fractured 11.23-11.63 m, Jt, 90 deg, Ir, Ro 11.89 m, Jt, 0 deg, Pl, Sm		

Notes:

Contractor: Terratest
Equipment: Hydropower Scout
Hole Diameter (mm):
Angle from Vertical (°):

See explanation sheets for meaning of all descriptive terms and symbols

SMEC Testing Services Pty Ltd — **GEOTECHNICAL LOG - CORED BOREHOLE**

Client: Columbia Lane Development Pty Limited
Project: 11-17 Columbia Lane, Homebush
Location: Refer to Drawing No. 19/1315

Project / STS No.: 21024/7145C
Date : 07/07/2016
Logged: JK — Checked By: MG

BOREHOLE NO.: BH 6
Sheet 4 of 4

DRILLING				MATERIAL STRENGTH										DISCONTINUITIES								
						Estimated Rock Strength							Joint Spacing (mm)									
													20	40	100	300	1000					
Method	Water	Recovery	Depth (m)	Rock Type (Colour, Grain Size, Structure & Minor Components)	Weathering	Extremely Low	Very Low	Low	Medium	High	Very High	Extremely High							Visual	Additional Data (Joints, partings, seams, zones etc. Description, orientation, infilling, or coating, shape, roughness, thickness, other)		
N M L C				WEATHERED SHALE: dark grey with light grey	Fr															12.16 m, Pt, 0 deg, Pl, Sw 12.25 m, Jt, 0 deg, Pl, Ro 12.65 m, Jt, 0 deg, Pl, Ro		
			13.0																			
				BOREHOLE DISCONTINUED AT 13.0 M																			
			14.0																			
			15.0																			
			16.0																			
			17.0																			

Notes:

Contractor: Terratest
Equipment: Hydropower Scout
Hole Diameter (mm):
Angle from Vertical (°):

See explanation sheets for meaning of all descriptive terms and symbols

STS GeoEnvironmental Pty Ltd

GEOTECHNICAL LOG - NON CORE BOREHOLE

Client: Columbia Lane Development Pty Limited
Project: 11 - 17 Columbia Lane, Homebush
Location: Refer to Drawing No. 19/1315

Project: 21024 / 7145C
Date : 08/07/2016
Logged: JK

BOREHOLE NO.: BH 7

Sheet 1 of 4

WATER TABLE	SAMPLES	DEPTH (m)	DESCRIPTION OF DRILLED PRODUCT (Soil type, colour, grain size, plasticity, minor components, observations)	SYMBOL	CONSISTENCY (cohesive soils) or RELATIVE DENSITY (sands and gravels)	MOISTURE
			CONCRETE: to 140 mm			
	S28 @ 0.2 m		SILTY CLAY: light brown with orange brown, medium plasticity	CL		M-VM
			SILTY CLAY: red brown and orange brown with light grey, medium to high plasticity	CL/CH		M
	SPT 1.0-1.45 m 3, 4, 5 N=9	1.0	PP = 350			
	S29 @ 1.2 m		SILTY CLAY: light grey with red brown, medium to high plasticity, occasional gravel	CL/CH		M
		2.0				
	SPT 2.5-2.95 m 5, 6, 8 N=14		PP = 380			
		3.0	SILTY CLAY: light grey with orange brown, medium plasticity, traces of gravel	CL		M-D
	SPT 4.0-4.30 m 8, 22 N=22+	4.0	WEATHERED SHALE: light grey and dark grey with brown and orange brown, clay seams		EXTREMELY LOW STRENGTH	D
		5.0				
			BOREHOLE DISCONTINUED AT 5.5 M For cored details, refer to cored log sheets			

NOTES: D - disturbed sample U - undisturbed tube sample B - bulk sample
WT - level of water table or free water N - Standard Penetration Test (SPT)

See explanation sheets for meaning of all descriptive terms and symbols

Contractor: Terratest
Equipment: Hydropower Scout
Hole Diameter (mm): 100
Angle from Vertical (°) 0

SMEC Testing Services Pty Ltd — **GEOTECHNICAL LOG - CORED BOREHOLE**

Client: Columbia Lane Development Pty Limited
Project: 11-17 Columbia Lane, Homebush
Location: Refer to Drawing No. 19/1315

Project / STS No.: 21024/7145C
Date : 08/07/2016
Logged: JK — Checked By: MG

BOREHOLE NO.: BH 7
Sheet 2 of 4

DRILLING				MATERIAL STRENGTH											DISCONTINUITIES		
						Estimated Rock Strength							Joint Spacing (mm)							
													20	40	100	300	1000		
Method	Water	Recovery	Depth (m)	Rock Type (Colour, Grain Size, Structure & Minor Components)	Weathering	Extremely Low	Very Low	Low	Medium	High	Very High	Extremely High						Visual	Additional Data (Joints, partings, seams, zones etc. Description, orientation, infilling, or coating, shape, roughness, thickness, other)
			1.0																
			2.0																
			3.0																
			4.0																
			5.0	For non cored details, refer to non cored log sheet START CORING AT 5.64 M															
N M L C				WEATHERED SHALE: dark grey with light grey and orange brown	Sw														5.64-7.13 m, Numerous Jt/Pt, 0-90, Ir, Ro, Clay infill

Notes:

Contractor: Terratest
Equipment: Hydropower Scout
Hole Diameter (mm):
Angle from Vertical (°):

See explanation sheets for meaning of all descriptive terms and symbols

SMEC Testing Services Pty Ltd — **GEOTECHNICAL LOG - CORED BOREHOLE**

Client: Columbia Lane Development Pty Limited
Project: 11-17 Columbia Lane, Homebush
Location: Refer to Drawing No. 19/1315
Project / STS No.: 21024/7145C
Date : 08/07/2016
Logged: JK
Checked By: MG

BOREHOLE NO.: BH 7
Sheet 3 of 4

DRILLING				MATERIAL STRENGTH											DISCONTINUITIES	
						Estimated Rock Strength							Joint Spacing (mm)			
Method	Water	Recovery	Depth (m)	Rock Type (Colour, Grain Size, Structure & Minor Components)	Weathering	Extremely Low	Very Low	Low	Medium	High	Very High	Extremely High	20 40 100 300 1000	Visual	Additional Data (Joints, partings, seams, zones etc. Description, orientation, infilling, or coating, shape, roughness, thickness, other)
N M L C CORING			7.0	WEATHERED SHALE: dark grey with light grey and orange brown	Fr										
				WEATHERED SHALE: dark grey with light grey	Fr										7.32-7.38 m, Jt, Ir, Ro 7.56 m, Pt, 2 deg, Pl, Sm 7.78 m, Pt, 4 deg, Pl, Sm 7.95 m, Jt, 0 deg. Pl, Ro
			8.0												8.19 m, Jt, 0 deg, Pl, Ro 8.31-8.34 m, Jt, Ir, Ro 8.63 m, Jt, 0 deg, Pl, Ro 8.92 m, Jt, 5 deg, Pl, Ro
			9.0												9.08 m, Jt, 0 deg, Pl, Ro 9.32-9.35 m, Jt, 45 deg, Ir, Ro, Sm 9.42-9.45 m, Jt, Ir, Ro 9.48 m, Jt, 2 deg, Pl, Sm 9.80 m, Pt, 0 deg, Pl, Sm
			10.0												10.19 m, Pt, 0 deg, Pl, Sm 10.31 m, Jt, 0 deg, Pl, Sm 10.44 m, Pt, 0 deg, Pl, Sm 10.68 m, Pt, 0 deg, Pl, Sm 10.79 m, Pt, 0 deg, Pl, Ro 10.95 m, Pt, 0 deg, Pl, Ro
			11.0												11.73 m, Pt, 0 deg, Pl, Sm 11.80 m, Pt, 0 deg, Pl, Ro

Notes:

Contractor: Terratest
Equipment: Hydropower Scout
Hole Diameter (mm):
Angle from Vertical (°):

See explanation sheets for meaning of all descriptive terms and symbols

SMEC Testing Services Pty Ltd — **GEOTECHNICAL LOG - CORED BOREHOLE**

Client: Columbia Lane Development Pty Limited
Project: 11-17 Columbia Lane, Homebush
Location: Refer to Drawing No. 19/1315
Project / STS No.: 21024/7145C
Date : 08/07/2016
Logged: JK
Checked By: MG

BOREHOLE NO.: BH 7
Sheet 4 of 4

DRILLING				MATERIAL STRENGTH										DISCONTINUITIES		
						Estimated Rock Strength							Joint Spacing (mm)			
Method	Water	Recovery	Depth (m)	Rock Type (Colour, Grain Size, Structure & Minor Components)	Weathering	Extremely Low	Very Low	Low	Medium	High	Very High	Extremely High	20 40 100 300 1000	Visual	Additional Data (Joints, partings, seams, zones etc. Description, orientation, infilling, or coating, shape, roughness, thickness, other)
N M L C C O R I N G			13.0	WEATHERED SHALE: dark grey with light grey	Fr										12.34-12.37 m, Jt, 45 deg, Pl, Ro 12.77 m, Pt, 0 deg, Pl, Ro 12.92 m, Jt, Ir, Ro 12.95 m, Jt, Ir, Ro 13.02 m, Jt, 0 deg, Pl, Ro 13.11 Pt, 0 deg, Pl, Ro 13.16 m, Jt, 0 deg, Pl, Ro 13.20 m, Jt, 0 deg, Pl, Ro 13.35 m, Pt, 0 deg, Pl, Ro
			14.0 15.0 16.0 17.0	CORING DISCONTINUED AT 13.28 M Standpipe Piezometer Installed											

Notes:

Contractor: Terratest
Equipment: Hydropower Scout
Hole Diameter (mm):
Angle from Vertical (°):

See explanation sheets for meaning of all descriptive terms and symbols

STS GeoEnvironmental Pty Ltd

GEOTECHNICAL LOG - NON CORE BOREHOLE

Client: Columbia Lane Development Pty Limited
Project: 11 - 17 Columbia Lane, Homebush
Location: Refer to Drawing No. 19/1315

Project: 21024 / 7145C
Date : 11/07/2016
Logged: JK

BOREHOLE NO.: BH 8

Sheet 1 of 4

WATER TABLE	SAMPLES	DEPTH (m)	DESCRIPTION OF DRILLED PRODUCT (Soil type, colour, grain size, plasticity, minor components, observations)	SYMBOL	CONSISTENCY (cohesive soils) or RELATIVE DENSITY (sands and gravels)	MOISTURE
			CONCRETE: to 100 mm			
	S30 @ 0.2 m		GRAVELLY SILTY CLAY: dark grey with dark brown and light grey, low plasticity, some gravel	CL		M
			FILL			
	S31 @ 0.6 m		SILTY CLAY: light brown and orange brown with light grey, medium to high plasticity	CL/CH		M
	SPT 1.0-1.45 m 2, 3, 4 N=7	1.0				
		2.0				
			SILTY CLAY: red brown with light grey and orange brown, medium to high plasticity	CL/CH		M
	SPT 2.5-2.95 m 5, 6, 7 N=13		SILTY CLAY: light grey with orange brown and red brown, medium to high plasticity	CL/CH		M
			PP = 250			
	S32 @ 2.6 m	3.0				
	SPT 4.0-4.45 m 3,4,5 N=9	4.0				
			PP = 280			
		5.0				
			SILTY CLAY: light grey with dark grey and orange brown, medium plasticity, traces of gravel	CL		M-D
	S33 @ 5.2 m					

NOTES: D - disturbed sample U - undisturbed tube sample B - bulk sample
WT - level of water table or free water N - Standard Penetration Test (SPT)

See explanation sheets for meaning of all descriptive terms and symbols

Contractor: Terratest
Equipment: Hydropower Scout
Hole Diameter (mm): 100
Angle from Vertical (°) 0

STS GeoEnvironmental Pty Ltd

GEOTECHNICAL LOG - NON CORE BOREHOLE

Client: Columbia Lane Development Pty Limited
Project: 11 - 17 Columbia Lane, Homebush
Location: Refer to Drawing No. 19/1315

Project: 21024 / 7145C
Date : 11/07/2016
Logged: JK

BOREHOLE NO.: BH 8

Sheet 2 of 4

WATER TABLE	SAMPLES	DEPTH (m)	DESCRIPTION OF DRILLED PRODUCT (Soil type, colour, grain size, plasticity, minor components, observations)	SYMBOL	CONSISTENCY (cohesive soils) or RELATIVE DENSITY (sands and gravels)	MOISTURE
			SILTY CLAY: light grey with dark grey and orange brown, medium to high plasticity, traces of gravel	CL		M-D
			WEATHERED SHALE: dark grey, clay seams		EXTREMELY LOW STRENGTH	D
			BOREHOLE DISCONTINUED AT 6.6 M For cored details, refer to cored log sheet			
		7.0				
		8.0				
		9.0				
		10.0				
		11.0				

NOTES: D - disturbed sample U - undisturbed tube sample B - bulk sample
WT - level of water table or free water N - Standard Penetration Test (SPT)

See explanation sheets for meaning of all descriptive terms and symbols

Contractor: Terratest
Equipment: Hydropower Scout
Hole Diameter (mm): 100
Angle from Vertical (°) 0

SMEC Testing Services Pty Ltd — **GEOTECHNICAL LOG - CORED BOREHOLE**

Client: Columbia Lane Development Pty Limited
Project: 11-17 Columbia Lane, Homebush
Location: Refer to Drawing No. 19/1315
Project / STS No.: 21024/7145C
Date : 11/07/2016
Logged: JK
Checked By: MG

BOREHOLE NO.: BH 8
Sheet 3 of 4

DRILLING				MATERIAL STRENGTH										DISCONTINUITIES								
						Estimated Rock Strength							Joint Spacing (mm)									
													20	40	100	300	1000					
Method	Water	Recovery	Depth (m)	Rock Type (Colour, Grain Size, Structure & Minor Components)	Weathering	Extremely Low	Very Low	Low	Medium	High	Very High	Extremely High							Visual	Additional Data (Joints, partings, seams, zones etc. Description, orientation, infilling, or coating, shape, roughness, thickness, other)		
				For non cored details, refer to non cored log sheet START CORING AT 6.65 M																		
N M L C C O R I N G			7.0 8.0 9.0 10.0 11.0	WEATHERED SHALE: dark grey with light grey	Fr															6.66 m, Jt, 0 deg, Pl, Ro 6.67 m, Jt, 0 deg, Pl, Ro 6.75 m, Jt, 0 deg, Pl, Ro, Cy 6.77-6.78 m, Cy, Sm 6.87 m, Jt, 0 deg, Pl, Ro, Cy 6.93 m, Jt, 0 deg, Pl, Ro, Cy 7.07 m, Jt, 0 deg, Pl, Ro, Cy 7.15 m, Jt, 0 deg, Pl, Ro 7.24 m, Jt, 0 deg, Pl, Ro, Cy veneer 7.29-7.31 m, Cy, Sm 7.39 m, Jt, 0 deg, Pl, Ro 7.56-7.59 m, Jt, 45 deg, Ir, Ro 7.67-7.70 m, Jt, Ir, Ro, Cy 7.82 m, Jt, 0 deg, Pl, Sm 7.90 m, Jt, 0 deg, Pl, Sm 7.95 m, Jt, 0 deg, Pl, Sm 8.14 m, Jt, 0 deg, Pl, Sm 8.50 m, Jt, 0 deg, Ir, Ro 8.70 m, Pt, 0 deg, Pl, Ro 8.77 m, Pt, 0 deg, Pl, Ro 8.82 m, Jt, 0 deg, Pl, Sm, Cy veneer 9.20 m, Pt, 0 deg, Pl, Sm 9.36 m, Pt, 0 deg, Pl, Ro 9.70-9.75 m, Jt, 45 deg, Pl, Ro 9.87 m, Pt, 0 deg, Pl, Sm 10.13 m, Pt, 0 deg, Pl, Sm 10.50 m, Pt, 0 deg, Pl, Sm 11.23 m, Pt, 0 deg, Pl, Ro 11.42 m, Jt, 0 deg, Pl, Ro 11.65 m, Pt, 0 deg, Pl, Ro		

Notes:

Contractor: Terratest
Equipment: Hydropower Scout
Hole Diameter (mm):
Angle from Vertical (°):

See explanation sheets for meaning of all descriptive terms and symbols

SMEC Testing Services Pty Ltd — **GEOTECHNICAL LOG - CORED BOREHOLE**

Client: Columbia Lane Development Pty Limited
Project: 11-17 Columbia Lane, Homebush
Location: Refer to Drawing No. 19/1315
Project / STS No.: 21024/7145C
Date : 11/07/2016
Logged: JK
Checked By: MG

BOREHOLE NO.: BH 8
Sheet 4 of 4

DRILLING				MATERIAL STRENGTH										DISCONTINUITIES								
						Estimated Rock Strength							Joint Spacing (mm)									
													20	40	100	300	1000					
Method	Water	Recovery	Depth (m)	Rock Type (Colour, Grain Size, Structure & Minor Components)	Weathering	Extremely Low	Very Low	Low	Medium	High	Very High	Extremely High							Visual	Additional Data (Joints, partings, seams, zones etc. Description, orientation, infilling, or coating, shape, roughness, thickness, other)		
N M L C				WEATHERED SHALE: dark grey with light grey	Fr															12.09 m, Pt, 0 deg, Pl, Sm 12.46 m, Jt, 0 deg, Pl, Ro 12.83 m, Pt, 0 deg, Pl, Ro		
			13.0	CORING DISCONTINUED AT 12.87 M																		
			14.0																			
			15.0																			
			16.0																			
			17.0																			

Notes:

Contractor: Terratest
Equipment: Hydropower Scout
Hole Diameter (mm):
Angle from Vertical (°):

See explanation sheets for meaning of all descriptive terms and symbols

STS GeoEnvironmental Pty Ltd

GEOTECHNICAL LOG - NON CORE BOREHOLE

Client: Columbia Lane Development Pty Limited
Project: 11 - 17 Columbia Lane, Homebush
Location: Refer to Drawing No. 19/1315

Project: 21024 / 7145C
Date : 18/07/2016
Logged: JK

BOREHOLE NO.: BH 9

Sheet 1 of 1

WATER TABLE	SAMPLES	DEPTH (m)	DESCRIPTION OF DRILLED PRODUCT (Soil type, colour, grain size, plasticity, minor components, observations)	SYMBOL	CONSISTENCY (cohesive soils) or RELATIVE DENSITY (sands and gravels)	MOISTURE
	S40 @ 0.2 m		CONCRETE: 130 mm thick			
			SILTY CLAY: light grey with orange brown and dark grey, medium to high plasticity, traces of gravel	CL		M
			FILL			
			CONCRETE: 150 mm thick			
			SANDY GRAVEL: dark grey and black, fine grained	GW		M
	S41 @ 0.8 m	1.0	FILL			
	S42 @ 1.2 m		SILTY CLAY: light grey and brown with orange brown, medium plasticity	CL		M-VM
			BOREHOLE DISCONTINUED AT 1.8 M			
		2.0				
		3.0				
		4.0				
		5.0				

NOTES: D - disturbed sample U - undisturbed tube sample B - bulk sample
WT - level of water table or free water N - Standard Penetration Test (SPT)

See explanation sheets for meaning of all descriptive terms and symbols

Contractor: STS
Equipment: Edson RP70
Hole Diameter (mm): 100
Angle from Vertical (°) 0

STS GeoEnvironmental Pty Ltd

GEOTECHNICAL LOG - NON CORE BOREHOLE

Client: Columbia Lane Development Pty Limited
Project: 11 - 17 Columbia Lane, Homebush
Location: Refer to Drawing No. 19/1315

Project: 21024 / 7145C
Date : 18/07/2016
Logged: JK

BOREHOLE NO.: BH 9

Sheet 1 of 1

WATER TABLE	SAMPLES	DEPTH (m)	DESCRIPTION OF DRILLED PRODUCT (Soil type, colour, grain size, plasticity, minor components, observations)	SYMBOL	CONSISTENCY (cohesive soils) or RELATIVE DENSITY (sands and gravels)	MOISTURE
			CONCRETE: 450 mm thick			
	S43 @ 0.5 m		SILTY CLAY: orange brown with light grey, medium to high plasticity	CL/CH		M
		1.0	BOREHOLE DISCONTINUED AT 0.8 M			
		2.0				
		3.0				
		4.0				
		5.0				

NOTES: D - disturbed sample U - undisturbed tube sample B - bulk sample
WT - level of water table or free water N - Standard Penetration Test (SPT)

See explanation sheets for meaning of all descriptive terms and symbols

Contractor: STS
Equipment: Edson RP70
Hole Diameter (mm): 100
Angle from Vertical (°) 0

STS GeoEnvironmental Pty Ltd

GEOTECHNICAL LOG - NON CORE BOREHOLE

Client: Columbia Lane Development Pty Limited	Project: 21024 / 7145C	**BOREHOLE NO.: BH 11**
Project: 11 - 17 Columbia Lane, Homebush	Date : 18/07/2016	Sheet 1 of 1
Location: Refer to Drawing No. 19/1315	Logged: JK	

WATER TABLE	SAMPLES	DEPTH (m)	DESCRIPTION OF DRILLED PRODUCT (Soil type, colour, grain size, plasticity, minor components, observations)	SYMBOL	CONSISTENCY (cohesive soils) or RELATIVE DENSITY (sands and gravels)	MOISTURE
			CONCRETE: 190 mm thick			
	S49/50/51 @ 0.2 m		SILTY CLAY: grey and green with dark grey and orange brown, medium plasticity, traces of gravel	CL		M
			FILL			
	S52 @ 0.7 m		SILTY CLAY: orange brown with light brown, medium plasticity	CL		M-VM
		1.0				
	S57 @ 1.5 m		SILTY CLAY: light grey with red brown and orange brown, medium to high plasticity	CL/CH		M
			SILTY CLAY: orange brown with light grey, medium to high plasticity	CL/CH		M
		2.0				
	S58 @ 3.0 m	3.0	BOREHOLE DISCONTINUED AT 3.0 M			
		4.0				
		5.0				

NOTES: D - disturbed sample U - undisturbed tube sample B - bulk sample
WT - level of water table or free water N - Standard Penetration Test (SPT)

See explanation sheets for meaning of all descriptive terms and symbols

Contractor: STS
Equipment: Edson RP70
Hole Diameter (mm): 100
Angle from Vertical (°) 0

STS GeoEnvironmental Pty Ltd

GEOTECHNICAL LOG - NON CORE BOREHOLE

Client: Columbia Lane Development Pty Limited	Project: 21024 / 7145C	**BOREHOLE NO.: BH 12**
Project: 11 - 17 Columbia Lane, Homebush	Date : 18/07/2016	
Location: Refer to Drawing No. 19/1315	Logged: JK	Sheet 1 of 1

WATER TABLE	SAMPLES	DEPTH (m)	DESCRIPTION OF DRILLED PRODUCT (Soil type, colour, grain size, plasticity, minor components, observations)	SYMBOL	CONSISTENCY (cohesive soils) or RELATIVE DENSITY (sands and gravels)	MOISTURE
			CONCRETE: 300 mm thick			
	S53 @ 0.5 m		SILTY CLAY: dark grey with orange brown	CL/CH		M-VM
WT		1.0				
	S59 @ 1.5 m		SILTY CLAY: red brown with light grey, medium to high plasticity, traces of gravel	CL/CH		M-VM
		2.0				
	S60 @ 3.0 m	3.0	BOREHOLE DISCONTINUED AT 3.0 M			
		4.0				
		5.0				

NOTES: D - disturbed sample U - undisturbed tube sample B - bulk sample
WT - level of water table or free water N - Standard Penetration Test (SPT)

See explanation sheets for meaning of all descriptive terms and symbols

Contractor: STS
Equipment: Edson RP70
Hole Diameter (mm): 100
Angle from Vertical (°) 0

STS GeoEnvironmental Pty Ltd

GEOTECHNICAL LOG - NON CORE BOREHOLE

Client: Columbia Lane Development Pty Limited	Project: 21024 / 7145C	**BOREHOLE NO.: BH 13**
Project: 11 - 17 Columbia Lane, Homebush	Date : 19/07/2016	Sheet 1 of 1
Location: Refer to Drawing No. 19/1315	Logged: JK	

WATER TABLE	SAMPLES	DEPTH (m)	DESCRIPTION OF DRILLED PRODUCT (Soil type, colour, grain size, plasticity, minor components, observations)	SYMBOL	CONSISTENCY (cohesive soils) or RELATIVE DENSITY (sands and gravels)	MOISTURE
			CONCRETE: 450 mm thick			
	S54 @ 0.5 m		SILTY CLAY: light grey and green with orange brown and dark grey, medium plasticity, traces of gravel	CL		M
		1.0	FILL			
	S55 @ 1.5 m		SILTY CLAY: light brown with orange brown, medium to high plasticity	CL/CH		M-VM
		2.0				
			SILTY CLAY: orange brown with light grey, medium to high plasticity	CL/CH		M
	S56 @ 3.0 m	3.0	BOREHOLE DISCONTINUED AT 3.0 M			
		4.0				
		5.0				

NOTES: D - disturbed sample U - undisturbed tube sample B - bulk sample
WT - level of water table or free water N - Standard Penetration Test (SPT)

See explanation sheets for meaning of all descriptive terms and symbols

Contractor: STS
Equipment: Edson RP70
Hole Diameter (mm): 100
Angle from Vertical (°) 0

STS GeoEnvironmental Pty Ltd

GEOTECHNICAL LOG - NON CORE BOREHOLE

Client: Columbia Lane Development Pty Limited
Project: 11 - 17 Columbia Lane, Homebush
Location: Refer to Drawing No. 19/1315

Project: 21024 / 7145C
Date : 19/07/2016
Logged: JK

BOREHOLE NO.: BH 14

Sheet 1 of 1

WATER TABLE	SAMPLES	DEPTH (m)	DESCRIPTION OF DRILLED PRODUCT (Soil type, colour, grain size, plasticity, minor components, observations)	SYMBOL	CONSISTENCY (cohesive soils) or RELATIVE DENSITY (sands and gravels)	MOISTURE
			CONCRETE: 100 mm thick			
	S61 @ 0.2 m		SAND: yellow brown, fine to medium grained	SP		M
						M/VM
WT		1.0	FILL			WET
	S62/63/64 @ 1.5 m		SILTY SAND: dark grey, fine to medium grained	SM		WET
		2.0	FILL			
			SILTY CLAY: light grey with orange brown, medium to high plasticity	CL/CH		M
	S65 @ 3.0 m	3.0	BOREHOLE DISCONTINUED AT 3.0 M			
		4.0				
		5.0				

NOTES: D - disturbed sample U - undisturbed tube sample B - bulk sample
WT - level of water table or free water N - Standard Penetration Test (SPT)

See explanation sheets for meaning of all descriptive terms and symbols

Contractor: STS
Equipment: Edson RP70
Hole Diameter (mm): 100
Angle from Vertical (°) 0

STS GeoEnvironmental Pty Ltd

GEOTECHNICAL LOG - NON CORE BOREHOLE

Client: Columbia Lane Development Pty Limited	Project: 21024 / 7145C	**BOREHOLE NO.: BH 15**
Project: 11 - 17 Columbia Lane, Homebush	Date : 19/07/2016	
Location: Refer to Drawing No. 19/1315	Logged: JK	Sheet 1 of 1

WATER TABLE	SAMPLES	DEPTH (m)	DESCRIPTION OF DRILLED PRODUCT (Soil type, colour, grain size, plasticity, minor components, observations)	SYMBOL	CONSISTENCY (cohesive soils) or RELATIVE DENSITY (sands and gravels)	MOISTURE
			ASPHALT/SANDY GRAVEL: dark grey, fine to medium grained	GW		D
	S66 @ 0.3 m		GRAVELLY CLAYEY SAND: dark grey and black with light grey, fine grained, some gravel FILL	GW/GC		M
	S67 @ 0.7 m		SILTY CLAY: light brown and orange brown with light grey, medium to high plasticity	CL/CH		M-VM
		1.0				
			BOREHOLE DISCONTINUED AT 1.2 M			
		2.0				
		3.0				
		4.0				
		5.0				

NOTES: D - disturbed sample U - undisturbed tube sample B - bulk sample
WT - level of water table or free water N - Standard Penetration Test (SPT)

See explanation sheets for meaning of all descriptive terms and symbols

Contractor: STS
Equipment: Edson RP70
Hole Diameter (mm): 100
Angle from Vertical (°) 0

STS GeoEnvironmental Pty Ltd

GEOTECHNICAL LOG - NON CORE BOREHOLE

Client: Columbia Lane Development Pty Limited
Project: 11 - 17 Columbia Lane, Homebush
Location: Refer to Drawing No. 19/1315

Project: 21024 / 7145C
Date : 19/07/2016
Logged: JK

BOREHOLE NO.: BH 16

Sheet 1 of 1

WATER TABLE	SAMPLES	DEPTH (m)	DESCRIPTION OF DRILLED PRODUCT (Soil type, colour, grain size, plasticity, minor components, observations)	SYMBOL	CONSISTENCY (cohesive soils) or RELATIVE DENSITY (sands and gravels)	MOISTURE
	S68 @ 0.2 m		SILTY CLAY: dark grey with orange brown, medium plasticity, traces of gravel FILL	CL		M
	S69 @ 0.5 m	1.0	SILTY CLAY: orange brown with light grey, medium to high plasticity	CL/CH		M
		2.0	SILTY CLAY: light grey with orange brown, medium to high plasticity	CL/CH		M
		3.0				
		4.0				M-VM
WT		5.0				WET
			WEATHERED SHALE: dark grey, clay seams		EXTREMELY LOW STRENGTH	M-D
			BOREHOLE DISCONTINUED AT 6.0 M Standpipe Piezometer Installed			

NOTES: D - disturbed sample U - undisturbed tube sample B - bulk sample
WT - level of water table or free water N - Standard Penetration Test (SPT)

See explanation sheets for meaning of all descriptive terms and symbols

Contractor: STS
Equipment: Edson RP70
Hole Diameter (mm): 100
Angle from Vertical (°) 0

STS GeoEnvironmental Pty Ltd

GEOTECHNICAL LOG - NON CORE BOREHOLE

Client: Columbia Lane Development Pty Limited
Project: 11 - 17 Columbia Lane, Homebush
Location: Refer to Drawing No. 19/1315

Project: 21024 / 7145C
Date : 19/07/2016
Logged: JK

BOREHOLE NO.: BH 17

Sheet 1 of 1

WATER TABLE	SAMPLES	DEPTH (m)	DESCRIPTION OF DRILLED PRODUCT (Soil type, colour, grain size, plasticity, minor components, observations)	SYMBOL	CONSISTENCY (cohesive soils) or RELATIVE DENSITY (sands and gravels)	MOISTURE
	S70/71/72 @ 0.2 m		SILTY CLAY: dark brown and red brown with dark grey and light grey, medium plasticity, traces of gravel	CL		D
			FILL			M
	S73 @ 0.8 m		SILTY CLAY: light grey and brown with orange brown, medium plasticity	CL		M-VM
		1.0	BOREHOLE DISCONTINUED AT 1.0 M			
		2.0				
		3.0				
		4.0				
		5.0				

NOTES: D - disturbed sample U - undisturbed tube sample B - bulk sample
WT - level of water table or free water N - Standard Penetration Test (SPT)

See explanation sheets for meaning of all descriptive terms and symbols

Contractor: STS
Equipment: Edson RP70
Hole Diameter (mm): 100
Angle from Vertical (°) 0

STS GeoEnvironmental Pty Ltd

GEOTECHNICAL LOG - NON CORE BOREHOLE

Client: Columbia Lane Development Pty Limited	Project: 21024 / 7145C	**BOREHOLE NO.: BH 18**
Project: 11 - 17 Columbia Lane, Homebush	Date : 19/07/2016	
Location: Refer to Drawing No. 19/1315	Logged: JK	Sheet 1 of 1

WATER TABLE	SAMPLES	DEPTH (m)	DESCRIPTION OF DRILLED PRODUCT (Soil type, colour, grain size, plasticity, minor components, observations)	SYMBOL	CONSISTENCY (cohesive soils) or RELATIVE DENSITY (sands and gravels)	MOISTURE
			ASPHALT/SANDY GRAVEL: dark grey, fine to medium grained	GW		D
	S74 @ 0.2 m		SILTY CLAY: light brown and grey with orange brown, medium plasticity	CL		M
			BOREHOLE DISCONTINUED AT 0.5 M			
		1.0				
		2.0				
		3.0				
		4.0				
		5.0				

NOTES: D - disturbed sample U - undisturbed tube sample B - bulk sample
WT - level of water table or free water N - Standard Penetration Test (SPT)

See explanation sheets for meaning of all descriptive terms and symbols

Contractor: STS
Equipment: Edson RP70
Hole Diameter (mm): 100
Angle from Vertical (°) 0

STS GeoEnvironmental Pty Ltd

GEOTECHNICAL LOG - NON CORE BOREHOLE

Client: Columbia Lane Development Pty Limited	Project: 21024 / 7145C	**BOREHOLE NO.: BH 19**
Project: 11 - 17 Columbia Lane, Homebush	Date : 19/07/2016	
Location: Refer to Drawing No. 19/1315	Logged: JK	Sheet 1 of 1

WATER TABLE	SAMPLES	DEPTH (m)	DESCRIPTION OF DRILLED PRODUCT (Soil type, colour, grain size, plasticity, minor components, observations)	SYMBOL	CONSISTENCY (cohesive soils) or RELATIVE DENSITY (sands and gravels)	MOISTURE
			ASPHALT/SILTY GRAVEL: dark grey, fine to medium grained	GW		D
	S75 @ 0.2 m		GRAVELLY SANDY CLAY: black and dark grey, fine to medium grained, low plasticity, some gravel	CL		M
	S76 @ 0.4 m		SILTY CLAY: orange brown with light grey, medium to high plasticity	CL/CH		M
		1.0	BOREHOLE DISCONTINUED AT 1.0 M			
		2.0				
		3.0				
		4.0				
		5.0				

NOTES: D - disturbed sample U - undisturbed tube sample B - bulk sample
WT - level of water table or free water N - Standard Penetration Test (SPT)

See explanation sheets for meaning of all descriptive terms and symbols

Contractor: STS
Equipment: Edson RP70
Hole Diameter (mm): 100
Angle from Vertical (°) 0

STS GeoEnvironmental Pty Ltd

GEOTECHNICAL LOG - NON CORE BOREHOLE

Client: Columbia Lane Development Pty Limited
Project: 11 - 17 Columbia Lane, Homebush
Location: Refer to Drawing No. 19/1315

Project: 21024 / 7145C
Date : 19/07/2016
Logged: JK

BOREHOLE NO.: BH 20

Sheet 1 of 1

WATER TABLE	SAMPLES	DEPTH (m)	DESCRIPTION OF DRILLED PRODUCT (Soil type, colour, grain size, plasticity, minor components, observations)	SYMBOL	CONSISTENCY (cohesive soils) or RELATIVE DENSITY (sands and gravels)	MOISTURE
			CONCRETE: 180 mm thick			
	S77 @ 0.3 m		GRAVELLY SANDY CLAY: black, fine grained, low plasticity, some gravel	CL		M
			FILL			M-VM
WT	S78 @ 1.0 m	1.0	SILTY CLAY: light grey with orange brown, medium to high plasticity	CL/CH		M-VM WET
		2.0				
		3.0				
		4.0	BOREHOLE DISCONTINUED AT 4.0 M			
		5.0				

NOTES: D - disturbed sample U - undisturbed tube sample B - bulk sample
WT - level of water table or free water N - Standard Penetration Test (SPT)

See explanation sheets for meaning of all descriptive terms and symbols

Contractor: STS
Equipment: Edson RP70
Hole Diameter (mm): 100
Angle from Vertical (°) 0

STS GeoEnvironmental Pty Ltd

GEOTECHNICAL LOG - NON CORE BOREHOLE

Client: Columbia Lane Development Pty Limited
Project: 11-17 Columbia Lane, Homebush
Location: Refer to Drawing No. 19/1315

Project: 21024/1934D-E
Date : May 20, 2019
Logged: JK Checked By: CR

BOREHOLE NO.: BH 21

Sheet 1 of 1

WATER TABLE	SAMPLES	DEPTH (m)	DESCRIPTION OF DRILLED PRODUCT (Soil type, colour, grain size, plasticity, minor components, observations)	SYMBOL	CONSISTENCY (cohesive soils) or RELATIVE DENSITY (sands and gravels)	MOISTURE
	S80		CONCRETE: (120 mm thick)			
	@ 0.2 m		GRAVELLY CLAYEY SAND: light grey, fine grained, some gravel (concrete)	SC		D
	ASS1 @ 0.5 m					
	ASS2 @ 1.0 m	1.0				
	S81/ASS3 @ 1.5 m		FILL			
			SILTY CLAY: light grey with yellow brown and occasional red brown, medium plasticity	CL		M
	S82/ASS4 @ 2.0 m	2.0	SILTY CLAY: orange brown/yellow brown with light grey, medium plasticity, trace of sand	CL		M
	ASS5 @ 2.5 m					
	S83/ASS6 @ 3.0 m	3.0				
			SILTY CLAY: orange brown, medium plasticity, trace of gravel (sub-well rounded)	CL		M-W
	ASS7 @ 3.5 m					
WT 20/5/19						
	ASS8 @ 4.0 m	4.0				
	ASS9 @ 4.5 m					
	ASS10 @ 5.0 m	5.0				
	ASS11 @ 5.5 m					
			WEATHERED SHALE: dark grey with some light grey, clay seams		EXTREMELY LOW STRENGTH	M
			BOREHOLE DISCONTINUED AT 6.0 ON WEATHERED SHALE			

D - disturbed sample
U - undisturbed tube sample
B - bulk sample
WT - level of water table or free water
N - Standard Penetration Test (SPT)
S - jar sample

Contractor: STS
Equipment: Mini Christie
Hole Diameter (mm): 100
Angle from Vertical (°): 0
Drill Bit: Spiral

NOTES: See explanation sheets for meaning of all descriptive terms and symbols

STS GeoEnvironmental Pty Ltd

GEOTECHNICAL LOG - NON CORE BOREHOLE

Client: Columbia Lane Development Pty Limited	Project: 21024/1934D-E	**BOREHOLE NO.: BH 22**
Project: 11-17 Columbia Lane, Homebush	Date : May 20, 2019	
Location: Refer to Drawing No. 19/1315	Logged: JK Checked By: CR	Sheet 1 of 1

WATER TABLE	SAMPLES	DEPTH (m)	DESCRIPTION OF DRILLED PRODUCT (Soil type, colour, grain size, plasticity, minor components, observations)	SYMBOL	CONSISTENCY (cohesive soils) or RELATIVE DENSITY (sands and gravels)	MOISTURE
	S84 @ 0.2 m		CONCRETE: (180 mm thick)			
	S85/ASS12 @ 0.5 m		SILTY CLAY: dark grey with orange brown, medium plasticity, trace of fine sand, trace of gravel FILL	CL		M
	ASS13 @ 1.0 m	1.0	SILTY CLAY: light grey with orange brown, medium to high plasticity	CL/CH		M
	S86/ASS14 @ 1.5 m		SILTY CLAY: light grey with orange brown and red brown, medium to high plasticity	CL/CH		M
	S87/ASS15 @ 2.0 m	2.0	SILTY CLAY: light grey with red brown, high plasticity	CH		M
	ASS16 @ 2.5 m					
	S88/ASS17 @ 3.0 m	3.0	SILTY CLAY: light grey with orange brown, high plasticity, trace of shale gravel	CH		M
	ASS18 @ 3.5 m					
		4.0	WEATHERED SHALE: dark grey with light grey and orange brown, clay seams		EXTREMELY LOW STRENGTH	D
			BOREHOLE DISCONTINUED AT 45 M ON WEATHERED SHALE			
		5.0				

D - disturbed sample U - undisturbed tube sample B - bulk sample

WT - level of water table or free water N - Standard Penetration Test (SPT)

S - jar sample

NOTES: See explanation sheets for meaning of all descriptive terms and symbols

Contractor: STS

Equipment: Mini Christie

Hole Diameter (mm): 100

Angle from Vertical (^{o}): 0

Drill Bit: Spiral

STS GeoEnvironmental Pty Ltd

GEOTECHNICAL LOG - NON CORE BOREHOLE

Client: Columbia Lane Development Pty Limited	Project: 21024/1934D-E	**BOREHOLE NO.: BH 23**
Project: 11-17 Columbia Lane, Homebush	Date : May 20, 2019	Sheet 1 of 1
Location: Refer to Drawing No. 19/1315	Logged: JK Checked By: CR	

WATER TABLE	SAMPLES	DEPTH (m)	DESCRIPTION OF DRILLED PRODUCT (Soil type, colour, grain size, plasticity, minor components, observations)	SYMBOL	CONSISTENCY (cohesive soils) or RELATIVE DENSITY (sands and gravels)	MOISTURE
	S89/S90/S91 @ 0.2 m ASS19 @ 0.5 m S92 @ 0.8 m ASS20 @ 1.0 m	1.0	GRAVELLY SANDY CLAY: dark grey with orange brown and black, fine grained, low plasticity, some gravel/glass/ash FILL SANDY CLAY: dark brown with orange brown, light grey and dark grey, medium plasticity, trace of gravel FILL	CL CL		D M
	EIL1 0.0-1.0 m S93/ASS21 @ 1.5 m EIL 1.0-2.0 m S94/ASS22 @ 2.0 m	2.0	SILTY CLAY: light grey with orange brown and red brown, medium to high plasticity SILTY CLAY: red brown with light grey, medium to high plasticity	CL/CH CL/CH		M M
	ASS23 @ 2.5 m EIL3 2.0-3.0 m S95/ASS24 @ 3.0 m	3.0	SILTY CLAY: light grey with orange brown and red brown, medium to high plasticity	CL/CH		M
	ASS25 @ 3.5 m ASS26 @ 4.0 m ASS27 @ 4.5 m	4.0	SILTY CLAY: light grey, high plasticity	CH		M
	ASS28 @ 5.0 m ASS29 @ 5.5 m	5.0	SILTY CLAY: orange brown, medium to high plasticity, trace of gravel	CL/CH		M
			WEATHERED SHALE: dark grey with light grey, clay seams BOREHOLE DISCONTINUED AT 6.0 M		EXTREMELY LOW STRENGTH	D

D - disturbed sample U - undisturbed tube sample B - bulk sample

WT - level of water table or free water N - Standard Penetration Test (SPT)

S - jar sample

NOTES: See explanation sheets for meaning of all descriptive terms and symbols

Contractor: STS

Equipment: Mini Christie

Hole Diameter (mm): 100

Angle from Vertical (°): 0

Drill Bit: Spiral

STS GeoEnvironmental Pty Ltd

GEOTECHNICAL LOG - NON CORE BOREHOLE

Client: Columbia Lane Development Pty Limited	Project: 21024/1934D-E	**BOREHOLE NO.: BH 24**
Project: 11-17 Columbia Lane, Homebush	Date : May 20, 2019	
Location: Refer to Drawing No. 19/1315	Logged: JK Checked By: CR	Sheet 1 of 1

WATER TABLE	SAMPLES	DEPTH (m)	DESCRIPTION OF DRILLED PRODUCT (Soil type, colour, grain size, plasticity, minor components, observations)	SYMBOL	CONSISTENCY (cohesive soils) or RELATIVE DENSITY (sands and gravels)	MOISTURE
	S96		ASPHALTIC CONCRETE: (50 mm thick)			
	@ 0.2 m		SANDY GRAVEL: dark grey/black, fine to medium grained sand, gravel, ash FILL	GW		D
	S97/ASS30 @ 0.5 m		SILTY CLAY: orange brown with light grey and red brown, medium to high plasticity	CL/CH		M
	ASS31 @ 1.0 m	1.0	SILTY CLAY: light grey with red brown and orange brown, medium to high plasticity	CL/CH		M
	S98/ASS32 @ 1.5 m					
	ASS33 @ 2.0 m	2.0	SILTY SANDY CLAY: light grey with yellow brown/orange brown, fine grained sand, medium plasticity	CL		M
	S99/ASS34 @ 2.5 m					
	S100/ASS35 @ 3.0 m	3.0	SILTY SANDY CLAY: yellow brown with light grey, fine grained sand, medium plasticity	CL		M
	ASS36 @ 3.5 m		SILTY CLAY: orange brown, fine grained sand, medium plasticity, some gravel, cobbles	CL		M-W
WT 20/5/19						
		4.0	AUGER REFUSAL AT 3.8 M			
		5.0				

D - disturbed sample U - undisturbed tube sample B - bulk sample

WT - level of water table or free water N - Standard Penetration Test (SPT)

S - jar sample

NOTES: See explanation sheets for meaning of all descriptive terms and symbols

Contractor: STS

Equipment: Mini Christie

Hole Diameter (mm): 100

Angle from Vertical (^{o}): 0

Drill Bit: Spiral

STS GeoEnvironmental Pty Ltd **GEOTECHNICAL LOG - NON CORE BOREHOLE**

Client: Columbia Lane Development Pty Limited	Project: 21024/1934D-E	**BOREHOLE NO.: BH 24A**
Project: 11-17 Columbia Lane, Homebush	Date : May 21, 2019	
Location: Refer to Drawing No. 19/1315	Logged: BH Checked By: CR	Sheet 1 of 1

WATER TABLE	SAMPLES	DEPTH (m)	DESCRIPTION OF DRILLED PRODUCT (Soil type, colour, grain size, plasticity, minor components, observations)	SYMBOL	CONSISTENCY (cohesive soils) or RELATIVE DENSITY (sands and gravels)	MOISTURE
			ASPHALTIC CONCRETE: (50 mm thick)			
	S107/S108/ S109 @ 0.5 m		SILTY CLAY: orange brown, medium plasticity, trace of gravel	CL		M
	S110 @ 0.8 m					
		1.0	SILTY CLAY: red brown and light grey, medium to high plasticity, trace of gravel	CL/CH		M
	S111 @ 1.5 m		SILTY SANDY CLAY: orange brown and light grey, high plasticity, trace of gravel	CH		M
		2.0				
	S112 @ 2.5 m					
		3.0				
	S113 @ 3.3 m		SILTY SANDY CLAY: brown, high plasticity, trace of gravel	CH		M
	ASS47 @ 4.0 m	4.0				
			GRAVELLY SILTY CLAY: brown, high plasticity	CH		M
	ASS48 @ 4.5 m					
			AUGER REFUSAL AT 4.5 M			
		5.0				

D - disturbed sample U - undisturbed tube sample B - bulk sample

WT - level of water table or free water N - Standard Penetration Test (SPT)

S - jar sample

NOTES: See explanation sheets for meaning of all descriptive terms and symbols

Contractor: STS

Equipment: Christie

Hole Diameter (mm): 100

Angle from Vertical (^{o}): 0

Drill Bit: Spiral

STS GeoEnvironmental Pty Ltd

GEOTECHNICAL LOG - NON CORE BOREHOLE

Client: Columbia Lane Development Pty Limited
Project: 11-17 Columbia Lane, Homebush
Location: Refer to Drawing No. 19/1315

Project: 21024/1934D-E
Date : May 20, 2019
Logged: JK Checked By: CR

BOREHOLE NO.: BH 25

Sheet 1 of 1

WATER TABLE	SAMPLES	DEPTH (m)	DESCRIPTION OF DRILLED PRODUCT (Soil type, colour, grain size, plasticity, minor components, observations)	SYMBOL	CONSISTENCY (cohesive soils) or RELATIVE DENSITY (sands and gravels)	MOISTURE
	S101/S102/ S103/ASS37 @ 0.5 m		CONCRETE: (420 mm thick)			
			GRAVELLY SANDY CLAY: dark grey/black with orange brown, fine grained sand, medium plasticity, some gravel, ash FILL	CL		M
	S104/ASS38 @ 1.0 m	1.0	SILTY CLAY: red brown with orange brown and light grey, medium to high plasticity	CL/CH		M
	ASS39 @ 1.5 m					
	S105/ASS40 @ 2.0 m	2.0	SILTY CLAY: light grey with yellow brown, medium plasticity, trace of fine grained sand	CL		M
	ASS41 @ 2.5 m					
	S106/ASS42 @ 3.0 m	3.0	SILTY CLAY: light grey, high plasticity	CH		M
	ASS43 @ 3.5 m					
	ASS44 @ 4.0 m	4.0				
			SILTY CLAY: red brown with light grey, medium to high plasticity, trace of ironstone gravel	CL/CH		M-W
WT 20/5/19	ASS45 @ 4.5 m					
	ASS46 @ 5.0 m	5.0				
			SILTY CLAY: dark grey with light grey, medium to high plasticity, trace of shale gravel (CW Shale)	CL/CH		M
			WEATHERED SHALE: dark grey with light grey, clay seams		EXTREMELY LOW STRENGTH	D
			BOREHOLE DISCONTINUED AT 6.0 M ON WEATHERED SHALE			

D - disturbed sample
U - undisturbed tube sample
B - bulk sample
WT - level of water table or free water
N - Standard Penetration Test (SPT)
S - jar sample

NOTES: See explanation sheets for meaning of all descriptive terms and symbols

Contractor: STS
Equipment: Mini Christie
Hole Diameter (mm): 100
Angle from Vertical (^{o}): 0
Drill Bit: Spiral

STS GeoEnvironmental Pty Ltd

GEOTECHNICAL LOG - NON CORE BOREHOLE

Client: Columbia Lane Development Pty Limited
Project: 11-17 Columbia Lane, Homebush
Location: Refer to Drawing No. 19/1315

Project: 21024/1934D-E
Date : May 21, 2019
Logged: BH Checked By: CR

BOREHOLE NO.: BH 26

Sheet 1 of 1

WATER TABLE	SAMPLES	DEPTH (m)	DESCRIPTION OF DRILLED PRODUCT (Soil type, colour, grain size, plasticity, minor components, observations)	SYMBOL	CONSISTENCY (cohesive soils) or RELATIVE DENSITY (sands and gravels)	MOISTURE
			CONCRETE: (300 mm thick)			
	S114/S115/ S116 @ 0.5 m		SILTY SANDY CLAY: brown, medium to high plasticity, trace of gravel FILL	CL/CH		M
	S117 @ 0.9 m EIL4 @ 0.9 m EIL5 1.5-2.5 m	1.0	GRAVELLY SILTY CLAY: red brown, low plasticity	CL		D-M
	S118 @ 1.8 m	2.0	SILTY CLAY: brown, some orange brown, high plasticity, trace of gravel	CH		M
	S119/S120/ S121 @ 2.6 m EIL6 2.6-2.9 m		SILTY CLAY: red brown and light grey, high plasticity, trace of gravel	CH		M
		3.0	SILTY CLAY: light brown, high plasticity, trace of gravel	CH		M
	S122 @ 3.4 m		SILTY SANDY CLAY: light grey brown, high plasticity, trace of gravel	CH		M
			AUGER REFUSAL AT 3.5 M			
		4.0				
		5.0				

D - disturbed sample
U - undisturbed tube sample
B - bulk sample
WT - level of water table or free water
N - Standard Penetration Test (SPT)
S - jar sample

NOTES: See explanation sheets for meaning of all descriptive terms and symbols

Contractor: STS
Equipment: Christie
Hole Diameter (mm): 100
Angle from Vertical (°): 0
Drill Bit: Spiral

APPENDIX H – GROUNDWATER PURGING RECORDS

SMEC Testing Services Pty Ltd
14/1 Cowpasture Place, Wetherill Park NSW 2164
Phone: (02)9756 2166 Fax: (02)9756 1137 Email: enquiries@smectesting.com.au

WELL PURGING FIELD PARAMETERS

Job No: 21024 Date: 20/5/19 RL Top of PVC:
Well No: GW1 RL Pavement:
Client: By: CR Stick Up: 0.80 m
Project: 19340-a Depth to Water: 3.6 m from top PVC
Time Start: 1130 RL Top of Water:
Time End: 1220 Depth of Well: 7. m from top PVC
Standpipe Vol.: litres Pump Method: RG21
LNAPL Present? Yes/(No) Meters Calibrated? (Yes)/No
Depth to Water after Sampling: m Depth to Pump Intake: 5.5 m

Time (min)	Drawdown (m)	Flow rate (L/min)	Cum. Vol. (L)	Temp. (C)	EC (µs/cm)	pH (units)	Redox (mv)	DO (ppm)	Comments
2.5	3.83	0.15	0.375	27.6	7318	6.17	178.4	0.58	
6.	3.88	0.15	0.9	22.9	7621	6.08	169.2	0.37	
11	3.96	0.15	1.65	22.7	7125	6.12	156.3	0.53	
19.	4.12	0.15	2.85	22.9	6630	6.16	141.3	0.66	
24	4.19	0.15	3.6	23.1	6216	6.19	124.7	0.65	
29.	4.26	0.15	4.35	23.0	6137	6.22	115.4	0.64	
36.	4.32	0.15	5.25	23.2	5956	6.24	103.7	0.66	
39.	4.38	0.15	5.85	22.4	5879	6.25	97.2	0.68	
43	4.43.	0.15	6.45	23.0	5902	6.25	93.7	0.63	
46	4.47	0.15	6.9	23.3	5964	6.25	90.7	0.64	
Stabilisation Criteria					±3%	±0.1	±10	±10%	**Stabilisation Achieved? Yes/No**

Sampling Details

TPH ☒ SVOCs ☐ PAHs ☒ Sulfate ☐ Cations ☐ Anions ☐
BTEX ☑ VOCs ☑ Ammonia ☐ OCP/OPP ☐ Metals ☒ Filtered? ☒
Cyanide ☐ Turbidity L☐ M☐ H☐ Sheen? Yes/(No) Colour ..... Odour .....
Sample No. GW1-1 QC Duplicate No. — No. bottles .....

Cold	☐	Cool	☐	Mild	☒	Dry	☐	Humid	☐	Medium	☐	Rain	☐
Warm	☐	Hot	☐	Clear	☒	Cloudy	☐	Still	☑	Breeze	☐	Windy	☐

SMEC Testing Services Pty Ltd
14/1 Cowpasture Place, Wetherill Park NSW 2164
Phone: (02)9756 2166 Fax: (02)9756 1137 Email: enquiries@smectesting.com.au

WELL PURGING FIELD PARAMETERS

Job No: 21024 Date: 20/5/19 RL Top of PVC:
Well No: GW2 RL Pavement:
Client: [redacted] By: CR Stick Up: 0.64 m
Project: DSI - 19240-R Depth to Water: 3.4 m from top PVC
Time Start: 10.07 RL Top of Water:
Time End: 11:00 Depth of Well: 5.0 m from top PVC
Standpipe Vol.: litres Pump Method: PERISTALTIC
LNAPL Present? Yes/(No) Meters Calibrated? (Yes)/No
Depth to Water after Sampling: m Depth to Pump Intake: 4.2 m
(GW SWL (m))

Time (min)	Drawdown (m)	Flow rate (L/min)	Cum. Vol. (L)	Temp. (C)	EC (µs/cm)	pH (units)	Redox (mv)	DO (ppm)	Comments
1	3.41	0.15	0.15	22.3	938	6.65	114.6	~~11.0~~	0.90
5	3.41	0.15	0.75	22.4	9.32	6.56	114.9	0.80	
9	3.49	0.15	1.35	22.5	934	6.43	115.6	0.75	
13	3.51	0.15	1.95	22.6	939	6.41	117.3	0.71	
20	3.63	0.15	3.00	22.7	961	6.39	119.7	0.62	
25	3.70	0.15	3.75	22.8	984	6.39	121.0	0.53	
30	3.73	0.15	4.5	22.8	999	6.39	122.1	0.46	
37	3.80	0.15	5.55	22.7	1019	6.40	123.4	0.40	
42	3.83	0.15	6.30	22.8	1033	6.40	124.1	0.37	
45	3.85	0.15	6.75	22.9	1046	6.40	124.3	0.36	
Stabilisation Criteria					±3%	±0.1	±10	±10%	**Stabilisation Achieved? Yes/No**

Sampling Details

TPH ☑ SVOCs ☐ PAHs ☑ Sulfate ☐ Cations ☐ Anions ☐
BTEX ☑ VOCs ☑ Ammonia ☐ OCP/OPP ☐ Metals ☑ Filtered? ☐
Cyanide ☐ Turbidity L☐ M☐ H☐ Sheen? Yes/No Colour clear turbid Odour light hydr
Sample No. GW2-1 QC Duplicate No. GW22 / GW2-3 No. bottles

Cold	☐	Cool	☒	Mild	☐	Dry	☒	Humid	☐	Medium	☐	Rain	☐
Warm	☐	Hot	☐	Clear	☐	Cloudy	☒	Still	☐	Breeze	☒	Windy	☐

SMEC Testing Services Pty Ltd
14/1 Cowpasture Place, Wetherill Park NSW 2164
Phone: (02)9756 2166 Fax: (02)9756 1137 Email: enquiries@smectesting.com.au

WELL PURGING FIELD PARAMETERS

Job No: 21024 Date: 20/5/19 RL Top of PVC:
Well No: GW 3 RL Pavement:
Client: By: CR Stick Up: 0.55 m
Project: 1934 nr Depth to Water: 3.85 m from top PVC
Time Start: 15:35 RL Top of Water:
Time End: 16:30 Depth of Well: 9 m from top PVC
Standpipe Vol.: litres Pump Method: RSR1
LNAPL Present? Yes/(No) Meters Calibrated? (Yes)/No
Depth to Water after Sampling: 6.05 m Depth to Pump Intake: 6.2 m

Time (min)	Drawdown (m)	Flow rate (L/min)	Cum. Vol. (L)	Temp. (C)	EC (µs/cm)	pH (units)	Redox (mv)	DO (ppm)	Comments
2	3.89	0.12	0.24	22.7	3912	6.39	-29.8	0.63	
7	4.01	0.12	0.84	22.6	37.57	6.10	-64.5	0.31	
12.	4.26	0.12	1.44	22.6	3681	5.99	-56.0	0.26	
17.	4.45	0.12	2.04	22.6	3568	5.96	-41.1	0.30	
23	4.65	0.12	2.76	22.6	3421	5.85	-33.4	0.38	
30.	4.92	0.12	3.60	22.6	3261	5.81	-27.4	0.38	
36	5.18	0.12	4.32	22.6	3056	5.77	-18.5	0.39	
41	5.36	0.12	4.92	22.5	2855	5.78	-10.2	0.51	
45	5.54	0.12	5.40	22.5	2739	5.83	-3.3	0.76	
48	5.66	0.12	5.76	22.5	2705	5.87	-2.5	0.81	
51	5.80	0.12	6.12	22.5	2692	5.84	1.3	0.81	
54.	5.88	0.12	6.48	22.5	2730	5.83	3.1	0.72	Stabilisation Achieved? Yes/No
Stabilisation Criteria					±3%	±0.1	±10	±10%	

Sampling Details

TPH ☒ SVOCs ☐ PAHs ☒ Sulfate ☐ Cations ☐ Anions ☐
BTEX ☒ VOCs ☒ Ammonia ☐ OCP/OPP ☐ Metals ☒ Filtered? ☒
Cyanide ☐ Turbidity L☐ M☐ H☐ Sheen? Yes/(No) Colour ..... Odour .....
Sample No. GW3-1 QC Duplicate No. ..... No. bottles .....

Cold	☐	Cool	☒	Mild	☐	Dry	☒	Humid	☐	Medium	☐	Rain	☐
Warm	☐	Hot	☐	Clear	☐	Cloudy	☒	Still	☐	Breeze	☒	Windy	☐

SMEC Testing Services Pty Ltd
14/1 Cowpasture Place, Wetherill Park NSW 2164
Phone: (02)9756 2166 Fax: (02)9756 1137 Email: enquiries@smectesting.com.au

WELL PURGING FIELD PARAMETERS

Job No: 21024 Date: 20/5/19 RL Top of PVC:
Well No: GW4 RL Pavement:
Client: 1 By: CR Stick Up: 0.3 m
Project: 1934 D Depth to Water: 4.16 m from top PVC
Time Start: 1245 RL Top of Water:
Time End: 13:36 Depth of Well: 7.5 m from top PVC
Standpipe Vol.: litres Pump Method: PEGI.
LNAPL Present? Yes/(No) Meters Calibrated? (Yes)/No
Depth to Water after Sampling: m Depth to Pump Intake: 6m

Time (min)	Drawdown (m)	Flow rate (L/min)	Cum. Vol. (L)	Temp. (C)	EC (µs/cm)	pH (units)	Redox (mv)	DO (ppm)	Comments
2.		0.15	0.3	25.7	3670	6.68	-16.4	6.37	
6	4.5	0.15	0.9	22.4	3677	6.67	-53.4	0.18	
10	4.68	0.15	1.5	22.0	3656	6.62	-43.3	0.23	
15	4.84	0.15	2.25	21.9	3636	662	-35.4	0.27	
20	5.0	0.15.	3.0	21.7	3625	6.63	-35.3	0.29	
26.	5.16	0.15	3.9	21.6	3619	6.64	-39.9	0.33	
33	5.30	0.15	4.95	21.5	3623	6.66	-46.9	0.33	
39	5.36	0.15	5.85	21.4	3645	6.67	-54.1	0.35	
42.	5.39	0.15	6.3	21.4	3663	6.69	-57.0	0.35	
46.	5.42	0.15	6.9	21.4	3674	6.70	-59.5	0.35	
Stabilisation Criteria					±3%	±0.1	±10	±10%	**Stabilisation Achieved? Yes/No**

Sampling Details

TPH ☒ SVOCs ☐ PAHs ☒ Sulfate ☐ Cations ☐ Anions ☐
BTEX ☒ VOCs ☒ Ammonia ☐ OCP/OPP ☐ Metals ☒ Filtered? ☒
Cyanide ☐ Turbidity L☐ M☐ H☐ Sheen? Yes/(No) Colour Brown/Turbid Odour
Sample No. GW4-1 QC Duplicate No. No. bottles

Cold	☐	Cool	☒	Mild	☐	Dry	☒	Humid	☐	Medium	☐	Rain	☐
Warm	☐	Hot	☐	Clear	☐	Cloudy	☒	Still	☐	Breeze	☐	Windy	☐

SMEC Testing Services Pty Ltd
14/1 Cowpasture Place, Wetherill Park NSW 2164
Phone: (02)9756 2166 Fax: (02)9756 1137 Email: enquiries@smectesting.com.au

WELL PURGING FIELD PARAMETERS

Job No: 21024 Date: 20/5/19 RL Top of PVC:

Well No: GWS RL Pavement:

Client: COLUMBIA LIME DESIGN By: CR Stick Up: — m

Project: 19340 Depth to Water: 5.58 m from top PVC

Time Start: 14.20 RL Top of Water:

Time End: 15.10 Depth of Well: 10 m from top PVC

Standpipe Vol.: litres Pump Method: PERISTALTIC

LNAPL Present? Yes/(No) Meters Calibrated? (Yes)/No

Depth to Water after Sampling: m Depth to Pump Intake: 7.2 m

Time (min)	Drawdown (m)	Flow rate (L/min)	Cum. Vol. (L)	Temp. (C)	EC (µs/cm)	pH (units)	Redox (mv)	DO (ppm)	Comments
1.5	5.50	0.12	–	20.9	19015	6.33	35.1	0.72	
6.	5.51	0.12	0.72	20.9	19020	6.24	21.2	0.42	
11	5.52	0.12	1.32	20.9	18950	6.23	34.4	0.44	
16	5.53	0.12	1.92	20.9	18899	6.26	53.3	0.58	
22	5.54	0.12	2.64	20.8	18840	6.16	95.4	1.09	
28.	5.56	0.12	3.36	20.8	18826	6.14	119.9	1.27	
34	5.57	0.12	4.08	20.8	18826	6.16	134	1.59	
39.	5.58	0.12	4.68	20.8	18779	6.16	141.0	1.63	
42.	5.58	0.12	5.04	20.7	18710	6.15	142.8	1.65	
45.	5.59	0.12	5.4	20.7	18612	6.17	144.0	1.65	
Stabilisation Criteria					±3%	±0.1	±10	±10%	**Stabilisation Achieved? Yes/No**

Sampling Details

TPH ☒ SVOCs ☐ PAHs ☑ Sulfate ☐ Cations ☐ Anions ☐

BTEX ☒ VOCs ☑ Ammonia ☐ OCP/OPP ☐ Metals ☒ Filtered? ☒

Cyanide ☐ Turbidity L☐ M☐ H☐ Sheen? Yes/No Colour Odour

Sample No. GWS-1 QC Duplicate No. No. bottles

Cold	☐	Cool	☒	Mild	☐	Dry	☒	Humid	☐	Medium	☐	Rain	☐
Warm	☐	Hot	☐	Clear	☐	Cloudy	☒	Still	☐	Breeze	☒	Windy	☐

APPENDIX I – EQUIPMENT CALIBRATION CERTIFICATES

Multi Parameter Water Meter

Instrument **YSI Quatro Pro Plus**
Serial No. **18J104341**

airmet
Air-Met Scientific Pty Ltd
1300 137 067

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. EC	✓	
	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 10.00		pH 10.00		324189	pH 9.82
2. pH 7.00		pH 7.00		320613	pH 6.99
3. pH 4.00		pH 4.00		324985	pH 4.12
4. mV		234mV		325420/325421	236.3mV
5. EC		2.76mS		322349	2.75mS
6. D.O		0.00ppm		329994	0.00ppm
7. Temp		18°C		MultiTherm	20.4°C

Calibrated by: K. Boardman **Kylie Boardman**

Calibration date: **16/05/2019**

Next calibration due: **15/06/2019**

PID Calibration Certificate

Instrument **PhoCheck Tiger**
Serial No. **T-114173**

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		98ppm Isobutylene	NATA	SY137		97.3ppm

Calibrated by: Sarah Lian

Calibration date: **16/05/2019**

Next calibration due: **12/11/2019**

APPENDIX J – CHAIN OF CUSTODY DOCUMENTATION

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES1614925**

Client	: **SMEC TESTING SERVICES PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: CARSTEN MATTHAI	Contact	:
Address	: P O BOX 6989 WETHERILL PARK NSW, AUSTRALIA 2164	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: cmatthai@stsgeo.com.au	E-mail	:
Telephone	: ----	Telephone	: +61-2-8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: 21024	Page	: 1 of 3
Order number	: 13153	Quote number	: ES2016SMETES0001 (SYBQ/234/15)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: JK		

Dates

Date Samples Received	: 08-Jul-2016 3:15 PM	Issue Date	: 08-Jul-2016
Client Requested Due Date	: 15-Jul-2016	Scheduled Reporting Date	: **15-Jul-2016**

Delivery Details

Mode of Delivery	: Undefined	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 12.6
Receipt Detail	:	No. of samples received / analysed	: 25 / 24

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **S11 & S24 FORWARDED TO ALS BRISBANE AS PER COC.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Asbestos analysis will be conducted by ALS Newcastle.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - EA200F Friable Asbestos Quantitation in Soil by	SOIL - S-02 8 Metals (incl. Digestion)	SOIL - S-19 TRH/BTEXN/P/Ph/OC/OP/PCB/8 metals	SOIL - S-26 8 metals/TRH/BTEXN/PAH	SOIL - STS2 STS2
ES1614925-001	[04-Jul-2016]	S1		✓	✓			✓	
ES1614925-002	[04-Jul-2016]	S2		✓			✓		
ES1614925-003	[04-Jul-2016]	S3		✓		✓			
ES1614925-004	[04-Jul-2016]	S4		✓				✓	✓
ES1614925-005	[04-Jul-2016]	S5		✓		✓			
ES1614925-006	[04-Jul-2016]	S6		✓	✓		✓		
ES1614925-007	[04-Jul-2016]	S7		✓				✓	
ES1614925-008	[04-Jul-2016]	S8		✓	✓	✓			
ES1614925-009	[04-Jul-2016]	S9		✓		✓			
ES1614925-010	[05-Jul-2016]	S10		✓				✓	
ES1614925-011	[05-Jul-2016]	S12		✓			✓		
ES1614925-012	[05-Jul-2016]	S13		✓		✓			
ES1614925-013	[05-Jul-2016]	S14		✓		✓			
ES1614925-014	[06-Jul-2016]	S15		✓	✓		✓		
ES1614925-015	[06-Jul-2016]	S16		✓				✓	
ES1614925-016	[06-Jul-2016]	S17		✓				✓	
ES1614925-017	[06-Jul-2016]	S18	✓						
ES1614925-018	[06-Jul-2016]	S19		✓					✓
ES1614925-019	[06-Jul-2016]	S20		✓	✓		✓		
ES1614925-020	[06-Jul-2016]	S21		✓				✓	
ES1614925-021	[07-Jul-2016]	S22		✓	✓			✓	
ES1614925-022	[07-Jul-2016]	S23		✓				✓	
ES1614925-023	[07-Jul-2016]	S25		✓				✓	
ES1614925-024	[07-Jul-2016]	S26		✓		✓			
ES1614925-025	[07-Jul-2016]	S27		✓					✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

CARSTEN MATTHAI

- *AU Certificate of Analysis - NATA (COA)	Email	cmatthai@stsgeo.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	cmatthai@stsgeo.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	cmatthai@stsgeo.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	cmatthai@stsgeo.com.au
- A4 - AU Tax Invoice (INV)	Email	cmatthai@stsgeo.com.au
- Chain of Custody (CoC) (COC)	Email	cmatthai@stsgeo.com.au

INVOICES (ACCOUNTS)

- A4 - AU Tax Invoice (INV)	Email	accounts@smectesting.com.au

SMEC TESTING ALL RESULTS

- *AU Certificate of Analysis - NATA (COA)	Email	enquiries@smectesting.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	enquiries@smectesting.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	enquiries@smectesting.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	enquiries@smectesting.com.au
- A4 - AU Tax Invoice (INV)	Email	enquiries@smectesting.com.au
- Chain of Custody (CoC) (COC)	Email	enquiries@smectesting.com.au
- EDI Format - ENMRG (ENMRG)	Email	enquiries@smectesting.com.au
- EDI Format - ESDAT (ESDAT)	Email	enquiries@smectesting.com.au

CHAIN OF CUSTODY

ALS Environmental

ALS Laboratory: please tick →

☐ADELAIDE 21 Burma Road Pooraka SA 5095 Ph: 08 8359 0890 E: adelaide@alsglobal.com

☐BRISBANE 32 Shand Street Stafford QLD 4053 Ph: 07 3243 7222 E: samples.brisbane@alsglobal.com

☐GLADSTONE 46 Callemondah Drive Clinton QLD 4680 Ph: 07 7471 5600 E: gladstone@alsglobal.com

☐MACKAY 78 Harbour Road Mackay QLD 4740 Ph: 07 4944 0177 E: mackay@alsglobal.com

☐MELBOURNE 2-4 Westall Road Springvale VIC 3171 Ph: 03 8549 9600 E: samples.melbourne@alsglobal.com

☐MUDGEE 27 Sydney Road Mudgee NSW 2850 Ph: 02 6372 6735 E: mudgee.mail@alsglobal.com

☐NEWCASTLE 5 Rose Gum Road Warabrook NSW 2304 Ph: 02 4968 9433 E: samples.newcastle@alsglobal.com

☐NOWRA 4/13 Geary Place North Nowra NSW 2541 Ph: 024423 2063 E: nowra@alsglobal.com

☐PERTH 10 Hod Way Malaga WA 6090 Ph: 08 9209 7655 E: samples.perth@alsglobal.com

Environmental Division
Sydney
Work Order Reference
ES1614925

Telephone : + 61-2-8784 8555

CLIENT: STS GeoEnvironmental	TURNAROUND REQUIREMENTS : (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)	X Standard TAT (List due date): 18/07/2016	FOR LABORATORY USE ONLY: Custody Seal Intact (if required) / Correct Preservation / Received
OFFICE: Wetherill Park		☐ Non Standard or urgent TAT (List due date):	
21024	ALS QUOTE NO.: SYBQ 234/15	COC SEQUENCE NUMBER (Circle) COC: (1) 2 3 4 5 6 7	Random Sample Temperature on Receipt
ORDER NUMBER: 13153		OF: 1 2 (3) 4 5 6 7	Other Comments:
PROJECT MANAGER: CM	CONTACT PH: 0499 054 333		
SAMPLER: JK	SAMPLER MOBILE: 0499 054 333	RELINQUISHED BY: CM	RECEIVED BY: mgould
COC emailed to ALS? (YES (NO)	EDD FORMAT (or default):	DATE/TIME: 8.7	DATE/TIME: 8.7.16 3:15pm
Email Reports to (will default to PM if no other addresses are listed): cmatthai@stsgeo.com.au		RELINQUISHED BY:	RECEIVED BY:
Email Invoice to (will default to PM if no other addresses are listed): cmatthai@stsgeo.com.au		DATE/TIME:	DATE/TIME:

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).								Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	S2 (8 metals)	S19 (TRH/BTEXN/PAH/ Phenols /OC/OP/PCB/8	S26 (TRH/BTEXN/ PAH/ 8 metals)	NEPM ASBESTOS (EA200F)	STS-2				Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
1	S1	4/7//2016	S	250 ml glass jar, ziplock bag	2			x	x					
2	S2	4/7//2016	S	250 ml glass jar	1		x							
3	S3	4/7//2016	S	250 ml glass jar, ziplock bag	2	x								
4	S4	4/7//2016	S	250 ml glass jar, ziplock bag	2			x		x				
5	S5	4/7//2016	S	250 ml glass jar	1	x								
6	S6	4/7//2016	S	250 ml glass jar, ziplock bag	2		x		x					
7	S7	4/7//2016	S	250 ml glass jar	1			x						
8	S8	4/7//2016	S	250 ml glass jar, ziplock bag	2	x			x					
9	S9	4/7//2016	S	250 ml glass jar	1	x								
10	S10	5/7//2016	S	250 ml glass jar	1			x						
	S11	5/7//2016	S	250 ml glass jar	1			x						Interlaboratory sample for ALS Brisbane
11	S12	5/7//2016	S	250 ml glass jar	1		x							
12	S13	5/7//2016	S	250 ml glass jar	1	x								
				TOTAL	18	5	3	5	3	1	0	0	0	

Subcon / ~~Forward Lab~~ / Split WO
Lab / Analysis: Newcastle / Asbestos
Organised By / Date: EA200F
Relinquished By / Date: (10), (6), (8), (12),
Connote / Courier: (9), (11),
WO No: Brisbane / (S12), (S26)
Attach By PO / Internal Sheet:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

CHAIN OF CUSTODY

ALS Environmental

ALS Laboratory: please tick →

☐ADELAIDE 21 Burma Road Pooraka SA 5095 Ph: 08 8359 0890 E: adelaide@alsglobal.com
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☐PERTH 10 Hod Way Malaga WA 6090 Ph: 08 9209 7655 E: samples.perth@alsglobal.com
☒SYDNEY 277-289 Woodpark Road Smithfield NSW 2164 Ph: 02 8784 8555 E: samples.sydney@alsglobal.com
☐TOWNSVILLE 14-15 Desma Court Bohle QLD 4818 Ph: 07 4796 0600 E: townsville.environmental@alsglobal.com
☐WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: portkembla@alsglobal.com

CLIENT: STS GeoEnvironmental	**TURNAROUND REQUIREMENTS :** (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)	X Standard TAT **(List due date):** 18/07/2016	**FOR LABORATORY USE ONLY (Circle)** Security Seal Intact: Yes / No / N/A; Temperature on receipt: °C; Cooling Method:
OFFICE: Wetherill Park		☐ Non Standard or urgent TAT **(List due date):**	
21024	**ALS QUOTE NO.:** SYBQ 234/15	**COC SEQUENCE NUMBER (Circle)** COC: 1 2 3 4 5 6 7	
ORDER NUMBER: 13153		OF: 1 2 3 4 5 6 7	Handed/Delivered: Yes / No; Temperature on Receipt: °C; Cooling Method:
PROJECT MANAGER: CM	**CONTACT PH:** 0499 054 333		Other comments:
SAMPLER: JK	**SAMPLER MOBILE:** 0499 054 333	**RELINQUISHED BY:** MB	**RECEIVED BY:** m Gould
COC emailed to ALS? (YES / NO)	**EDD FORMAT (or default):**	*CM*	DATE/TIME: 8.7.16 3:15pm
Email Reports to (will default to PM if no other addresses are listed): cmatthai@stsgeo.com.au		DATE/TIME: 8.7	**RELINQUISHED BY:** DATE/TIME:
Email Invoice to (will default to PM if no other addresses are listed): cmatthai@stsgeo.com.au			**RECEIVED BY:** DATE/TIME:

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where **Metals** are required, specify **Total** (unfiltered bottle required) or **Dissolved** (field filtered bottle required).								Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE *(refer to codes below)*	TOTAL CONTAINERS	S2 (8 metals)	S19 (TRH/BTEXN/PAH/ Phenols /OC/OP/PCB/8	S26 (TRH/BTEXN/ PAH/ 8 metals)	NEPM ASBESTOS (EA200F)	STS-2				Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
13	S14	5/7//2016	S	250 ml glass jar, ziplock bag	1	x								
14	S15	6/7//2016	S	250 ml glass jar	2		x		x					
15	S16	6/7//2016	S	250 ml glass jar	2			x						
16	S17	6/7//2016	S	250 ml glass jar	2			x						
17	S18	6/7//2016	S	250 ml glass jar, ziplock bag	2									
18	S19	6/7//2016	S	250 ml glass jar	2					x				
19	S20	6/7//2016	S	250 ml glass jar	2		x		x					
20	S21	6/7//2016	S	250 ml glass jar	2			x						
21	S22	7/7//2016	S	250 ml glass jar	2			x	x					
*	S23	7/7//2016	S	250 ml glass jar, ziplock bag	1			x						
22	S24	7/7//2016	S	250 ml glass jar	1			x						Interlaboratory sample for ALS Brisbane
23	S25	7/7//2016	S	250 ml glass jar	2			x						
24	S26	7/7//2016	S	250 ml glass jar	2	x								
				TOTAL	23	2	2	7	3	1	0	0	0	

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

CHAIN OF CUSTODY

ALS Environmental

ALS Laboratory: please tick →

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☐NEWCASTLE 5 Rose Gum Road Warabrook NSW 2304 Ph: 02 4968 9433 E: samples.newcastle@alsglobal.com

☐NOWRA 4/13 Geary Place North Nowra NSW 2541 Ph: 024423 2063 E: nowra@alsglobal.com

☐PERTH 10 Hod Way Malaga WA 6090 Ph: 08 9209 7655 E: samples.perth@alsglobal.com

☒SYDNEY 277-289 Woodpark Road Smithfield NSW 2164 Ph: 02 8784 8555 E: samples.sydney@alsglobal.com

☐TOWNSVILLE 14-15 Desma Court Bohle QLD 4818 Ph: 07 4796 0600 E: townsville.environmental@alsglobal.com

☐WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: portkembla@alsglobal.com

CLIENT: STS GeoEnvironmental	**TURNAROUND REQUIREMENTS :** (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)	X Standard TAT **(List due date):** 18/07/2016	**FOR LABORATORY USE ONLY (Circle)** Custody Seal Intact? Yes / No / N/A
OFFICE: Wetherill Park		☐ Non Standard or urgent TAT **(List due date):**	Cooler Temperature (°C)
21024	**ALS QUOTE NO.:** SYBQ 234/15	**COC SEQUENCE NUMBER (Circle)** COC: 1 2 (3) 4 5 6 7	Random Sample Temperature (°C)
ORDER NUMBER: 13153		OF: 1 2 (3) 4 5 6 7	Client Comments
PROJECT MANAGER: CM	**CONTACT PH:** 0499 054 333		
SAMPLER: JK	**SAMPLER MOBILE:** 0499 054 333	**RELINQUISHED BY:** NLB	**RECEIVED BY:** m gould
COC emailed to ALS? (YES / (NO))	**EDD FORMAT (or default):**	*CM*	DATE/TIME: 8.7.16 3:15pm
Email Reports to (will default to PM if no other addresses are listed): cmatthai@stsgeo.com.au		DATE/TIME: 8.7	**RELINQUISHED BY:** DATE/TIME:
Email Invoice to (will default to PM if no other addresses are listed): cmatthai@stsgeo.com.au			**RECEIVED BY:** DATE/TIME:

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).								Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE *(refer to codes below)*	TOTAL CONTAINERS	S2 (8 metals)	S19 (TRH/BTEXN/PAH/ Phenols /OC/OP/PCB/8	S26 (TRH/BTEXN/ PAH/ 8 metals)	NEPM ASBESTOS (EA200F)	STS-2				Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
25	S27	7/7//2016	S	250 ml glass jar	1					x				
				TOTAL	1	0	0	0	0	1	0	0	0	

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES1616009**

Client	: **SMEC TESTING SERVICES PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: CARSTEN MATTHAI	Contact	:
Address	: P O BOX 6989 WETHERILL PARK NSW, AUSTRALIA 2164	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: cmatthai@stsgeo.com.au	E-mail	:
Telephone	: ----	Telephone	: +61-2-8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: 21024	Page	: 1 of 3
Order number	: 13153	Quote number	: ES2016SMETES0001 (SYBQ/234/15)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: jk		

Dates

Date Samples Received	: 21-Jul-2016 4:45 PM	Issue Date	: 22-Jul-2016
Client Requested Due Date	: 28-Jul-2016	Scheduled Reporting Date	: **28-Jul-2016**

Delivery Details

Mode of Delivery	: Undefined	Security Seal	: Not Available
No. of coolers/boxes	: ----	Temperature	: 4.1
Receipt Detail	:	No. of samples received / analysed	: 3 / 3

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **This is rebatch of ES1614925**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA055-103 Moisture Content	SOIL - S-10 TRH/VOC/PAH
ES1616009-001	[04-Jul-2016]	S8	✓	✓
ES1616009-002	[05-Jul-2016]	S13	✓	✓
ES1616009-003	[07-Jul-2016]	S26	✓	✓

Proactive Holding Time Report

The following table summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory.

Matrix: **SOIL** Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Client Sample ID(s)	Container	Due for extraction	Due for analysis	Samples Received Date	Samples Received Evaluation	Instructions Received Date	Instructions Received Evaluation
EA055-103: Moisture Content							
S13	Soil Glass Jar - Unpreserved	----	19-Jul-2016	21-Jul-2016	×	----	----
S8	Soil Glass Jar - Unpreserved	----	18-Jul-2016	21-Jul-2016	×	----	----
EP071: TRH - Semivolatile Fraction							
S13	Soil Glass Jar - Unpreserved	19-Jul-2016	28-Aug-2016	21-Jul-2016	×	----	----
S8	Soil Glass Jar - Unpreserved	18-Jul-2016	27-Aug-2016	21-Jul-2016	×	----	----
EP074: Volatile Organic Compounds							
S13	Soil Glass Jar - Unpreserved	12-Jul-2016	12-Jul-2016	21-Jul-2016	×	----	----
S26	Soil Glass Jar - Unpreserved	14-Jul-2016	14-Jul-2016	21-Jul-2016	×	----	----
S8	Soil Glass Jar - Unpreserved	11-Jul-2016	11-Jul-2016	21-Jul-2016	×	----	----
EP075(SIM): PAH/Phenols (SIM)							
S13	Soil Glass Jar - Unpreserved	19-Jul-2016	28-Aug-2016	21-Jul-2016	×	----	----
S8	Soil Glass Jar - Unpreserved	18-Jul-2016	27-Aug-2016	21-Jul-2016	×	----	----
EP080: TRH Volatiles/BTEX							
S13	Soil Glass Jar - Unpreserved	19-Jul-2016	19-Jul-2016	21-Jul-2016	×	----	----
S8	Soil Glass Jar - Unpreserved	18-Jul-2016	18-Jul-2016	21-Jul-2016	×	----	----

Requested Deliverables

CARSTEN MATTHAI

- *AU Certificate of Analysis - NATA (COA)	Email	cmatthai@stsgeo.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	cmatthai@stsgeo.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	cmatthai@stsgeo.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	cmatthai@stsgeo.com.au
- A4 - AU Tax Invoice (INV)	Email	cmatthai@stsgeo.com.au
- Chain of Custody (CoC) (COC)	Email	cmatthai@stsgeo.com.au

INVOICES (ACCOUNTS)

- A4 - AU Tax Invoice (INV)	Email	accounts@smectesting.com.au

SMEC TESTING ALL RESULTS

- *AU Certificate of Analysis - NATA (COA)	Email	enquiries@smectesting.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	enquiries@smectesting.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	enquiries@smectesting.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	enquiries@smectesting.com.au
- A4 - AU Tax Invoice (INV)	Email	enquiries@smectesting.com.au
- Chain of Custody (CoC) (COC)	Email	enquiries@smectesting.com.au
- EDI Format - ENMRG (ENMRG)	Email	enquiries@smectesting.com.au
- EDI Format - ESDAT (ESDAT)	Email	enquiries@smectesting.com.au

S441-442 #8, 12, 24

Fadi Soro

FS 21/7/16 4:45pm

From: Saman Taeidi on behalf of ALSEnviro Sydney
Sent: Thursday, 21 July 2016 4:30 PM
To: Fadi Soro; Frank Ferraro
Subject: FW: Additional analyses of some samples in Work Order ES1614925

Can someone please take care of this rebatch request?

Regards

Saman Taeidi
Client Services Officer, Environmental
Sydney, Australia

T +61 2 8784 8555 D +61 2 8784 8504
F +61 2 8784 8500
saman.taeidi@alsglobal.com
277-289 Woodpark Road
Smithfield, NSW, 2164

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www.alsglobal.com

Environmental Division
Sydney
Work Order Reference
ES1616009
Telephone : +61-2-8784 8555

From: Carsten Matthai [mailto:cmatthai@stsgeo.com.au]
Sent: Thursday, 21 July 2016 1:24 PM
To: ALSEnviro Sydney
Subject: Additional analyses of some samples in Work Order ES1614925

Hi,

Could you please undertake additional sample analyses for ASL Suite S-10 (TRH/BTEX/PAH/ pus VOC) in the above work order for samples S8, S13 and S26 (standard 5 day TAT). Thank you.

0408 0502 0701
① ② ③

Regards,
Carsten

Dr Carsten Matthai, BSc(Hons), PhD | Environmental Engineer
STS Geoenvironmental Pty. Ltd.
PO Box 6989 **(postal)**
14/1 Cowpasture Place **(street)**
Wetherill Park NSW 2164
cmatthai@stsgeo.com.au | www.stsgeo.com.au
***T** (02) 9756 2166 | **F** (02) 9756 1137 | **M** 0499 054 333*

CHAIN OF CUSTODY

ALS Environmental

ALS Laboratory: please tick →

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☐WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: portkembla@alsglobal.com

CLIENT: STS GeoEnvironmental	TURNAROUND REQUIREMENTS : X Standard TAT (List due date): 21/07/2016	FOR LABORATORY USE ONLY (Circle)
OFFICE: Wetherill Park	(Standard TAT may be longer for some tests e.g. Ultra Trace Organics) ☐ Non Standard or urgent TAT (List due date):	Custody Seal Intact? Yes / No / N/A
21024	ALS QUOTE NO.: SYBQ 234/15	Free ice / frozen ice bricks present upon receipt? Yes / No / N/A
ORDER NUMBER: 13160	COC SEQUENCE NUMBER (Circle) COC: (1) 2 3 4 5 6 7	Random Sample Temperature on Receipt: °C
PROJECT MANAGER: CM	CONTACT PH: 0499 054 333	OF: (1) 2 3 4 5 6 7
SAMPLER: JK	SAMPLER MOBILE: 0499 054 333	Other comment: 11.9
COC emailed to ALS? (YES / NO)	EDD FORMAT (or default):	
Email Reports to (will default to PM if no other addresses are listed): cmatthai@stsgeo.com.au		
Email Invoice to (will default to PM if no other addresses are listed): cmatthai@stsgeo.com.au		

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
CM MB	mgould		
DATE/TIME: 13/7/16	DATE/TIME: 13.7.16 2:45pm	DATE/TIME:	DATE/TIME:

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attra... Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (fie... required).								
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	S2 (8 metals)	S19 (TRH/BTEXN/PAH/ Phenols /OC/OP/PCB/8	S26 (TRH/BTEXN/ PAH/ 8 metals)	NEPM ASBESTOS (EA200F)	STS-2				
1	S28	8/7//2016	S	250 ml glass jar, ziplock bag	2			x	x					
2	S29	8/7//2016	S		1			x						
3	S30	8/7//2016	S	250 ml glass jar, ziplock bag	2		x		x					
4	S31	8/7//2016	S	250 ml glass jar, ziplock bag	2	x								
5	S32	8/7//2016	S		1		x							
6	S33	8/7//2016	S		1									
				TOTAL	9	1	2	2	2	1	0	0	0	

Environmental Division
Sydney
Work Order Reference
ES1615255

Telephone : +61-2-8784 8555

Subcontract / Forward Lab / Split WO
Lab / Analysis: Newcastle → Asbestos
Organised By / Date:
Relinquished By / Date:
Connote / Courier:
WO No: ES1615255
Attach By PO / Internal Sheet:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

CHAIN OF CUSTODY

ALS Environmental

ALS Laboratory: please tick →

☐ADELAIDE 21 Burma Road Pooraka SA 5095 Ph: 08 8359 0890 E: adelaide@alsglobal.com
☐BRISBANE 32 Shand Street Stafford QLD 4053 Ph: 07 3243 7222 E: samples.brisbane@alsglobal.com
☐GLADSTONE 46 Callemondah Drive Clinton QLD 4680 Ph: 07 7471 5600 E: gladstone@alsglobal.com
☐MACKAY 78 Harbour Road Mackay QLD 4740 Ph: 07 4944 0177 E: mackay@alsglobal.com
☐MELBOURNE 2-4 Westall Road Springvale VIC 3171 Ph: 03 8549 9600 E: samples.melbourne@alsglobal.com
☐MUDGEE 27 Sydney Road Mudgee NSW 2850 Ph: 02 6372 6735 E: mudgee.mail@alsglobal.com
☐NEWCASTLE 5 Rose Gum Road Warabrook NSW 2304 Ph: 02 4968 9433 E: samples.newcastle@alsglobal.com
☐NOWRA 4/13 Geary Place North Nowra NSW 2541 Ph: 024423 2063 E: nowra@alsglobal.com
☐PERTH 10 Hod Way Malaga WA 6090 Ph: 08 9209 7655 E: samples.perth@alsglobal.com
☒SYDNEY 277-289 Woodpark Road Smithfield NSW 2164 Ph: 02 8784 8555 E: samples.sydney@alsglobal.com
☐TOWNSVILLE 14-15 Desma Court Bohle QLD 4818 Ph: 07 4796 0600 E: townsville.environmental@alsglobal.com
☐WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: portkembla@alsglobal.com

CLIENT: STS GeoEnvironmental	**TURNAROUND REQUIREMENTS :** (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)	X Standard **TAT (List due date):** 28/07/2016	**FOR LABORATORY USE ONLY (Circle)** Custody seal intact? Yes No N/A
OFFICE: Wetherill Park		☐ Non Standard or urgent **TAT (List due date):**	Cooling Method: Ice Gel Ice Bricks None Blue Ice
21024	**ALS QUOTE NO.:** SYBQ 234/15	**COC SEQUENCE NUMBER (Circle)** COC: 1 2 3 4 5 6 7	Cooling Initiated
ORDER NUMBER: 13167		OF: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt
PROJECT MANAGER: CM	**CONTACT PH:** 0499 054 333		Other comments:
SAMPLER: JK	**SAMPLER MOBILE:** 0499 054 333	**RELINQUISHED BY:** CM	**RECEIVED BY:**
COC emailed to ALS? (YES (NO)	**EDD FORMAT (or default):**	DATE/TIME: 21-7-16	DATE/TIME:
Email Reports to (will default to PM if no other addresses are listed): cmatthai@stsgeo.com.au		**RELINQUISHED BY:**	**RECEIVED BY:** Manish
Email Invoice to (will default to PM if no other addresses are listed): cmatthai@stsgeo.com.au		DATE/TIME:	DATE/TIME: 210716 2oopm

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).								Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE *(refer to codes below)*	TOTAL CONTAINERS	S2 (8 metals)	S19 (TRH/BTEXN/PAH/ Phenols /OC/OP/PCB/8	S26 (TRH/BTEXN/ PAH/ 8 metals)	NEPM ASBESTOS (EA200F)	STS-2	Full VOC and unknown scan (EP074/081)	VOC Scan for unknowns (EP072)	S10 (TRH/BTEX/PAH/ plus VOC	Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
1	S40	18/7//2016	S	250 ml glass jar, ziplock bag	2			x	x					
2	S41	18/7//2016	S	250 ml glass jar, ziplock bag	2	x								
3	S42	18/7//2016	S	250 ml glass jar, ziplock bag	2	x							x	
4	S43	18/7//2016	S	250 ml glass jar, ziplock bag	2		x		x		x			
5	S49	18/7//2016	S	250 ml glass jar, ziplock bag	2	x								
6	S50	18/7//2016	S	250 ml glass jar	1	x								
	S51	18/7//2016	S	250 ml glass jar	1	x								Interlaboratory Sample to ALS Brisbane
7	S52	18/7//2016	S	250 ml glass jar, ziplock bag	2			x						
8	S57	18/7//2016	S	250 ml glass jar, ziplock bag	2	x								
9	S58	18/7//2016	S	250 ml glass jar, ziplock bag	2			x		x				
10	S53	18/7//2016	S	250 ml glass jar, ziplock bag	2			x	x					
11	S59	18/7//2016	S	250 ml glass jar, ziplock bag	2			x						
12	S60	18/7//2016	S	250 ml glass jar, ziplock bag	2		x			x	x			
				TOTAL	24	6	2	5	3	2	2	0		

Subcon / Forward Lab / Split WO
Lab / Analysis:
Organised By / Date:
Relinquished By / Date:
Connote Courier:
WO No:
Attach By PO Internal Order:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserv
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

Environmental Division
Sydney
Work Order Reference
ES1616014

Telephone : + 61-2-8784 8555

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB1618894**	Page	: 1 of 6
Client	: **SMEC TESTING SERVICES PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: CARSTEN MATTHAI	Contact	:
Address	: P O BOX 6989 WETHERILL PARK NSW, AUSTRALIA 2164	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: ----	Telephone	: +61-7-3243 7222
Project	: 21024	Date Samples Received	: 26-Jul-2016 09:05
Order number	: 13167	Date Analysis Commenced	: 27-Jul-2016
C-O-C number	: ----	Issue Date	: 01-Aug-2016 18:08
Sampler	: J K		
Site	: ----		
Quote number	: ----		
No. of samples received	: 3		
No. of samples analysed	: 3		

NATA Accredited Laboratory 825
Accredited for compliance with
ISO/IEC 17025.

NATA
WORLD RECOGNISED ACCREDITATION

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Andrew Epps	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD
Matt Frost	Senior Organic Chemist	Brisbane Inorganics, Stafford, QLD
Matt Frost	Senior Organic Chemist	Brisbane Organics, Stafford, QLD

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S51	S64	S72	----	----
				Client sampling date / time	[18-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]	----	----
Compound	CAS Number	LOR	Unit		EB1618894-001	EB1618894-002	EB1618894-003	--------	--------
					Result	Result	Result	----	----
EA055: Moisture Content									
Moisture Content (dried @ 103°C)	----	1	%		16.1	23.7	16.0	----	----
EG005T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		6	8	5	----	----
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	----	----
Chromium	7440-47-3	2	mg/kg		11	12	16	----	----
Copper	7440-50-8	5	mg/kg		24	7	20	----	----
Lead	7439-92-1	5	mg/kg		39	8	18	----	----
Nickel	7440-02-0	2	mg/kg		4	7	11	----	----
Zinc	7440-66-6	5	mg/kg		22	14	24	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		----	----	<0.5	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		----	----	<0.5	----	----
Acenaphthene	83-32-9	0.5	mg/kg		----	----	<0.5	----	----
Fluorene	86-73-7	0.5	mg/kg		----	----	<0.5	----	----
Phenanthrene	85-01-8	0.5	mg/kg		----	----	<0.5	----	----
Anthracene	120-12-7	0.5	mg/kg		----	----	<0.5	----	----
Fluoranthene	206-44-0	0.5	mg/kg		----	----	0.8	----	----
Pyrene	129-00-0	0.5	mg/kg		----	----	0.7	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		----	----	<0.5	----	----
Chrysene	218-01-9	0.5	mg/kg		----	----	<0.5	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		----	----	<0.5	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		----	----	<0.5	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		----	----	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		----	----	<0.5	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		----	----	<0.5	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		----	----	<0.5	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		----	----	1.5	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		----	----	<0.5	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		----	----	0.6	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		----	----	1.2	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		----	----	<10	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S51	S64	S72	----	----
				Client sampling date / time	[18-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]	----	----
Compound	CAS Number	LOR	Unit		EB1618894-001	EB1618894-002	EB1618894-003	--------	--------
					Result	Result	Result	----	----
EP080/071: Total Petroleum Hydrocarbons - Continued									
C10 - C14 Fraction	----	50	mg/kg		----	----	<50	----	----
C15 - C28 Fraction	----	100	mg/kg		----	----	<100	----	----
C29 - C36 Fraction	----	100	mg/kg		----	----	<100	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		----	----	<50	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		----	----	<10	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		----	----	<10	----	----
>C10 - C16 Fraction	----	50	mg/kg		----	----	<50	----	----
>C16 - C34 Fraction	----	100	mg/kg		----	----	<100	----	----
>C34 - C40 Fraction	----	100	mg/kg		----	----	<100	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		----	----	<50	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		----	----	<50	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		----	----	<0.2	----	----
Toluene	108-88-3	0.5	mg/kg		----	----	<0.5	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		----	----	<0.5	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		----	----	<0.5	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		----	----	<0.5	----	----
^ Sum of BTEX	----	0.2	mg/kg		----	----	<0.2	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg		----	----	<0.5	----	----
Naphthalene	91-20-3	1	mg/kg		----	----	<1	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		----	----	**99.7**	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		----	----	**94.4**	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		----	----	**73.1**	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		----	----	**97.0**	----	----
Anthracene-d10	1719-06-8	0.5	%		----	----	**99.2**	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		----	----	**104**	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		----	----	**112**	----	----
Toluene-D8	2037-26-5	0.2	%		----	----	**102**	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S51	S64	S72	----	----
				Client sampling date / time	[18-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]	----	----
Compound	CAS Number	LOR	Unit		EB1618894-001	EB1618894-002	EB1618894-003	--------	--------
					Result	Result	Result	----	----
EP080S: TPH(V)/BTEX Surrogates - Continued									
4-Bromofluorobenzene	460-00-4	0.2	%		----	----	**110**	----	----

Surrogate Control Limits

Sub-Matrix: **SOIL**

Compound	CAS Number	Recovery Limits (%) Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	35	155
2-Chlorophenol-D4	93951-73-6	42	153
2.4.6-Tribromophenol	118-79-6	26	157
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	34	157
Anthracene-d10	1719-06-8	37	153
4-Terphenyl-d14	1718-51-0	42	172
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	53	134
Toluene-D8	2037-26-5	60	131
4-Bromofluorobenzene	460-00-4	59	127

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EB1618894**	Page	: 1 of 6
Client	: **SMEC TESTING SERVICES PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: CARSTEN MATTHAI	Contact	:
Address	: P O BOX 6989 WETHERILL PARK NSW, AUSTRALIA 2164	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: ----	Telephone	: +61-7-3243 7222
Project	: 21024	Date Samples Received	: 26-Jul-2016
Order number	: 13167	Date Analysis Commenced	: 27-Jul-2016
C-O-C number	: ----	Issue Date	: 01-Aug-2016
Sampler	: J K		
Site	: ----		
Quote number	: ----		
No. of samples received	: 3		
No. of samples analysed	: 3		

NATA Accredited Laboratory 825
Accredited for compliance with
ISO/IEC 17025.

NATA
WORLD RECOGNISED ACCREDITATION

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Andrew Epps	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD
Matt Frost	Senior Organic Chemist	Brisbane Inorganics, Stafford, QLD
Matt Frost	Senior Organic Chemist	Brisbane Organics, Stafford, QLD

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
= Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA055: Moisture Content (QC Lot: 530231)									
EB1618864-021	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1	%	13.8	13.5	1.76	0% - 50%
EB1618864-032	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1	%	10.0	9.7	2.81	0% - 50%
EG005T: Total Metals by ICP-AES (QC Lot: 530224)									
EB1618864-021	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	23	26	11.3	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	8	8	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	<5	<5	0.00	No Limit
EB1618864-032	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	12	10	11.6	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	6	5	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	10	10	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	270	224	18.9	0% - 20%
		EG005T: Lead	7439-92-1	5	mg/kg	1010	1230	19.9	0% - 20%
		EG005T: Zinc	7440-66-6	5	mg/kg	64	53	18.8	0% - 50%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 530225)									
EB1618864-021	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.1	0.00	No Limit
EB1618864-032	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 530228)									
EB1618894-003	S72	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 530228) - continued									
EB1618894-003	S72	EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	0.6	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	0.8	0.7	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	0.7	0.7	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 530226)									
EB1618894-003	S72	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 530229)									
EB1618894-003	S72	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 530226)									
EB1618894-003	S72	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 530229)									
EB1618894-003	S72	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080: BTEXN (QC Lot: 530226)									
EB1618894-003	S72	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 530224)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	118.9 mg/kg	107	84	123
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	1.87125 mg/kg	97.3	88	117
EG005T: Chromium	7440-47-3	2	mg/kg	<2	22.7 mg/kg	109	83	125
EG005T: Copper	7440-50-8	5	mg/kg	<5	55 mg/kg	114	86	122
EG005T: Lead	7439-92-1	5	mg/kg	<5	72.1 mg/kg	102	84	119
EG005T: Nickel	7440-02-0	2	mg/kg	<2	16.6 mg/kg	102	89	126
EG005T: Zinc	7440-66-6	5	mg/kg	<5	182.3 mg/kg	111	87	127
EG035T: Total Recoverable Mercury by FIMS (QCLot: 530225)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.09821 mg/kg	107	78	122
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 530228)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	1.5 mg/kg	101	74	119
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	1.5 mg/kg	106	74	118
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	1.5 mg/kg	104	83	121
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	1.5 mg/kg	99.9	81	116
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	1.5 mg/kg	106	72	117
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	1.5 mg/kg	96.8	72	115
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	1.5 mg/kg	99.1	70	116
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	1.5 mg/kg	99.2	70	134
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	1.5 mg/kg	82.8	64	120
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	1.5 mg/kg	108	66	119
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	1.5 mg/kg	85.3	59	129
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	1.5 mg/kg	96.9	70	129
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	1.5 mg/kg	86.3	76	121
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	1.5 mg/kg	93.5	53	135
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	1.5 mg/kg	94.9	45	134
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	1.5 mg/kg	109	64	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 530226)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	16 mg/kg	84.6	66	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 530229)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	318 mg/kg	89.8	79	123
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	531 mg/kg	97.2	77	123
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 530226)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 530226) - continued								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	18.5 mg/kg	81.5	66	119
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 530229)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	428 mg/kg	93.7	81	122
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	395 mg/kg	91.6	74	122
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----
EP080: BTEXN (QCLot: 530226)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	83.8	73	105
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	89.1	73	105
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	86.4	67	104
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	88.9	66	106
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	88.9	68	105
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	93.5	72	115

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG005T: Total Metals by ICP-AES (QCLot: 530224)							
EB1618864-022	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	103	70	130
		EG005T: Cadmium	7440-43-9	25 mg/kg	106	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	110	70	130
		EG005T: Copper	7440-50-8	50 mg/kg	# Not Determined	70	130
		EG005T: Lead	7439-92-1	50 mg/kg	# Not Determined	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	102	70	130
		EG005T: Zinc	7440-66-6	50 mg/kg	88.8	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 530225)							
EB1618864-022	Anonymous	EG035T: Mercury	7439-97-6	2.5 mg/kg	99.5	70	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 530228)							
EB1618898-002	Anonymous	EP075(SIM): Acenaphthene	83-32-9	1.5 mg/kg	93.5	70	130
		EP075(SIM): Pyrene	129-00-0	1.5 mg/kg	94.9	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 530226)							
EB1618898-002	Anonymous	EP080: C6 - C9 Fraction	----	8 mg/kg	93.3	70	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP080/071: Total Petroleum Hydrocarbons (QCLot: 530229)							
EB1618898-002	Anonymous	EP071: C10 - C14 Fraction	----	318 mg/kg	87.8	70	130
		EP071: C15 - C28 Fraction	----	531 mg/kg	95.7	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 530226)							
EB1618898-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	8 mg/kg	93.5	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 530229)							
EB1618898-002	Anonymous	EP071: >C10 - C16 Fraction	----	428 mg/kg	93.3	70	130
		EP071: >C16 - C34 Fraction	----	395 mg/kg	90.3	70	130
EP080: BTEXN (QCLot: 530226)							
EB1618898-002	Anonymous	EP080: Benzene	71-43-2	2 mg/kg	81.9	70	130
		EP080: Toluene	108-88-3	2 mg/kg	85.0	70	130

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EB1618894**	Page	: 1 of 5
Client	: **SMEC TESTING SERVICES PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: CARSTEN MATTHAI	Telephone	: +61-7-3243 7222
Project	: 21024	Date Samples Received	: 26-Jul-2016
Site	: ----	Issue Date	: 01-Aug-2016
Sampler	: J K	No. of samples received	: 3
Order number	: 13167	No. of samples analysed	: 3

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EG005T: Total Metals by ICP-AES	EB1618864--022	Anonymous	**Copper**	7440-50-8	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EG005T: Total Metals by ICP-AES	EB1618864--022	Anonymous	**Lead**	7439-92-1	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content							
Soil Glass Jar - Unpreserved (EA055-103) S51	**18-Jul-2016**	**----**	----	----	**27-Jul-2016**	01-Aug-2016	✓
Soil Glass Jar - Unpreserved (EA055-103) S64, S72	**19-Jul-2016**	**----**	----	----	**27-Jul-2016**	02-Aug-2016	✓
EG005T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T) S51	**18-Jul-2016**	**27-Jul-2016**	14-Jan-2017	✓	**27-Jul-2016**	14-Jan-2017	✓
Soil Glass Jar - Unpreserved (EG005T) S64, S72	**19-Jul-2016**	**27-Jul-2016**	15-Jan-2017	✓	**27-Jul-2016**	15-Jan-2017	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T) S51	**18-Jul-2016**	**27-Jul-2016**	15-Aug-2016	✓	**28-Jul-2016**	15-Aug-2016	✓
Soil Glass Jar - Unpreserved (EG035T) S64, S72	**19-Jul-2016**	**27-Jul-2016**	16-Aug-2016	✓	**28-Jul-2016**	16-Aug-2016	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM)) S72	**19-Jul-2016**	**27-Jul-2016**	02-Aug-2016	✓	**27-Jul-2016**	05-Sep-2016	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP071)							
S72	**19-Jul-2016**	**27-Jul-2016**	02-Aug-2016	✓	**27-Jul-2016**	05-Sep-2016	✓
Soil Glass Jar - Unpreserved (EP080)							
S72	**19-Jul-2016**	**27-Jul-2016**	02-Aug-2016	✓	**29-Jul-2016**	02-Aug-2016	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP071)							
S72	**19-Jul-2016**	**27-Jul-2016**	02-Aug-2016	✓	**27-Jul-2016**	05-Sep-2016	✓
Soil Glass Jar - Unpreserved (EP080)							
S72	**19-Jul-2016**	**27-Jul-2016**	02-Aug-2016	✓	**29-Jul-2016**	02-Aug-2016	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080)							
S72	**19-Jul-2016**	**27-Jul-2016**	02-Aug-2016	✓	**29-Jul-2016**	02-Aug-2016	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055-103	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	5	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055-103	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40.
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260B Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve.

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.

CHAIN OF CUSTODY

ALS Environmental

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☐ADELAIDE 21 Burma Road Pooraka SA 5095 Ph: 08 8359 0890 E: adelaide@alsglobal.com
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☐WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: portkembla@alsglobal.com

CLIENT: STS GeoEnvironmental	TURNAROUND REQUIREMENTS : (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)	X Standard TAT (List due date): 28/07/2016	FOR LABORATORY USE ONLY (Circle) Custody Seal Intact? Yes No N/A Freezer / Cold Packs Present upon receipt? Yes No N/A Random Sample Temperature on Receipt: °C Other comments:
OFFICE: Wetherill Park		☐ Non Standard or urgent TAT (List due date):	
21024	ALS QUOTE NO.: SYBQ 234/15	COC SEQUENCE NUMBER (Circle) COC: 1 (2) 3 4 5 6 7	
ORDER NUMBER: 13167		OF: 1 2 (3) 4 5 6 7	
PROJECT MANAGER: CM	CONTACT PH: 0499 054 333		
SAMPLER: JK	SAMPLER MOBILE: 0499 054 333	RELINQUISHED BY: CM	RECEIVED BY:
COC emailed to ALS? (YES / (NO)	EDD FORMAT (or default):	DATE/TIME: 21-7-16	DATE/TIME:
Email Reports to (will default to PM if no other addresses are listed): cmatthai@stsgeo.com.au		RELINQUISHED BY:	RECEIVED BY: Wanida
Email Invoice to (will default to PM if no other addresses are listed): cmatthai@stsgeo.com.au		DATE/TIME:	DATE/TIME: 21/7/16 2pm

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED Including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).								Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	S2 (8 metals)	S19 (TRH/BTEXN/PAH/ Phenols /OC/OP/PCB/8	S25 (TRH/BTEXN/ PAH/ 8 metals)	NEPM ASBESTOS (EA200F)	STS-2	Full VOC and unknown scan (EP074/081)	VOC Scan for unknowns (EP072)	S10 (TRH/BTEX/PAH/ plus VOC	Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
13	S54	19/7//2016	S	250 ml glass jar, ziplock bag	2			x	x					
14	S55	19/7//2016	S	250 ml glass jar, ziplock bag	2		x				x			
15	S56	19/7//2016	S	250 ml glass jar, ziplock bag	2			x		x				
16	S61	19/7//2016	S	250 ml glass jar, ziplock bag	2	x								
17	S62	19/7//2016	S	250 ml glass jar, ziplock bag	2			x						
18	S63	19/7//2016	S	250 ml glass jar	1	x								
	S64	19/7//2016	S	250 ml glass jar	1	x								Interlaboratory Sample to ALS Brisbane
19	S65	19/7//2016	S	250 ml glass jar, ziplock bag	2	x				x			x	
20	S66	19/7//2016	S	250 ml glass jar, ziplock bag	2			x						
21	S67	19/7//2016	S	250 ml glass jar, ziplock bag	2		x					x		
22	S70	19/7//2016	S	250 ml glass jar, ziplock bag	2			x						
23	S71	19/7//2016	S	250 ml glass jar	1			x						
	S72	19/7//2016	S	250 ml glass jar	1			x						Interlaboratory Sample to ALS Brisbane
				TOTAL	22	4	2	7	1	2	1	1	1	

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

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☐WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: portkembla@alsglobal.com

CLIENT: STS GeoEnvironmental	**TURNAROUND REQUIREMENTS :** (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)	X Standard TAT **(List due date):** 28/07/2016	**FOR LABORATORY USE ONLY (Circle)**
OFFICE: Wetherill Park		☐ Non Standard or urgent TAT **(List due date):**	Custody Seal Intact? Yes No N/A
21024	**ALS QUOTE NO.:** SYBQ 234/15	**COC SEQUENCE NUMBER (Circle)**	Receipt Temperature Ice/Ice Packs present upon receipt? Yes No N/A
ORDER NUMBER: 13167		COC: 1 2 (3) 4 5 6 7	Random Sample Temperature on Receipt
PROJECT MANAGER: CM	**CONTACT PH:** 0499 054 333	OF: 1 2 (3) 4 5 6 7	Other comments:

SAMPLER: JK	**SAMPLER MOBILE:** 0499 054 333	**RELINQUISHED BY:** CM	**RECEIVED BY:**	**RELINQUISHED BY:**
COC emailed to ALS? (YES / (NO)	**EDD FORMAT (or default):**	DATE/TIME: 21-7-16	DATE/TIME:	DATE/TIME:
Email Reports to (will default to PM if no other addresses are listed): cmatthai@stsgeo.com.au				
Email Invoice to (will default to PM if no other addresses are listed): cmatthai@stsgeo.com.au				

RECEIVED BY:
Ward
DATE/TIME: 210716 2pm

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify **Total** (unfiltered bottle required) or **Dissolved** (field filtered bottle required).								Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE *(refer to codes below)*	TOTAL CONTAINERS	S2 (8 metals)	S19 (TRH/BTEXN/PAH/ Phenols/OC/OP/ PCB/8 metals)	S26 (TRH/BTEXN/ PAH/ 8 metals)	NEPM ASBESTOS (EA200F)	STS-2	Full VOC and unknown scan (EP074/081)	VOC Scan for unknowns (EP072)	S10 (TRH/BTEX/PAH/ plus VOC	Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
~~24~~	S73	19/7//2016	S	250 ml glass jar, ziplock bag	2	x								
25	S68	19/7//2016	S	250 ml glass jar, ziplock bag	2			x	x					
26	S69	19/7//2016	S	250 ml glass jar, ziplock bag	2		x							
27	S74	19/7//2016	S	250 ml glass jar, ziplock bag	2		x		x					
28	S75	19/7//2016	S	250 ml glass jar, ziplock bag	2			x						
29	S76	19/7//2016	S	250 ml glass jar	2	x								
30	S77	19/7//2016	S	250 ml glass jar	2									Hold Sample
31	S78	19/7//2016	S	250 ml glass jar, ziplock bag	2									Hold Sample
32	S12	5/7//2016	S	250 ml glass jar, ziplock bag	1									Hold Sample
33	S13	5/7//2016	S	250 ml glass jar, ziplock bag	1									Hold Sample
34	S14	5/7//2016	S	250 ml glass jar, ziplock bag	1									Hold Sample
~~34~~														
				TOTAL	19	2	2	2	2	0	0	0	0	

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EB1617787**

Client	: **SMEC TESTING SERVICES PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: CARSTEN MATTHAI	Contact	:
Address	: P O BOX 6989 WETHERILL PARK NSW, AUSTRALIA 2164	Address	: 2 Byth Street Stafford QLD Australia 4053
E-mail	: cmatthai@stsgeo.com.au	E-mail	:
Telephone	: ----	Telephone	: +61-7-3243 7222
Facsimile	: ----	Facsimile	: +61-7-3243 7218
Project	: 21024	Page	: 1 of 2
Order number	: 13153	Quote number	: ES2016SMETES0001 (SYBQ/234/15)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: J K		

Dates

Date Samples Received	: 12-Jul-2016 8:20 AM	Issue Date	: 12-Jul-2016
Client Requested Due Date	: 19-Jul-2016	Scheduled Reporting Date	: **19-Jul-2016**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 1	Temperature	: 3.6°C - Ice present
Receipt Detail	: Medium Esky Received	No. of samples received / analysed	: 2 / 2

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- *Samples were originally received by ALS SYDNEY on 8.7.16 and have been forwarded to ALS Brisbane for analysis. Temperature on arrival in ALS Brisbane has been noted above.
- Discounted Package Prices apply only when specific ALS Group Codes ('W', 'S', 'NT' suites) are referenced on COCs.
- Please direct any turn around / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.
- Analysis will be conducted by ALS Environmental, Brisbane, NATA accreditation no. 825, Site No. 818 (Micro site no. 18958).
- **Breaches in recommended extraction / analysis holding times (if any) are displayed overleaf in the Proactive Holding Time Report table.**

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA055-103 Moisture Content	SOIL - S-26 8 metals/TRH/BTEXN/PAH
EB1617787-001	[05-Jul-2016]	S11	✓	✓
EB1617787-002	[07-Jul-2016]	S24	✓	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

CARSTEN MATTHAI

- *AU Certificate of Analysis - NATA (COA)	Email	cmatthai@stsgeo.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	cmatthai@stsgeo.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	cmatthai@stsgeo.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	cmatthai@stsgeo.com.au
- A4 - AU Tax Invoice (INV)	Email	cmatthai@stsgeo.com.au
- Chain of Custody (CoC) (COC)	Email	cmatthai@stsgeo.com.au
- EDI Format - ENMRG (ENMRG)	Email	cmatthai@stsgeo.com.au
- EDI Format - ESDAT (ESDAT)	Email	cmatthai@stsgeo.com.au

INVOICES (ACCOUNTS)

- A4 - AU Tax Invoice (INV)	Email	accounts@smectesting.com.au

SMEC TESTING ALL RESULTS

- *AU Certificate of Analysis - NATA (COA)	Email	enquiries@smectesting.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	enquiries@smectesting.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	enquiries@smectesting.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	enquiries@smectesting.com.au
- A4 - AU Tax Invoice (INV)	Email	enquiries@smectesting.com.au
- Chain of Custody (CoC) (COC)	Email	enquiries@smectesting.com.au
- EDI Format - ENMRG (ENMRG)	Email	enquiries@smectesting.com.au
- EDI Format - ESDAT (ESDAT)	Email	enquiries@smectesting.com.au

LOG AS EB.

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ALS Environmental

ALS Laboratory: please tick →

ADELAIDE 21 Burma Road Pooraka SA 5095 Ph: 08 8359 0890 E: adelaide@alsglobal.com

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NOWRA 4/13 Geary Place North Nowra NSW 2541 Ph: 024423 2063 E: nowra@alsglobal.com

PERTH 10 Hod Way Malaga WA 6090 Ph: 08 9209 7655 E: samples.perth@alsglobal.com

Environmental Division
Brisbane
Work Order Reference
EB1617787

Telephone : + 61-7-3243 7222

CLIENT: STS GeoEnvironmental	TURNAROUND REQUIREMENTS : (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)	X Standard TAT (List due date): 18/07/2016	
OFFICE: Wetherill Park		☐ Non Standard or urgent TAT (List due date):	
21024	ALS QUOTE NO.: SYBQ 234/15	COC SEQUENCE NUMBER (Circle)	
ORDER NUMBER: 13153		COC: (1) 2 3 4 5 6 7	
PROJECT MANAGER: CM	CONTACT PH: 0499 054 333	OF: 1 2 (3) 4 5 6 7	
SAMPLER: JK	SAMPLER MOBILE: 0499 054 333		
COC emailed to ALS? (YES (NO)	EDD FORMAT (or default):		
Email Reports to (will default to PM if no other addresses are listed): cmatthai@stsgeo.com.au			
Email Invoice to (will default to PM if no other addresses are listed): cmatthai@stsgeo.com.au			

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	
CM	mgould		Justine
DATE/TIME: 8.7	DATE/TIME: 8.7.16 3:15pm	DATE/TIME:	DATE/TIME: 8:20 12/7/16

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	S2 (6 metals)	S19 (TRH/BTEXN/PAH/ Phenols /OC/OP/PCB/8	S26 (TRH/BTEXN/ PAH/ 8 metals)	NEPM ASBESTOS (EA200F)	STS-2				Additional Information
[redacted]	S1	4/7//2016	S	250 ml glass jar, ziplock bag	2			x	x					
	S2	4/7//2016	S	250 ml glass jar	1		x							
	S3	4/7//2016	S	250 ml glass jar, ziplock bag	2	x								
	S4	4/7//2016	S	250 ml glass jar, ziplock bag	2			x		x				
	S5	4/7//2016	S	250 ml glass jar	1	x								
	S6	4/7//2016	S	250 ml glass jar, ziplock bag	2		x		x					
	S7	4/7//2016	S	250 ml glass jar	1			x						
	S8	4/7//2016	S	250 ml glass jar, ziplock bag	2	x			x					
	S9	4/7//2016	S	250 ml glass jar	1	x								
	S10	5/7/2016	S	250 ml glass jar	1			x						
	S11	5/7/2016	S	250 ml glass jar	1			x						Interlaboratory sample for ALS Brisbane
	S12	5/7/2016	S	250 ml glass jar	1		x							
	S13	5/7/2016	S	250 ml glass jar	1	x								
				TOTAL	18	5	3	5	3	1	0	0	0	

ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).

~~Subcon / Forward Lab / Split WO~~
Lab / Analysis: Newcastle / Asbestos
Organised By / Date: EA200F
Relinquished By / Date: (10), (15), (8), (16),
Connote / Courier: (19), (20),
~~WO No:~~ Brisbane / (S10), (S24)
Attach By PO / Internal Sheet:

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V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

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☐WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: portkembla@alsglobal.com

CLIENT: STS GeoEnvironmental	TURNAROUND REQUIREMENTS : (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)	X Standard TAT (List due date):	18/07/2016
OFFICE: Wetherill Park		☐ Non Standard or urgent TAT (List due date):	
21024	ALS QUOTE NO.:	SYBQ 234/15	COC SEQUENCE NUMBER (Circle)
ORDER NUMBER: 13153			COC: 1 (2) 3 4 5 6 7
PROJECT MANAGER: CM	CONTACT PH: 0499 054 333		OF: 1 2 (3) 4 5 6 7
SAMPLER: JK	SAMPLER MOBILE: 0499 054 333		
COC emailed to ALS? (YES / (NO)	EDD FORMAT (or default):		
Email Reports to (will default to PM if no other addresses are listed): cmatthai@stsgeo.com.au			
Email Invoice to (will default to PM if no other addresses are listed): cmatthai@stsgeo.com.au			

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
CM	m Gould		
DATE/TIME: 8.7	DATE/TIME: 8.7.16 3:15pm	DATE/TIME:	DATE/TIME:

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	S2 (6 metals)	S19 (TRH/BTEXN/PAH/ Phenols /OC/OP/PCB/8	S26 (TRH/BTEXN/ PAH/ 8 metals)	NEPM ASBESTOS (EA200F)	STS-2				Additional Information
	S14	5/7//2016	S	250 ml glass jar, ziplock bag	1	x								
	S15	6/7//2016	S	250 ml glass jar	2		x		x					
	S16	6/7//2016	S	250 ml glass jar	2			x						
	S17	6/7//2016	S	250 ml glass jar	2			x						
	S18	6/7//2016	S	250 ml glass jar, ziplock bag	2									
	S19	6/7//2016	S	250 ml glass jar	2					x				
	S20	6/7//2016	S	250 ml glass jar	2		x		x					
	S21	6/7//2016	S	250 ml glass jar	2			x						
	S22	7/7//2016	S	250 ml glass jar	2			x	x					
	S23	7/7//2016	S	250 ml glass jar, ziplock bag	1			x						
2	S24	7/7//2016	S	250 ml glass jar	1			x						Interlaboratory sample for ALS Brisbane
	S25	7/7//2016	S	250 ml glass jar	2			x						
	S26	7/7//2016	S	250 ml glass jar	2	x								
				TOTAL	23	2	2	7	3	1	0	0	0	

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EB1618894**

Client	: **SMEC TESTING SERVICES PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: CARSTEN MATTHAI	Contact	:
Address	: P O BOX 6989 WETHERILL PARK NSW, AUSTRALIA 2164	Address	: 2 Byth Street Stafford QLD Australia 4053
E-mail	: cmatthai@stsgeo.com.au	E-mail	:
Telephone	: ----	Telephone	: +61-7-3243 7222
Facsimile	: ----	Facsimile	: +61-7-3243 7218
Project	: 21024	Page	: 1 of 2
Order number	: 13167	Quote number	: ES2016SMETES0001 (SYBQ/234/15)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: J K		

Dates

Date Samples Received	: 26-Jul-2016 9:05 AM	Issue Date	: 26-Jul-2016
Client Requested Due Date	: 01-Aug-2016	Scheduled Reporting Date	: **01-Aug-2016**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 1	Temperature	: 4.0°C - Ice present
Receipt Detail	: MEDIUM	No. of samples received / analysed	: 3 / 3

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- Samples were originally received by ALS Sydney on 21/07/16 and have been forwarded to ALS Brisbane for analysis.Temperature on arrival in ALS Brisbane has been noted above.
- Discounted Package Prices apply only when specific ALS Group Codes ('W', 'S', 'NT' suites) are referenced on COCs.
- Please direct any turn around / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.
- Analysis will be conducted by ALS Environmental, Brisbane, NATA accreditation no. 825, Site No. 818 (Micro site no. 18958).
- **Breaches in recommended extraction / analysis holding times (if any) are displayed overleaf in the Proactive Holding Time Report table.**

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default to 15:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory for processing purposes and will be shown bracketed without a time component.

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA055-103 Moisture Content	SOIL - S-02 8 Metals (incl. Digestion)	SOIL - S-26 8 metals/TRH/BTEXN/PAH
EB1618894-001	[18-Jul-2016]	S51	✓	✓	
EB1618894-002	[19-Jul-2016]	S64	✓	✓	
EB1618894-003	[19-Jul-2016]	S72	✓		✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

CARSTEN MATTHAI		
- *AU Certificate of Analysis - NATA (COA)	Email	cmatthai@stsgeo.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	cmatthai@stsgeo.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	cmatthai@stsgeo.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	cmatthai@stsgeo.com.au
- A4 - AU Tax Invoice (INV)	Email	cmatthai@stsgeo.com.au
- Chain of Custody (CoC) (COC)	Email	cmatthai@stsgeo.com.au
INVOICES (ACCOUNTS)		
- A4 - AU Tax Invoice (INV)	Email	accounts@smectesting.com.au
SMEC TESTING ALL RESULTS		
- *AU Certificate of Analysis - NATA (COA)	Email	enquiries@smectesting.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	enquiries@smectesting.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	enquiries@smectesting.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	enquiries@smectesting.com.au
- A4 - AU Tax Invoice (INV)	Email	enquiries@smectesting.com.au
- Chain of Custody (CoC) (COC)	Email	enquiries@smectesting.com.au
- EDI Format - ENMRG (ENMRG)	Email	enquiries@smectesting.com.au
- EDI Format - ESDAT (ESDAT)	Email	enquiries@smectesting.com.au

CHAIN OF CUSTODY

ALS Environmental

ALS Laboratory: please tick →

☐ADELAIDE 21 Burma Road Pooraka SA 5095 Ph: 08 8359 0890 E: adelaide@alsglobal.com
☐BRISBANE 32 Shand Street Stafford QLD 4053 Ph: 07 3243 7222 E: samples.brisbane@alsglobal.com
☐GLADSTONE 46 Callemondah Drive Clinton QLD 4680 Ph: 07 7471 5600 E: gladstone@alsglobal.com
☐MACKAY 78 Harbour Road Mackay QLD 4740 Ph: 07 4944 0177 E: mackay@alsglobal.com
☐MELBOURNE 2-4 Westall Road Springvale VIC 3171 Ph: 03 8549 9600 E: samples.melbourne@alsglobal.com
☐MUDGEE 27 Sydney Road Mudgee NSW 2850 Ph: 02 6372 6735 E: mudgee.mail@alsglobal.com
☐NEWCASTLE 5 Rose Gum Road Warabrook NSW 2304 Ph: 02 4968 9433 E: samples.newcastle@alsglobal.com
☐NOWRA 4/13 Geary Place North Nowra NSW 2541 Ph: 024423 2063 E: nowra@alsglobal.com
☐PERTH 10 Hod Way Malaga WA 6090 Ph: 08 9209 7655 E: samples.perth@alsglobal.com
☒SYDNEY 277-289 Woodpark Road Smithfield NSW 2164 Ph: 02 8784 8555 E: samples.sydney@alsglobal.com
☐TOWNSVILLE 14-15 Desma Court Bohle QLD 4818 Ph: 07 4796 0600 E: townsville.environmental@alsglobal.com
☐WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: portkembla@alsglobal.com

CLIENT: STS GeoEnvironmental	**TURNAROUND REQUIREMENTS :** (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)	X Standard TAT **(List due date):** 28/07/2016	**FOR LABORATORY USE ONLY (Circle)** Custody Seal Intact? Yes / No / N/A
OFFICE: Wetherill Park		☐ Non Standard or urgent TAT **(List due date):**	Frozen/Cool on Ice upon receipt? Yes / No / N/A
21024	**ALS QUOTE NO.:** SYBQ 234/15	**COC SEQUENCE NUMBER (Circle)** COC: (1) 2 3 4 5 6 7	Random Sample Temperature on Receipt: °C
ORDER NUMBER: 13167		OF: 1 2 (3) 4 5 6 7	Other comments:
PROJECT MANAGER: CM	**CONTACT PH:** 0499 054 333		
SAMPLER: JK	**SAMPLER MOBILE:** 0499 054 333	**RELINQUISHED BY:** CM	**RECEIVED BY:**
COC emailed to ALS? (YES / (NO)	**EDD FORMAT (or default):**	DATE/TIME: 21-7-16	DATE/TIME:
Email Reports to (will default to PM if no other addresses are listed): cmatthai@stsgeo.com.au		**RELINQUISHED BY:**	**RECEIVED BY:** Nanish
Email Invoice to (will default to PM if no other addresses are listed): cmatthai@stsgeo.com.au		DATE/TIME:	DATE/TIME: 210716 2oopm

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where **Metals** are required, specify **Total** (unfiltered bottle required) or **Dissolved** (field filtered bottle required).								Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE *(refer to codes below)*	TOTAL CONTAINERS	S2 (8 metals)	S19 (TRH/BTEXN/PAH/ Phenols /OC/OP/PCB/8	S26 (TRH/BTEXN/ PAH/ 8 metals)	NEPM ASBESTOS (EA200F)	STS-2	Full VOC and unknown scan (EP074/081)	VOC Scan for unknowns (EP072)	S10 (TRH/BTEX/PAH/ plus VOC	Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
1	S40	18/7//2016	S	250 ml glass jar, ziplock bag	2			x	x					
2	S41	18/7//2016	S	250 ml glass jar, ziplock bag	2	x								
3	S42	18/7//2016	S	250 ml glass jar, ziplock bag	2	x							x	
4	S43	18/7//2016	S	250 ml glass jar, ziplock bag	2		x		x		x			
5	S49	18/7//2016	S	250 ml glass jar, ziplock bag	2	x								
6	S50	18/7//2016	S	250 ml glass jar	1	x								
1.	S51	18/7//2016	S	250 ml glass jar	1	x								Interlaboratory Sample to ALS Brisbane
7	S52	18/7//2016	S	250 ml glass jar, ziplock bag	2			x						
8	S57	18/7//2016	S	250 ml glass jar, ziplock bag	2	x								
9	S58	18/7//2016	S	250 ml glass jar, ziplock bag	2			x		x				
10	S53	18/7//2016	S	250 ml glass jar, ziplock bag	2			x	x					
11	S59	18/7//2016	S	250 ml glass jar, ziplock bag	2			x						
12	S60	18/7//2016	S	250 ml glass jar, ziplock bag	2		x			x	x			
				TOTAL	24	6	2	5	3	2	2	0		

Subcon / Forward Lab / Split WO
Lab / Analysis:
Organised By / Date:
Relinquished By / Date:
Connote Carrier:
WO No:
Attach By PO Internal Order:

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preser Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

Environmental Division
Brisbane
Work Order Reference
EB1618894

Telephone : +61-7-3243 7222

CHAIN OF CUSTODY

ALS Environmental

ALS Laboratory: please tick →

☐ADELAIDE 21 Burma Road Pooraka SA 5095 Ph: 08 8359 0890 E: adelaide@alsglobal.com

☐BRISBANE 32 Shand Street Stafford QLD 4053 Ph: 07 3243 7222 E: samples.brisbane@alsglobal.com

☐GLADSTONE 46 Callemondah Drive Clinton QLD 4680 Ph: 07 7471 5600 E: gladstone@alsglobal.com

☐MACKAY 78 Harbour Road Mackay QLD 4740 Ph: 07 4944 0177 E: mackay@alsglobal.com

☐MELBOURNE 2-4 Westall Road Springvale VIC 3171 Ph: 03 8549 9600 E: samples.melbourne@alsglobal.com

☐MUDGEE 27 Sydney Road Mudgee NSW 2850 Ph: 02 6372 6735 E: mudgee.mail@alsglobal.com

☐NEWCASTLE 5 Rose Gum Road Warabrook NSW 2304 Ph: 02 4968 9433 E: samples.newcastle@alsglobal.com

☐NOWRA 4/13 Geary Place North Nowra NSW 2541 Ph: 024423 2063 E: nowra@alsglobal.com

☐PERTH 10 Hod Way Malaga WA 6090 Ph: 08 9209 7655 E: samples.perth@alsglobal.com

☒SYDNEY 277-289 Woodpark Road Smithfield NSW 2164 Ph: 02 8784 8555 E: samples.sydney@alsglobal.com

☐TOWNSVILLE 14-15 Desma Court Bohle QLD 4818 Ph: 07 4796 0600 E: townesville.environmental@alsglobal.com

☐WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: portkembla@alsglobal.com

CLIENT: STS GeoEnvironmental	TURNAROUND REQUIREMENTS : (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)	X Standard TAT (List due date): 28/07/2016 ☐ Non Standard or urgent TAT (List due date):
OFFICE: Wetherill Park		
21024	ALS QUOTE NO.: SYBQ 234/15	
ORDER NUMBER: 13167		
PROJECT MANAGER: CM	CONTACT PH: 0499 054 333	
SAMPLER: JK	SAMPLER MOBILE: 0499 054 333	
COC emailed to ALS? (YES / (NO))	EDD FORMAT (or default):	
Email Reports to (will default to PM if no other addresses are listed): cmatthai@stsgeo.com.au		
Email Invoice to (will default to PM if no other addresses are listed): cmatthai@stsgeo.com.au		

COC SEQUENCE NUMBER (Circle)

COC: 1 (2) 3 4 5 6 7

OF: 1 2 (3) 4 5 6 7

FOR LABORATORY USE ONLY (Circle)

Custody Seal Intact? Yes / No / N/A

Free ice / frozen ice bricks present upon receipt? Yes / No / N/A

Random Sample Temperature on Receipt: °C

Other comments:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
CM			Nanida
DATE/TIME: 21-7-16	DATE/TIME:	DATE/TIME:	DATE/TIME: 21/07/16 2pm

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).									Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	S2 (8 metals)	S19 (TRH/BTEXN/PAH/ Phenols /OC/OP/PCB/8	S26 (TRH/BTEXN/ PAH/ 8 metals)	NEPM ASBESTOS (EA200F)	STS-2	Full VOC and unknown scan (EP074/081)	VOC Scan for unknowns (EP072)	S10 (TRH/BTEX/PAH/ plus VOC		Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
13	S54	19/7//2016	S	250 ml glass jar, ziplock bag	2			x	x						
14	S55	19/7//2016	S	250 ml glass jar, ziplock bag	2		x				x				
15	S56	19/7//2016	S	250 ml glass jar, ziplock bag	2			x		x					
16	S61	19/7//2016	S	250 ml glass jar, ziplock bag	2	x									
17	S62	19/7//2016	S	250 ml glass jar, ziplock bag	2			x							
18	S63	19/7//2016	S	250 ml glass jar	1	x									
2.	S64	19/7//2016	S	250 ml glass jar	1	x									Interlaboratory Sample to ALS Brisbane
19	S65	19/7//2016	S	250 ml glass jar, ziplock bag	2	x				x			x		
20	S66	19/7//2016	S	250 ml glass jar, ziplock bag	2			x							
21	S67	19/7//2016	S	250 ml glass jar, ziplock bag	2		x					x			
22	S70	19/7//2016	S	250 ml glass jar, ziplock bag	2			x							
23	S71	19/7//2016	S	250 ml glass jar	1			x							
3.	S72	19/7//2016	S	250 ml glass jar	1			x							Interlaboratory Sample to ALS Brisbane
				TOTAL	22	4	2	7	1	2	1	1	1		

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic; V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES1915949**

Client	: **SMEC TESTING SERVICES PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: ALL REPORTS (ENQUIRIES)	Contact	: Customer Services ES
Address	: 14/1 Cowpasture Place Wetherill Park NSW	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: enquiries@smectesting.com.au	E-mail	: ALSEnviro.Sydney@ALSGlobal.com
Telephone	: ----	Telephone	: +61-2-8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: 21024/1934D-R	Page	: 1 of 3
Order number	: E-2019-227	Quote number	: EB2017SMETES0001 (EN/222)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	:		

Dates

Date Samples Received	: 23-May-2019 11:10	Issue Date	: 24-May-2019
Client Requested Due Date	: 30-May-2019	Scheduled Reporting Date	: **30-May-2019**

Delivery Details

Mode of Delivery	: Undefined	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 9.7 - Ice Bricks present
Receipt Detail	:	No. of samples received / analysed	: 8 / 3

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

Method Client sample ID	Sample Container Received	Preferred Sample Container for Analysis
TRH Volatiles/BTEX : EP080		
GW2-3	- THM Vial (sodium thiosulfate treated)	- Amber VOC Vial - Sulfuric Acid

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - S-26 8 metals/TRH/BTEXN/PAH
ES1915949-001	20-May-2019 00:00	S91		✓	✓
ES1915949-002	20-May-2019 00:00	S103	✓		
ES1915949-003	21-May-2019 00:00	S109	✓		
ES1915949-004	21-May-2019 00:00	S116	✓		
ES1915949-005	21-May-2019 00:00	S121		✓	✓

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	(On Hold) WATER No analysis requested	WATER - W-26 TRH/BTEXN/PAH/8 Metals
ES1915949-006	20-May-2019 00:00	GW2-3		✓
ES1915949-007	22-May-2019 00:00	Trip Blank	✓	
ES1915949-008	21-May-2019 00:00	Trip Spike	✓	

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

CRAIG RIDLEY

- *AU Certificate of Analysis - NATA (COA)	Email	cridley@stsgeo.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	cridley@stsgeo.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	cridley@stsgeo.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	cridley@stsgeo.com.au
- Chain of Custody (CoC) (COC)	Email	cridley@stsgeo.com.au
- EDI Format - ENMRG (ENMRG)	Email	cridley@stsgeo.com.au
- EDI Format - ESDAT (ESDAT)	Email	cridley@stsgeo.com.au

INVOICES (ACCOUNTS)

- A4 - AU Tax Invoice (INV)	Email	accounts@smectesting.com.au

REPORTS (ENQUIRIES)

- *AU Certificate of Analysis - NATA (COA)	Email	enquiries@smectesting.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	enquiries@smectesting.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	enquiries@smectesting.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	enquiries@smectesting.com.au
- Chain of Custody (CoC) (COC)	Email	enquiries@smectesting.com.au
- EDI Format - ENMRG (ENMRG)	Email	enquiries@smectesting.com.au
- EDI Format - ESDAT (ESDAT)	Email	enquiries@smectesting.com.au

SMEC TESTING ALL RESULTS

- *AU Certificate of Analysis - NATA (COA)	Email	enquiries@stsgeo.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	enquiries@stsgeo.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	enquiries@stsgeo.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	enquiries@stsgeo.com.au
- A4 - AU Tax Invoice (INV)	Email	enquiries@stsgeo.com.au
- Chain of Custody (CoC) (COC)	Email	enquiries@stsgeo.com.au
- EDI Format - ENMRG (ENMRG)	Email	enquiries@stsgeo.com.au
- EDI Format - ESDAT (ESDAT)	Email	enquiries@stsgeo.com.au

30/5/19

CHAIN OF CUSTODY RECORD

STS GeoEnvironmental Pty Ltd
PO Box 6989 (postal)
14/1 Cowpasture Place (office), Wetherill Park NSW 2164
Telephone: (02) 9756 2166 Fax:(02) 9756 1137
E-Mail: cridley@stsgeo.com.au Contact: Craig Ridley

Job No: 21024/1934D-R

Order No: E-2019-227

STS GeoEnvironmental Pty Ltd
Geotechnical and Environmental Solutions

Laboratory: ALS Laboratory Group - Sydney Environmental Division
277-289 Woodpark Road, SMITHFIELD NSW 2164
Telephone: (02) 8784 8555 Fax: (02) 8784 8500 Contact: Jacob Waugh

Laboratory number	Sample number	jar/ bottle	bag	Date sampled	Composite number	Sample type	Comments	W-26	S-26	hold
1	S91	1	-	20-May-2019		Soil			X	
2	S103	1	-	20-May-2019		Soil				X
3	S109	1	-	21-May-2019		Soil				X
4	S116	1	-	21-May-2019		Soil				X
5	S121	1	-	21-May-2019		Soil			X	
6	GW2-3	4	-	20-May-2019		Water	**Dissolved Metals**	X		
	Received Extra Sample									
7	TRIP BLANK			22/5/19						
8	TRIP SPIKE			21/5/19						
TOTAL										

ANALYSIS

Environmental Division
Sydney
Work Order Reference
ES1915949

Telephone : +61-2-8784 8555

Released by STS GeoEnvironmental Craig Ridley Signed:	Date: 22-May-19	Time:
Received by: Signed: ALS	Date: 23/5/19	Time: 10:10am

CoC Number: 21024 - COC1

Your quotation: STS Geo 2018-2019 (EN/222/18)

Preliminary results by:	Final results by:
3-Apr-19	29-May-19

Standard Detection Limits Apply, Standard Turnaround Required on Results

source: [Untitled].pdf page: 1 SGS Ref: SE193097_COC

193097

CHAIN OF CUSTODY RECORD

STS GeoEnvironmental Pty Ltd
PO Box 6989 (postal)
14/1 Cowpasture Place (office), Wetherill Park NSW 2164
Telephone: (02) 9756 2166 Fax:(02) 9756 1137
E-Mail: cridley@stsgeo.com.au Contact: Craig Ridley

Job No: 21024/1934D-R Order No: E-2019-226

STS GeoEnvironmental
Geotechnical and Environmental Solutions

Laboratory: SGS Laboratory Group - Sydney Environmental Division
Unit 16, 33 Maddox Street, Alexandria NSW 2015
Telephone: +612 8594 04 00 Fax: Contact:

Laboratory number	Sample number	jar/ bottle	bag	Date sampled	Composite number	Sample type	Comments	ANALYSIS: pHF & pHFox	ANALYSIS: Reaction Rate
1	ASS1	-	1	20-May-2019		soil		X	X
2	ASS2	-	1	20-May-2019		soil		X	X
3	ASS3	-	1	20-May-2019		soil		X	X
4	ASS4	-	1	20-May-2019		soil		X	X
4	ASS5	-	1	20-May-2019		soil		X	X
5	ASS6	-	1	20-May-2019		soil		X	X
6	ASS7	-	1	20-May-2019		soil		X	X
7	ASS8	-	1	20-May-2019		soil		X	X
8	ASS9	-	1	20-May-2019		soil		X	X
9	ASS10	-	1	20-May-2019		soil		X	X
10	ASS11	-	1	20-May-2019		soil		X	X
11	ASS12	-	1	20-May-2019		soil		X	X
12	ASS13	-	1	20-May-2019		soil		X	X
13	ASS14	-	1	20-May-2019		soil		X	X
14	ASS15	-	1	20-May-2019		soil		X	X
15	ASS16	-	1	20-May-2019		soil		X	X
16	ASS17	-	1	20-May-2019		soil		X	X
17	ASS18	-	1	20-May-2019		soil		X	X
TOTAL	-	-	-						

SGS EHS Alexandria Laboratory
SE193097 COC
Received: 22 – May – 2019

Released by STS GeoEnvironmental Craig Ridley Signed:	Date: 22-May-19	Time: 09:00	CoC Numbo 21024 COC2 Your quotation: STS G_NC7GL6
Received by: SGS Signed: Jacob Lubato	Date: 22/5/19	Time: 12:15	Preliminary results by: Final results by: 24-May-19

Standard Detection Limits Apply, 48Hr Turnaround Required on Results

CHAIN OF CUSTODY RECORD

STS GeoEnvironmental Pty Ltd
PO Box 6989 (postal)
4/1 Cowpasture Place (office), Wetherill Park NSW 2164
Telephone: (02) 9756 2166 Fax:(02) 9756 1137
E-Mail: cridley@stsgeo.com.au Contact: Craig Ridley

Job No: 21024/1934D-R

Order No: E-2019-226

STS GeoEnvironmental
Geotechnical and Environmental Solutions

Laboratory: SGS Laboratory Group - Sydney Environmental Division
Unit 16, 33 Maddox Street, Alexandria NSW 2015
Telephone: +612 8594 04 00 Fax: Contact:

Laboratory number	Sample number	jar/ bottle	bag	Date sampled	Composite number	Sample type	Comments	pHF & pHFox	Reaction Rate
19	ASS19	-	1	20-May-2019		soil		X	X
19	ASS20	-	1	20-May-2019		soil		X	X
20	ASS21	-	1	20-May-2019		soil		X	X
21	ASS22	-	1	20-May-2019		soil		X	X
22	ASS23	-	1	20-May-2019		soil		X	X
23	ASS24	-	1	20-May-2019		soil		X	X
24	ASS25	-	1	20-May-2019		soil		X	X
25	ASS26	-	1	20-May-2019		soil		X	X
26	ASS27	-	1	20-May-2019		soil		X	X
27	ASS28	-	1	20-May-2019		soil		X	X
28	ASS29	-	1	20-May-2019		soil		X	X
29	ASS30	-	1	20-May-2019		soil		X	X
30	ASS31	-	1	20-May-2019		soil		X	X
31	ASS32	-	1	20-May-2019		soil		X	X
32	ASS33	-	1	20-May-2019		soil		X	X
33	ASS34	-	1	20-May-2019		soil		X	X
34	ASS35	-	1	20-May-2019		soil		X	X
35	ASS36	-	1	20-May-2019		soil		X	X
TOTAL	-	-	-						

ANALYSIS

Released by STS GeoEnvironmental	Date:	Time:
Craig Ridley Signed:	22-May-19	
Received by: Signed:	Date: 22/5/19	Time: 12:15

CoC Number 21024 COC2

Your quotation: STS G_NC7GL6

Preliminary results by:

Final results by: 24-May-19

Standard Detection Limits Apply, 48Hr Turnaround Required on Results

CHAIN OF CUSTODY RECORD

STS GeoEnvironmental Pty Ltd
PO Box 6989 (postal)
14/1 Cowpasture Place (office), Wetherill Park NSW 2164
Telephone: (02) 9756 2166 Fax:(02) 9756 1137
E-Mail: cridley@stsgeo.com.au Contact: Craig Ridley

Job No: 21024/1934D-R Order No: E-2019-226

STS GeoEnvironmental
Geotechnical and Environmental Solutions

Laboratory:
SGS Laboratory Group - Sydney Environmental Division
Unit 16, 33 Maddox Street, Alexandria NSW 2015
Telephone: +612 8594 04 00 Fax: Contact:

Laboratory number	Sample number	Jar/ bottle	bag	Date sampled	Composite number	Sample type	Comments	ANALYSIS: pHF & pHFox	ANALYSIS: Reaction Rate
36	ASS37	-	1	20-May-2019		soil		X	X
37	ASS38	-	1	20-May-2019		soil		X	X
38	ASS39	-	1	20-May-2019		soil		X	X
39	ASS40	-	1	20-May-2019		soil		X	X
40	ASS41	-	1	20-May-2019		soil		X	X
41	ASS42	-	1	20-May-2019		soil		X	X
42	ASS43	-	1	20-May-2019		soil		X	X
43	ASS44	-	1	20-May-2019		soil		X	X
44	ASS45	-	1	20-May-2019		soil		X	X
45	ASS46	-	1	20-May-2019		soil		X	X
46	ASS47	-	1	21-May-2019		soil		X	X
47	ASS48	-	1	21-May-2019		soil		X	X
TOTAL	-	-	48					48	48

Released by STS GeoEnvironmental
Craig Ridley
Signed:
Date: 22-May-19
Time:

Received by:
Signed:
Date: 22/5
Time: 12:15

CoC Numbe 21024 COC2

Your quotation: STS G_NC7GL6

Preliminary results by:

Final results by: 24-May-19

Standard Detection Limits Apply, 48Hr Turnaround Required on Results

STS GEOENVIRONMENTAL PTY LIMITED

Po Box 6989, Wetherill Park, 2164
Tel : (02) 9756 2166, Fax : (02) 9756 1137, Email : enquiries@stsgeo.com.au
Website : www.stsgeo.com.au, ABN : 61 162 976 543

STS GEOENVIRONMENTAL

Purchase Order

Purchase From
SGS
Unit 16, 33 Maddox Street
Alexandria
NSW 2015
Attention To : N/A

Deliver To
STS GeoEnvironmental
PO Box 6989
Wetherill Park
NSW 2164
Attention To :

P. O. No#	E-2019-226
Date	21/05/2019
Project No	21024
STS No.	1934D-R
Delivery Date	24/05/2019

Item No	Description	Quantity	Unit Price	Amount
1	Analysis as per COC Results Due: 24/05/2019			

Sub Total	$0.00
0	$0.00
0	$0.00
Invoice Total	**$0.00**
Freight	
Amount Paid	
Balance Due	**$0.00**

Comments

Issued By

SAMPLE RECEIPT ADVICE

SE193097

CLIENT DETAILS

Contact	Craig Ridley
Client	STS GEOENVIRONMENTAL PTY LTD
Address	PO BOX 6989 WETHERILL PARK NSW 2164
Telephone	61 2 9756 2166
Facsimile	61 2 9756 1137
Email	cridley@stsgeo.com.au
Project	**21024-1934D-R**
Order Number	**E-2019-226**
Samples	47

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
Samples Received	Wed 22/5/2019
Report Due	Fri 24/5/2019
SGS Reference	**SE193097**

SUBMISSION DETAILS

This is to confirm that 47 samples were received on Wednesday 22/5/2019. Results are expected to be ready by COB Friday 24/5/2019. Please quote SGS reference SE193097 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	Client	Sample cooling method	None
Samples received in correct containers	Yes	Sample counts by matrix	47 Soil
Date documentation received	22/5/2019	Type of documentation received	COC
Samples received in good order	Yes	Samples received without headspace	N/A
Sample temperature upon receipt	4.5°C	Sufficient sample for analysis	Yes
Turnaround time requested	Two Days		

Unless otherwise instructed, water and bulk samples will be held for one month from date of report, and soil samples will be held for two months.

COMMENTS

Sample ASS5 not received.

This document is issued by the Company under its General Conditions of Service accessible at www.sgs.com/en/Terms-and-Conditions.aspx. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

SAMPLE RECEIPT ADVICE

SE193097

CLIENT DETAILS

Client STS GEOENVIRONMENTAL PTY LTD

Project 21024-1934D-R

SUMMARY OF ANALYSIS

No.	Sample ID	Field pH for Acid Sulphate Soil
001	ASS1	4
002	ASS2	4
003	ASS3	4
004	ASS4	4
005	ASS6	4
006	ASS7	4
007	ASS8	4
008	ASS9	4
009	ASS10	4
010	ASS11	4
011	ASS12	4
012	ASS13	4
013	ASS14	4
014	ASS15	4
015	ASS16	4
016	ASS17	4
017	ASS18	4
018	ASS19	4
019	ASS20	4
020	ASS21	4
021	ASS22	4
022	ASS23	4
023	ASS24	4
024	ASS25	4

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

SAMPLE RECEIPT ADVICE

SE193097

CLIENT DETAILS

Client STS GEOENVIRONMENTAL PTY LTD

Project 21024-1934D-R

SUMMARY OF ANALYSIS

No.	Sample ID	Field pH for Acid Sulphate Soil
025	ASS26	4
026	ASS27	4
027	ASS28	4
028	ASS29	4
029	ASS30	4
030	ASS31	4
031	ASS32	4
032	ASS33	4
033	ASS34	4
034	ASS35	4
035	ASS36	4
036	ASS37	4
037	ASS38	4
038	ASS39	4
039	ASS40	4
040	ASS41	4
041	ASS42	4
042	ASS43	4
043	ASS44	4
044	ASS45	4
045	ASS46	4
046	ASS47	4
047	ASS48	4

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

source: [Untitled].pdf page: 1 SGS Ref: SE193097A_COC

Yin, Emily (Sydney)

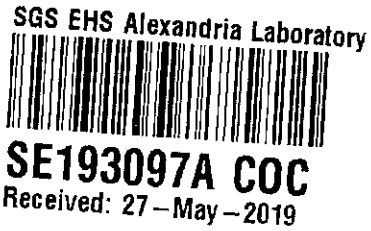
From: Craig Ridley <cridley@stsgeo.com.au>
Sent: Monday, 27 May 2019 11:24 AM
To: AU.SampleReceipt.Sydney (Sydney)
Cc: AU.Environmental.Sydney (Sydney)
Subject: Additional Analysis Required - SE193097 - 21024-1934D-R
Attachments: E-2019-237.pdf

Importance: High

Good morning,

Can we please arrange for the following samples to be forwarded for SCR Suite analysis:

- SE193097.006 (ASS7)
- SE193097.009 (ASS10)
- SE193097.011 (ASS12)
- SE193097.012 (ASS13)
- SE193097.013 (ASS14)
- SE193097.014 (ASS15)
- SE193097.019 (ASS20)
- SE193097.020 (ASS21)
- SE193097.021 (ASS22)
- SE193097.023 (ASS24)
- SE193097.038 (ASS39)
- SE193097.039 (ASS40)



Please report on standard turnaround. The purchase order is attached.

If there are any issues, please call.

Regards,

Craig Ridley | Environmental Consultant
STS GeoEnvironmental Pty Ltd
PO Box 6989 (postal)
14/1 Cowpasture Place (street)
Wetherill Park NSW 2164
cridley@stsgeo.com.au | www.stsgeo.com.au
T (02) 9756 2166 | F (02) 9756 1137 | M 0438 687 321
enquiries@stsgeo.com.au (office)

SAMPLE RECEIPT ADVICE

SE193097A

CLIENT DETAILS

Contact	Craig Ridley
Client	STS GEOENVIRONMENTAL PTY LTD
Address	PO BOX 6989 WETHERILL PARK NSW 2164
Telephone	61 2 9756 2166
Facsimile	61 2 9756 1137
Email	cridley@stsgeo.com.au
Project	**21024-1934D-R - Additional**
Order Number	**E-2019-226**
Samples	47

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
Samples Received	Mon 27/5/2019
Report Due	Mon 3/6/2019
SGS Reference	**SE193097A**

SUBMISSION DETAILS

This is to confirm that 47 samples were received on Monday 27/5/2019. Results are expected to be ready by COB Monday 3/6/2019. Please quote SGS reference SE193097A when making enquiries. Refer below for details relating to sample integrity upon receipt.

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	Client	Sample cooling method	None
Samples received in correct containers	Yes	Sample counts by matrix	12 Soil
Date documentation received	27/5/19@11:24am	Type of documentation received	Email
Samples received in good order	Yes	Samples received without headspace	N/A
Sample temperature upon receipt	4.5°C	Sufficient sample for analysis	Yes
Turnaround time requested	Standard		

Unless otherwise instructed, water and bulk samples will be held for one month from date of report, and soil samples will be held for two months.

COMMENTS

SCR Suite subcontracted to SGS Cairns, 2/58 Comport St, Portsmith QLD 4870, NATA Accreditation Number: 2562, Site Number: 3146.Report Number SCR Suite subcontracted to SGS Cairns, 2/58 Comport St, Portsmith QLD 4870, NATA Accreditation Number: 2562, Site Number: 3146.Report Number CE139995

This document is issued by the Company under its General Conditions of Service accessible at www.sgs.com/en/Terms-and-Conditions.aspx. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

SAMPLE RECEIPT ADVICE

SE193097A

CLIENT DETAILS

Client STS GEOENVIRONMENTAL PTY LTD

Project 21024-1934D-R - Additional

SUMMARY OF ANALYSIS

No.	Sample ID	Sample Subcontracted
001	ASS1	1
002	ASS2	1
003	ASS3	1
004	ASS4	1
005	ASS6	1
006	ASS7	1
007	ASS8	1
008	ASS9	1
009	ASS10	1
010	ASS11	1
011	ASS12	1
012	ASS13	1
013	ASS14	1
014	ASS15	1
015	ASS16	1
016	ASS17	1
017	ASS18	1
018	ASS19	1
019	ASS20	1
020	ASS21	1
021	ASS22	1
022	ASS23	1
023	ASS24	1
024	ASS25	1

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

SAMPLE RECEIPT ADVICE

SE193097A

CLIENT DETAILS

Client STS GEOENVIRONMENTAL PTY LTD

Project 21024-1934D-R - Additional

SUMMARY OF ANALYSIS

No.	Sample ID	Sample Subcontracted
025	ASS26	1
026	ASS27	1
027	ASS28	1
028	ASS29	1
029	ASS30	1
030	ASS31	1
031	ASS32	1
032	ASS33	1
033	ASS34	1
034	ASS35	1
035	ASS36	1
036	ASS37	1
037	ASS38	1
038	ASS39	1
039	ASS40	1
040	ASS41	1
041	ASS42	1
042	ASS43	1
043	ASS44	1
044	ASS45	1
045	ASS46	1
046	ASS47	1
047	ASS48	1

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

source: [Untitled]_20190522075234000.pdf page: 1 SGS Ref: SE193119_COC

193119

CHAIN OF CUSTODY RECORD

STS GeoEnvironmental Pty Ltd
PO Box 6989 (postal)
14/1 Cowpasture Place (office), Wetherill Park NSW 2164
Telephone: (02) 9756 2166 Fax:(02) 9756 1137
E-Mail: cridley@stsgeo.com.au Contact: Craig Ridley

Job No: 21024/1934D-R Order No: E-2019-220

STS GeoEnvironmental
Geotechnical and Environmental Solutions

Laboratory: SGS Laboratory Group - Sydney Environmental Division
Unit 16, 33 Maddox Street, Alexandria NSW 2015
Telephone: +612 8594 0400 Fax: Contact:

SGS EHS Alexandria Laboratory
SE193119 COC
Received: 22 – May – 2019

	Laboratory number	Sample number	jar/ bottle	bag	Date sampled	Composite number	Sample type	Comments	ANALYSIS: CL2	CL10	CL15	CL18	Asbestos NEPM	CA5	TOC	pH (CaCl2)	BTEX	HOLD
1	[redacted]	S80	1	1	20-May-2019		Soil			X			X					
2		S81	1	1	20-May-2019		Soil				X		X					
3		S82	1	1	20-May-2019		Soil											X
4		S83	1	1	20-May-2019		Soil			X								
5		S84	1	1	20-May-2019		Soil			X			X					
6		S85	1	1	20-May-2019		Soil		X				X					
7		S86	1	1	20-May-2019		Soil											X
8		S87	1	1	20-May-2019		Soil											X
9		S88	1	1	20-May-2019		Soil			X								
10		S89	1	1	20-May-2019		Soil			X			X					
11		S90	1	-	20-May-2019		Soil			X								
12		S92	1	1	20-May-2019		Soil				X		X					
13		S93	1	1	20-May-2019		Soil											X
14		S94	1	1	20-May-2019		Soil		X									
		S95	1	1	20-May-2019		Soil				X							
		S96	1	1	20-May-2019		Soil			X								
		S97	1	1	20-May-2019		Soil		X				X					
		S98	1	1	20-May-2019		Soil			X			X					
	TOTAL	-	-	-														

Released by STS GeoEnvironmental
Craig Ridley
Signed:

Date: 22-May-19 Time: 09-00

Received by:
Signed:

Date: 22/5/19 Time: 12:15

CoC Number: 21024 COC1

Your quotation: STS G_NC7GL6

Preliminary results by:

Final results by: 29-May-19

PLEASE ENSURE INTER-LAB ANALYSIS USE SAME TEST METHODS

Standard Detection Limits Apply, Standard Turnaround Required on Results

11.9°C

CHAIN OF CUSTODY RECORD

STS GeoEnvironmental Pty Ltd
PO Box 6989 (postal)
14/1 Cowpasture Place (office), Wetherill Park NSW 2164
Telephone: (02) 9756 2166 Fax:(02) 9756 1137
E-Mail: cridley@stsgeo.com.au Contact: Craig Ridley

Job No: 21024/1934D-R Order No: E-2019-220

STS GeoEnvironmental
Geotechnical and Environmental Solutions

Laboratory: SGS Laboratory Group - Sydney Environmental Division
Unit 16, 33 Maddox Street, Alexandria NSW 2015
Telephone: +612 8594 0400 Fax: Contact:

	Laboratory number	Sample number	jar/ bottle	bag	Date sampled	Composite number	Sample type	Comments	CL2	CL10	CL15	CL18	Asbestos NEPM	CA5	TOC	pH (CaCl2)	BTEX	HOLD
1	[redacted]	S99	1	1	20-May-2019		Soil											X
1	[redacted]	S100	1	1	20-May-2019		Soil											X
15	[redacted]	S101	1	1	20-May-2019		Soil			X			X					
1	[redacted]	S102	1	-	20-May-2019		Soil											X
16	[redacted]	S104	1	1	20-May-2019		Soil				X		X					
17	[redacted]	S105	1	1	20-May-2019		Soil			X								
18	[redacted]	S106	1	1	20-May-2019		Soil		X									X
1	[redacted]	S107	1	1	21-May-2019		Soil											X
1	[redacted]	S108	1	-	21-May-2019		Soil											
19	[redacted]	S110	1	1	21-May-2019		Soil				X							
1	[redacted]	S111	1	1	21-May-2019		Soil											X
20	[redacted]	S112	1	1	21-May-2019		Soil				X							
21	[redacted]	S113	1	1	21-May-2019		Soil		X									
22	[redacted]	S114	1	1	21-May-2019		Soil		X				X					
-	[redacted]	S115	1	-	21-May-2019		Soil											X
23	[redacted]	S117	1	1	21-May-2019		Soil			X			X					
-	[redacted]	S118	1	1	21-May-2019		Soil											X
24	[redacted]	S119	1	1	21-May-2019		Soil				X							
	TOTAL	-	-	-														

ANALYSIS

Released by STS GeoEnvironmental
Craig Ridley
Signed:
Date: 22-May-19 Time:

Received by:
Signed:
Date: 22/5 Time: 12.15

CoC Numbe 21024 COC1

Your quotation: STS G_NC7GL6

Preliminary results by:

Final results by: 29-May-19

PLEASE ENSURE INTER-LAB ANALYSIS USE SAME TEST METHODS

Standard Detection Limits Apply, Standard Turnaround Required on Results

CHAIN OF CUSTODY RECORD

STS GeoEnvironmental Pty Ltd
PO Box 6989 (postal)
14/1 Cowpasture Place (office), Wetherill Park NSW 2164
Telephone: (02) 9756 2166 Fax:(02) 9756 1137
E-Mail: cridley@stsgeo.com.au Contact: Craig Ridley

Job No: 21024/1934D-R Order No: E-2019-220

STS GeoEnvironmental
Geotechnical and Environmental Solutions

Laboratory: SGS Laboratory Group - Sydney Environmental Division
Unit 16, 33 Maddox Street, Alexandria NSW 2015
Telephone: +612 8594 0400 Fax: Contact:

	Laboratory number	Sample number	jar/ bottle	bag	Date sampled	Composite number	Sample type	Comments	CL2	CL10	CL15	CL18	Asbestos NEPM	CA5	TOC	pH (CaCl2)	BTEX	HOLD
25	[redacted]	S120	1	-	21-May-2019		Soil			X								
26	[redacted]	S122	1	1	21-May-2019		Soil				X							
27	[redacted]	TS 20/5	1	-	20-May-2019		Soil										X	
28	[redacted]	TB 20/5	1	-	20-May-2019		Soil										X	
29	[redacted]	TS 21/5	1	-	21-May-2019		Soil										X	
30	[redacted]	TB 21/5	1	-	21-May-2019		Soil										X	
31	[redacted]	EIL 1	1	-	20-May-2019		~~Water~~	Soil						X	X	X		
32	[redacted]	EIL 2	1	-	20-May-2019		~~Water~~	Soil						X	X	X		
33	[redacted]	EIL 3	1	-	20-May-2019		~~Water~~	Soil						X	X	X		
34	[redacted]	EIL 4	1	-	21-May-2019		Soil							X	X	X		
35	[redacted]	EIL 5	1	-	21-May-2019		Soil							X	X	X		
36	[redacted]	EIL 6	1	-	21-May-2019		~~Water~~	Soil						X	X	X		
37	[redacted]	GW1-1	4	-	20-May-2019		Water		X			X						
38	[redacted]	GW2-1	4	-	20-May-2019		Water		X			X						
39	[redacted]	GW2-2	4	-	20-May-2019		Water			X								
40	[redacted]	GW3-1	4	-	20-May-2019		Water		X			X						
41	[redacted]	GW4-1	4	-	20-May-2019		Water		X			X						
42	[redacted]	GW5-1	4	-	20-May-2019		Water		X			X						
	TOTAL	-	-	-														

ANALYSIS

Released by STS GeoEnvironmental
Craig Ridley
Signed:
Date: 22-May-19
Time:

Received by:
Signed:
Date: 22/5
Time: 12.15

CoC Numbe 21024 COC1

Your quotation: STS G_NC7GL6

Preliminary results by:

Final results by: 29-May-19

PLEASE ENSURE INTER-LAB ANALYSIS USE SAME TEST METHODS

Standard Detection Limits Apply, Standard Turnaround Required on Results

CHAIN OF CUSTODY RECORD

STS GeoEnvironmental Pty Ltd
PO Box 6989 (postal)
14/1 Cowpasture Place (office), Wetherill Park NSW 2164
Telephone: (02) 9756 2166 Fax:(02) 9756 1137
E-Mail: cridley@stsgeo.com.au Contact: Craig Ridley

Job No: 21024/1934D-R Order No: E-2019-220

STS GeoEnvironmental
Geotechnical and Environmental Solutions

Laboratory: SGS Laboratory Group - Sydney Environmental Division
Unit 16, 33 Maddox Street, Alexandria NSW 2015
Telephone: +612 8594 0400 Fax: Contact:

Laboratory number	Sample number	jar/ bottle	bag	Date sampled	Composite number	Sample type	Comments	CL2	CL10	CL15	CL18	Asbestos NEPM	CA5	TOC	pH (CaCl2)	BTEX	HOLD
43 [redacted]	TS 20/5	1	-	20-May-2019		Water										X	
44 [redacted]	TB 20/5	1	-	20-May-2019		Water										X	
TOTAL	-	-	-					11	13	8	5	12	6	6	6	6	12

ANALYSIS

Released by STS GeoEnvironmental
Craig Ridley
Signed:
Date: 22-May-19 Time:

Received by:
Signed:
Date: 22/5 Time: 12.45

CoC Number: 21024 COC1

Your quotation: STS G_NC7GL6

Preliminary results by:

Final results by: 29-May-19

PLEASE ENSURE INTER-LAB ANALYSIS USE SAME TEST METHODS

Standard Detection Limits Apply, Standard Turnaround Required on Results

STS GEOENVIRONMENTAL PTY LIMITED

Po Box 6989, Wetherill Park, 2164
Tel : (02) 9756 2166, Fax : (02) 9756 1137, Email : enquiries@stsgeo.com.au
Website : www.stsgeo.com.au, ABN : 61 162 976 543

Purchase Order

Purchase From
SGS
Unit 16, 33 Maddox Street
Alexandria
NSW 2015
Attention To : N/A

Deliver To
STS GeoEnvironmental
PO Box 6989
Wetherill Park
NSW 2164
Attention To :

P. O. No#	E-2019-220
Date	21/05/2019
Project No	21024
STS No.	1934D-R
Delivery Date	29/05/2019

Item No	Description	Quantity	Unit Price	Amount
1	Analysis as per COC Results Due: 29/05/2019			

Sub Total	$0.00
0	$0.00
0	$0.00
Invoice Total	**$0.00**
Freight	
Amount Paid	
Balance Due	**$0.00**

Comments

Issued By

SAMPLE RECEIPT ADVICE

SE193119

CLIENT DETAILS

Contact	Craig Ridley
Client	STS GEOENVIRONMENTAL PTY LTD
Address	PO BOX 6989 WETHERILL PARK NSW 2164
Telephone	61 2 9756 2166
Facsimile	61 2 9756 1137
Email	cridley@stsgeo.com.au
Project	**21024-1934D-R**
Order Number	**E-2019-220**
Samples	44

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
Samples Received	Wed 22/5/2019
Report Due	Wed 29/5/2019
SGS Reference	**SE193119**

SUBMISSION DETAILS

This is to confirm that 44 samples were received on Wednesday 22/5/2019. Results are expected to be ready by COB Wednesday 29/5/2019.
Please quote SGS reference SE193119 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	SGS	Sample cooling method	Ice Bricks
Samples received in correct containers	Yes	Sample counts by matrix	36 Soil, 8 Water
Date documentation received	22/5/2019	Type of documentation received	COC
Samples received in good order	Yes	Samples received without headspace	N/A
Sample temperature upon receipt	10.2°C	Sufficient sample for analysis	Yes
Turnaround time requested	Standard		

Unless otherwise instructed, water and bulk samples will be held for one month from date of report, and soil samples will be held for two months.

COMMENTS

12 samples have been placed on hold as no tests have been assigned for them by the client. These samples will not be processed.

This document is issued by the Company under its General Conditions of Service accessible at www.sgs.com/en/Terms-and-Conditions.aspx. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

SAMPLE RECEIPT ADVICE

SE193119

CLIENT DETAILS

Client STS GEOENVIRONMENTAL PTY LTD

Project 21024-1934D-R

SUMMARY OF ANALYSIS

No.	Sample ID	OC Pesticides in Soil	OP Pesticides in Soil	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	PCBs in Soil	Speciated Phenols in Soil	TRH (Total Recoverable Hydrocarbons) in Soil	VOC's in Soil	Volatile Petroleum Hydrocarbons in Soil
001	S80	-	-	26	-	-	10	12	8
002	S81	29	14	26	11	18	10	12	8
003	S83	-	-	26	-	-	10	12	8
004	S84	-	-	26	-	-	10	12	8
006	S88	-	-	26	-	-	10	12	8
007	S89	-	-	26	-	-	10	12	8
008	S90	-	-	26	-	-	10	12	8
009	S92	29	14	26	11	18	10	12	8
011	S95	29	14	26	11	18	10	12	8
012	S96	-	-	26	-	-	10	12	8
014	S98	-	-	26	-	-	10	12	8
015	S101	-	-	26	-	-	10	12	8
016	S104	29	14	26	11	18	10	12	8
017	S105	-	-	26	-	-	10	12	8
019	S110	29	14	26	11	18	10	12	8
020	S112	29	14	26	11	18	10	12	8
023	S117	-	-	26	-	-	10	12	8
024	S119	29	14	26	11	18	10	12	8

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

SAMPLE RECEIPT ADVICE

SE193119

CLIENT DETAILS

Client STS GEOENVIRONMENTAL PTY LTD

Project 21024-1934D-R

SUMMARY OF ANALYSIS

No.	Sample ID	OC Pesticides in Soil	OP Pesticides in Soil	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	PCBs in Soil	Speciated Phenols in Soil	TRH (Total Recoverable Hydrocarbons) in Soil	VOC's in Soil	Volatile Petroleum Hydrocarbons in Soil
025	S120	-	-	26	-	-	10	12	8
026	S122	29	14	26	11	18	10	12	8
027	TS 20/5	-	-	-	-	-	-	12	-
028	TB 20/5	-	-	-	-	-	-	12	-
029	TS 21/5	-	-	-	-	-	-	12	-
030	TS 21/5	-	-	-	-	-	-	12	-

CONTINUED OVERLEAF

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SAMPLE RECEIPT ADVICE

SE193119

CLIENT DETAILS

Client STS GEOENVIRONMENTAL PTY LTD

Project 21024-1934D-R

SUMMARY OF ANALYSIS

No.	Sample ID	Fibre Identification in soil	Mercury in Soil	Moisture Content	Total Recoverable Elements in Soil/Waste
001	S80	2	1	1	7
002	S81	2	1	1	7
003	S83	-	1	1	7
004	S84	2	1	1	7
005	S85	2	1	1	7
006	S88	-	1	1	7
007	S89	2	1	1	7
008	S90	-	1	1	7
009	S92	2	1	1	7
010	S94	-	1	1	7
011	S95	-	1	1	7
012	S96	-	1	1	7
013	S97	2	1	1	7
014	S98	2	1	1	7
015	S101	2	1	1	7
016	S104	2	1	1	7
017	S105	-	1	1	7
018	S106	-	1	1	7
019	S110	-	1	1	7
020	S112	-	1	1	7
021	S113	-	1	1	7
022	S114	2	1	1	7
023	S117	2	1	1	7
024	S119	-	1	1	7

CONTINUED OVERLEAF

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SAMPLE RECEIPT ADVICE

SE193119

CLIENT DETAILS

Client STS GEOENVIRONMENTAL PTY LTD

Project 21024-1934D-R

SUMMARY OF ANALYSIS

No.	Sample ID	Exchangeable Cations and Cation Exchange Capacity	Mercury in Soil	Moisture Content	pH in soil (1:5)	TOC in Soil	Total Recoverable Elements in Soil/Waste
025	S120	-	1	1	-	-	7
026	S122	-	1	1	-	-	7
028	TB 20/5	-	-	1	-	-	-
030	TS 21/5	-	-	1	-	-	-
031	EIL 1	13	-	1	1	2	-
032	EIL 2	13	-	1	1	2	-
033	EIL 3	13	-	1	1	2	-
034	EIL 4	13	-	1	1	2	-
035	EIL 5	13	-	1	1	2	-
036	EIL 6	13	-	1	1	2	-

CONTINUED OVERLEAF

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SAMPLE RECEIPT ADVICE

SE193119

CLIENT DETAILS

Client STS GEOENVIRONMENTAL PTY LTD

Project 21024-1934D-R

SUMMARY OF ANALYSIS

No.	Sample ID	Gravimetric Determination of Asbestos in Soil
001	S80	9
002	S81	9
004	S84	9
005	S85	9
007	S89	9
009	S92	9
013	S97	9
014	S98	9
015	S101	9
016	S104	9
022	S114	9
023	S117	9

CONTINUED OVERLEAF

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SAMPLE RECEIPT ADVICE

SE193119

CLIENT DETAILS

Client STS GEOENVIRONMENTAL PTY LTD

Project 21024-1934D-R

SUMMARY OF ANALYSIS

No.	Sample ID	TRH (Total Recoverable Hydrocarbons) in Water	VOCs in Water	Volatile Petroleum Hydrocarbons in Water
037	GW1-1	10	79	8
038	GW2-1	10	79	8
039	GW2-2	10	12	8
040	GW3-1	10	79	8
041	GW4-1	10	79	8
042	GW5-1	10	79	8
043	TS 20/5	-	12	-
044	TB 20/5	-	12	-

CONTINUED OVERLEAF

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SAMPLE RECEIPT ADVICE

SE193119

CLIENT DETAILS

Client STS GEOENVIRONMENTAL PTY LTD

Project 21024-1934D-R

SUMMARY OF ANALYSIS

No.	Sample ID	Mercury (dissolved) in Water	PAH (Polynuclear Aromatic Hydrocarbons) in Water	Trace Metals (Dissolved) in Water by ICPMS
037	GW1-1	1	22	7
038	GW2-1	1	22	7
039	GW2-2	1	22	7
040	GW3-1	1	22	7
041	GW4-1	1	22	7
042	GW5-1	1	22	7

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

APPENDIX K – ANALYTICAL LABORATORY REPORTS

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES1616009**	Page	: 1 of 7
Client	: **SMEC TESTING SERVICES PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: CARSTEN MATTHAI	Contact	:
Address	: P O BOX 6989 WETHERILL PARK NSW, AUSTRALIA 2164	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: 21024	Date Samples Received	: 21-Jul-2016 16:45
Order number	: 13153	Date Analysis Commenced	: 22-Jul-2016
C-O-C number	: ----	Issue Date	: 28-Jul-2016 13:06
Sampler	: jk		
Site	: ----		
Quote number	: ----		
No. of samples received	: 3		
No. of samples analysed	: 3		

NATA Accredited Laboratory 825
Accredited for compliance with
ISO/IEC 17025.

NATA
WORLD RECOGNISED ACCREDITATION

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S8	S13	S26	----	----
				Client sampling date / time	[04-Jul-2016]	[05-Jul-2016]	[07-Jul-2016]	----	----
Compound	CAS Number	LOR	Unit		ES1616009-001	ES1616009-002	ES1616009-003	--------	--------
					Result	Result	Result	----	----
EA055: Moisture Content									
Moisture Content (dried @ 103°C)	----	1	%		18.4	14.2	21.0	----	----
EP074A: Monocyclic Aromatic Hydrocarbons									
Styrene	100-42-5	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Isopropylbenzene	98-82-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
n-Propylbenzene	103-65-1	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
sec-Butylbenzene	135-98-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
tert-Butylbenzene	98-06-6	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
p-Isopropyltoluene	99-87-6	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
n-Butylbenzene	104-51-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
EP074B: Oxygenated Compounds									
Vinyl Acetate	108-05-4	5	mg/kg		<5	<5	<5	----	----
2-Butanone (MEK)	78-93-3	5	mg/kg		<5	<5	<5	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg		<5	<5	<5	----	----
2-Hexanone (MBK)	591-78-6	5	mg/kg		<5	<5	<5	----	----
EP074C: Sulfonated Compounds									
Carbon disulfide	75-15-0	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
EP074D: Fumigants									
2.2-Dichloropropane	594-20-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.2-Dichloropropane	78-87-5	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
EP074E: Halogenated Aliphatic Compounds									
Dichlorodifluoromethane	75-71-8	5	mg/kg		<5	<5	<5	----	----
Chloromethane	74-87-3	5	mg/kg		<5	<5	<5	----	----
Vinyl chloride	75-01-4	5	mg/kg		<5	<5	<5	----	----
Bromomethane	74-83-9	5	mg/kg		<5	<5	<5	----	----
Chloroethane	75-00-3	5	mg/kg		<5	<5	<5	----	----
Trichlorofluoromethane	75-69-4	5	mg/kg		<5	<5	<5	----	----
1.1-Dichloroethene	75-35-4	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Iodomethane	74-88-4	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg		<0.5	<0.5	<0.5	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S8	S13	S26	----	----
				Client sampling date / time	[04-Jul-2016]	[05-Jul-2016]	[07-Jul-2016]	----	----
Compound	CAS Number	LOR	Unit		ES1616009-001	ES1616009-002	ES1616009-003	--------	--------
					Result	Result	Result	----	----
EP074E: Halogenated Aliphatic Compounds - Continued									
1.1-Dichloroethane	75-34-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.1-Dichloropropylene	563-58-6	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.2-Dichloroethane	107-06-2	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Trichloroethene	79-01-6	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Dibromomethane	74-95-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.3-Dichloropropane	142-28-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Tetrachloroethene	127-18-4	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Pentachloroethane	76-01-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Bromobenzene	108-86-1	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
2-Chlorotoluene	95-49-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
4-Chlorotoluene	106-43-4	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
EP074G: Trihalomethanes									
Chloroform	67-66-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Bromodichloromethane	75-27-4	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Dibromochloromethane	124-48-1	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Bromoform	75-25-2	0.5	mg/kg		<0.5	<0.5	<0.5	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S8	S13	S26	----	----
				Client sampling date / time	[04-Jul-2016]	[05-Jul-2016]	[07-Jul-2016]	----	----
Compound	CAS Number	LOR	Unit		ES1616009-001	ES1616009-002	ES1616009-003	--------	--------
					Result	Result	Result	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ **Benzo(a)pyrene TEQ (half LOR)**	----	0.5	mg/kg		**0.6**	**0.6**	**0.6**	----	----
^ **Benzo(a)pyrene TEQ (LOR)**	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	----	----
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg		<50	<50	<50	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg		<10	<10	<10	----	----
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	----	----
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	----	----
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		<50	<50	<50	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S8	S13	S26	----	----
				Client sampling date / time	[04-Jul-2016]	[05-Jul-2016]	[07-Jul-2016]	----	----
Compound	CAS Number	LOR	Unit		ES1616009-001	ES1616009-002	ES1616009-003	--------	--------
					Result	Result	Result	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	----	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.5	%		94.6	99.6	100	----	----
Toluene-D8	2037-26-5	0.5	%		78.3	83.0	81.8	----	----
4-Bromofluorobenzene	460-00-4	0.5	%		76.8	81.6	84.7	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		84.3	84.7	97.0	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		87.9	92.8	88.8	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		86.4	85.9	81.6	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		87.5	81.7	86.3	----	----
Anthracene-d10	1719-06-8	0.5	%		94.8	102	111	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		101	98.4	98.5	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		94.5	109	110	----	----
Toluene-D8	2037-26-5	0.2	%		87.4	88.1	86.0	----	----
4-Bromofluorobenzene	460-00-4	0.2	%		77.3	74.6	77.9	----	----

Surrogate Control Limits

Sub-Matrix: **SOIL**

Compound	CAS Number	Recovery Limits (%) Low	High
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	64	130
Toluene-D8	2037-26-5	66	136
4-Bromofluorobenzene	460-00-4	60	122
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	133
Toluene-D8	2037-26-5	74	132
4-Bromofluorobenzene	460-00-4	72	130

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **ES1616009**	Page	: 1 of 10
Client	: **SMEC TESTING SERVICES PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: CARSTEN MATTHAI	Contact	:
Address	: P O BOX 6989 WETHERILL PARK NSW, AUSTRALIA 2164	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: 21024	Date Samples Received	: 21-Jul-2016
Order number	: 13153	Date Analysis Commenced	: 22-Jul-2016
C-O-C number	: ----	Issue Date	: 28-Jul-2016
Sampler	: jk		
Site	: ----		
Quote number	: ----		
No. of samples received	: 3		
No. of samples analysed	: 3		

NATA Accredited Laboratory 825
Accredited for compliance with
ISO/IEC 17025.

NATA
WORLD RECOGNISED ACCREDITATION

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
= Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA055: Moisture Content (QC Lot: 528166)									
ES1616009-001	S8	EA055-103: Moisture Content (dried @ 103°C)	----	1	%	18.4	19.2	4.38	0% - 50%
ES1616013-008	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1	%	38.3	38.1	0.366	0% - 20%
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 526155)									
ES1616009-002	S13	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
ES1615941-001	Anonymous	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074B: Oxygenated Compounds (QC Lot: 526155)									
ES1616009-002	S13	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.00	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.00	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074B: Oxygenated Compounds (QC Lot: 526155) - continued									
ES1616009-002	S13	EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.00	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.00	No Limit
ES1615941-001	Anonymous	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.00	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.00	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.00	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.00	No Limit
EP074C: Sulfonated Compounds (QC Lot: 526155)									
ES1616009-002	S13	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
ES1615941-001	Anonymous	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074D: Fumigants (QC Lot: 526155)									
ES1616009-002	S13	EP074: 2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
ES1615941-001	Anonymous	EP074: 2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 526155)									
ES1616009-002	S13	EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP074E: Halogenated Aliphatic Compounds (QC Lot: 526155) - continued									
ES1616009-002	S13	EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.00	No Limit
ES1615941-001	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.00	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 526155)									
ES1616009-002	S13	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP074F: Halogenated Aromatic Compounds (QC Lot: 526155) - continued									
ES1616009-002	S13	EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
ES1615941-001	Anonymous	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074G: Trihalomethanes (QC Lot: 526155)									
ES1616009-002	S13	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
ES1615941-001	Anonymous	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 526132)									
ES1615978-001	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	0.7	0.7	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 526132) - continued									
ES1615978-001	Anonymous	EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	0.7	0.7	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 526131)									
ES1616009-001	S8	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
ES1615978-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	870	930	6.98	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	340	340	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 526156)									
ES1615941-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 526131)									
ES1616009-001	S8	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
ES1615978-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	590	640	9.25	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	620	670	7.98	0% - 50%
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 526156)									
ES1615941-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080: BTEXN (QC Lot: 526156)									
ES1615941-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 526155)								
EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	1 mg/kg	89.5	67	113
EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	1 mg/kg	88.7	65	117
EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	1 mg/kg	96.2	66	122
EP074: 1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	1 mg/kg	93.3	68	118
EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	1 mg/kg	94.4	69	119
EP074: 1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	1 mg/kg	94.6	69	117
EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	1 mg/kg	91.3	69	115
EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	1 mg/kg	98.3	66	118
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	1 mg/kg	93.0	59	125
EP074B: Oxygenated Compounds (QCLot: 526155)								
EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	10 mg/kg	90.6	30	156
EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	10 mg/kg	68.7	58	136
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	10 mg/kg	90.8	62	132
EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	10 mg/kg	76.6	54	136
EP074C: Sulfonated Compounds (QCLot: 526155)								
EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	1 mg/kg	82.6	54	126
EP074D: Fumigants (QCLot: 526155)								
EP074: 2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	98.7	60	126
EP074: 1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	94.6	68	124
EP074: cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	83.2	51	119
EP074: trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	83.3	52	114
EP074: 1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	87.2	63	115
EP074E: Halogenated Aliphatic Compounds (QCLot: 526155)								
EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	10 mg/kg	86.6	30	148
EP074: Chloromethane	74-87-3	5	mg/kg	<5	10 mg/kg	102	41	141
EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	10 mg/kg	89.4	43	147
EP074: Bromomethane	74-83-9	5	mg/kg	<5	10 mg/kg	96.2	47	141
EP074: Chloroethane	75-00-3	5	mg/kg	<5	10 mg/kg	96.1	49	143
EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	10 mg/kg	96.4	49	135
EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	93.9	54	126
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	76.8	43	129
EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	96.9	64	120
EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	99.4	67	125
EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	98.2	69	121

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP074E: Halogenated Aliphatic Compounds (QCLot: 526155) - continued								
EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	90.6	65	117
EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	91.6	65	123
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	86.0	59	125
EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	99.8	65	125
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	92.5	70	118
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	88.5	68	118
EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	91.3	64	126
EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	95.8	68	122
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	83.1	67	143
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	87.2	62	122
EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	72.4	54	128
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	74.1	55	129
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	104	65	121
EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	88.1	61	125
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	93.5	20	134
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	77.5	53	129
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	96.4	50	128
EP074F: Halogenated Aromatic Compounds (QCLot: 526155)								
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	89.8	68	116
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	90.0	70	1147
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	95.2	68	122
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	96.8	67	123
EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	101	70	116
EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	98.0	67	117
EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	96.6	70	114
EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	86.1	48	122
EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	92.4	52	122
EP074G: Trihalomethanes (QCLot: 526155)								
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	96.5	66	124
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	86.0	61	121
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	83.9	63	121
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	84.0	60	126
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 526132)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	89.8	77	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	89.5	72	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	95.5	73	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	95.4	72	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	91.2	75	127

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report		
					Spike	Spike Recovery (%)	Recovery Limits (%)
				Result	Concentration	LCS	Low	High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 526132) - continued								
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	94.2	77	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	95.1	73	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	96.2	74	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	94.0	69	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	94.4	75	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	98.0	68	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	96.3	74	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	91.8	70	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	88.6	61	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	90.9	62	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	89.0	63	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 526131)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	98.7	75	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	110	77	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	102	71	129
EP080/071: Total Petroleum Hydrocarbons (QCLot: 526156)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	112	68	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 526131)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	250 mg/kg	100	77	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	111	74	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	150 mg/kg	86.2	63	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 526156)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	110	68	128
EP080: BTEXN (QCLot: 526156)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	95.6	62	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	90.5	67	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	90.8	65	117
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	93.1	66	118
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	91.8	68	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	88.2	63	119

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Matrix Spike (MS) Report

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP074E: Halogenated Aliphatic Compounds (QCLot: 526155)							
ES1615941-001	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	2.5 mg/kg	82.9	70	130
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	75.5	70	130
EP074F: Halogenated Aromatic Compounds (QCLot: 526155)							
ES1615941-001	Anonymous	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	71.7	70	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 526132)							
ES1615978-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	94.5	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	89.9	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 526131)							
ES1615978-001	Anonymous	EP071: C10 - C14 Fraction	----	523 mg/kg	76.6	73	137
		EP071: C15 - C28 Fraction	----	2319 mg/kg	98.0	53	131
		EP071: C29 - C36 Fraction	----	1714 mg/kg	109	52	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 526156)							
ES1615941-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	92.2	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 526131)							
ES1615978-001	Anonymous	EP071: >C10 - C16 Fraction	----	860 mg/kg	90.5	73	137
		EP071: >C16 - C34 Fraction	----	3223 mg/kg	101	53	131
		EP071: >C34 - C40 Fraction	----	1058 mg/kg	120	52	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 526156)							
ES1615941-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	88.5	70	130
EP080: BTEXN (QCLot: 526156)							
ES1615941-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	81.0	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	76.2	70	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	75.4	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	78.2	70	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	77.9	70	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	88.1	70	130

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES1616009**	Page	: 1 of 9
Client	: **SMEC TESTING SERVICES PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: CARSTEN MATTHAI	Telephone	: +61-2-8784 8555
Project	: 21024	Date Samples Received	: 21-Jul-2016
Site	: ----	Issue Date	: 28-Jul-2016
Sampler	: jk	No. of samples received	: 3
Order number	: 13153	No. of samples analysed	: 3

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **Analysis Holding Time Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Outliers : Analysis Holding Time Compliance

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EA055: Moisture Content						
Soil Glass Jar - Unpreserved S8	----	----	----	25-Jul-2016	18-Jul-2016	**7**
Soil Glass Jar - Unpreserved S13	----	----	----	25-Jul-2016	19-Jul-2016	**6**
Soil Glass Jar - Unpreserved S26	----	----	----	25-Jul-2016	21-Jul-2016	**4**
EP074A: Monocyclic Aromatic Hydrocarbons						
Soil Glass Jar - Unpreserved S8	22-Jul-2016	11-Jul-2016	**11**	25-Jul-2016	11-Jul-2016	**14**
Soil Glass Jar - Unpreserved S13	22-Jul-2016	12-Jul-2016	**10**	25-Jul-2016	12-Jul-2016	**13**
Soil Glass Jar - Unpreserved S26	22-Jul-2016	14-Jul-2016	**8**	25-Jul-2016	14-Jul-2016	**11**
EP074B: Oxygenated Compounds						
Soil Glass Jar - Unpreserved S8	22-Jul-2016	11-Jul-2016	**11**	25-Jul-2016	11-Jul-2016	**14**
Soil Glass Jar - Unpreserved S13	22-Jul-2016	12-Jul-2016	**10**	25-Jul-2016	12-Jul-2016	**13**
Soil Glass Jar - Unpreserved S26	22-Jul-2016	14-Jul-2016	**8**	25-Jul-2016	14-Jul-2016	**11**
EP074C: Sulfonated Compounds						
Soil Glass Jar - Unpreserved S8	22-Jul-2016	11-Jul-2016	**11**	25-Jul-2016	11-Jul-2016	**14**
Soil Glass Jar - Unpreserved S13	22-Jul-2016	12-Jul-2016	**10**	25-Jul-2016	12-Jul-2016	**13**
Soil Glass Jar - Unpreserved S26	22-Jul-2016	14-Jul-2016	**8**	25-Jul-2016	14-Jul-2016	**11**
EP074D: Fumigants						
Soil Glass Jar - Unpreserved S8	22-Jul-2016	11-Jul-2016	**11**	25-Jul-2016	11-Jul-2016	**14**
Soil Glass Jar - Unpreserved S13	22-Jul-2016	12-Jul-2016	**10**	25-Jul-2016	12-Jul-2016	**13**
Soil Glass Jar - Unpreserved S26	22-Jul-2016	14-Jul-2016	**8**	25-Jul-2016	14-Jul-2016	**11**
EP074E: Halogenated Aliphatic Compounds						
Soil Glass Jar - Unpreserved S8	22-Jul-2016	11-Jul-2016	**11**	25-Jul-2016	11-Jul-2016	**14**

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Days overdue	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Days overdue
EP074E: Halogenated Aliphatic Compounds - Analysis Holding Time Compliance						
Soil Glass Jar - Unpreserved S13	22-Jul-2016	12-Jul-2016	**10**	25-Jul-2016	12-Jul-2016	**13**
Soil Glass Jar - Unpreserved S26	22-Jul-2016	14-Jul-2016	**8**	25-Jul-2016	14-Jul-2016	**11**
EP074F: Halogenated Aromatic Compounds						
Soil Glass Jar - Unpreserved S8	22-Jul-2016	11-Jul-2016	**11**	25-Jul-2016	11-Jul-2016	**14**
Soil Glass Jar - Unpreserved S13	22-Jul-2016	12-Jul-2016	**10**	25-Jul-2016	12-Jul-2016	**13**
Soil Glass Jar - Unpreserved S26	22-Jul-2016	14-Jul-2016	**8**	25-Jul-2016	14-Jul-2016	**11**
EP074G: Trihalomethanes						
Soil Glass Jar - Unpreserved S8	22-Jul-2016	11-Jul-2016	**11**	25-Jul-2016	11-Jul-2016	**14**
Soil Glass Jar - Unpreserved S13	22-Jul-2016	12-Jul-2016	**10**	25-Jul-2016	12-Jul-2016	**13**
Soil Glass Jar - Unpreserved S26	22-Jul-2016	14-Jul-2016	**8**	25-Jul-2016	14-Jul-2016	**11**
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons						
Soil Glass Jar - Unpreserved S8	22-Jul-2016	18-Jul-2016	**4**	----	----	----
Soil Glass Jar - Unpreserved S13	22-Jul-2016	19-Jul-2016	**3**	----	----	----
Soil Glass Jar - Unpreserved S26	22-Jul-2016	21-Jul-2016	**1**	----	----	----
EP080/071: Total Petroleum Hydrocarbons						
Soil Glass Jar - Unpreserved S8	22-Jul-2016	18-Jul-2016	**4**	----	----	----
Soil Glass Jar - Unpreserved S8	22-Jul-2016	18-Jul-2016	**4**	25-Jul-2016	18-Jul-2016	**7**
Soil Glass Jar - Unpreserved S13	22-Jul-2016	19-Jul-2016	**3**	----	----	----
Soil Glass Jar - Unpreserved S13	22-Jul-2016	19-Jul-2016	**3**	25-Jul-2016	19-Jul-2016	**6**
Soil Glass Jar - Unpreserved S26	22-Jul-2016	21-Jul-2016	**1**	----	----	----
Soil Glass Jar - Unpreserved S26	22-Jul-2016	21-Jul-2016	**1**	25-Jul-2016	21-Jul-2016	**4**
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions						

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Days overdue	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Days overdue
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Analysis Holding Time						
Soil Glass Jar - Unpreserved S8	22-Jul-2016	18-Jul-2016	**4**	----	----	----
Soil Glass Jar - Unpreserved S8	22-Jul-2016	18-Jul-2016	**4**	25-Jul-2016	18-Jul-2016	**7**
Soil Glass Jar - Unpreserved S13	22-Jul-2016	19-Jul-2016	**3**	----	----	----
Soil Glass Jar - Unpreserved S13	22-Jul-2016	19-Jul-2016	**3**	25-Jul-2016	19-Jul-2016	**6**
Soil Glass Jar - Unpreserved S26	22-Jul-2016	21-Jul-2016	**1**	----	----	----
Soil Glass Jar - Unpreserved S26	22-Jul-2016	21-Jul-2016	**1**	25-Jul-2016	21-Jul-2016	**4**
EP080: BTEXN						
Soil Glass Jar - Unpreserved S8	22-Jul-2016	18-Jul-2016	**4**	25-Jul-2016	18-Jul-2016	**7**
Soil Glass Jar - Unpreserved S13	22-Jul-2016	19-Jul-2016	**3**	25-Jul-2016	19-Jul-2016	**6**
Soil Glass Jar - Unpreserved S26	22-Jul-2016	21-Jul-2016	**1**	25-Jul-2016	21-Jul-2016	**4**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation
EA055: Moisture Content							
Soil Glass Jar - Unpreserved (EA055-103) S8	**04-Jul-2016**	**----**	----	----	**25-Jul-2016**	18-Jul-2016	×
Soil Glass Jar - Unpreserved (EA055-103) S13	**05-Jul-2016**	**----**	----	----	**25-Jul-2016**	19-Jul-2016	×
Soil Glass Jar - Unpreserved (EA055-103) S26	**07-Jul-2016**	**----**	----	----	**25-Jul-2016**	21-Jul-2016	×

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074A: Monocyclic Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074) S8	**04-Jul-2016**	**22-Jul-2016**	11-Jul-2016	×	**25-Jul-2016**	11-Jul-2016	×
Soil Glass Jar - Unpreserved (EP074) S13	**05-Jul-2016**	**22-Jul-2016**	12-Jul-2016	×	**25-Jul-2016**	12-Jul-2016	×
Soil Glass Jar - Unpreserved (EP074) S26	**07-Jul-2016**	**22-Jul-2016**	14-Jul-2016	×	**25-Jul-2016**	14-Jul-2016	×
EP074B: Oxygenated Compounds							
Soil Glass Jar - Unpreserved (EP074) S8	**04-Jul-2016**	**22-Jul-2016**	11-Jul-2016	×	**25-Jul-2016**	11-Jul-2016	×
Soil Glass Jar - Unpreserved (EP074) S13	**05-Jul-2016**	**22-Jul-2016**	12-Jul-2016	×	**25-Jul-2016**	12-Jul-2016	×
Soil Glass Jar - Unpreserved (EP074) S26	**07-Jul-2016**	**22-Jul-2016**	14-Jul-2016	×	**25-Jul-2016**	14-Jul-2016	×
EP074C: Sulfonated Compounds							
Soil Glass Jar - Unpreserved (EP074) S8	**04-Jul-2016**	**22-Jul-2016**	11-Jul-2016	×	**25-Jul-2016**	11-Jul-2016	×
Soil Glass Jar - Unpreserved (EP074) S13	**05-Jul-2016**	**22-Jul-2016**	12-Jul-2016	×	**25-Jul-2016**	12-Jul-2016	×
Soil Glass Jar - Unpreserved (EP074) S26	**07-Jul-2016**	**22-Jul-2016**	14-Jul-2016	×	**25-Jul-2016**	14-Jul-2016	×
EP074D: Fumigants							
Soil Glass Jar - Unpreserved (EP074) S8	**04-Jul-2016**	**22-Jul-2016**	11-Jul-2016	×	**25-Jul-2016**	11-Jul-2016	×
Soil Glass Jar - Unpreserved (EP074) S13	**05-Jul-2016**	**22-Jul-2016**	12-Jul-2016	×	**25-Jul-2016**	12-Jul-2016	×
Soil Glass Jar - Unpreserved (EP074) S26	**07-Jul-2016**	**22-Jul-2016**	14-Jul-2016	×	**25-Jul-2016**	14-Jul-2016	×
EP074E: Halogenated Aliphatic Compounds							
Soil Glass Jar - Unpreserved (EP074) S8	**04-Jul-2016**	**22-Jul-2016**	11-Jul-2016	×	**25-Jul-2016**	11-Jul-2016	×
Soil Glass Jar - Unpreserved (EP074) S13	**05-Jul-2016**	**22-Jul-2016**	12-Jul-2016	×	**25-Jul-2016**	12-Jul-2016	×
Soil Glass Jar - Unpreserved (EP074) S26	**07-Jul-2016**	**22-Jul-2016**	14-Jul-2016	×	**25-Jul-2016**	14-Jul-2016	×
EP074F: Halogenated Aromatic Compounds							
Soil Glass Jar - Unpreserved (EP074) S8	**04-Jul-2016**	**22-Jul-2016**	11-Jul-2016	×	**25-Jul-2016**	11-Jul-2016	×
Soil Glass Jar - Unpreserved (EP074) S13	**05-Jul-2016**	**22-Jul-2016**	12-Jul-2016	×	**25-Jul-2016**	12-Jul-2016	×
Soil Glass Jar - Unpreserved (EP074) S26	**07-Jul-2016**	**22-Jul-2016**	14-Jul-2016	×	**25-Jul-2016**	14-Jul-2016	×

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074G: Trihalomethanes							
Soil Glass Jar - Unpreserved (EP074) S8	**04-Jul-2016**	**22-Jul-2016**	11-Jul-2016	×	**25-Jul-2016**	11-Jul-2016	×
Soil Glass Jar - Unpreserved (EP074) S13	**05-Jul-2016**	**22-Jul-2016**	12-Jul-2016	×	**25-Jul-2016**	12-Jul-2016	×
Soil Glass Jar - Unpreserved (EP074) S26	**07-Jul-2016**	**22-Jul-2016**	14-Jul-2016	×	**25-Jul-2016**	14-Jul-2016	×
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM)) S8	**04-Jul-2016**	**22-Jul-2016**	18-Jul-2016	×	**22-Jul-2016**	31-Aug-2016	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) S13	**05-Jul-2016**	**22-Jul-2016**	19-Jul-2016	×	**22-Jul-2016**	31-Aug-2016	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) S26	**07-Jul-2016**	**22-Jul-2016**	21-Jul-2016	×	**22-Jul-2016**	31-Aug-2016	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP071) S8	**04-Jul-2016**	**22-Jul-2016**	18-Jul-2016	×	**22-Jul-2016**	31-Aug-2016	✓
Soil Glass Jar - Unpreserved (EP080) S8	**04-Jul-2016**	**22-Jul-2016**	18-Jul-2016	×	**25-Jul-2016**	18-Jul-2016	×
Soil Glass Jar - Unpreserved (EP071) S13	**05-Jul-2016**	**22-Jul-2016**	19-Jul-2016	×	**22-Jul-2016**	31-Aug-2016	✓
Soil Glass Jar - Unpreserved (EP080) S13	**05-Jul-2016**	**22-Jul-2016**	19-Jul-2016	×	**25-Jul-2016**	19-Jul-2016	×
Soil Glass Jar - Unpreserved (EP071) S26	**07-Jul-2016**	**22-Jul-2016**	21-Jul-2016	×	**22-Jul-2016**	31-Aug-2016	✓
Soil Glass Jar - Unpreserved (EP080) S26	**07-Jul-2016**	**22-Jul-2016**	21-Jul-2016	×	**25-Jul-2016**	21-Jul-2016	×
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP071) S8	**04-Jul-2016**	**22-Jul-2016**	18-Jul-2016	×	**22-Jul-2016**	31-Aug-2016	✓
Soil Glass Jar - Unpreserved (EP080) S8	**04-Jul-2016**	**22-Jul-2016**	18-Jul-2016	×	**25-Jul-2016**	18-Jul-2016	×
Soil Glass Jar - Unpreserved (EP071) S13	**05-Jul-2016**	**22-Jul-2016**	19-Jul-2016	×	**22-Jul-2016**	31-Aug-2016	✓
Soil Glass Jar - Unpreserved (EP080) S13	**05-Jul-2016**	**22-Jul-2016**	19-Jul-2016	×	**25-Jul-2016**	19-Jul-2016	×
Soil Glass Jar - Unpreserved (EP071) S26	**07-Jul-2016**	**22-Jul-2016**	21-Jul-2016	×	**22-Jul-2016**	31-Aug-2016	✓
Soil Glass Jar - Unpreserved (EP080) S26	**07-Jul-2016**	**22-Jul-2016**	21-Jul-2016	×	**25-Jul-2016**	21-Jul-2016	×

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080) S8	**04-Jul-2016**	**22-Jul-2016**	18-Jul-2016	×	**25-Jul-2016**	18-Jul-2016	×
Soil Glass Jar - Unpreserved (EP080) S13	**05-Jul-2016**	**22-Jul-2016**	19-Jul-2016	×	**25-Jul-2016**	19-Jul-2016	×
Soil Glass Jar - Unpreserved (EP080) S26	**07-Jul-2016**	**22-Jul-2016**	21-Jul-2016	×	**25-Jul-2016**	21-Jul-2016	×

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055-103	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	10	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	4	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055-103	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40.
Volatile Organic Compounds	EP074	SOIL	In house: Referenced to USEPA SW 846 - 8260B Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260B Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve.

Preparation Methods	Method	Matrix	Method Descriptions
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES1614925**	Page	: 1 of 28
Client	: **SMEC TESTING SERVICES PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: CARSTEN MATTHAI	Contact	:
Address	: P O BOX 6989 WETHERILL PARK NSW, AUSTRALIA 2164	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: 21024	Date Samples Received	: 08-Jul-2016 15:15
Order number	: 13153	Date Analysis Commenced	: 11-Jul-2016
C-O-C number	: ----	Issue Date	: 15-Jul-2016 13:56
Sampler	: JK		
Site	: ----		
Quote number	: ----		
No. of samples received	: 25		
No. of samples analysed	: 24		

NATA Accredited Laboratory 825
Accredited for compliance with
ISO/IEC 17025.

NATA
WORLD RECOGNISED ACCREDITATION

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Inorganic Chemist	Sydney Inorganics, Smithfield, NSW
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Gerrad Morgan	Asbestos Identifier	Newcastle - Asbestos, Mayfield West, NSW

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP068: Positive result has been confirmed by re-extraction and re-analysis.
- EA200N: Asbestos weights and percentages are not covered under the Scope of NATA Accreditation.
  Weights of Asbestos are based on extracted bulk asbestos, fibre bundles, and/or ACM and do not include respirable fibres (if present)
  The Friable Asbestos weight is calculated from the extracted Fibrous Asbestos and Asbestos Fines as an equivalent weight of 100% Asbestos
  Percentages for Asbestos content in ACM are based on the 2013 NEPM default values.
  All calculations of percentage Asbestos under this method are approximate and should be used as a guide only.
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200: Negative results for vinyl tiles should be confirmed by an independent analytical technique.
- EA200N: ALS laboratory procedures and methods used for the identification and quantitation of asbestos are consistent with AS4964-2004 and the requirements of the 2013 NEPM for Assessment of Site Contamination
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR.
  Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S1	S2	S3	S4	S5
				Client sampling date / time	[04-Jul-2016]	[04-Jul-2016]	[04-Jul-2016]	[04-Jul-2016]	[04-Jul-2016]
Compound	CAS Number	LOR	Unit		ES1614925-001	ES1614925-002	ES1614925-003	ES1614925-004	ES1614925-005
					Result	Result	Result	Result	Result
EA002 : pH (Soils)									
pH Value	----	0.1	pH Unit		----	----	----	5.3	----
EA055: Moisture Content									
Moisture Content (dried @ 103°C)	----	1	%		4.1	4.0	14.0	8.6	15.0
EA200: AS 4964 - 2004 Identification of Asbestos in Soils									
Asbestos Detected	1332-21-4	0.1	g/kg		No	----	----	----	----
Asbestos Type	1332-21-4	-	--		-	----	----	----	----
Sample weight (dry)	----	0.01	g		589	----	----	----	----
APPROVED IDENTIFIER:	----	-	--		G.MORGAN	----	----	----	----
EA200N: Asbestos Quantification (non-NATA)									
ø Free Fibres	----	5	Fibres		No	----	----	----	----
ø Friable Asbestos	1332-21-4	0.0004	g		<0.0004	----	----	----	----
ø Friable Asbestos (as Asbestos in Soil)	1332-21-4	0.001	% (w/w)		<0.001	----	----	----	----
ø Weight Used for % Calculation	----	0.0001	kg		0.589	----	----	----	----
ED040S : Soluble Sulfate by ICPAES									
Sulfate as SO4 2-	14808-79-8	10	mg/kg		----	----	----	120	----
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	10	mg/kg		----	----	----	40	----
EG005T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		<5	<5	41	9	8
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg		48	7	12	10	36
Copper	7440-50-8	5	mg/kg		78	56	76	60	16
Lead	7439-92-1	5	mg/kg		24	46	1040	118	28
Nickel	7440-02-0	2	mg/kg		85	61	6	16	19
Zinc	7440-66-6	5	mg/kg		82	41	239	86	41
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	0.2	0.6	0.4	<0.1
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	0.1	mg/kg		----	<0.1	----	----	----
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		----	<0.05	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		----	<0.05	----	----	----
beta-BHC	319-85-7	0.05	mg/kg		----	<0.05	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S1	S2	S3	S4	S5
				Client sampling date / time	[04-Jul-2016]	[04-Jul-2016]	[04-Jul-2016]	[04-Jul-2016]	[04-Jul-2016]
Compound	CAS Number	LOR	Unit		ES1614925-001	ES1614925-002	ES1614925-003	ES1614925-004	ES1614925-005
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
gamma-BHC	58-89-9	0.05	mg/kg		----	<0.05	----	----	----
delta-BHC	319-86-8	0.05	mg/kg		----	<0.05	----	----	----
Heptachlor	76-44-8	0.05	mg/kg		----	<0.05	----	----	----
Aldrin	309-00-2	0.05	mg/kg		----	<0.05	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg		----	<0.05	----	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg		----	<0.05	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg		----	<0.05	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg		----	<0.05	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg		----	<0.05	----	----	----
Dieldrin	60-57-1	0.05	mg/kg		----	<0.05	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg		----	<0.05	----	----	----
Endrin	72-20-8	0.05	mg/kg		----	<0.05	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg		----	<0.05	----	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		----	<0.05	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		----	<0.05	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		----	<0.05	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		----	<0.05	----	----	----
4.4`-DDT	50-29-3	0.2	mg/kg		----	<0.2	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg		----	<0.05	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg		----	<0.2	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		----	<0.05	----	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-29-3	0.05	mg/kg		----	<0.05	----	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		----	<0.05	----	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		----	<0.05	----	----	----
Monocrotophos	6923-22-4	0.2	mg/kg		----	<0.2	----	----	----
Dimethoate	60-51-5	0.05	mg/kg		----	<0.05	----	----	----
Diazinon	333-41-5	0.05	mg/kg		----	<0.05	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		----	<0.05	----	----	----
Parathion-methyl	298-00-0	0.2	mg/kg		----	<0.2	----	----	----
Malathion	121-75-5	0.05	mg/kg		----	<0.05	----	----	----
Fenthion	55-38-9	0.05	mg/kg		----	<0.05	----	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		----	<0.05	----	----	----
Parathion	56-38-2	0.2	mg/kg		----	<0.2	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S1	S2	S3	S4	S5
				Client sampling date / time	[04-Jul-2016]	[04-Jul-2016]	[04-Jul-2016]	[04-Jul-2016]	[04-Jul-2016]
Compound	CAS Number	LOR	Unit		ES1614925-001	ES1614925-002	ES1614925-003	ES1614925-004	ES1614925-005
					Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued									
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		----	<0.05	----	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		----	<0.05	----	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		----	<0.05	----	----	----
Fenamiphos	22224-92-6	0.05	mg/kg		----	<0.05	----	----	----
Prothiofos	34643-46-4	0.05	mg/kg		----	<0.05	----	----	----
Ethion	563-12-2	0.05	mg/kg		----	<0.05	----	----	----
Carbophenothion	786-19-6	0.05	mg/kg		----	<0.05	----	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg		----	<0.05	----	----	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		----	<0.5	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg		----	<0.5	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg		----	<0.5	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		----	<1	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg		----	<0.5	----	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		----	<0.5	----	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		----	<0.5	----	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		----	<0.5	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		----	<0.5	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		----	<0.5	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		----	<0.5	----	----	----
Pentachlorophenol	87-86-5	2	mg/kg		----	<2	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	----	<0.5	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	----	**0.7**	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	----	<0.5	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	----	<0.5	----
Phenanthrene	85-01-8	0.5	mg/kg		**0.8**	<0.5	----	**8.1**	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	----	**2.0**	----
Fluoranthene	206-44-0	0.5	mg/kg		**1.5**	<0.5	----	**10.6**	----
Pyrene	129-00-0	0.5	mg/kg		**1.7**	<0.5	----	**10.9**	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		**0.8**	<0.5	----	**5.3**	----
Chrysene	218-01-9	0.5	mg/kg		**0.8**	<0.5	----	**5.1**	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		**0.9**	<0.5	----	**5.2**	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	----	**2.1**	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S1	S2	S3	S4	S5
				Client sampling date / time	[04-Jul-2016]	[04-Jul-2016]	[04-Jul-2016]	[04-Jul-2016]	[04-Jul-2016]
Compound	CAS Number	LOR	Unit		ES1614925-001	ES1614925-002	ES1614925-003	ES1614925-004	ES1614925-005
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Benzo(a)pyrene	50-32-8	0.5	mg/kg		**0.7**	<0.5	----	**4.6**	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	----	**2.0**	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	----	**0.5**	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	----	**2.6**	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		**7.2**	<0.5	----	**59.7**	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		**0.9**	<0.5	----	**6.6**	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**1.2**	**0.6**	----	**6.6**	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.5**	**1.2**	----	**6.6**	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	----	<10	----
C10 - C14 Fraction	----	50	mg/kg		<50	<50	----	<50	----
C15 - C28 Fraction	----	100	mg/kg		**120**	<100	----	**210**	----
C29 - C36 Fraction	----	100	mg/kg		<100	<100	----	<100	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		**120**	<50	----	**210**	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	----	<10	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	----	<10	----
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	----	<50	----
>C16 - C34 Fraction	----	100	mg/kg		**160**	<100	----	**250**	----
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	----	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		**160**	<50	----	**250**	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	----	<50	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	----	<0.2	----
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	----	<0.5	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	----	<0.5	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	----	<0.5	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	----	<0.5	----
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	----	<0.2	----
^ Total Xylenes	1330-20-7	0.5	mg/kg		<0.5	<0.5	----	<0.5	----
Naphthalene	91-20-3	1	mg/kg		<1	<1	----	<1	----
EP066S: PCB Surrogate									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S1	S2	S3	S4	S5
				Client sampling date / time	[04-Jul-2016]	[04-Jul-2016]	[04-Jul-2016]	[04-Jul-2016]	[04-Jul-2016]
Compound	CAS Number	LOR	Unit		ES1614925-001	ES1614925-002	ES1614925-003	ES1614925-004	ES1614925-005
					Result	Result	Result	Result	Result
EP066S: PCB Surrogate - Continued									
Decachlorobiphenyl	2051-24-3	0.1	%		----	**80.1**	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		----	**111**	----	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		----	**79.7**	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**90.9**	**84.1**	----	**94.1**	----
2-Chlorophenol-D4	93951-73-6	0.5	%		**87.7**	**80.7**	----	**90.2**	----
2.4.6-Tribromophenol	118-79-6	0.5	%		**105**	**68.7**	----	**109**	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**85.4**	**78.4**	----	**84.1**	----
Anthracene-d10	1719-06-8	0.5	%		**93.2**	**82.8**	----	**98.1**	----
4-Terphenyl-d14	1718-51-0	0.5	%		**89.1**	**89.4**	----	**89.4**	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**106**	**116**	----	**102**	----
Toluene-D8	2037-26-5	0.2	%		**124**	**106**	----	**106**	----
4-Bromofluorobenzene	460-00-4	0.2	%		**107**	**102**	----	**105**	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S6	S7	S8	S9	S10
				Client sampling date / time	[04-Jul-2016]	[04-Jul-2016]	[04-Jul-2016]	[04-Jul-2016]	[05-Jul-2016]
Compound	CAS Number	LOR	Unit		ES1614925-006	ES1614925-007	ES1614925-008	ES1614925-009	ES1614925-010
					Result	Result	Result	Result	Result
EA002 : pH (Soils)									
pH Value	----	0.1	pH Unit		----	----	----	----	----
EA055: Moisture Content									
Moisture Content (dried @ 103°C)	----	1	%		11.2	9.5	18.4	16.6	6.2
EA200: AS 4964 - 2004 Identification of Asbestos in Soils									
Asbestos Detected	1332-21-4	0.1	g/kg		No	----	No	----	----
Asbestos Type	1332-21-4	-	--		-	----	-	----	----
Sample weight (dry)	----	0.01	g		362	----	243	----	----
APPROVED IDENTIFIER:	----	-	--		G.MORGAN	----	G.MORGAN	----	----
EA200N: Asbestos Quantification (non-NATA)									
ø Free Fibres	----	5	Fibres		No	----	No	----	----
ø Friable Asbestos	1332-21-4	0.0004	g		<0.0004	----	<0.0004	----	----
ø Friable Asbestos (as Asbestos in Soil)	1332-21-4	0.001	% (w/w)		<0.001	----	<0.001	----	----
ø Weight Used for % Calculation	----	0.0001	kg		0.362	----	0.243	----	----
ED040S : Soluble Sulfate by ICPAES									
Sulfate as SO4 2-	14808-79-8	10	mg/kg		----	----	----	----	----
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	10	mg/kg		----	----	----	----	----
EG005T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		13	8	<5	10	<5
Cadmium	7440-43-9	1	mg/kg		4	2	<1	<1	<1
Chromium	7440-47-3	2	mg/kg		23	16	9	38	16
Copper	7440-50-8	5	mg/kg		167	239	12	14	58
Lead	7439-92-1	5	mg/kg		126	356	13	42	35
Nickel	7440-02-0	2	mg/kg		96	22	3	5	19
Zinc	7440-66-6	5	mg/kg		199	240	11	45	39
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	0.1	mg/kg		<0.1	----	----	----	----
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		<0.05	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		<0.05	----	----	----	----
beta-BHC	319-85-7	0.05	mg/kg		<0.05	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S6	S7	S8	S9	S10
				Client sampling date / time	[04-Jul-2016]	[04-Jul-2016]	[04-Jul-2016]	[04-Jul-2016]	[05-Jul-2016]
Compound	CAS Number	LOR	Unit		ES1614925-006	ES1614925-007	ES1614925-008	ES1614925-009	ES1614925-010
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
gamma-BHC	58-89-9	0.05	mg/kg		<0.05	----	----	----	----
delta-BHC	319-86-8	0.05	mg/kg		<0.05	----	----	----	----
Heptachlor	76-44-8	0.05	mg/kg		<0.05	----	----	----	----
Aldrin	309-00-2	0.05	mg/kg		<0.05	----	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg		<0.05	----	----	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg		<0.05	----	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg		<0.05	----	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	----	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	----	----	----	----
Dieldrin	60-57-1	0.05	mg/kg		<0.05	----	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	----	----	----	----
Endrin	72-20-8	0.05	mg/kg		<0.05	----	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	----	----	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		<0.05	----	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	----	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	----	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	----	----	----	----
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	----	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	----	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	----	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		<0.05	----	----	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-29-3	0.05	mg/kg		<0.05	----	----	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	----	----	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	----	----	----	----
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	----	----	----	----
Dimethoate	60-51-5	0.05	mg/kg		<0.05	----	----	----	----
Diazinon	333-41-5	0.05	mg/kg		<0.05	----	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	----	----	----	----
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	----	----	----	----
Malathion	121-75-5	0.05	mg/kg		<0.05	----	----	----	----
Fenthion	55-38-9	0.05	mg/kg		<0.05	----	----	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	----	----	----	----
Parathion	56-38-2	0.2	mg/kg		<0.2	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S6	S7	S8	S9	S10
				Client sampling date / time	[04-Jul-2016]	[04-Jul-2016]	[04-Jul-2016]	[04-Jul-2016]	[05-Jul-2016]
Compound	CAS Number	LOR	Unit		ES1614925-006	ES1614925-007	ES1614925-008	ES1614925-009	ES1614925-010
					Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued									
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	----	----	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	----	----	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	----	----	----	----
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	----	----	----	----
Prothiofos	34643-46-4	0.05	mg/kg		<0.05	----	----	----	----
Ethion	563-12-2	0.05	mg/kg		<0.05	----	----	----	----
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	----	----	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	----	----	----	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		<0.5	----	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg		<0.5	----	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg		<0.5	----	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	----	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg		<0.5	----	----	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		<0.5	----	----	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		<0.5	----	----	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		<0.5	----	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		<0.5	----	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		<0.5	----	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		<0.5	----	----	----	----
Pentachlorophenol	87-86-5	2	mg/kg		<2	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	**1.4**	----	----	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	**0.5**	----	----	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	**0.8**	----	----	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		**1.8**	**16.1**	----	----	<0.5
Anthracene	120-12-7	0.5	mg/kg		<0.5	**4.2**	----	----	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		**2.0**	**26.0**	----	----	<0.5
Pyrene	129-00-0	0.5	mg/kg		**2.0**	**28.8**	----	----	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		**0.9**	**15.1**	----	----	<0.5
Chrysene	218-01-9	0.5	mg/kg		**0.9**	**15.0**	----	----	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		**1.2**	**19.0**	----	----	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		**0.5**	**6.9**	----	----	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S6	S7	S8	S9	S10
				Client sampling date / time	[04-Jul-2016]	[04-Jul-2016]	[04-Jul-2016]	[04-Jul-2016]	[05-Jul-2016]
Compound	CAS Number	LOR	Unit		ES1614925-006	ES1614925-007	ES1614925-008	ES1614925-009	ES1614925-010
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Benzo(a)pyrene	50-32-8	0.5	mg/kg		**1.1**	**17.0**	----	----	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		**0.6**	**7.5**	----	----	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	**1.9**	----	----	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		**0.8**	**9.9**	----	----	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		**11.8**	**170**	----	----	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		**1.4**	**24.0**	----	----	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**1.7**	**24.0**	----	----	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.9**	**24.0**	----	----	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	----	----	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	----	----	<50
C15 - C28 Fraction	----	100	mg/kg		<100	**900**	----	----	<100
C29 - C36 Fraction	----	100	mg/kg		<100	**670**	----	----	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	**1570**	----	----	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	----	----	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	----	----	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	----	----	<50
>C16 - C34 Fraction	----	100	mg/kg		**120**	**1280**	----	----	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	**650**	----	----	**150**
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		**120**	**1930**	----	----	**150**
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	----	----	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	----	----	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	----	----	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg		<0.5	<0.5	----	----	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	----	----	<1
EP066S: PCB Surrogate									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S6	S7	S8	S9	S10
				Client sampling date / time	[04-Jul-2016]	[04-Jul-2016]	[04-Jul-2016]	[04-Jul-2016]	[05-Jul-2016]
Compound	CAS Number	LOR	Unit		ES1614925-006	ES1614925-007	ES1614925-008	ES1614925-009	ES1614925-010
					Result	Result	Result	Result	Result
EP066S: PCB Surrogate - Continued									
Decachlorobiphenyl	2051-24-3	0.1	%		87.2	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		111	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		99.3	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		95.0	92.4	----	----	96.8
2-Chlorophenol-D4	93951-73-6	0.5	%		90.2	88.2	----	----	94.0
2.4.6-Tribromophenol	118-79-6	0.5	%		101	106	----	----	104
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		86.5	82.0	----	----	88.2
Anthracene-d10	1719-06-8	0.5	%		101	95.4	----	----	103
4-Terphenyl-d14	1718-51-0	0.5	%		90.2	87.7	----	----	70.6
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		123	128	----	----	124
Toluene-D8	2037-26-5	0.2	%		106	110	----	----	122
4-Bromofluorobenzene	460-00-4	0.2	%		111	119	----	----	122

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	S12	S13	S14	S15	S16
			Client sampling date / time	[05-Jul-2016]	[05-Jul-2016]	[05-Jul-2016]	[06-Jul-2016]	[06-Jul-2016]
Compound	CAS Number	LOR	Unit	ES1614925-011	ES1614925-012	ES1614925-013	ES1614925-014	ES1614925-015
				Result	Result	Result	Result	Result
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	----	----	----	----	----
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1	%	4.7	14.4	16.9	24.3	18.5
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	----	----	----	No	----
Asbestos Type	1332-21-4	-	--	----	----	----	-	----
Sample weight (dry)	----	0.01	g	----	----	----	177	----
APPROVED IDENTIFIER:	----	-	--	----	----	----	G.MORGAN	----
EA200N: Asbestos Quantification (non-NATA)								
ø Free Fibres	----	5	Fibres	----	----	----	No	----
ø Friable Asbestos	1332-21-4	0.0004	g	----	----	----	<0.0004	----
ø Friable Asbestos (as Asbestos in Soil)	1332-21-4	0.001	% (w/w)	----	----	----	<0.001	----
ø Weight Used for % Calculation	----	0.0001	kg	----	----	----	0.177	----
ED040S : Soluble Sulfate by ICPAES								
Sulfate as SO4 2-	14808-79-8	10	mg/kg	----	----	----	----	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	10	mg/kg	----	----	----	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	8	<5	8
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	23	5	13	12	24
Copper	7440-50-8	5	mg/kg	52	22	13	87	28
Lead	7439-92-1	5	mg/kg	27	20	19	56	116
Nickel	7440-02-0	2	mg/kg	28	5	3	46	12
Zinc	7440-66-6	5	mg/kg	42	52	8	251	52
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	0.3	0.1
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	----	----	<0.1	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	----	----	<0.05	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	----	----	<0.05	----
beta-BHC	319-85-7	0.05	mg/kg	<0.05	----	----	<0.05	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S12	S13	S14	S15	S16
				Client sampling date / time	[05-Jul-2016]	[05-Jul-2016]	[05-Jul-2016]	[06-Jul-2016]	[06-Jul-2016]
Compound	CAS Number	LOR	Unit		ES1614925-011	ES1614925-012	ES1614925-013	ES1614925-014	ES1614925-015
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
gamma-BHC	58-89-9	0.05	mg/kg		<0.05	----	----	<0.05	----
delta-BHC	319-86-8	0.05	mg/kg		<0.05	----	----	<0.05	----
Heptachlor	76-44-8	0.05	mg/kg		<0.05	----	----	<0.05	----
Aldrin	309-00-2	0.05	mg/kg		<0.05	----	----	<0.05	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg		<0.05	----	----	<0.05	----
^ Total Chlordane (sum)	----	0.05	mg/kg		<0.05	----	----	<0.05	----
trans-Chlordane	5103-74-2	0.05	mg/kg		<0.05	----	----	<0.05	----
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	----	----	<0.05	----
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	----	----	<0.05	----
Dieldrin	60-57-1	0.05	mg/kg		<0.05	----	----	**0.17**	----
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	----	----	<0.05	----
Endrin	72-20-8	0.05	mg/kg		<0.05	----	----	<0.05	----
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	----	----	<0.05	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		<0.05	----	----	<0.05	----
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	----	----	<0.05	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	----	----	<0.05	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	----	----	<0.05	----
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	----	----	<0.2	----
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	----	----	<0.05	----
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	----	----	<0.2	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		<0.05	----	----	**0.17**	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-29-3	0.05	mg/kg		<0.05	----	----	<0.05	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	----	----	<0.05	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	----	----	<0.05	----
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	----	----	<0.2	----
Dimethoate	60-51-5	0.05	mg/kg		<0.05	----	----	<0.05	----
Diazinon	333-41-5	0.05	mg/kg		<0.05	----	----	<0.05	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	----	----	<0.05	----
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	----	----	<0.2	----
Malathion	121-75-5	0.05	mg/kg		<0.05	----	----	<0.05	----
Fenthion	55-38-9	0.05	mg/kg		<0.05	----	----	<0.05	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	----	----	<0.05	----
Parathion	56-38-2	0.2	mg/kg		<0.2	----	----	<0.2	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S12	S13	S14	S15	S16
				Client sampling date / time	[05-Jul-2016]	[05-Jul-2016]	[05-Jul-2016]	[06-Jul-2016]	[06-Jul-2016]
Compound	CAS Number	LOR	Unit		ES1614925-011	ES1614925-012	ES1614925-013	ES1614925-014	ES1614925-015
					Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued									
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	----	----	<0.05	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	----	----	<0.05	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	----	----	<0.05	----
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	----	----	<0.05	----
Prothiofos	34643-46-4	0.05	mg/kg		<0.05	----	----	<0.05	----
Ethion	563-12-2	0.05	mg/kg		<0.05	----	----	<0.05	----
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	----	----	<0.05	----
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	----	----	<0.05	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		<0.5	----	----	<0.5	----
2-Chlorophenol	95-57-8	0.5	mg/kg		<0.5	----	----	<0.5	----
2-Methylphenol	95-48-7	0.5	mg/kg		<0.5	----	----	<0.5	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	----	----	<1	----
2-Nitrophenol	88-75-5	0.5	mg/kg		<0.5	----	----	<0.5	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		<0.5	----	----	<0.5	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		<0.5	----	----	<0.5	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		<0.5	----	----	<0.5	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		<0.5	----	----	<0.5	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		<0.5	----	----	<0.5	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		<0.5	----	----	<0.5	----
Pentachlorophenol	87-86-5	2	mg/kg		<2	----	----	<2	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	----	----	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	----	----	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	----	----	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	----	----	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	----	----	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg		<0.5	----	----	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	----	----	<0.5	**0.9**
Pyrene	129-00-0	0.5	mg/kg		<0.5	----	----	<0.5	**0.9**
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	----	----	<0.5	**0.7**
Chrysene	218-01-9	0.5	mg/kg		<0.5	----	----	<0.5	**0.8**
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	----	----	<0.5	**1.3**
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	----	----	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S12	S13	S14	S15	S16
				Client sampling date / time	[05-Jul-2016]	[05-Jul-2016]	[05-Jul-2016]	[06-Jul-2016]	[06-Jul-2016]
Compound	CAS Number	LOR	Unit		ES1614925-011	ES1614925-012	ES1614925-013	ES1614925-014	ES1614925-015
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	----	----	<0.5	**1.0**
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	----	----	<0.5	**0.6**
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	----	----	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	----	----	<0.5	**0.8**
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	----	----	<0.5	**7.0**
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	----	----	<0.5	**1.3**
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	----	----	**0.6**	**1.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	----	----	**1.2**	**1.8**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	----	----	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	----	----	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	----	----	<100	<100
C29 - C36 Fraction	----	100	mg/kg		<100	----	----	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	----	----	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	----	----	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	----	----	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	----	----	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	----	----	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		**110**	----	----	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		**110**	----	----	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	----	----	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	----	----	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	----	----	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	----	----	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	----	----	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	----	----	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		<0.2	----	----	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg		<0.5	----	----	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	----	----	<1	<1
EP066S: PCB Surrogate									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S12	S13	S14	S15	S16
				Client sampling date / time	[05-Jul-2016]	[05-Jul-2016]	[05-Jul-2016]	[06-Jul-2016]	[06-Jul-2016]
Compound	CAS Number	LOR	Unit		ES1614925-011	ES1614925-012	ES1614925-013	ES1614925-014	ES1614925-015
					Result	Result	Result	Result	Result
EP066S: PCB Surrogate - Continued									
Decachlorobiphenyl	2051-24-3	0.1	%		77.7	----	----	85.2	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		103	----	----	96.9	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		81.0	----	----	90.5	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		73.8	----	----	79.0	80.2
2-Chlorophenol-D4	93951-73-6	0.5	%		72.0	----	----	75.8	78.7
2.4.6-Tribromophenol	118-79-6	0.5	%		85.0	----	----	52.3	94.5
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		82.0	----	----	84.9	92.4
Anthracene-d10	1719-06-8	0.5	%		98.6	----	----	95.8	104
4-Terphenyl-d14	1718-51-0	0.5	%		85.8	----	----	90.3	92.9
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		92.5	----	----	105	108
Toluene-D8	2037-26-5	0.2	%		116	----	----	90.4	104
4-Bromofluorobenzene	460-00-4	0.2	%		102	----	----	85.9	107

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	S17	S19	S20	S21	S22
			Client sampling date / time	[06-Jul-2016]	[06-Jul-2016]	[06-Jul-2016]	[06-Jul-2016]	[07-Jul-2016]
Compound	CAS Number	LOR	Unit	ES1614925-016	ES1614925-018	ES1614925-019	ES1614925-020	ES1614925-021
				Result	Result	Result	Result	Result
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	----	8.8	----	----	----
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1	%	16.7	14.9	32.8	19.1	20.9
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	----	----	No	----	No
Asbestos Type	1332-21-4	-	--	----	----	-	----	-
Sample weight (dry)	----	0.01	g	----	----	176	----	270
APPROVED IDENTIFIER:	----	-	--	----	----	G.MORGAN	----	G.MORGAN
EA200N: Asbestos Quantification (non-NATA)								
ø Free Fibres	----	5	Fibres	----	----	No	----	No
ø Friable Asbestos	1332-21-4	0.0004	g	----	----	<0.0004	----	<0.0004
ø Friable Asbestos (as Asbestos in Soil)	1332-21-4	0.001	% (w/w)	----	----	<0.001	----	<0.001
ø Weight Used for % Calculation	----	0.0001	kg	----	----	0.176	----	0.270
ED040S : Soluble Sulfate by ICPAES								
Sulfate as SO4 2-	14808-79-8	10	mg/kg	----	70	----	----	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	10	mg/kg	----	60	----	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	6	----	7	<5	7
Cadmium	7440-43-9	1	mg/kg	<1	----	2	<1	<1
Chromium	7440-47-3	2	mg/kg	11	----	11	11	12
Copper	7440-50-8	5	mg/kg	13	----	89	9	23
Lead	7439-92-1	5	mg/kg	15	----	101	10	28
Nickel	7440-02-0	2	mg/kg	3	----	84	<2	9
Zinc	7440-66-6	5	mg/kg	9	----	222	7	37
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	0.1	<0.1	<0.1
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	----	<0.1	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	----	----	<0.05	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	----	----	<0.05	----	----
beta-BHC	319-85-7	0.05	mg/kg	----	----	<0.05	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S17	S19	S20	S21	S22
				Client sampling date / time	[06-Jul-2016]	[06-Jul-2016]	[06-Jul-2016]	[06-Jul-2016]	[07-Jul-2016]
Compound	CAS Number	LOR	Unit		ES1614925-016	ES1614925-018	ES1614925-019	ES1614925-020	ES1614925-021
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
gamma-BHC	58-89-9	0.05	mg/kg		----	----	<0.05	----	----
delta-BHC	319-86-8	0.05	mg/kg		----	----	<0.05	----	----
Heptachlor	76-44-8	0.05	mg/kg		----	----	<0.05	----	----
Aldrin	309-00-2	0.05	mg/kg		----	----	<0.05	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg		----	----	<0.05	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg		----	----	<0.05	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg		----	----	<0.05	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg		----	----	<0.05	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg		----	----	<0.05	----	----
Dieldrin	60-57-1	0.05	mg/kg		----	----	<0.05	----	----
4.4`-DDE	72-55-9	0.05	mg/kg		----	----	<0.05	----	----
Endrin	72-20-8	0.05	mg/kg		----	----	<0.05	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg		----	----	<0.05	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		----	----	<0.05	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		----	----	<0.05	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		----	----	<0.05	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		----	----	<0.05	----	----
4.4`-DDT	50-29-3	0.2	mg/kg		----	----	<0.2	----	----
Endrin ketone	53494-70-5	0.05	mg/kg		----	----	<0.05	----	----
Methoxychlor	72-43-5	0.2	mg/kg		----	----	<0.2	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		----	----	<0.05	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-29-3	0.05	mg/kg		----	----	<0.05	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		----	----	<0.05	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		----	----	<0.05	----	----
Monocrotophos	6923-22-4	0.2	mg/kg		----	----	<0.2	----	----
Dimethoate	60-51-5	0.05	mg/kg		----	----	<0.05	----	----
Diazinon	333-41-5	0.05	mg/kg		----	----	<0.05	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		----	----	<0.05	----	----
Parathion-methyl	298-00-0	0.2	mg/kg		----	----	<0.2	----	----
Malathion	121-75-5	0.05	mg/kg		----	----	<0.05	----	----
Fenthion	55-38-9	0.05	mg/kg		----	----	<0.05	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		----	----	<0.05	----	----
Parathion	56-38-2	0.2	mg/kg		----	----	<0.2	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S17	S19	S20	S21	S22
				Client sampling date / time	[06-Jul-2016]	[06-Jul-2016]	[06-Jul-2016]	[06-Jul-2016]	[07-Jul-2016]
Compound	CAS Number	LOR	Unit		ES1614925-016	ES1614925-018	ES1614925-019	ES1614925-020	ES1614925-021
					Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued									
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		----	----	<0.05	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		----	----	<0.05	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		----	----	<0.05	----	----
Fenamiphos	22224-92-6	0.05	mg/kg		----	----	<0.05	----	----
Prothiofos	34643-46-4	0.05	mg/kg		----	----	<0.05	----	----
Ethion	563-12-2	0.05	mg/kg		----	----	<0.05	----	----
Carbophenothion	786-19-6	0.05	mg/kg		----	----	<0.05	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg		----	----	<0.05	----	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		----	----	<0.5	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg		----	----	<0.5	----	----
2-Methylphenol	95-48-7	0.5	mg/kg		----	----	<0.5	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		----	----	<1	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg		----	----	<0.5	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		----	----	<0.5	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		----	----	<0.5	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		----	----	<0.5	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		----	----	<0.5	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		----	----	<0.5	----	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		----	----	<0.5	----	----
Pentachlorophenol	87-86-5	2	mg/kg		----	----	<2	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	----	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	----	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	----	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	----	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	----	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg		<0.5	----	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		**0.8**	----	**0.9**	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg		**0.8**	----	**1.0**	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		**0.6**	----	**0.5**	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg		**0.5**	----	**0.5**	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		**0.7**	----	**0.7**	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	----	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S17	S19	S20	S21	S22
				Client sampling date / time	[06-Jul-2016]	[06-Jul-2016]	[06-Jul-2016]	[06-Jul-2016]	[07-Jul-2016]
Compound	CAS Number	LOR	Unit		ES1614925-016	ES1614925-018	ES1614925-019	ES1614925-020	ES1614925-021
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Benzo(a)pyrene	50-32-8	0.5	mg/kg		**0.6**	----	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	----	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	----	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	----	**0.6**	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		**4.0**	----	**4.2**	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		**0.7**	----	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**1.0**	----	**0.7**	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.3**	----	**1.2**	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	----	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	----	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	----	**130**	<100	<100
C29 - C36 Fraction	----	100	mg/kg		<100	----	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	----	**130**	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	----	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	----	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	----	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	----	**180**	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	----	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	----	**180**	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	----	<50	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	----	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	----	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	----	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	----	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	----	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		<0.2	----	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg		<0.5	----	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	----	<1	<1	<1
EP066S: PCB Surrogate									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S17	S19	S20	S21	S22
				Client sampling date / time	[06-Jul-2016]	[06-Jul-2016]	[06-Jul-2016]	[06-Jul-2016]	[07-Jul-2016]
Compound	CAS Number	LOR	Unit		ES1614925-016	ES1614925-018	ES1614925-019	ES1614925-020	ES1614925-021
					Result	Result	Result	Result	Result
EP066S: PCB Surrogate - Continued									
Decachlorobiphenyl	2051-24-3	0.1	%		----	----	92.1	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		----	----	125	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		----	----	112	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		78.3	----	90.2	94.1	87.2
2-Chlorophenol-D4	93951-73-6	0.5	%		93.6	----	88.7	92.2	83.3
2.4.6-Tribromophenol	118-79-6	0.5	%		89.5	----	92.2	90.9	80.4
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		90.8	----	85.8	88.5	86.0
Anthracene-d10	1719-06-8	0.5	%		103	----	103	100	98.4
4-Terphenyl-d14	1718-51-0	0.5	%		110	----	89.3	89.9	87.8
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		101	----	114	130	120
Toluene-D8	2037-26-5	0.2	%		102	----	94.7	112	103
4-Bromofluorobenzene	460-00-4	0.2	%		101	----	102	118	110

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S23	S25	S26	S27	----
				Client sampling date / time	[07-Jul-2016]	[07-Jul-2016]	[07-Jul-2016]	[07-Jul-2016]	----
Compound	CAS Number	LOR	Unit		ES1614925-022	ES1614925-023	ES1614925-024	ES1614925-025	--------
					Result	Result	Result	Result	----
EA002 : pH (Soils)									
pH Value	----	0.1	pH Unit		----	----	----	7.8	----
EA055: Moisture Content									
Moisture Content (dried @ 103°C)	----	1	%		21.4	18.8	22.2	20.2	----
EA200: AS 4964 - 2004 Identification of Asbestos in Soils									
Asbestos Detected	1332-21-4	0.1	g/kg		----	----	----	----	----
Asbestos Type	1332-21-4	-	--		----	----	----	----	----
Sample weight (dry)	----	0.01	g		----	----	----	----	----
APPROVED IDENTIFIER:	----	-	--		----	----	----	----	----
EA200N: Asbestos Quantification (non-NATA)									
ø Free Fibres	----	5	Fibres		----	----	----	----	----
ø Friable Asbestos	1332-21-4	0.0004	g		----	----	----	----	----
ø Friable Asbestos (as Asbestos in Soil)	1332-21-4	0.001	% (w/w)		----	----	----	----	----
ø Weight Used for % Calculation	----	0.0001	kg		----	----	----	----	----
ED040S : Soluble Sulfate by ICPAES									
Sulfate as SO4 2-	14808-79-8	10	mg/kg		----	----	----	180	----
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	10	mg/kg		----	----	----	140	----
EG005T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		8	5	<5	----	----
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	----	----
Chromium	7440-47-3	2	mg/kg		15	10	10	----	----
Copper	7440-50-8	5	mg/kg		18	26	7	----	----
Lead	7439-92-1	5	mg/kg		25	36	12	----	----
Nickel	7440-02-0	2	mg/kg		6	12	<2	----	----
Zinc	7440-66-6	5	mg/kg		22	52	6	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	----	----
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	0.1	mg/kg		----	----	----	----	----
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		----	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		----	----	----	----	----
beta-BHC	319-85-7	0.05	mg/kg		----	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S23	S25	S26	S27	----
				Client sampling date / time	[07-Jul-2016]	[07-Jul-2016]	[07-Jul-2016]	[07-Jul-2016]	----
Compound	CAS Number	LOR	Unit		ES1614925-022	ES1614925-023	ES1614925-024	ES1614925-025	--------
					Result	Result	Result	Result	----
EP068A: Organochlorine Pesticides (OC) - Continued									
gamma-BHC	58-89-9	0.05	mg/kg		----	----	----	----	----
delta-BHC	319-86-8	0.05	mg/kg		----	----	----	----	----
Heptachlor	76-44-8	0.05	mg/kg		----	----	----	----	----
Aldrin	309-00-2	0.05	mg/kg		----	----	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg		----	----	----	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg		----	----	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg		----	----	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg		----	----	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg		----	----	----	----	----
Dieldrin	60-57-1	0.05	mg/kg		----	----	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg		----	----	----	----	----
Endrin	72-20-8	0.05	mg/kg		----	----	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg		----	----	----	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		----	----	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		----	----	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		----	----	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		----	----	----	----	----
4.4`-DDT	50-29-3	0.2	mg/kg		----	----	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg		----	----	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg		----	----	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		----	----	----	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-29-3	0.05	mg/kg		----	----	----	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		----	----	----	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		----	----	----	----	----
Monocrotophos	6923-22-4	0.2	mg/kg		----	----	----	----	----
Dimethoate	60-51-5	0.05	mg/kg		----	----	----	----	----
Diazinon	333-41-5	0.05	mg/kg		----	----	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		----	----	----	----	----
Parathion-methyl	298-00-0	0.2	mg/kg		----	----	----	----	----
Malathion	121-75-5	0.05	mg/kg		----	----	----	----	----
Fenthion	55-38-9	0.05	mg/kg		----	----	----	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		----	----	----	----	----
Parathion	56-38-2	0.2	mg/kg		----	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S23	S25	S26	S27	----
				Client sampling date / time	[07-Jul-2016]	[07-Jul-2016]	[07-Jul-2016]	[07-Jul-2016]	----
Compound	CAS Number	LOR	Unit		ES1614925-022	ES1614925-023	ES1614925-024	ES1614925-025	--------
					Result	Result	Result	Result	----
EP068B: Organophosphorus Pesticides (OP) - Continued									
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		----	----	----	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		----	----	----	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		----	----	----	----	----
Fenamiphos	22224-92-6	0.05	mg/kg		----	----	----	----	----
Prothiofos	34643-46-4	0.05	mg/kg		----	----	----	----	----
Ethion	563-12-2	0.05	mg/kg		----	----	----	----	----
Carbophenothion	786-19-6	0.05	mg/kg		----	----	----	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg		----	----	----	----	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		----	----	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg		----	----	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg		----	----	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		----	----	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg		----	----	----	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		----	----	----	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		----	----	----	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		----	----	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		----	----	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		----	----	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		----	----	----	----	----
Pentachlorophenol	87-86-5	2	mg/kg		----	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	----	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	----	----	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	----	----	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S23	S25	S26	S27	----
				Client sampling date / time	[07-Jul-2016]	[07-Jul-2016]	[07-Jul-2016]	[07-Jul-2016]	----
Compound	CAS Number	LOR	Unit		ES1614925-022	ES1614925-023	ES1614925-024	ES1614925-025	--------
					Result	Result	Result	Result	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	----	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	<50	----	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	<100	----	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	<100	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	----	----	----
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	----	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	----	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	----	----	----
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	----	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg		<0.5	<0.5	----	----	----
Naphthalene	91-20-3	1	mg/kg		<1	<1	----	----	----
EP066S: PCB Surrogate									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S23	S25	S26	S27	----
				Client sampling date / time	[07-Jul-2016]	[07-Jul-2016]	[07-Jul-2016]	[07-Jul-2016]	----
Compound	CAS Number	LOR	Unit		ES1614925-022	ES1614925-023	ES1614925-024	ES1614925-025	--------
					Result	Result	Result	Result	----
EP066S: PCB Surrogate - Continued									
Decachlorobiphenyl	2051-24-3	0.1	%		----	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		----	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		----	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**91.4**	**95.2**	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		**86.9**	**90.6**	----	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		**87.8**	**77.5**	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**85.0**	**90.6**	----	----	----
Anthracene-d10	1719-06-8	0.5	%		**99.6**	**100**	----	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		**87.7**	**89.5**	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**108**	**130**	----	----	----
Toluene-D8	2037-26-5	0.2	%		**106**	**106**	----	----	----
4-Bromofluorobenzene	460-00-4	0.2	%		**104**	**115**	----	----	----

Analytical Results

Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	Client sample ID - Client sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	S1 - [04-Jul-2016]	Mid grey-brown clay soil with grey rocks.
EA200: Description	S6 - [04-Jul-2016]	Mid brown clay soil.
EA200: Description	S8 - [04-Jul-2016]	Pale brown clay soil.
EA200: Description	S15 - [06-Jul-2016]	Dark grey soil.
EA200: Description	S20 - [06-Jul-2016]	Dark grey soil.
EA200: Description	S22 - [07-Jul-2016]	Mid brown clay soil.

Surrogate Control Limits

Sub-Matrix: **SOIL**

Compound	CAS Number	Recovery Limits (%) Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	39	149
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	49	147
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	35	143
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	133
Toluene-D8	2037-26-5	74	132
4-Bromofluorobenzene	460-00-4	72	130

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **ES1614925**	Page	: 1 of 13
Client	: **SMEC TESTING SERVICES PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: CARSTEN MATTHAI	Contact	:
Address	: P O BOX 6989 WETHERILL PARK NSW, AUSTRALIA 2164	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: 21024	Date Samples Received	: 08-Jul-2016
Order number	: 13153	Date Analysis Commenced	: 11-Jul-2016
C-O-C number	: ----	Issue Date	: 15-Jul-2016
Sampler	: JK		
Site	: ----		
Quote number	: ----		
No. of samples received	: 25		
No. of samples analysed	: 24		

NATA Accredited Laboratory 825
Accredited for compliance with
ISO/IEC 17025.

NATA
WORLD RECOGNISED ACCREDITATION

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Inorganic Chemist	Sydney Inorganics, Smithfield, NSW
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Gerrad Morgan	Asbestos Identifier	Newcastle - Asbestos, Mayfield West, NSW

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
= Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA002 : pH (Soils) (QC Lot: 513303)									
ES1614882-001	Anonymous	EA002: pH Value	----	0.1	pH Unit	9.4	9.4	0.00	0% - 20%
ES1614931-006	Anonymous	EA002: pH Value	----	0.1	pH Unit	6.9	6.9	0.00	0% - 20%
EA055: Moisture Content (QC Lot: 514089)									
ES1614924-023	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1	%	19.6	19.9	1.72	0% - 50%
ES1614924-055	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1	%	21.4	23.4	8.57	0% - 20%
EA055: Moisture Content (QC Lot: 514090)									
ES1614925-008	S8	EA055-103: Moisture Content (dried @ 103°C)	----	1	%	18.4	17.7	3.82	0% - 50%
ES1614925-020	S21	EA055-103: Moisture Content (dried @ 103°C)	----	1	%	19.1	19.4	1.60	0% - 50%
ED040S: Soluble Major Anions (QC Lot: 513306)									
ES1614931-006	Anonymous	ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	<10	<10	0.00	No Limit
ES1614931-001	Anonymous	ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	10	10	0.00	No Limit
ED045G: Chloride by Discrete Analyser (QC Lot: 513305)									
ES1614931-006	Anonymous	ED045G: Chloride	16887-00-6	10	mg/kg	<10	<10	0.00	No Limit
ES1614931-001	Anonymous	ED045G: Chloride	16887-00-6	10	mg/kg	30	30	0.00	No Limit
EG005T: Total Metals by ICP-AES (QC Lot: 516605)									
ES1614913-052	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	26	26	0.00	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	15	15	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	16	16	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	12	12	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	31	31	0.00	No Limit
ES1614925-005	S5	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	36	37	0.00	0% - 50%

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG005T: Total Metals by ICP-AES (QC Lot: 516605) - continued									
ES1614925-005	S5	EG005T: Nickel	7440-02-0	2	mg/kg	19	25	23.8	0% - 50%
		EG005T: Arsenic	7440-38-2	5	mg/kg	8	9	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	16	18	16.2	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	28	23	20.2	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	41	52	24.7	0% - 50%
EG005T: Total Metals by ICP-AES (QC Lot: 516607)									
ES1614925-015	S16	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	24	18	28.9	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	12	8	39.7	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	8	7	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	28	27	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	116	117	0.00	0% - 20%
		EG005T: Zinc	7440-66-6	5	mg/kg	52	44	15.7	0% - 50%
ES1614950-006	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	10	11	10.9	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	44	53	18.9	0% - 20%
		EG005T: Arsenic	7440-38-2	5	mg/kg	27	30	11.8	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	92	99	7.14	0% - 50%
		EG005T: Lead	7439-92-1	5	mg/kg	185	199	7.31	0% - 20%
		EG005T: Zinc	7440-66-6	5	mg/kg	198	231	15.3	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 516606)									
ES1614913-052	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
ES1614925-005	S5	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 516608)									
ES1614925-015	S16	EG035T: Mercury	7439-97-6	0.1	mg/kg	0.1	<0.1	0.00	No Limit
ES1614950-006	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	0.3	0.4	0.00	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 512875)									
ES1614925-002	S2	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 512874)									
ES1614925-002	S2	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP068A: Organochlorine Pesticides (OC) (QC Lot: 512874) - continued									
ES1614925-002	S2	EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 512874)									
ES1614925-002	S2	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 512872)									
ES1614925-019	S20	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075(SIM)A: Phenolic Compounds (QC Lot: 512872) - continued									
ES1614925-019	S20	EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.00	No Limit
ES1614925-002	S2	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.00	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 512872)									
ES1614925-019	S20	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	0.9	0.8	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	1.0	0.7	25.9	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	0.7	0.8	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	0.6	0.6	0.00	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	4.2	2.9	36.6	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
ES1614925-002	S2	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 512872) - continued									
ES1614925-002	S2	EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 512873)									
ES1614925-019	S20	EP071: C15 - C28 Fraction	----	100	mg/kg	130	110	10.3	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
ES1614925-002	S2	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 513342)									
ES1614925-001	S1	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
ES1614925-019	S20	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 512873)									
ES1614925-019	S20	EP071: >C16 - C34 Fraction	----	100	mg/kg	180	160	9.14	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
ES1614925-002	S2	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 513342)									
ES1614925-001	S1	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
ES1614925-019	S20	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080: BTEXN (QC Lot: 513342)									
ES1614925-001	S1	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP080: BTEXN (QC Lot: 513342) - continued									
ES1614925-001	S1	EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
ES1614925-019	S20	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
ED040S: Soluble Major Anions (QCLot: 513306)								
ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	<10	150 mg/kg	110	80	120
ED045G: Chloride by Discrete Analyser (QCLot: 513305)								
ED045G: Chloride	16887-00-6	10	mg/kg	<10	50 mg/kg	112	75	125
				<10	5000 mg/kg	102	79	117
EG005T: Total Metals by ICP-AES (QCLot: 516605)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	101	86	126
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	99.6	83	113
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	93.1	76	128
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	95.9	86	120
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	97.6	80	114
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	100	87	123
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	107	80	122
EG005T: Total Metals by ICP-AES (QCLot: 516607)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	96.8	86	126
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	93.9	83	113
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	90.6	76	128
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	99.0	86	120
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	96.7	80	114
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	96.7	87	123
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	102	80	122
EG035T: Total Recoverable Mercury by FIMS (QCLot: 516606)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	76.2	70	105
EG035T: Total Recoverable Mercury by FIMS (QCLot: 516608)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	74.6	70	105
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 512875)								
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	108	62	126
EP068A: Organochlorine Pesticides (OC) (QCLot: 512874)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	88.6	69	113
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	95.4	65	117
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	97.5	67	119
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	96.2	68	116
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	95.0	65	117
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	89.2	67	115

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP068A: Organochlorine Pesticides (OC) (QCLot: 512874) - continued								
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	104	69	115
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	104	62	118
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	105	63	117
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	87.9	66	116
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	83.9	64	116
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	91.9	66	116
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	94.6	67	115
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	95.8	67	123
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	106	69	115
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	109	69	121
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	81.9	56	120
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	82.9	62	124
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	99.5	66	120
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	85.5	64	122
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	70.6	54	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 512874)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	97.0	59	119
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	100	62	128
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	101	54	126
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	82.9	67	119
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	96.8	70	120
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	81.6	72	120
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	82.1	68	120
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	96.2	68	122
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	106	69	117
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	98.3	76	118
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	98.6	64	122
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	107	70	116
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	82.5	69	121
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	107	66	118
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	77.2	68	124
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	93.0	62	112
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	101	68	120
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	90.3	65	127
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	62.3	41	123
EP075(SIM)A: Phenolic Compounds (QCLot: 512872)								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	6 mg/kg	93.0	71	125
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	6 mg/kg	95.9	72	124
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	6 mg/kg	93.7	71	123

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP075(SIM)A: Phenolic Compounds (QCLot: 512872) - continued								
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	12 mg/kg	96.5	67	127
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	6 mg/kg	62.4	54	114
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	6 mg/kg	106	68	126
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	6 mg/kg	94.6	66	120
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	6 mg/kg	100	70	120
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	6 mg/kg	92.8	70	116
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	6 mg/kg	87.2	54	114
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	6 mg/kg	81.8	60	114
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	12 mg/kg	16.2	10	57
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 512872)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	104	77	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	101	72	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	93.4	73	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	99.5	72	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	105	75	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	106	77	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	107	73	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	107	74	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	104	69	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	108	75	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	96.7	68	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	108	74	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	101	70	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	97.2	61	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	97.3	62	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	97.3	63	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 512873)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	111	75	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	114	77	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	96.3	71	129
EP080/071: Total Petroleum Hydrocarbons (QCLot: 513342)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	84.0	68	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 512873)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	250 mg/kg	109	77	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	112	74	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	150 mg/kg	93.1	63	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 513342)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 513342) - continued								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	87.5	68	128
EP080: BTEXN (QCLot: 513342)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	81.4	62	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	87.1	67	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	89.7	65	117
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	98.7	66	118
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	93.3	68	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	89.3	63	119

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
ED045G: Chloride by Discrete Analyser (QCLot: 513305)							
ES1614925-004	S4	ED045G: Chloride	16887-00-6	1250 mg/kg	106	70	130
EG005T: Total Metals by ICP-AES (QCLot: 516605)							
ES1614913-052	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	91.4	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	97.1	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	94.5	70	130
		EG005T: Copper	7440-50-8	250 mg/kg	96.3	70	130
		EG005T: Lead	7439-92-1	250 mg/kg	95.5	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	92.0	70	130
		EG005T: Zinc	7440-66-6	250 mg/kg	96.8	70	130
EG005T: Total Metals by ICP-AES (QCLot: 516607)							
ES1614925-009	S9	EG005T: Arsenic	7440-38-2	50 mg/kg	81.4	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	98.5	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	81.2	70	130
		EG005T: Copper	7440-50-8	250 mg/kg	96.5	70	130
		EG005T: Lead	7439-92-1	250 mg/kg	86.0	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	90.7	70	130
		EG005T: Zinc	7440-66-6	250 mg/kg	87.1	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 516606)							
ES1614913-052	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	92.0	70	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG035T: Total Recoverable Mercury by FIMS (QCLot: 516608)							
ES1614925-015	S16	EG035T: Mercury	7439-97-6	5 mg/kg	94.5	70	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 512875)							
ES1614925-002	S2	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	95.0	70	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 512874)							
ES1614925-002	S2	EP068: gamma-BHC	58-89-9	0.5 mg/kg	85.1	70	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	86.6	70	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	74.6	70	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	87.9	70	130
		EP068: Endrin	72-20-8	2 mg/kg	91.2	70	130
		EP068: 4.4`-DDT	50-29-3	2 mg/kg	94.7	70	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 512874)							
ES1614925-002	S2	EP068: Diazinon	333-41-5	0.5 mg/kg	83.4	70	130
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	89.6	70	130
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	95.3	70	130
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	88.1	70	130
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	76.2	70	130
EP075(SIM)A: Phenolic Compounds (QCLot: 512872)							
ES1614925-002	S2	EP075(SIM): Phenol	108-95-2	10 mg/kg	83.3	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	85.8	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	75.5	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	81.8	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	51.3	20	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 512872)							
ES1614925-002	S2	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	79.8	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	86.5	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 512873)							
ES1614925-002	S2	EP071: C10 - C14 Fraction	----	523 mg/kg	96.0	73	137
		EP071: C15 - C28 Fraction	----	2319 mg/kg	105	53	131
		EP071: C29 - C36 Fraction	----	1714 mg/kg	121	52	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 513342)							
ES1614925-001	S1	EP080: C6 - C9 Fraction	----	32.5 mg/kg	107	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 512873)							
ES1614925-002	S2	EP071: >C10 - C16 Fraction	----	860 mg/kg	90.6	73	137
		EP071: >C16 - C34 Fraction	----	3223 mg/kg	104	53	131
		EP071: >C34 - C40 Fraction	----	1058 mg/kg	121	52	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 513342)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 513342) - continued							
ES1614925-001	S1	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	97.3	70	130
EP080: BTEXN (QCLot: 513342)							
ES1614925-001	S1	EP080: Benzene	71-43-2	2.5 mg/kg	88.3	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	94.6	70	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	95.3	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	94.5	70	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	90.6	70	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	85.9	70	130

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES1614925**	Page	: 1 of 9
Client	: **SMEC TESTING SERVICES PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: CARSTEN MATTHAI	Telephone	: +61-2-8784 8555
Project	: 21024	Date Samples Received	: 08-Jul-2016
Site	: ----	Issue Date	: 15-Jul-2016
Sampler	: JK	No. of samples received	: 25
Order number	: 13153	No. of samples analysed	: 24

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA002 : pH (Soils)							
Soil Glass Jar - Unpreserved (EA002)							
S4	**04-Jul-2016**	**11-Jul-2016**	11-Jul-2016	✓	**11-Jul-2016**	11-Jul-2016	✓
Soil Glass Jar - Unpreserved (EA002)							
S19	**06-Jul-2016**	**11-Jul-2016**	13-Jul-2016	✓	**11-Jul-2016**	11-Jul-2016	✓
Soil Glass Jar - Unpreserved (EA002)							
S27	**07-Jul-2016**	**11-Jul-2016**	14-Jul-2016	✓	**11-Jul-2016**	11-Jul-2016	✓
EA055: Moisture Content							
Soil Glass Jar - Unpreserved (EA055-103)							
S1, S2, S3, S4, S5, S6, S7, S8, S9	**04-Jul-2016**	**----**	----	----	**11-Jul-2016**	18-Jul-2016	✓
Soil Glass Jar - Unpreserved (EA055-103)							
S10, S12, S13, S14	**05-Jul-2016**	**----**	----	----	**11-Jul-2016**	19-Jul-2016	✓
Soil Glass Jar - Unpreserved (EA055-103)							
S15, S16, S17, S19, S20, S21	**06-Jul-2016**	**----**	----	----	**11-Jul-2016**	20-Jul-2016	✓
Soil Glass Jar - Unpreserved (EA055-103)							
S22, S23, S25, S26, S27	**07-Jul-2016**	**----**	----	----	**11-Jul-2016**	21-Jul-2016	✓
EA200: AS 4964 - 2004 Identification of Asbestos in Soils							
Snap Lock Bag: Separate bag received (EA200)							
S1, S6, S8	**04-Jul-2016**	**----**	----	----	**13-Jul-2016**	31-Dec-2016	✓
Snap Lock Bag: Separate bag received (EA200)							
S15, S20	**06-Jul-2016**	**----**	----	----	**13-Jul-2016**	02-Jan-2017	✓
Snap Lock Bag: Separate bag received (EA200)							
S22	**07-Jul-2016**	**----**	----	----	**13-Jul-2016**	03-Jan-2017	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA200N: Asbestos Quantification (non-NATA)							
Snap Lock Bag: Separate bag received (EA200N) S1, S6, S8	**04-Jul-2016**	**----**	----	----	**13-Jul-2016**	31-Dec-2016	✓
Snap Lock Bag: Separate bag received (EA200N) S15, S20	**06-Jul-2016**	**----**	----	----	**13-Jul-2016**	02-Jan-2017	✓
Snap Lock Bag: Separate bag received (EA200N) S22	**07-Jul-2016**	**----**	----	----	**13-Jul-2016**	03-Jan-2017	✓
ED040S : Soluble Sulfate by ICPAES							
Soil Glass Jar - Unpreserved (ED040S) S4	**04-Jul-2016**	**11-Jul-2016**	01-Aug-2016	✓	**11-Jul-2016**	08-Aug-2016	✓
Soil Glass Jar - Unpreserved (ED040S) S19	**06-Jul-2016**	**11-Jul-2016**	03-Aug-2016	✓	**11-Jul-2016**	08-Aug-2016	✓
Soil Glass Jar - Unpreserved (ED040S) S27	**07-Jul-2016**	**11-Jul-2016**	04-Aug-2016	✓	**11-Jul-2016**	08-Aug-2016	✓
ED045G: Chloride by Discrete Analyser							
Soil Glass Jar - Unpreserved (ED045G) S4	**04-Jul-2016**	**11-Jul-2016**	01-Aug-2016	✓	**11-Jul-2016**	08-Aug-2016	✓
Soil Glass Jar - Unpreserved (ED045G) S19	**06-Jul-2016**	**11-Jul-2016**	03-Aug-2016	✓	**11-Jul-2016**	08-Aug-2016	✓
Soil Glass Jar - Unpreserved (ED045G) S27	**07-Jul-2016**	**11-Jul-2016**	04-Aug-2016	✓	**11-Jul-2016**	08-Aug-2016	✓
EG005T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T) S1, S2, S3, S4, S5, S6, S7, S8, S9	**04-Jul-2016**	**13-Jul-2016**	31-Dec-2016	✓	**14-Jul-2016**	31-Dec-2016	✓
Soil Glass Jar - Unpreserved (EG005T) S10, S12, S13, S14	**05-Jul-2016**	**13-Jul-2016**	01-Jan-2017	✓	**14-Jul-2016**	01-Jan-2017	✓
Soil Glass Jar - Unpreserved (EG005T) S15, S16, S17, S20, S21	**06-Jul-2016**	**13-Jul-2016**	02-Jan-2017	✓	**14-Jul-2016**	02-Jan-2017	✓
Soil Glass Jar - Unpreserved (EG005T) S22, S23, S25, S26	**07-Jul-2016**	**13-Jul-2016**	03-Jan-2017	✓	**14-Jul-2016**	03-Jan-2017	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
S1, S2, S3, S4, S5, S6, S7, S8, S9	**04-Jul-2016**	**13-Jul-2016**	01-Aug-2016	✓	**14-Jul-2016**	01-Aug-2016	✓
Soil Glass Jar - Unpreserved (EG035T)							
S10, S12, S13, S14	**05-Jul-2016**	**13-Jul-2016**	02-Aug-2016	✓	**14-Jul-2016**	02-Aug-2016	✓
Soil Glass Jar - Unpreserved (EG035T)							
S15, S16, S17, S20, S21	**06-Jul-2016**	**13-Jul-2016**	03-Aug-2016	✓	**14-Jul-2016**	03-Aug-2016	✓
Soil Glass Jar - Unpreserved (EG035T)							
S22, S23, S25, S26	**07-Jul-2016**	**13-Jul-2016**	04-Aug-2016	✓	**14-Jul-2016**	04-Aug-2016	✓
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066)							
S2, S6	**04-Jul-2016**	**11-Jul-2016**	18-Jul-2016	✓	**12-Jul-2016**	20-Aug-2016	✓
Soil Glass Jar - Unpreserved (EP066)							
S12	**05-Jul-2016**	**11-Jul-2016**	19-Jul-2016	✓	**12-Jul-2016**	20-Aug-2016	✓
Soil Glass Jar - Unpreserved (EP066)							
S15, S20	**06-Jul-2016**	**11-Jul-2016**	20-Jul-2016	✓	**12-Jul-2016**	20-Aug-2016	✓
EP068A: Organochlorine Pesticides (OC)							
Soil Glass Jar - Unpreserved (EP068)							
S2, S6	**04-Jul-2016**	**11-Jul-2016**	18-Jul-2016	✓	**12-Jul-2016**	20-Aug-2016	✓
Soil Glass Jar - Unpreserved (EP068)							
S12	**05-Jul-2016**	**11-Jul-2016**	19-Jul-2016	✓	**12-Jul-2016**	20-Aug-2016	✓
Soil Glass Jar - Unpreserved (EP068)							
S15, S20	**06-Jul-2016**	**11-Jul-2016**	20-Jul-2016	✓	**12-Jul-2016**	20-Aug-2016	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP071) S1, S2, S4, S6, S7	**04-Jul-2016**	**11-Jul-2016**	18-Jul-2016	✓	**12-Jul-2016**	20-Aug-2016	✓
Soil Glass Jar - Unpreserved (EP071) S10, S12	**05-Jul-2016**	**11-Jul-2016**	19-Jul-2016	✓	**12-Jul-2016**	20-Aug-2016	✓
Soil Glass Jar - Unpreserved (EP071) S15, S16, S17, S20, S21	**06-Jul-2016**	**11-Jul-2016**	20-Jul-2016	✓	**12-Jul-2016**	20-Aug-2016	✓
Soil Glass Jar - Unpreserved (EP071) S22, S23, S25	**07-Jul-2016**	**11-Jul-2016**	21-Jul-2016	✓	**12-Jul-2016**	20-Aug-2016	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM)) S1, S2, S4, S6, S7	**04-Jul-2016**	**11-Jul-2016**	18-Jul-2016	✓	**12-Jul-2016**	20-Aug-2016	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) S10, S12	**05-Jul-2016**	**11-Jul-2016**	19-Jul-2016	✓	**12-Jul-2016**	20-Aug-2016	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) S15, S16, S17, S20, S21	**06-Jul-2016**	**11-Jul-2016**	20-Jul-2016	✓	**12-Jul-2016**	20-Aug-2016	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) S22, S23, S25	**07-Jul-2016**	**11-Jul-2016**	21-Jul-2016	✓	**12-Jul-2016**	20-Aug-2016	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080) S1, S2, S4, S6, S7	**04-Jul-2016**	**11-Jul-2016**	18-Jul-2016	✓	**12-Jul-2016**	18-Jul-2016	✓
Soil Glass Jar - Unpreserved (EP080) S10, S12	**05-Jul-2016**	**11-Jul-2016**	19-Jul-2016	✓	**12-Jul-2016**	19-Jul-2016	✓
Soil Glass Jar - Unpreserved (EP080) S15, S16, S17, S20, S21	**06-Jul-2016**	**11-Jul-2016**	20-Jul-2016	✓	**12-Jul-2016**	20-Jul-2016	✓
Soil Glass Jar - Unpreserved (EP080) S22, S23, S25	**07-Jul-2016**	**11-Jul-2016**	21-Jul-2016	✓	**12-Jul-2016**	21-Jul-2016	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Chloride Soluble By Discrete Analyser	ED045G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Anions - Soluble	ED040S	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055-103	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	5	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH (1:5)	EA002	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	5	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	4	34	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	4	40	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Chloride Soluble By Discrete Analyser	ED045G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Anions - Soluble	ED040S	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	34	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Chloride Soluble By Discrete Analyser	ED045G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Anions - Soluble	ED040S	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	34	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Chloride Soluble By Discrete Analyser	ED045G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Matrix Spikes (MS) - Continued							
Total Mercury by FIMS	EG035T	2	34	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH (1:5)	EA002	SOIL	In house: Referenced to APHA 4500H+. pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Moisture Content	EA055-103	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Asbestos Identification in Soils	EA200	SOIL	AS 4964 - 2004 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
Asbestos Classification and Quantitation per NEPM 2013	* EA200N	SOIL	Asbestos Classification and Quantitation per NEPM 2013 with Confirmation of Identification by AS 4964 - 2004 Gravimetric determination of Asbestos Containing Material, Friable Asbestos and sample weight and calculation of percentage concentrations per NEPM protocols. Friable Asbestos is reported as the equivalent weight in the sample received after accounting for sub-sampling (where applicable for the <7mm and/or <2mm fractions).
Major Anions - Soluble	ED040S	SOIL	In house: Soluble Anions are determined off a 1:5 soil / water extract by ICPAES.
Chloride Soluble By Discrete Analyser	ED045G	SOIL	In house: Referenced to APHA 4500-Cl- E. The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride.in the presence of ferric ions the librated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm. Analysis is performed on a 1:5 soil / water leachate.
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM (2013) Schedule B(3) (Method 504,505)
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40.
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260B Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve.

Preparation Methods	Method	Matrix	Method Descriptions
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of distilled water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES1615255**	Page	: 1 of 13
Client	: **SMEC TESTING SERVICES PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: CARSTEN MATTHAI	Contact	:
Address	: P O BOX 6989 WETHERILL PARK NSW, AUSTRALIA 2164	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: 21024	Date Samples Received	: 13-Jul-2016 14:45
Order number	: 13160	Date Analysis Commenced	: 14-Jul-2016
C-O-C number	: 13160	Issue Date	: 21-Jul-2016 14:50
Sampler	: JK		
Site	: ----		
Quote number	: ----		
No. of samples received	: 6		
No. of samples analysed	: 6		

NATA Accredited Laboratory 825
Accredited for compliance with
ISO/IEC 17025.

NATA
WORLD RECOGNISED ACCREDITATION

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ashesh Patel	Inorganic Chemist	Sydney Inorganics, Smithfield, NSW
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Shaun Spooner	Asbestos Identifier	Newcastle - Asbestos, Mayfield West, NSW

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP071: Results of sample S30 have been confirmed by re-extraction and re-analysis.
- EG005T: Poor precision was obtained for Zinc on sample ES1615398 #002 due to sample heterogeneity. Results have been confirmed by re-extraction and reanalysis.
- EA200N: Asbestos weights and percentages are not covered under the Scope of NATA Accreditation.
  Weights of Asbestos are based on extracted bulk asbestos, fibre bundles, and/or ACM and do not include respirable fibres (if present)
  The Friable Asbestos weight is calculated from the extracted Fibrous Asbestos and Asbestos Fines as an equivalent weight of 100% Asbestos
  Percentages for Asbestos content in ACM are based on the 2013 NEPM default values.
  All calculations of percentage Asbestos under this method are approximate and should be used as a guide only.
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200: Negative results for vinyl tiles should be confirmed by an independent analytical technique.
- EA200N: ALS laboratory procedures and methods used for the identification and quantitation of asbestos are consistent with AS4964-2004 and the requirements of the 2013 NEPM for Assessment of Site Contamination
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR.
  Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	S28	S29	S30	S31	S32
			Client sampling date / time	[08-Jul-2016]	[08-Jul-2016]	[08-Jul-2016]	[08-Jul-2016]	[08-Jul-2016]
Compound	CAS Number	LOR	Unit	ES1615255-001	ES1615255-002	ES1615255-003	ES1615255-004	ES1615255-005
				Result	Result	Result	Result	Result
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	----	----	----	----	----
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1	%	22.0	19.0	21.2	18.2	19.3
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	No	----	Yes	----	----
Asbestos Type	1332-21-4	-	--	-	----	Ch	----	----
Sample weight (dry)	----	0.01	g	202	----	159	----	----
APPROVED IDENTIFIER:	----	-	--	S.SPOONER	----	S.SPOONER	----	----
EA200N: Asbestos Quantification (non-NATA)								
ø Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	%	----	----	0.11	----	----
ø Free Fibres	----	5	Fibres	No	----	No	----	----
ø Friable Asbestos	1332-21-4	0.0004	g	<0.0004	----	0.0019	----	----
ø Friable Asbestos (as Asbestos in Soil)	1332-21-4	0.001	% (w/w)	<0.001	----	0.001	----	----
ø Weight Used for % Calculation	----	0.0001	kg	0.202	----	0.159	----	----
ø Asbestos Containing Material	1332-21-4	0.1	g	----	----	1.2	----	----
ED040S : Soluble Sulfate by ICPAES								
Sulfate as SO4 2-	14808-79-8	10	mg/kg	----	----	----	----	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	10	mg/kg	----	----	----	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	6	6	8	<5	<5
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	14	29	16	13	8
Copper	7440-50-8	5	mg/kg	20	10	173	8	8
Lead	7439-92-1	5	mg/kg	102	16	116	19	17
Nickel	7440-02-0	2	mg/kg	13	6	30	4	<2
Zinc	7440-66-6	5	mg/kg	45	10	188	13	<5
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	0.3	<0.1	<0.1	<0.1	<0.1
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	----	<0.1	----	<0.1
EP068A: Organochlorine Pesticides (OC)								

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S28	S29	S30	S31	S32
				Client sampling date / time	[08-Jul-2016]	[08-Jul-2016]	[08-Jul-2016]	[08-Jul-2016]	[08-Jul-2016]
Compound	CAS Number	LOR	Unit		ES1615255-001	ES1615255-002	ES1615255-003	ES1615255-004	ES1615255-005
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
alpha-BHC	319-84-6	0.05	mg/kg		----	----	<0.05	----	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		----	----	<0.05	----	<0.05
beta-BHC	319-85-7	0.05	mg/kg		----	----	<0.05	----	<0.05
gamma-BHC	58-89-9	0.05	mg/kg		----	----	<0.05	----	<0.05
delta-BHC	319-86-8	0.05	mg/kg		----	----	<0.05	----	<0.05
Heptachlor	76-44-8	0.05	mg/kg		----	----	<0.05	----	<0.05
Aldrin	309-00-2	0.05	mg/kg		----	----	<0.05	----	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg		----	----	<0.05	----	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg		----	----	<0.05	----	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg		----	----	<0.05	----	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg		----	----	<0.05	----	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg		----	----	<0.05	----	<0.05
Dieldrin	60-57-1	0.05	mg/kg		----	----	<0.05	----	<0.05
4.4`-DDE	72-55-9	0.05	mg/kg		----	----	<0.05	----	<0.05
Endrin	72-20-8	0.05	mg/kg		----	----	<0.05	----	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg		----	----	<0.05	----	<0.05
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		----	----	<0.05	----	<0.05
4.4`-DDD	72-54-8	0.05	mg/kg		----	----	<0.05	----	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg		----	----	<0.05	----	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg		----	----	<0.05	----	<0.05
4.4`-DDT	50-29-3	0.2	mg/kg		----	----	<0.2	----	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg		----	----	<0.05	----	<0.05
Methoxychlor	72-43-5	0.2	mg/kg		----	----	<0.2	----	<0.2
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		----	----	<0.05	----	<0.05
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		----	----	<0.05	----	<0.05
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		----	----	<0.05	----	<0.05
Demeton-S-methyl	919-86-8	0.05	mg/kg		----	----	<0.05	----	<0.05
Monocrotophos	6923-22-4	0.2	mg/kg		----	----	<0.2	----	<0.2
Dimethoate	60-51-5	0.05	mg/kg		----	----	<0.05	----	<0.05
Diazinon	333-41-5	0.05	mg/kg		----	----	<0.05	----	<0.05
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		----	----	<0.05	----	<0.05
Parathion-methyl	298-00-0	0.2	mg/kg		----	----	<0.2	----	<0.2
Malathion	121-75-5	0.05	mg/kg		----	----	<0.05	----	<0.05

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S28	S29	S30	S31	S32
				Client sampling date / time	[08-Jul-2016]	[08-Jul-2016]	[08-Jul-2016]	[08-Jul-2016]	[08-Jul-2016]
Compound	CAS Number	LOR	Unit		ES1615255-001	ES1615255-002	ES1615255-003	ES1615255-004	ES1615255-005
					Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued									
Fenthion	55-38-9	0.05	mg/kg		----	----	<0.05	----	<0.05
Chlorpyrifos	2921-88-2	0.05	mg/kg		----	----	<0.05	----	<0.05
Parathion	56-38-2	0.2	mg/kg		----	----	<0.2	----	<0.2
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		----	----	<0.05	----	<0.05
Chlorfenvinphos	470-90-6	0.05	mg/kg		----	----	<0.05	----	<0.05
Bromophos-ethyl	4824-78-6	0.05	mg/kg		----	----	<0.05	----	<0.05
Fenamiphos	22224-92-6	0.05	mg/kg		----	----	<0.05	----	<0.05
Prothiofos	34643-46-4	0.05	mg/kg		----	----	<0.05	----	<0.05
Ethion	563-12-2	0.05	mg/kg		----	----	<0.05	----	<0.05
Carbophenothion	786-19-6	0.05	mg/kg		----	----	<0.05	----	<0.05
Azinphos Methyl	86-50-0	0.05	mg/kg		----	----	<0.05	----	<0.05
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		----	----	<0.5	----	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg		----	----	<0.5	----	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg		----	----	<0.5	----	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg		----	----	<1	----	<1
2-Nitrophenol	88-75-5	0.5	mg/kg		----	----	<0.5	----	<0.5
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		----	----	<0.5	----	<0.5
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		----	----	<0.5	----	<0.5
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		----	----	<0.5	----	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		----	----	<0.5	----	<0.5
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		----	----	<0.5	----	<0.5
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		----	----	<0.5	----	<0.5
Pentachlorophenol	87-86-5	2	mg/kg		----	----	<2	----	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		**2.5**	<0.5	**2.3**	----	<0.5
Anthracene	120-12-7	0.5	mg/kg		**0.5**	<0.5	**0.5**	----	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		**3.6**	<0.5	**3.9**	----	<0.5
Pyrene	129-00-0	0.5	mg/kg		**3.4**	<0.5	**3.8**	----	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		**1.6**	<0.5	**1.8**	----	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S28	S29	S30	S31	S32
				Client sampling date / time	[08-Jul-2016]	[08-Jul-2016]	[08-Jul-2016]	[08-Jul-2016]	[08-Jul-2016]
Compound	CAS Number	LOR	Unit		ES1615255-001	ES1615255-002	ES1615255-003	ES1615255-004	ES1615255-005
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Chrysene	218-01-9	0.5	mg/kg		**1.5**	<0.5	**1.7**	----	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		**1.8**	<0.5	**2.4**	----	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		**0.8**	<0.5	**0.8**	----	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		**1.5**	<0.5	**1.8**	----	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		**0.6**	<0.5	**0.9**	----	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		**0.8**	<0.5	**1.3**	----	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		**18.6**	<0.5	**21.2**	----	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		**2.0**	<0.5	**2.4**	----	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**2.2**	**0.6**	**2.7**	----	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**2.5**	**1.2**	**2.9**	----	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	----	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	----	<50
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	----	<100
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	----	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	----	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	----	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	----	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	----	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	**160**	----	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	----	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	**160**	----	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	----	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	----	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	----	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	----	<0.5
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	----	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S28	S29	S30	S31	S32
				Client sampling date / time	[08-Jul-2016]	[08-Jul-2016]	[08-Jul-2016]	[08-Jul-2016]	[08-Jul-2016]
Compound	CAS Number	LOR	Unit		ES1615255-001	ES1615255-002	ES1615255-003	ES1615255-004	ES1615255-005
					Result	Result	Result	Result	Result
EP080: BTEXN - Continued									
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	----	<1
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		----	----	77.0	----	82.0
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		----	----	113	----	122
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		----	----	99.3	----	95.5
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		91.0	91.4	83.7	----	85.4
2-Chlorophenol-D4	93951-73-6	0.5	%		88.0	88.7	74.5	----	81.6
2.4.6-Tribromophenol	118-79-6	0.5	%		77.5	74.0	27.6	----	69.9
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		83.8	85.4	79.2	----	79.2
Anthracene-d10	1719-06-8	0.5	%		103	104	95.2	----	98.0
4-Terphenyl-d14	1718-51-0	0.5	%		95.4	96.4	89.5	----	90.6
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		108	101	105	----	105
Toluene-D8	2037-26-5	0.2	%		114	102	107	----	106
4-Bromofluorobenzene	460-00-4	0.2	%		112	96.8	96.9	----	104

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	S33	----	----	----	----
			Client sampling date / time	[08-Jul-2016]	----	----	----	----
Compound	CAS Number	LOR	Unit	ES1615255-006	--------	--------	--------	--------
				Result	----	----	----	----
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	**8.1**	----	----	----	----
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1	%	**16.2**	----	----	----	----
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	----	----	----	----	----
Asbestos Type	1332-21-4	-	--	----	----	----	----	----
Sample weight (dry)	----	0.01	g	----	----	----	----	----
APPROVED IDENTIFIER:	----	-	--	----	----	----	----	----
EA200N: Asbestos Quantification (non-NATA)								
ø **Asbestos Containing Material (as 15% Asbestos in ACM >7mm)**	1332-21-4	0.01	%	----	----	----	----	----
ø **Free Fibres**	----	5	Fibres	----	----	----	----	----
ø **Friable Asbestos**	1332-21-4	0.0004	g	----	----	----	----	----
ø **Friable Asbestos (as Asbestos in Soil)**	1332-21-4	0.001	% (w/w)	----	----	----	----	----
ø **Weight Used for % Calculation**	----	0.0001	kg	----	----	----	----	----
ø **Asbestos Containing Material**	1332-21-4	0.1	g	----	----	----	----	----
ED040S : Soluble Sulfate by ICPAES								
Sulfate as SO4 2-	14808-79-8	10	mg/kg	**350**	----	----	----	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	10	mg/kg	**1250**	----	----	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	----	----	----	----	----
Cadmium	7440-43-9	1	mg/kg	----	----	----	----	----
Chromium	7440-47-3	2	mg/kg	----	----	----	----	----
Copper	7440-50-8	5	mg/kg	----	----	----	----	----
Lead	7439-92-1	5	mg/kg	----	----	----	----	----
Nickel	7440-02-0	2	mg/kg	----	----	----	----	----
Zinc	7440-66-6	5	mg/kg	----	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	----	----	----	----	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	----	----	----	----
EP068A: Organochlorine Pesticides (OC)								

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S33	----	----	----	----
				Client sampling date / time	[08-Jul-2016]	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1615255-006	--------	--------	--------	--------
					Result	----	----	----	----
EP068A: Organochlorine Pesticides (OC) - Continued									
alpha-BHC	319-84-6	0.05	mg/kg		----	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		----	----	----	----	----
beta-BHC	319-85-7	0.05	mg/kg		----	----	----	----	----
gamma-BHC	58-89-9	0.05	mg/kg		----	----	----	----	----
delta-BHC	319-86-8	0.05	mg/kg		----	----	----	----	----
Heptachlor	76-44-8	0.05	mg/kg		----	----	----	----	----
Aldrin	309-00-2	0.05	mg/kg		----	----	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg		----	----	----	----	----
^ **Total Chlordane (sum)**	----	0.05	mg/kg		----	----	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg		----	----	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg		----	----	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg		----	----	----	----	----
Dieldrin	60-57-1	0.05	mg/kg		----	----	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg		----	----	----	----	----
Endrin	72-20-8	0.05	mg/kg		----	----	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg		----	----	----	----	----
^ **Endosulfan (sum)**	115-29-7	0.05	mg/kg		----	----	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		----	----	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		----	----	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		----	----	----	----	----
4.4`-DDT	50-29-3	0.2	mg/kg		----	----	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg		----	----	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg		----	----	----	----	----
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg		----	----	----	----	----
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.05	mg/kg		----	----	----	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		----	----	----	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		----	----	----	----	----
Monocrotophos	6923-22-4	0.2	mg/kg		----	----	----	----	----
Dimethoate	60-51-5	0.05	mg/kg		----	----	----	----	----
Diazinon	333-41-5	0.05	mg/kg		----	----	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		----	----	----	----	----
Parathion-methyl	298-00-0	0.2	mg/kg		----	----	----	----	----
Malathion	121-75-5	0.05	mg/kg		----	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S33	----	----	----	----
				Client sampling date / time	[08-Jul-2016]	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1615255-006	--------	--------	--------	--------
					Result	----	----	----	----
EP068B: Organophosphorus Pesticides (OP) - Continued									
Fenthion	55-38-9	0.05	mg/kg		----	----	----	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		----	----	----	----	----
Parathion	56-38-2	0.2	mg/kg		----	----	----	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		----	----	----	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		----	----	----	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		----	----	----	----	----
Fenamiphos	22224-92-6	0.05	mg/kg		----	----	----	----	----
Prothiofos	34643-46-4	0.05	mg/kg		----	----	----	----	----
Ethion	563-12-2	0.05	mg/kg		----	----	----	----	----
Carbophenothion	786-19-6	0.05	mg/kg		----	----	----	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg		----	----	----	----	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		----	----	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg		----	----	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg		----	----	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		----	----	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg		----	----	----	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		----	----	----	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		----	----	----	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		----	----	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		----	----	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		----	----	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		----	----	----	----	----
Pentachlorophenol	87-86-5	2	mg/kg		----	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		----	----	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		----	----	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg		----	----	----	----	----
Fluorene	86-73-7	0.5	mg/kg		----	----	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg		----	----	----	----	----
Anthracene	120-12-7	0.5	mg/kg		----	----	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg		----	----	----	----	----
Pyrene	129-00-0	0.5	mg/kg		----	----	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		----	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S33	----	----	----	----
				Client sampling date / time	[08-Jul-2016]	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1615255-006	--------	--------	--------	--------
					Result	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Chrysene	218-01-9	0.5	mg/kg		----	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		----	----	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		----	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		----	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		----	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		----	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		----	----	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		----	----	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		----	----	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		----	----	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		----	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		----	----	----	----	----
C10 - C14 Fraction	----	50	mg/kg		----	----	----	----	----
C15 - C28 Fraction	----	100	mg/kg		----	----	----	----	----
C29 - C36 Fraction	----	100	mg/kg		----	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		----	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		----	----	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		----	----	----	----	----
>C10 - C16 Fraction	----	50	mg/kg		----	----	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		----	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		----	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		----	----	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		----	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		----	----	----	----	----
Toluene	108-88-3	0.5	mg/kg		----	----	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		----	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		----	----	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		----	----	----	----	----
^ Sum of BTEX	----	0.2	mg/kg		----	----	----	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg		----	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S33	----	----	----	----
				Client sampling date / time	[08-Jul-2016]	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1615255-006	--------	--------	--------	--------
					Result	----	----	----	----
EP080: BTEXN - Continued									
Naphthalene	91-20-3	1	mg/kg		----	----	----	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		----	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		----	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		----	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		----	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		----	----	----	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		----	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		----	----	----	----	----
Anthracene-d10	1719-06-8	0.5	%		----	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		----	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		----	----	----	----	----
Toluene-D8	2037-26-5	0.2	%		----	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.2	%		----	----	----	----	----

Analytical Results

Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	Client sample ID - Client sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	S28 - [08-Jul-2016]	Mid brown clay soil.
EA200: Description	S30 - [08-Jul-2016]	Mid grey clay soil with one piece of bonded asbestos cement sheeting approx 25 x 15 x 5 mm and one fragment of friable asbestos cement sheeting approx 2 x 2 x 1 mm.

Surrogate Control Limits

Sub-Matrix: **SOIL**

Compound	CAS Number	Recovery Limits (%) Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	39	149
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	49	147
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	35	143
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	133
Toluene-D8	2037-26-5	74	132
4-Bromofluorobenzene	460-00-4	72	130

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **ES1615255**	Page	: 1 of 15
Client	: **SMEC TESTING SERVICES PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: CARSTEN MATTHAI	Contact	:
Address	: P O BOX 6989 WETHERILL PARK NSW, AUSTRALIA 2164	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: 21024	Date Samples Received	: 13-Jul-2016
Order number	: 13160	Date Analysis Commenced	: 14-Jul-2016
C-O-C number	: 13160	Issue Date	: 21-Jul-2016
Sampler	: JK		
Site	: ----		
Quote number	: ----		
No. of samples received	: 6		
No. of samples analysed	: 6		

NATA Accredited Laboratory 825
Accredited for compliance with
ISO/IEC 17025.

NATA
WORLD RECOGNISED ACCREDITATION

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ashesh Patel	Inorganic Chemist	Sydney Inorganics, Smithfield, NSW
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Shaun Spooner	Asbestos Identifier	Newcastle - Asbestos, Mayfield West, NSW

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
= Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA002 : pH (Soils) (QC Lot: 518960)									
ES1615223-016	Anonymous	EA002: pH Value	----	0.1	pH Unit	7.8	7.9	0.00	0% - 20%
ES1614981-001	Anonymous	EA002: pH Value	----	0.1	pH Unit	4.2	4.1	0.00	0% - 20%
EA055: Moisture Content (QC Lot: 519421)									
ES1615236-003	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1	%	14.2	13.2	6.75	0% - 50%
ES1615255-001	S28	EA055-103: Moisture Content (dried @ 103°C)	----	1	%	22.0	20.4	7.83	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 518964)									
ES1615255-006	S33	ED045G: Chloride	16887-00-6	10	mg/kg	1250	1380	9.65	0% - 20%
EG005T: Total Metals by ICP-AES (QC Lot: 521287)									
ES1615398-002	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	10	12	13.5	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	4	6	47.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	53	55	4.38	0% - 50%
		EG005T: Lead	7439-92-1	5	mg/kg	242	279	14.5	0% - 20%
		EG005T: Zinc	7440-66-6	5	mg/kg	437	# 734	50.8	0% - 20%
ES1615255-001	S28	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	14	13	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	13	11	16.6	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	6	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	20	21	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	102	90	12.0	0% - 20%
		EG005T: Zinc	7440-66-6	5	mg/kg	45	50	9.93	0% - 50%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 521288)									
ES1615613-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 521288) - continued									
ES1615255-001	S28	EG035T: Mercury	7439-97-6	0.1	mg/kg	0.3	0.2	52.2	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 517357)									
ES1615175-015	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
ES1615259-018	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 517356)									
ES1615175-015	Anonymous	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
ES1615259-018	Anonymous	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP068A: Organochlorine Pesticides (OC) (QC Lot: 517356) - continued									
ES1615259-018	Anonymous	EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 517356)									
ES1615175-015	Anonymous	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
ES1615259-018	Anonymous	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	0.12	0.13	10.4	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 517356) - continued									
ES1615259-018	Anonymous	EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 517355)									
ES1615175-015	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.00	No Limit
ES1615259-018	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.00	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 517380)									
ES1615255-001	S28	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075(SIM)A: Phenolic Compounds (QC Lot: 517380) - continued									
ES1615255-001	S28	EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.00	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 517355)									
ES1615175-015	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
ES1615259-018	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 517355) - continued									
ES1615259-018	Anonymous	EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 517380)									
ES1615255-001	S28	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	2.5	0.9	92.5	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	3.6	1.3	92.1	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	3.4	1.3	90.7	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	1.6	0.7	80.7	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	1.5	0.6	87.6	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	1.8	0.6	95.6	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	0.8	<0.5	42.5	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	1.5	0.5	91.9	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	0.6	<0.5	27.2	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	0.8	<0.5	52.8	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	18.6	# 5.9	104	0% - 20%
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	2.0	0.6	104	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 517260)									
ES1615236-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
ES1615236-011	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 517354)									
ES1615175-015	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
ES1615259-018	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 517379)									
ES1615285-007	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 517379) - continued									
ES1615255-001	S28	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 517260)									
ES1615236-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
ES1615236-011	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 517354)									
ES1615175-015	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
ES1615259-018	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 517379)									
ES1615285-007	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
ES1615255-001	S28	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080: BTEXN (QC Lot: 517260)									
ES1615236-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
ES1615236-011	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
ED040S: Soluble Major Anions (QCLot: 518963)								
ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	<10	150 mg/kg	109	80	120
ED045G: Chloride by Discrete Analyser (QCLot: 518964)								
ED045G: Chloride	16887-00-6	10	mg/kg	<10	50 mg/kg	112	75	125
				<10	5000 mg/kg	95.6	79	117
EG005T: Total Metals by ICP-AES (QCLot: 521287)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	107	86	126
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	102	83	113
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	95.5	76	128
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	101	86	120
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	104	80	114
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	104	87	123
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	113	80	122
EG035T: Total Recoverable Mercury by FIMS (QCLot: 521288)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	86.8	70	105
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 517357)								
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	110	62	126
EP068A: Organochlorine Pesticides (OC) (QCLot: 517356)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	82.3	69	113
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	80.5	65	117
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	85.6	67	119
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	84.0	68	116
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	87.4	65	117
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	79.0	67	115
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	81.8	69	115
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	81.8	62	118
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	82.3	63	117
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	83.2	66	116
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	82.2	64	116
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	81.1	66	116
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	83.8	67	115
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	103	67	123
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	84.4	69	115
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	90.8	69	121
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	83.1	56	120

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP068A: Organochlorine Pesticides (OC) (QCLot: 517356) - continued								
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	82.4	62	124
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	83.4	66	120
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	84.9	64	122
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	75.5	54	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 517356)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	80.1	59	119
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	88.7	62	128
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	102	54	126
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	93.0	67	119
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	83.6	70	120
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	78.9	72	120
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	77.7	68	120
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	79.0	68	122
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	81.6	69	117
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	82.8	76	118
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	79.5	64	122
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	80.1	70	116
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	85.2	69	121
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	80.1	66	118
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	104	68	124
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	78.9	62	112
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	80.0	68	120
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	85.2	65	127
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	62.1	41	123
EP075(SIM)A: Phenolic Compounds (QCLot: 517355)								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	6 mg/kg	87.8	71	125
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	6 mg/kg	89.8	72	124
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	6 mg/kg	90.2	71	123
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	12 mg/kg	96.0	67	127
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	6 mg/kg	60.6	54	114
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	6 mg/kg	106	68	126
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	6 mg/kg	80.9	66	120
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	6 mg/kg	83.0	70	120
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	6 mg/kg	82.8	70	116
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	6 mg/kg	68.6	54	114
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	6 mg/kg	70.6	60	114
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	12 mg/kg	21.0	10	57
EP075(SIM)A: Phenolic Compounds (QCLot: 517380)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP075(SIM)A: Phenolic Compounds (QCLot: 517380) - continued								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	6 mg/kg	80.9	71	125
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	6 mg/kg	82.3	72	124
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	6 mg/kg	80.6	71	123
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	12 mg/kg	78.1	67	127
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	6 mg/kg	59.0	54	114
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	6 mg/kg	102	68	126
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	6 mg/kg	84.8	66	120
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	6 mg/kg	87.8	70	120
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	6 mg/kg	87.6	70	116
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	6 mg/kg	87.0	54	114
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	6 mg/kg	84.6	60	114
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	12 mg/kg	46.0	10	57
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 517355)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	103	77	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	101	72	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	93.3	73	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	100	72	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	105	75	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	103	77	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	95.5	73	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	97.9	74	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	94.5	69	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	94.9	75	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	82.6	68	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	101	74	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	99.5	70	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	101	61	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	100	62	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	105	63	121
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 517380)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	89.9	77	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	91.8	72	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	82.3	73	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	87.2	72	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	91.9	75	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	95.4	77	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	91.8	73	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	90.9	74	128

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 517380) - continued								
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	91.6	69	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	94.6	75	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	94.4	68	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	93.0	74	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	92.2	70	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	92.8	61	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	90.2	62	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	83.9	63	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 517260)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	92.9	68	128
EP080/071: Total Petroleum Hydrocarbons (QCLot: 517354)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	97.2	75	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	102	77	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	105	71	129
EP080/071: Total Petroleum Hydrocarbons (QCLot: 517379)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	103	75	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	111	77	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	99.1	71	129
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 517260)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	86.5	68	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 517354)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	250 mg/kg	98.0	77	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	105	74	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	150 mg/kg	102	63	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 517379)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	250 mg/kg	104	77	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	101	74	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	150 mg/kg	99.3	63	131
EP080: BTEXN (QCLot: 517260)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	78.6	62	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	77.8	67	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	83.7	65	117
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	83.9	66	118
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	83.2	68	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	80.0	63	119

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
ED045G: Chloride by Discrete Analyser (QCLot: 518964)							
ES1615255-006	S33	ED045G: Chloride	16887-00-6	1250 mg/kg	105	70	130
EG005T: Total Metals by ICP-AES (QCLot: 521287)							
ES1615255-001	S28	EG005T: Arsenic	7440-38-2	50 mg/kg	96.8	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	99.1	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	96.4	70	130
		EG005T: Copper	7440-50-8	250 mg/kg	100	70	130
		EG005T: Lead	7439-92-1	250 mg/kg	97.1	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	92.6	70	130
		EG005T: Zinc	7440-66-6	250 mg/kg	100	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 521288)							
ES1615255-001	S28	EG035T: Mercury	7439-97-6	5 mg/kg	98.0	70	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 517357)							
ES1615175-015	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	116	70	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 517356)							
ES1615175-015	Anonymous	EP068: gamma-BHC	58-89-9	0.5 mg/kg	98.5	70	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	90.7	70	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	98.1	70	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	91.8	70	130
		EP068: Endrin	72-20-8	2 mg/kg	85.0	70	130
		EP068: 4.4`-DDT	50-29-3	2 mg/kg	83.7	70	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 517356)							
ES1615175-015	Anonymous	EP068: Diazinon	333-41-5	0.5 mg/kg	84.8	70	130
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	77.7	70	130
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	84.1	70	130
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	81.7	70	130
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	85.5	70	130
EP075(SIM)A: Phenolic Compounds (QCLot: 517355)							
ES1615175-015	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	80.7	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	85.6	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	73.2	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	89.5	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	95.8	20	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP075(SIM)A: Phenolic Compounds (QCLot: 517380)							
ES1615255-001	S28	EP075(SIM): Phenol	108-95-2	10 mg/kg	91.9	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	92.0	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	75.8	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	89.4	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	41.1	20	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 517355)							
ES1615175-015	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	83.5	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	93.3	70	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 517380)							
ES1615255-001	S28	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	79.1	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	98.8	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 517260)							
ES1615236-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	100	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 517354)							
ES1615175-015	Anonymous	EP071: C10 - C14 Fraction	----	523 mg/kg	94.4	73	137
		EP071: C15 - C28 Fraction	----	2319 mg/kg	99.0	53	131
		EP071: C29 - C36 Fraction	----	1714 mg/kg	106	52	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 517379)							
ES1615255-001	S28	EP071: C10 - C14 Fraction	----	523 mg/kg	95.2	73	137
		EP071: C15 - C28 Fraction	----	2319 mg/kg	100	53	131
		EP071: C29 - C36 Fraction	----	1714 mg/kg	106	52	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 517260)							
ES1615236-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	93.1	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 517354)							
ES1615175-015	Anonymous	EP071: >C10 - C16 Fraction	----	860 mg/kg	88.0	73	137
		EP071: >C16 - C34 Fraction	----	3223 mg/kg	104	53	131
		EP071: >C34 - C40 Fraction	----	1058 mg/kg	111	52	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 517379)							
ES1615255-001	S28	EP071: >C10 - C16 Fraction	----	860 mg/kg	89.6	73	137
		EP071: >C16 - C34 Fraction	----	3223 mg/kg	103	53	131
		EP071: >C34 - C40 Fraction	----	1058 mg/kg	107	52	132
EP080: BTEXN (QCLot: 517260)							
ES1615236-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	77.4	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	78.7	70	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	88.4	70	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP080: BTEXN (QCLot: 517260) - continued							
ES1615236-001	Anonymous	EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	89.7	70	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	86.6	70	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	75.2	70	130

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES1615255**	Page	: 1 of 8
Client	: **SMEC TESTING SERVICES PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: CARSTEN MATTHAI	Telephone	: +61-2-8784 8555
Project	: 21024	Date Samples Received	: 13-Jul-2016
Site	: ----	Issue Date	: 21-Jul-2016
Sampler	: JK	No. of samples received	: 6
Order number	: 13160	No. of samples analysed	: 6

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **Duplicate outliers exist - please see following pages for full details.**
- **Surrogate recovery outliers exist for all regular sample matrices - please see following pages for full details.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Duplicate (DUP) RPDs							
EG005T: Total Metals by ICP-AES	ES1615398--002	Anonymous	**Zinc**	7440-66-6	50.8 %	0% - 20%	**RPD exceeds LOR based limits**
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons	ES1615255--001	S28	**Sum of polycyclic aromatic hydrocarbons**	----	104 %	0% - 20%	**RPD exceeds LOR based limits**

Regular Sample Surrogates

Sub-Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Samples Submitted							
EP075(SIM)S: Phenolic Compound Surrogates	ES1615255-003	S30	**2.4.6-Tribromophenol**	118-79-6	27.6 %	40-138 %	**Recovery less than lower data quality objective**

Outliers : Frequency of Quality Control Samples

Matrix: **SOIL**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
Major Anions - Soluble	0	1	0.00	10.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA002 : pH (Soils)							
Soil Glass Jar - Unpreserved (EA002)							
S33	**08-Jul-2016**	**15-Jul-2016**	15-Jul-2016	✓	**15-Jul-2016**	15-Jul-2016	✓
EA055: Moisture Content							
Soil Glass Jar - Unpreserved (EA055-103)							
S28, S29, S30, S31, S32, S33	**08-Jul-2016**	**----**	----	----	**15-Jul-2016**	22-Jul-2016	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA200: AS 4964 - 2004 Identification of Asbestos in Soils							
Snap Lock Bag: Separate bag received (EA200)							
S28, S30	**08-Jul-2016**	**----**	----	----	**18-Jul-2016**	04-Jan-2017	✓
EA200N: Asbestos Quantification (non-NATA)							
Snap Lock Bag: Separate bag received (EA200N)							
S28, S30	**08-Jul-2016**	**----**	----	----	**18-Jul-2016**	04-Jan-2017	✓
ED040S : Soluble Sulfate by ICPAES							
Soil Glass Jar - Unpreserved (ED040S)							
S33	**08-Jul-2016**	**15-Jul-2016**	05-Aug-2016	✓	**20-Jul-2016**	12-Aug-2016	✓
ED045G: Chloride by Discrete Analyser							
Soil Glass Jar - Unpreserved (ED045G)							
S33	**08-Jul-2016**	**15-Jul-2016**	05-Aug-2016	✓	**15-Jul-2016**	12-Aug-2016	✓
EG005T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
S28, S29, S30, S31, S32	**08-Jul-2016**	**19-Jul-2016**	04-Jan-2017	✓	**19-Jul-2016**	04-Jan-2017	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
S28, S29, S30, S31, S32	**08-Jul-2016**	**19-Jul-2016**	05-Aug-2016	✓	**20-Jul-2016**	05-Aug-2016	✓
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066)							
S30, S32	**08-Jul-2016**	**14-Jul-2016**	22-Jul-2016	✓	**15-Jul-2016**	23-Aug-2016	✓
EP068A: Organochlorine Pesticides (OC)							
Soil Glass Jar - Unpreserved (EP068)							
S30, S32	**08-Jul-2016**	**14-Jul-2016**	22-Jul-2016	✓	**15-Jul-2016**	23-Aug-2016	✓
EP068B: Organophosphorus Pesticides (OP)							
Soil Glass Jar - Unpreserved (EP068)							
S30, S32	**08-Jul-2016**	**14-Jul-2016**	22-Jul-2016	✓	**15-Jul-2016**	23-Aug-2016	✓
EP075(SIM)A: Phenolic Compounds							
Soil Glass Jar - Unpreserved (EP075(SIM))							
S30, S32	**08-Jul-2016**	**14-Jul-2016**	22-Jul-2016	✓	**15-Jul-2016**	23-Aug-2016	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM))							
S28, S29, S30, S32	**08-Jul-2016**	**14-Jul-2016**	22-Jul-2016	✓	**15-Jul-2016**	23-Aug-2016	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP071)							
S28, S29, S30, S32	**08-Jul-2016**	**14-Jul-2016**	22-Jul-2016	✓	**15-Jul-2016**	23-Aug-2016	✓
Soil Glass Jar - Unpreserved (EP080)							
S28, S29, S30, S32	**08-Jul-2016**	**14-Jul-2016**	22-Jul-2016	✓	**18-Jul-2016**	22-Jul-2016	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP071)							
S28, S29, S30, S32	**08-Jul-2016**	**14-Jul-2016**	22-Jul-2016	✓	**15-Jul-2016**	23-Aug-2016	✓
Soil Glass Jar - Unpreserved (EP080)							
S28, S29, S30, S32	**08-Jul-2016**	**14-Jul-2016**	22-Jul-2016	✓	**18-Jul-2016**	22-Jul-2016	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080)							
S28, S29, S30, S32	**08-Jul-2016**	**14-Jul-2016**	22-Jul-2016	✓	**18-Jul-2016**	22-Jul-2016	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Chloride Soluble By Discrete Analyser	ED045G	1	1	**100.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Anions - Soluble	ED040S	0	1	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055-103	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	3	15	**20.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH (1:5)	EA002	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	2	12	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	7	**28.57**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	16	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	4	32	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Chloride Soluble By Discrete Analyser	ED045G	2	1	**200.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Anions - Soluble	ED040S	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	15	**13.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	32	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Chloride Soluble By Discrete Analyser	ED045G	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Anions - Soluble	ED040S	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	15	**13.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	32	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Chloride Soluble By Discrete Analyser	ED045G	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	15	**13.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Matrix Spikes (MS) - Continued							
Total Mercury by FIMS	EG035T	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	16	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	32	**6.25**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH (1:5)	EA002	SOIL	In house: Referenced to APHA 4500H+. pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Moisture Content	EA055-103	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Asbestos Identification in Soils	EA200	SOIL	AS 4964 - 2004 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
Asbestos Classification and Quantitation per NEPM 2013	* EA200N	SOIL	Asbestos Classification and Quantitation per NEPM 2013 with Confirmation of Identification by AS 4964 - 2004 Gravimetric determination of Asbestos Containing Material, Friable Asbestos and sample weight and calculation of percentage concentrations per NEPM protocols. Friable Asbestos is reported as the equivalent weight in the sample received after accounting for sub-sampling (where applicable for the <7mm and/or <2mm fractions).
Major Anions - Soluble	ED040S	SOIL	In house: Soluble Anions are determined off a 1:5 soil / water extract by ICPAES.
Chloride Soluble By Discrete Analyser	ED045G	SOIL	In house: Referenced to APHA 4500-Cl- E. The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride.in the presence of ferric ions the librated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm. Analysis is performed on a 1:5 soil / water leachate.
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM (2013) Schedule B(3) (Method 504,505)
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40.
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260B Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve.

Preparation Methods	Method	Matrix	Method Descriptions
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of distilled water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES1616014**	Page	: 1 of 45
Client	: **SMEC TESTING SERVICES PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: C MATTHAI(STS)	Contact	:
Address	: 14/1 Cowpasture Place Wetherill Park NSW	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: ----	Date Samples Received	: 21-Jul-2016 08:30
Order number	: ----	Date Analysis Commenced	: 22-Jul-2016
C-O-C number	: ----	Issue Date	: 28-Jul-2016 14:39
Sampler	: ----		
Site	: ----		
Quote number	: ----		
No. of samples received	: 34		
No. of samples analysed	: 29		

NATA Accredited Laboratory 825
Accredited for compliance with
ISO/IEC 17025.

NATA
WORLD RECOGNISED ACCREDITATION

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ashesh Patel	Inorganic Chemist	Sydney Inorganics, Smithfield, NSW
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
RICHARD TEA	Lab technician	Sydney Inorganics, Smithfield, NSW
Shaun Spooner	Asbestos Identifier	Newcastle - Asbestos, Mayfield West, NSW

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EA200N: Asbestos weights and percentages are not covered under the Scope of NATA Accreditation.
  Weights of Asbestos are based on extracted bulk asbestos, fibre bundles, and/or ACM and do not include respirable fibres (if present)
  The Friable Asbestos weight is calculated from the extracted Fibrous Asbestos and Asbestos Fines as an equivalent weight of 100% Asbestos
  Percentages for Asbestos content in ACM are based on the 2013 NEPM default values.
  All calculations of percentage Asbestos under this method are approximate and should be used as a guide only.
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200: Negative results for vinyl tiles should be confirmed by an independent analytical technique.
- EA200N: ALS laboratory procedures and methods used for the identification and quantitation of asbestos are consistent with AS4964-2004 and the requirements of the 2013 NEPM for Assessment of Site Contamination
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR.
  Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	S40	S41	S42	S43	S49
			Client sampling date / time	[18-Jul-2016]	[18-Jul-2016]	[18-Jul-2016]	[18-Jul-2016]	[18-Jul-2016]
Compound	CAS Number	LOR	Unit	ES1616014-001	ES1616014-002	ES1616014-003	ES1616014-004	ES1616014-005
				Result	Result	Result	Result	Result
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	----	----	----	----	----
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1	%	16.5	29.2	20.8	19.1	19.1
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	Yes	----	----	No	----
Asbestos Type	1332-21-4	-	--	Ch	----	----	-	----
Sample weight (dry)	----	0.01	g	197	----	----	293	----
APPROVED IDENTIFIER:	----	-	--	S.SPOONER	----	----	S.SPOONER	----
EA200N: Asbestos Quantification (non-NATA)								
ø Free Fibres	----	5	Fibres	No	----	----	No	----
ø Friable Asbestos	1332-21-4	0.0004	g	0.0010	----	----	<0.0004	----
ø Friable Asbestos (as Asbestos in Soil)	1332-21-4	0.001	% (w/w)	<0.001	----	----	<0.001	----
ø Weight Used for % Calculation	----	0.0001	kg	0.197	----	----	0.293	----
ED040S : Soluble Sulfate by ICPAES								
Sulfate as SO4 2-	14808-79-8	10	mg/kg	----	----	----	----	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	10	mg/kg	----	----	----	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	10	<5	<5	<5	<5
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	15	68	11	17	7
Copper	7440-50-8	5	mg/kg	9	66	18	14	20
Lead	7439-92-1	5	mg/kg	56	8	19	14	48
Nickel	7440-02-0	2	mg/kg	7	44	6	5	<2
Zinc	7440-66-6	5	mg/kg	25	127	14	5	15
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	----	----	<0.1	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	----	----	----	<0.05	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	----	----	----	<0.05	----
beta-BHC	319-85-7	0.05	mg/kg	----	----	----	<0.05	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S40	S41	S42	S43	S49
				Client sampling date / time	[18-Jul-2016]	[18-Jul-2016]	[18-Jul-2016]	[18-Jul-2016]	[18-Jul-2016]
Compound	CAS Number	LOR	Unit		ES1616014-001	ES1616014-002	ES1616014-003	ES1616014-004	ES1616014-005
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
gamma-BHC	58-89-9	0.05	mg/kg		----	----	----	<0.05	----
delta-BHC	319-86-8	0.05	mg/kg		----	----	----	<0.05	----
Heptachlor	76-44-8	0.05	mg/kg		----	----	----	<0.05	----
Aldrin	309-00-2	0.05	mg/kg		----	----	----	<0.05	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg		----	----	----	<0.05	----
^ Total Chlordane (sum)	----	0.05	mg/kg		----	----	----	<0.05	----
trans-Chlordane	5103-74-2	0.05	mg/kg		----	----	----	<0.05	----
alpha-Endosulfan	959-98-8	0.05	mg/kg		----	----	----	<0.05	----
cis-Chlordane	5103-71-9	0.05	mg/kg		----	----	----	<0.05	----
Dieldrin	60-57-1	0.05	mg/kg		----	----	----	<0.05	----
4.4`-DDE	72-55-9	0.05	mg/kg		----	----	----	<0.05	----
Endrin	72-20-8	0.05	mg/kg		----	----	----	<0.05	----
beta-Endosulfan	33213-65-9	0.05	mg/kg		----	----	----	<0.05	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		----	----	----	<0.05	----
4.4`-DDD	72-54-8	0.05	mg/kg		----	----	----	<0.05	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		----	----	----	<0.05	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		----	----	----	<0.05	----
4.4`-DDT	50-29-3	0.2	mg/kg		----	----	----	<0.2	----
Endrin ketone	53494-70-5	0.05	mg/kg		----	----	----	<0.05	----
Methoxychlor	72-43-5	0.2	mg/kg		----	----	----	<0.2	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		----	----	----	<0.05	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-29-3	0.05	mg/kg		----	----	----	<0.05	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		----	----	----	<0.05	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		----	----	----	<0.05	----
Monocrotophos	6923-22-4	0.2	mg/kg		----	----	----	<0.2	----
Dimethoate	60-51-5	0.05	mg/kg		----	----	----	<0.05	----
Diazinon	333-41-5	0.05	mg/kg		----	----	----	<0.05	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		----	----	----	<0.05	----
Parathion-methyl	298-00-0	0.2	mg/kg		----	----	----	<0.2	----
Malathion	121-75-5	0.05	mg/kg		----	----	----	<0.05	----
Fenthion	55-38-9	0.05	mg/kg		----	----	----	<0.05	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		----	----	----	<0.05	----
Parathion	56-38-2	0.2	mg/kg		----	----	----	<0.2	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S40	S41	S42	S43	S49
				Client sampling date / time	[18-Jul-2016]	[18-Jul-2016]	[18-Jul-2016]	[18-Jul-2016]	[18-Jul-2016]
Compound	CAS Number	LOR	Unit		ES1616014-001	ES1616014-002	ES1616014-003	ES1616014-004	ES1616014-005
					Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued									
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		----	----	----	<0.05	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		----	----	----	<0.05	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		----	----	----	<0.05	----
Fenamiphos	22224-92-6	0.05	mg/kg		----	----	----	<0.05	----
Prothiofos	34643-46-4	0.05	mg/kg		----	----	----	<0.05	----
Ethion	563-12-2	0.05	mg/kg		----	----	----	<0.05	----
Carbophenothion	786-19-6	0.05	mg/kg		----	----	----	<0.05	----
Azinphos Methyl	86-50-0	0.05	mg/kg		----	----	----	<0.05	----
EP074A: Monocyclic Aromatic Hydrocarbons									
Styrene	100-42-5	0.5	mg/kg		----	----	<0.5	<0.5	----
Isopropylbenzene	98-82-8	0.5	mg/kg		----	----	<0.5	<0.5	----
n-Propylbenzene	103-65-1	0.5	mg/kg		----	----	<0.5	<0.5	----
1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg		----	----	<0.5	<0.5	----
sec-Butylbenzene	135-98-8	0.5	mg/kg		----	----	<0.5	<0.5	----
1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg		----	----	<0.5	<0.5	----
tert-Butylbenzene	98-06-6	0.5	mg/kg		----	----	<0.5	<0.5	----
p-Isopropyltoluene	99-87-6	0.5	mg/kg		----	----	<0.5	<0.5	----
n-Butylbenzene	104-51-8	0.5	mg/kg		----	----	<0.5	<0.5	----
EP074B: Oxygenated Compounds									
Vinyl Acetate	108-05-4	5	mg/kg		----	----	<5	<5	----
2-Butanone (MEK)	78-93-3	5	mg/kg		----	----	<5	<5	----
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg		----	----	<5	<5	----
2-Hexanone (MBK)	591-78-6	5	mg/kg		----	----	<5	<5	----
EP074C: Sulfonated Compounds									
Carbon disulfide	75-15-0	0.5	mg/kg		----	----	<0.5	<0.5	----
EP074D: Fumigants									
2.2-Dichloropropane	594-20-7	0.5	mg/kg		----	----	<0.5	<0.5	----
1.2-Dichloropropane	78-87-5	0.5	mg/kg		----	----	<0.5	<0.5	----
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg		----	----	<0.5	<0.5	----
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg		----	----	<0.5	<0.5	----
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg		----	----	<0.5	<0.5	----
EP074E: Halogenated Aliphatic Compounds									
Dichlorodifluoromethane	75-71-8	5	mg/kg		----	----	<5	<5	----
Chloromethane	74-87-3	5	mg/kg		----	----	<5	<5	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S40	S41	S42	S43	S49
				Client sampling date / time	[18-Jul-2016]	[18-Jul-2016]	[18-Jul-2016]	[18-Jul-2016]	[18-Jul-2016]
Compound	CAS Number	LOR	Unit		ES1616014-001	ES1616014-002	ES1616014-003	ES1616014-004	ES1616014-005
					Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued									
Vinyl chloride	75-01-4	5	mg/kg		----	----	<5	<5	----
Bromomethane	74-83-9	5	mg/kg		----	----	<5	<5	----
Chloroethane	75-00-3	5	mg/kg		----	----	<5	<5	----
Trichlorofluoromethane	75-69-4	5	mg/kg		----	----	<5	<5	----
1.1-Dichloroethene	75-35-4	0.5	mg/kg		----	----	<0.5	<0.5	----
Iodomethane	74-88-4	0.5	mg/kg		----	----	<0.5	<0.5	----
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg		----	----	<0.5	<0.5	----
1.1-Dichloroethane	75-34-3	0.5	mg/kg		----	----	<0.5	<0.5	----
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg		----	----	<0.5	<0.5	----
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg		----	----	<0.5	<0.5	----
1.1-Dichloropropylene	563-58-6	0.5	mg/kg		----	----	<0.5	<0.5	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg		----	----	<0.5	<0.5	----
1.2-Dichloroethane	107-06-2	0.5	mg/kg		----	----	<0.5	<0.5	----
Trichloroethene	79-01-6	0.5	mg/kg		----	----	<0.5	<0.5	----
Dibromomethane	74-95-3	0.5	mg/kg		----	----	<0.5	<0.5	----
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg		----	----	<0.5	<0.5	----
1.3-Dichloropropane	142-28-9	0.5	mg/kg		----	----	<0.5	<0.5	----
Tetrachloroethene	127-18-4	0.5	mg/kg		----	----	<0.5	<0.5	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg		----	----	<0.5	<0.5	----
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg		----	----	<0.5	<0.5	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg		----	----	<0.5	<0.5	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg		----	----	<0.5	<0.5	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg		----	----	<0.5	<0.5	----
Pentachloroethane	76-01-7	0.5	mg/kg		----	----	<0.5	<0.5	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg		----	----	<0.5	<0.5	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg		----	----	<0.5	<0.5	----
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	0.5	mg/kg		----	----	<0.5	<0.5	----
Bromobenzene	108-86-1	0.5	mg/kg		----	----	<0.5	<0.5	----
2-Chlorotoluene	95-49-8	0.5	mg/kg		----	----	<0.5	<0.5	----
4-Chlorotoluene	106-43-4	0.5	mg/kg		----	----	<0.5	<0.5	----
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg		----	----	<0.5	<0.5	----
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg		----	----	<0.5	<0.5	----
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg		----	----	<0.5	<0.5	----
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg		----	----	<0.5	<0.5	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S40	S41	S42	S43	S49
				Client sampling date / time	[18-Jul-2016]	[18-Jul-2016]	[18-Jul-2016]	[18-Jul-2016]	[18-Jul-2016]
Compound	CAS Number	LOR	Unit		ES1616014-001	ES1616014-002	ES1616014-003	ES1616014-004	ES1616014-005
					Result	Result	Result	Result	Result
EP074F: Halogenated Aromatic Compounds - Continued									
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg		----	----	<0.5	<0.5	----
EP074G: Trihalomethanes									
Chloroform	67-66-3	0.5	mg/kg		----	----	<0.5	<0.5	----
Bromodichloromethane	75-27-4	0.5	mg/kg		----	----	<0.5	<0.5	----
Dibromochloromethane	124-48-1	0.5	mg/kg		----	----	<0.5	<0.5	----
Bromoform	75-25-2	0.5	mg/kg		----	----	<0.5	<0.5	----
EP074H: Naphthalene									
Naphthalene	91-20-3	1	mg/kg		----	----	----	<1	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		----	----	----	<0.5	----
2-Chlorophenol	95-57-8	0.5	mg/kg		----	----	----	<0.5	----
2-Methylphenol	95-48-7	0.5	mg/kg		----	----	----	<0.5	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		----	----	----	<1	----
2-Nitrophenol	88-75-5	0.5	mg/kg		----	----	----	<0.5	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		----	----	----	<0.5	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		----	----	----	<0.5	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		----	----	----	<0.5	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		----	----	----	<0.5	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		----	----	----	<0.5	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		----	----	----	<0.5	----
Pentachlorophenol	87-86-5	2	mg/kg		----	----	----	<2	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	----	<0.5	<0.5	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	----	<0.5	<0.5	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	----	<0.5	<0.5	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	----	<0.5	<0.5	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	----	<0.5	<0.5	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	----	<0.5	<0.5	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	----	<0.5	<0.5	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	----	<0.5	<0.5	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	----	<0.5	<0.5	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	----	<0.5	<0.5	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	----	<0.5	<0.5	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	----	<0.5	<0.5	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S40	S41	S42	S43	S49
				Client sampling date / time	[18-Jul-2016]	[18-Jul-2016]	[18-Jul-2016]	[18-Jul-2016]	[18-Jul-2016]
Compound	CAS Number	LOR	Unit		ES1616014-001	ES1616014-002	ES1616014-003	ES1616014-004	ES1616014-005
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	----	<0.5	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	----	<0.5	<0.5	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	----	<0.5	<0.5	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	----	<0.5	<0.5	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	----	<0.5	<0.5	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	----	<0.5	<0.5	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	----	**0.6**	**0.6**	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	----	**1.2**	**1.2**	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	----	<10	<10	----
C10 - C14 Fraction	----	50	mg/kg		<50	----	<50	<50	----
C15 - C28 Fraction	----	100	mg/kg		<100	----	<100	<100	----
C29 - C36 Fraction	----	100	mg/kg		<100	----	<100	<100	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	----	<50	<50	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	----	<10	<10	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	----	<10	<10	----
>C10 - C16 Fraction	----	50	mg/kg		<50	----	<50	<50	----
>C16 - C34 Fraction	----	100	mg/kg		<100	----	<100	<100	----
>C34 - C40 Fraction	----	100	mg/kg		<100	----	<100	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	----	<50	<50	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	----	<50	<50	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	----	<0.2	<0.2	----
Toluene	108-88-3	0.5	mg/kg		<0.5	----	<0.5	<0.5	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	----	<0.5	<0.5	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	----	<0.5	<0.5	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	----	<0.5	<0.5	----
^ Sum of BTEX	----	0.2	mg/kg		<0.2	----	<0.2	<0.2	----
^ Total Xylenes	1330-20-7	0.5	mg/kg		<0.5	----	<0.5	<0.5	----
Naphthalene	91-20-3	1	mg/kg		<1	----	<1	<1	----
EP066S: PCB Surrogate									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S40	S41	S42	S43	S49
				Client sampling date / time	[18-Jul-2016]	[18-Jul-2016]	[18-Jul-2016]	[18-Jul-2016]	[18-Jul-2016]
Compound	CAS Number	LOR	Unit		ES1616014-001	ES1616014-002	ES1616014-003	ES1616014-004	ES1616014-005
					Result	Result	Result	Result	Result
EP066S: PCB Surrogate - Continued									
Decachlorobiphenyl	2051-24-3	0.1	%		----	----	----	77.5	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		----	----	----	97.7	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		----	----	----	85.8	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.5	%		----	----	89.0	87.4	----
Toluene-D8	2037-26-5	0.5	%		----	----	76.8	94.9	----
4-Bromofluorobenzene	460-00-4	0.5	%		----	----	75.7	86.2	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		108	----	125	99.2	----
2-Chlorophenol-D4	93951-73-6	0.5	%		103	----	122	102	----
2.4.6-Tribromophenol	118-79-6	0.5	%		85.6	----	95.5	70.8	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		105	----	119	105	----
Anthracene-d10	1719-06-8	0.5	%		112	----	126	112	----
4-Terphenyl-d14	1718-51-0	0.5	%		117	----	120	120	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		82.3	----	80.7	86.1	----
Toluene-D8	2037-26-5	0.2	%		83.5	----	85.1	91.2	----
4-Bromofluorobenzene	460-00-4	0.2	%		81.3	----	74.4	81.0	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	S50	S52	S57	S58	S53
			Client sampling date / time	[18-Jul-2016]	[18-Jul-2016]	[18-Jul-2016]	[18-Jul-2016]	[18-Jul-2016]
Compound	CAS Number	LOR	Unit	ES1616014-006	ES1616014-007	ES1616014-008	ES1616014-009	ES1616014-010
				Result	Result	Result	Result	Result
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	----	----	----	7.0	----
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1	%	17.8	21.7	20.3	12.0	21.4
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	----	----	----	----	Yes
Asbestos Type	1332-21-4	-	--	----	----	----	----	Ch
Sample weight (dry)	----	0.01	g	----	----	----	----	277
APPROVED IDENTIFIER:	----	-	--	----	----	----	----	S.SPOONER
EA200N: Asbestos Quantification (non-NATA)								
ø Free Fibres	----	5	Fibres	----	----	----	----	No
ø Friable Asbestos	1332-21-4	0.0004	g	----	----	----	----	<0.0004
ø Friable Asbestos (as Asbestos in Soil)	1332-21-4	0.001	% (w/w)	----	----	----	----	<0.001
ø Weight Used for % Calculation	----	0.0001	kg	----	----	----	----	0.277
ED040S : Soluble Sulfate by ICPAES								
Sulfate as SO4 2-	14808-79-8	10	mg/kg	----	----	----	70	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	10	mg/kg	----	----	----	250	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	7	<5	5
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	10	18	18	10	22
Copper	7440-50-8	5	mg/kg	10	12	15	15	13
Lead	7439-92-1	5	mg/kg	25	16	19	11	21
Nickel	7440-02-0	2	mg/kg	4	3	2	<2	5
Zinc	7440-66-6	5	mg/kg	11	7	5	9	47
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	----	----	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	----	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	----	----	----	----	----
beta-BHC	319-85-7	0.05	mg/kg	----	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S50	S52	S57	S58	S53
				Client sampling date / time	[18-Jul-2016]	[18-Jul-2016]	[18-Jul-2016]	[18-Jul-2016]	[18-Jul-2016]
Compound	CAS Number	LOR	Unit		ES1616014-006	ES1616014-007	ES1616014-008	ES1616014-009	ES1616014-010
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
gamma-BHC	58-89-9	0.05	mg/kg		----	----	----	----	----
delta-BHC	319-86-8	0.05	mg/kg		----	----	----	----	----
Heptachlor	76-44-8	0.05	mg/kg		----	----	----	----	----
Aldrin	309-00-2	0.05	mg/kg		----	----	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg		----	----	----	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg		----	----	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg		----	----	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg		----	----	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg		----	----	----	----	----
Dieldrin	60-57-1	0.05	mg/kg		----	----	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg		----	----	----	----	----
Endrin	72-20-8	0.05	mg/kg		----	----	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg		----	----	----	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		----	----	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		----	----	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		----	----	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		----	----	----	----	----
4.4`-DDT	50-29-3	0.2	mg/kg		----	----	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg		----	----	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg		----	----	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		----	----	----	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-29-3	0.05	mg/kg		----	----	----	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		----	----	----	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		----	----	----	----	----
Monocrotophos	6923-22-4	0.2	mg/kg		----	----	----	----	----
Dimethoate	60-51-5	0.05	mg/kg		----	----	----	----	----
Diazinon	333-41-5	0.05	mg/kg		----	----	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		----	----	----	----	----
Parathion-methyl	298-00-0	0.2	mg/kg		----	----	----	----	----
Malathion	121-75-5	0.05	mg/kg		----	----	----	----	----
Fenthion	55-38-9	0.05	mg/kg		----	----	----	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		----	----	----	----	----
Parathion	56-38-2	0.2	mg/kg		----	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S50	S52	S57	S58	S53
				Client sampling date / time	[18-Jul-2016]	[18-Jul-2016]	[18-Jul-2016]	[18-Jul-2016]	[18-Jul-2016]
Compound	CAS Number	LOR	Unit		ES1616014-006	ES1616014-007	ES1616014-008	ES1616014-009	ES1616014-010
					Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued									
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		----	----	----	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		----	----	----	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		----	----	----	----	----
Fenamiphos	22224-92-6	0.05	mg/kg		----	----	----	----	----
Prothiofos	34643-46-4	0.05	mg/kg		----	----	----	----	----
Ethion	563-12-2	0.05	mg/kg		----	----	----	----	----
Carbophenothion	786-19-6	0.05	mg/kg		----	----	----	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg		----	----	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons									
Styrene	100-42-5	0.5	mg/kg		----	----	----	----	----
Isopropylbenzene	98-82-8	0.5	mg/kg		----	----	----	----	----
n-Propylbenzene	103-65-1	0.5	mg/kg		----	----	----	----	----
1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg		----	----	----	----	----
sec-Butylbenzene	135-98-8	0.5	mg/kg		----	----	----	----	----
1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg		----	----	----	----	----
tert-Butylbenzene	98-06-6	0.5	mg/kg		----	----	----	----	----
p-Isopropyltoluene	99-87-6	0.5	mg/kg		----	----	----	----	----
n-Butylbenzene	104-51-8	0.5	mg/kg		----	----	----	----	----
EP074B: Oxygenated Compounds									
Vinyl Acetate	108-05-4	5	mg/kg		----	----	----	----	----
2-Butanone (MEK)	78-93-3	5	mg/kg		----	----	----	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg		----	----	----	----	----
2-Hexanone (MBK)	591-78-6	5	mg/kg		----	----	----	----	----
EP074C: Sulfonated Compounds									
Carbon disulfide	75-15-0	0.5	mg/kg		----	----	----	----	----
EP074D: Fumigants									
2.2-Dichloropropane	594-20-7	0.5	mg/kg		----	----	----	----	----
1.2-Dichloropropane	78-87-5	0.5	mg/kg		----	----	----	----	----
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg		----	----	----	----	----
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg		----	----	----	----	----
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg		----	----	----	----	----
EP074E: Halogenated Aliphatic Compounds									
Dichlorodifluoromethane	75-71-8	5	mg/kg		----	----	----	----	----
Chloromethane	74-87-3	5	mg/kg		----	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S50	S52	S57	S58	S53
				Client sampling date / time	[18-Jul-2016]	[18-Jul-2016]	[18-Jul-2016]	[18-Jul-2016]	[18-Jul-2016]
Compound	CAS Number	LOR	Unit		ES1616014-006	ES1616014-007	ES1616014-008	ES1616014-009	ES1616014-010
					Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued									
Vinyl chloride	75-01-4	5	mg/kg		----	----	----	----	----
Bromomethane	74-83-9	5	mg/kg		----	----	----	----	----
Chloroethane	75-00-3	5	mg/kg		----	----	----	----	----
Trichlorofluoromethane	75-69-4	5	mg/kg		----	----	----	----	----
1.1-Dichloroethene	75-35-4	0.5	mg/kg		----	----	----	----	----
Iodomethane	74-88-4	0.5	mg/kg		----	----	----	----	----
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg		----	----	----	----	----
1.1-Dichloroethane	75-34-3	0.5	mg/kg		----	----	----	----	----
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg		----	----	----	----	----
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg		----	----	----	----	----
1.1-Dichloropropylene	563-58-6	0.5	mg/kg		----	----	----	----	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg		----	----	----	----	----
1.2-Dichloroethane	107-06-2	0.5	mg/kg		----	----	----	----	----
Trichloroethene	79-01-6	0.5	mg/kg		----	----	----	----	----
Dibromomethane	74-95-3	0.5	mg/kg		----	----	----	----	----
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg		----	----	----	----	----
1.3-Dichloropropane	142-28-9	0.5	mg/kg		----	----	----	----	----
Tetrachloroethene	127-18-4	0.5	mg/kg		----	----	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg		----	----	----	----	----
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg		----	----	----	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg		----	----	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg		----	----	----	----	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg		----	----	----	----	----
Pentachloroethane	76-01-7	0.5	mg/kg		----	----	----	----	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg		----	----	----	----	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg		----	----	----	----	----
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	0.5	mg/kg		----	----	----	----	----
Bromobenzene	108-86-1	0.5	mg/kg		----	----	----	----	----
2-Chlorotoluene	95-49-8	0.5	mg/kg		----	----	----	----	----
4-Chlorotoluene	106-43-4	0.5	mg/kg		----	----	----	----	----
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg		----	----	----	----	----
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg		----	----	----	----	----
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg		----	----	----	----	----
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg		----	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S50	S52	S57	S58	S53
				Client sampling date / time	[18-Jul-2016]	[18-Jul-2016]	[18-Jul-2016]	[18-Jul-2016]	[18-Jul-2016]
Compound	CAS Number	LOR	Unit		ES1616014-006	ES1616014-007	ES1616014-008	ES1616014-009	ES1616014-010
					Result	Result	Result	Result	Result
EP074F: Halogenated Aromatic Compounds - Continued									
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg		----	----	----	----	----
EP074G: Trihalomethanes									
Chloroform	67-66-3	0.5	mg/kg		----	----	----	----	----
Bromodichloromethane	75-27-4	0.5	mg/kg		----	----	----	----	----
Dibromochloromethane	124-48-1	0.5	mg/kg		----	----	----	----	----
Bromoform	75-25-2	0.5	mg/kg		----	----	----	----	----
EP074H: Naphthalene									
Naphthalene	91-20-3	1	mg/kg		----	----	----	----	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		----	----	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg		----	----	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg		----	----	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		----	----	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg		----	----	----	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		----	----	----	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		----	----	----	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		----	----	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		----	----	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		----	----	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		----	----	----	----	----
Pentachlorophenol	87-86-5	2	mg/kg		----	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		----	<0.5	----	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S50	S52	S57	S58	S53
				Client sampling date / time	[18-Jul-2016]	[18-Jul-2016]	[18-Jul-2016]	[18-Jul-2016]	[18-Jul-2016]
Compound	CAS Number	LOR	Unit		ES1616014-006	ES1616014-007	ES1616014-008	ES1616014-009	ES1616014-010
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Benzo(a)pyrene	50-32-8	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		----	**0.6**	----	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		----	**1.2**	----	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		----	<10	----	<10	<10
C10 - C14 Fraction	----	50	mg/kg		----	<50	----	<50	<50
C15 - C28 Fraction	----	100	mg/kg		----	<100	----	<100	<100
C29 - C36 Fraction	----	100	mg/kg		----	<100	----	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		----	<50	----	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		----	<10	----	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		----	<10	----	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		----	<50	----	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		----	<100	----	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		----	<100	----	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		----	<50	----	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		----	<50	----	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		----	<0.2	----	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		----	<0.2	----	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		----	<1	----	<1	<1
EP066S: PCB Surrogate									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S50	S52	S57	S58	S53
				Client sampling date / time	[18-Jul-2016]	[18-Jul-2016]	[18-Jul-2016]	[18-Jul-2016]	[18-Jul-2016]
Compound	CAS Number	LOR	Unit		ES1616014-006	ES1616014-007	ES1616014-008	ES1616014-009	ES1616014-010
					Result	Result	Result	Result	Result
EP066S: PCB Surrogate - Continued									
Decachlorobiphenyl	2051-24-3	0.1	%		----	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		----	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		----	----	----	----	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.5	%		----	----	----	----	----
Toluene-D8	2037-26-5	0.5	%		----	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.5	%		----	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		----	113	----	103	104
2-Chlorophenol-D4	93951-73-6	0.5	%		----	108	----	97.0	98.3
2.4.6-Tribromophenol	118-79-6	0.5	%		----	92.1	----	82.7	81.8
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		----	110	----	99.2	99.4
Anthracene-d10	1719-06-8	0.5	%		----	112	----	102	104
4-Terphenyl-d14	1718-51-0	0.5	%		----	123	----	111	114
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		----	100	----	104	120
Toluene-D8	2037-26-5	0.2	%		----	95.7	----	93.3	111
4-Bromofluorobenzene	460-00-4	0.2	%		----	86.7	----	82.4	101

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	S59	S60	S54	S55	S56
			Client sampling date / time	[18-Jul-2016]	[18-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]
Compound	CAS Number	LOR	Unit	ES1616014-011	ES1616014-012	ES1616014-013	ES1616014-014	ES1616014-015
				Result	Result	Result	Result	Result
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	----	7.8	----	----	7.0
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1	%	19.9	21.0	18.0	21.0	20.8
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	----	----	No	----	----
Asbestos Type	1332-21-4	-	--	----	----	-	----	----
Sample weight (dry)	----	0.01	g	----	----	319	----	----
APPROVED IDENTIFIER:	----	-	--	----	----	S.SPOONER	----	----
EA200N: Asbestos Quantification (non-NATA)								
ø Free Fibres	----	5	Fibres	----	----	No	----	----
ø Friable Asbestos	1332-21-4	0.0004	g	----	----	<0.0004	----	----
ø Friable Asbestos (as Asbestos in Soil)	1332-21-4	0.001	% (w/w)	----	----	<0.001	----	----
ø Weight Used for % Calculation	----	0.0001	kg	----	----	0.319	----	----
ED040S : Soluble Sulfate by ICPAES								
Sulfate as SO4 2-	14808-79-8	10	mg/kg	----	250	----	----	110
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	10	mg/kg	----	320	----	----	<10
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	8	5	<5	<5	6
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	24	16	8	12	13
Copper	7440-50-8	5	mg/kg	29	24	25	10	11
Lead	7439-92-1	5	mg/kg	29	18	27	19	18
Nickel	7440-02-0	2	mg/kg	3	2	3	3	<2
Zinc	7440-66-6	5	mg/kg	22	17	18	6	<5
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	<0.1	----	<0.1	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	----	<0.05	----	<0.05	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	----	<0.05	----	<0.05	----
beta-BHC	319-85-7	0.05	mg/kg	----	<0.05	----	<0.05	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S59	S60	S54	S55	S56
				Client sampling date / time	[18-Jul-2016]	[18-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]
Compound	CAS Number	LOR	Unit		ES1616014-011	ES1616014-012	ES1616014-013	ES1616014-014	ES1616014-015
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
gamma-BHC	58-89-9	0.05	mg/kg		----	<0.05	----	<0.05	----
delta-BHC	319-86-8	0.05	mg/kg		----	<0.05	----	<0.05	----
Heptachlor	76-44-8	0.05	mg/kg		----	<0.05	----	<0.05	----
Aldrin	309-00-2	0.05	mg/kg		----	<0.05	----	<0.05	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg		----	<0.05	----	<0.05	----
^ Total Chlordane (sum)	----	0.05	mg/kg		----	<0.05	----	<0.05	----
trans-Chlordane	5103-74-2	0.05	mg/kg		----	<0.05	----	<0.05	----
alpha-Endosulfan	959-98-8	0.05	mg/kg		----	<0.05	----	<0.05	----
cis-Chlordane	5103-71-9	0.05	mg/kg		----	<0.05	----	<0.05	----
Dieldrin	60-57-1	0.05	mg/kg		----	<0.05	----	<0.05	----
4.4`-DDE	72-55-9	0.05	mg/kg		----	<0.05	----	<0.05	----
Endrin	72-20-8	0.05	mg/kg		----	<0.05	----	<0.05	----
beta-Endosulfan	33213-65-9	0.05	mg/kg		----	<0.05	----	<0.05	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		----	<0.05	----	<0.05	----
4.4`-DDD	72-54-8	0.05	mg/kg		----	<0.05	----	<0.05	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		----	<0.05	----	<0.05	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		----	<0.05	----	<0.05	----
4.4`-DDT	50-29-3	0.2	mg/kg		----	<0.2	----	<0.2	----
Endrin ketone	53494-70-5	0.05	mg/kg		----	<0.05	----	<0.05	----
Methoxychlor	72-43-5	0.2	mg/kg		----	<0.2	----	<0.2	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		----	<0.05	----	<0.05	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-29-3	0.05	mg/kg		----	<0.05	----	<0.05	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		----	<0.05	----	<0.05	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		----	<0.05	----	<0.05	----
Monocrotophos	6923-22-4	0.2	mg/kg		----	<0.2	----	<0.2	----
Dimethoate	60-51-5	0.05	mg/kg		----	<0.05	----	<0.05	----
Diazinon	333-41-5	0.05	mg/kg		----	<0.05	----	<0.05	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		----	<0.05	----	<0.05	----
Parathion-methyl	298-00-0	0.2	mg/kg		----	<0.2	----	<0.2	----
Malathion	121-75-5	0.05	mg/kg		----	<0.05	----	<0.05	----
Fenthion	55-38-9	0.05	mg/kg		----	<0.05	----	<0.05	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		----	<0.05	----	<0.05	----
Parathion	56-38-2	0.2	mg/kg		----	<0.2	----	<0.2	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S59	S60	S54	S55	S56
				Client sampling date / time	[18-Jul-2016]	[18-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]
Compound	CAS Number	LOR	Unit		ES1616014-011	ES1616014-012	ES1616014-013	ES1616014-014	ES1616014-015
					Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued									
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		----	<0.05	----	<0.05	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		----	<0.05	----	<0.05	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		----	<0.05	----	<0.05	----
Fenamiphos	22224-92-6	0.05	mg/kg		----	<0.05	----	<0.05	----
Prothiofos	34643-46-4	0.05	mg/kg		----	<0.05	----	<0.05	----
Ethion	563-12-2	0.05	mg/kg		----	<0.05	----	<0.05	----
Carbophenothion	786-19-6	0.05	mg/kg		----	<0.05	----	<0.05	----
Azinphos Methyl	86-50-0	0.05	mg/kg		----	<0.05	----	<0.05	----
EP074A: Monocyclic Aromatic Hydrocarbons									
Styrene	100-42-5	0.5	mg/kg		----	<0.5	----	<0.5	----
Isopropylbenzene	98-82-8	0.5	mg/kg		----	<0.5	----	<0.5	----
n-Propylbenzene	103-65-1	0.5	mg/kg		----	<0.5	----	<0.5	----
1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg		----	<0.5	----	<0.5	----
sec-Butylbenzene	135-98-8	0.5	mg/kg		----	<0.5	----	<0.5	----
1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg		----	<0.5	----	<0.5	----
tert-Butylbenzene	98-06-6	0.5	mg/kg		----	<0.5	----	<0.5	----
p-Isopropyltoluene	99-87-6	0.5	mg/kg		----	<0.5	----	<0.5	----
n-Butylbenzene	104-51-8	0.5	mg/kg		----	<0.5	----	<0.5	----
EP074B: Oxygenated Compounds									
Vinyl Acetate	108-05-4	5	mg/kg		----	<5	----	<5	----
2-Butanone (MEK)	78-93-3	5	mg/kg		----	<5	----	<5	----
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg		----	<5	----	<5	----
2-Hexanone (MBK)	591-78-6	5	mg/kg		----	<5	----	<5	----
EP074C: Sulfonated Compounds									
Carbon disulfide	75-15-0	0.5	mg/kg		----	<0.5	----	<0.5	----
EP074D: Fumigants									
2.2-Dichloropropane	594-20-7	0.5	mg/kg		----	<0.5	----	<0.5	----
1.2-Dichloropropane	78-87-5	0.5	mg/kg		----	<0.5	----	<0.5	----
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg		----	<0.5	----	<0.5	----
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg		----	<0.5	----	<0.5	----
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg		----	<0.5	----	<0.5	----
EP074E: Halogenated Aliphatic Compounds									
Dichlorodifluoromethane	75-71-8	5	mg/kg		----	<5	----	<5	----
Chloromethane	74-87-3	5	mg/kg		----	<5	----	<5	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S59	S60	S54	S55	S56
				Client sampling date / time	[18-Jul-2016]	[18-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]
Compound	CAS Number	LOR	Unit		ES1616014-011	ES1616014-012	ES1616014-013	ES1616014-014	ES1616014-015
					Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued									
Vinyl chloride	75-01-4	5	mg/kg		----	<5	----	<5	----
Bromomethane	74-83-9	5	mg/kg		----	<5	----	<5	----
Chloroethane	75-00-3	5	mg/kg		----	<5	----	<5	----
Trichlorofluoromethane	75-69-4	5	mg/kg		----	<5	----	<5	----
1.1-Dichloroethene	75-35-4	0.5	mg/kg		----	<0.5	----	<0.5	----
Iodomethane	74-88-4	0.5	mg/kg		----	<0.5	----	<0.5	----
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg		----	<0.5	----	<0.5	----
1.1-Dichloroethane	75-34-3	0.5	mg/kg		----	<0.5	----	<0.5	----
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg		----	<0.5	----	<0.5	----
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg		----	<0.5	----	<0.5	----
1.1-Dichloropropylene	563-58-6	0.5	mg/kg		----	<0.5	----	<0.5	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg		----	<0.5	----	<0.5	----
1.2-Dichloroethane	107-06-2	0.5	mg/kg		----	<0.5	----	<0.5	----
Trichloroethene	79-01-6	0.5	mg/kg		----	<0.5	----	<0.5	----
Dibromomethane	74-95-3	0.5	mg/kg		----	<0.5	----	<0.5	----
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg		----	<0.5	----	<0.5	----
1.3-Dichloropropane	142-28-9	0.5	mg/kg		----	<0.5	----	<0.5	----
Tetrachloroethene	127-18-4	0.5	mg/kg		----	<0.5	----	<0.5	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg		----	<0.5	----	<0.5	----
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg		----	<0.5	----	<0.5	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg		----	<0.5	----	<0.5	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg		----	<0.5	----	<0.5	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg		----	<0.5	----	<0.5	----
Pentachloroethane	76-01-7	0.5	mg/kg		----	<0.5	----	<0.5	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg		----	<0.5	----	<0.5	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg		----	<0.5	----	<0.5	----
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	0.5	mg/kg		----	<0.5	----	<0.5	----
Bromobenzene	108-86-1	0.5	mg/kg		----	<0.5	----	<0.5	----
2-Chlorotoluene	95-49-8	0.5	mg/kg		----	<0.5	----	<0.5	----
4-Chlorotoluene	106-43-4	0.5	mg/kg		----	<0.5	----	<0.5	----
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg		----	<0.5	----	<0.5	----
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg		----	<0.5	----	<0.5	----
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg		----	<0.5	----	<0.5	----
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg		----	<0.5	----	<0.5	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S59	S60	S54	S55	S56
				Client sampling date / time	[18-Jul-2016]	[18-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]
Compound	CAS Number	LOR	Unit		ES1616014-011	ES1616014-012	ES1616014-013	ES1616014-014	ES1616014-015
					Result	Result	Result	Result	Result
EP074F: Halogenated Aromatic Compounds - Continued									
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg		----	<0.5	----	<0.5	----
EP074G: Trihalomethanes									
Chloroform	67-66-3	0.5	mg/kg		----	<0.5	----	<0.5	----
Bromodichloromethane	75-27-4	0.5	mg/kg		----	<0.5	----	<0.5	----
Dibromochloromethane	124-48-1	0.5	mg/kg		----	<0.5	----	<0.5	----
Bromoform	75-25-2	0.5	mg/kg		----	<0.5	----	<0.5	----
EP074H: Naphthalene									
Naphthalene	91-20-3	1	mg/kg		----	<1	----	<1	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		----	<0.5	----	<0.5	----
2-Chlorophenol	95-57-8	0.5	mg/kg		----	<0.5	----	<0.5	----
2-Methylphenol	95-48-7	0.5	mg/kg		----	<0.5	----	<0.5	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		----	<1	----	<1	----
2-Nitrophenol	88-75-5	0.5	mg/kg		----	<0.5	----	<0.5	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		----	<0.5	----	<0.5	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		----	<0.5	----	<0.5	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		----	<0.5	----	<0.5	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		----	<0.5	----	<0.5	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		----	<0.5	----	<0.5	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		----	<0.5	----	<0.5	----
Pentachlorophenol	87-86-5	2	mg/kg		----	<2	----	<2	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	**0.8**	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	**1.8**	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	**1.8**	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	**0.9**	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	**0.9**	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	**1.0**	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S59	S60	S54	S55	S56
				Client sampling date / time	[18-Jul-2016]	[18-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]
Compound	CAS Number	LOR	Unit		ES1616014-011	ES1616014-012	ES1616014-013	ES1616014-014	ES1616014-015
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	**0.9**	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	**8.1**	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	**1.1**	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	**1.4**	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	**1.7**	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP066S: PCB Surrogate									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S59	S60	S54	S55	S56
				Client sampling date / time	[18-Jul-2016]	[18-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]
Compound	CAS Number	LOR	Unit		ES1616014-011	ES1616014-012	ES1616014-013	ES1616014-014	ES1616014-015
					Result	Result	Result	Result	Result
EP066S: PCB Surrogate - Continued									
Decachlorobiphenyl	2051-24-3	0.1	%		----	64.8	----	83.4	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		----	80.0	----	128	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		----	70.0	----	116	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.5	%		----	90.0	----	88.5	----
Toluene-D8	2037-26-5	0.5	%		----	92.4	----	88.4	----
4-Bromofluorobenzene	460-00-4	0.5	%		----	83.2	----	83.8	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		103	102	104	102	105
2-Chlorophenol-D4	93951-73-6	0.5	%		99.4	96.0	99.9	98.5	100
2.4.6-Tribromophenol	118-79-6	0.5	%		85.1	82.8	78.8	69.2	81.3
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		103	94.2	100	99.8	102
Anthracene-d10	1719-06-8	0.5	%		90.0	93.6	106	104	96.1
4-Terphenyl-d14	1718-51-0	0.5	%		117	108	113	113	117
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		97.9	88.6	114	87.1	115
Toluene-D8	2037-26-5	0.2	%		89.4	88.8	101	85.0	104
4-Bromofluorobenzene	460-00-4	0.2	%		74.8	78.6	89.8	78.6	95.9

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	S61	S62	S63	S65	S66
			Client sampling date / time	[19-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]
Compound	CAS Number	LOR	Unit	ES1616014-016	ES1616014-017	ES1616014-018	ES1616014-019	ES1616014-020
				Result	Result	Result	Result	Result
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	----	----	----	7.8	----
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1	%	16.6	25.6	24.4	18.7	19.5
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	----	----	----	----	----
Asbestos Type	1332-21-4	-	--	----	----	----	----	----
Sample weight (dry)	----	0.01	g	----	----	----	----	----
APPROVED IDENTIFIER:	----	-	--	----	----	----	----	----
EA200N: Asbestos Quantification (non-NATA)								
ø Free Fibres	----	5	Fibres	----	----	----	----	----
ø Friable Asbestos	1332-21-4	0.0004	g	----	----	----	----	----
ø Friable Asbestos (as Asbestos in Soil)	1332-21-4	0.001	% (w/w)	----	----	----	----	----
ø Weight Used for % Calculation	----	0.0001	kg	----	----	----	----	----
ED040S : Soluble Sulfate by ICPAES								
Sulfate as SO4 2-	14808-79-8	10	mg/kg	----	----	----	30	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	10	mg/kg	----	----	----	<10	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	8	7	6	<5	12
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	6	5	5	11	19
Copper	7440-50-8	5	mg/kg	<5	<5	<5	6	63
Lead	7439-92-1	5	mg/kg	<5	<5	<5	9	117
Nickel	7440-02-0	2	mg/kg	<2	<2	<2	<2	45
Zinc	7440-66-6	5	mg/kg	20	6	7	<5	259
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	----	----	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	----	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	----	----	----	----	----
beta-BHC	319-85-7	0.05	mg/kg	----	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S61	S62	S63	S65	S66
				Client sampling date / time	[19-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]
Compound	CAS Number	LOR	Unit		ES1616014-016	ES1616014-017	ES1616014-018	ES1616014-019	ES1616014-020
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
gamma-BHC	58-89-9	0.05	mg/kg		----	----	----	----	----
delta-BHC	319-86-8	0.05	mg/kg		----	----	----	----	----
Heptachlor	76-44-8	0.05	mg/kg		----	----	----	----	----
Aldrin	309-00-2	0.05	mg/kg		----	----	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg		----	----	----	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg		----	----	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg		----	----	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg		----	----	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg		----	----	----	----	----
Dieldrin	60-57-1	0.05	mg/kg		----	----	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg		----	----	----	----	----
Endrin	72-20-8	0.05	mg/kg		----	----	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg		----	----	----	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		----	----	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		----	----	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		----	----	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		----	----	----	----	----
4.4`-DDT	50-29-3	0.2	mg/kg		----	----	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg		----	----	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg		----	----	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		----	----	----	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-29-3	0.05	mg/kg		----	----	----	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		----	----	----	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		----	----	----	----	----
Monocrotophos	6923-22-4	0.2	mg/kg		----	----	----	----	----
Dimethoate	60-51-5	0.05	mg/kg		----	----	----	----	----
Diazinon	333-41-5	0.05	mg/kg		----	----	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		----	----	----	----	----
Parathion-methyl	298-00-0	0.2	mg/kg		----	----	----	----	----
Malathion	121-75-5	0.05	mg/kg		----	----	----	----	----
Fenthion	55-38-9	0.05	mg/kg		----	----	----	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		----	----	----	----	----
Parathion	56-38-2	0.2	mg/kg		----	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S61	S62	S63	S65	S66
				Client sampling date / time	[19-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]
Compound	CAS Number	LOR	Unit		ES1616014-016	ES1616014-017	ES1616014-018	ES1616014-019	ES1616014-020
					Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued									
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		----	----	----	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		----	----	----	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		----	----	----	----	----
Fenamiphos	22224-92-6	0.05	mg/kg		----	----	----	----	----
Prothiofos	34643-46-4	0.05	mg/kg		----	----	----	----	----
Ethion	563-12-2	0.05	mg/kg		----	----	----	----	----
Carbophenothion	786-19-6	0.05	mg/kg		----	----	----	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg		----	----	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons									
Styrene	100-42-5	0.5	mg/kg		----	----	----	<0.5	----
Isopropylbenzene	98-82-8	0.5	mg/kg		----	----	----	<0.5	----
n-Propylbenzene	103-65-1	0.5	mg/kg		----	----	----	<0.5	----
1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg		----	----	----	<0.5	----
sec-Butylbenzene	135-98-8	0.5	mg/kg		----	----	----	<0.5	----
1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg		----	----	----	<0.5	----
tert-Butylbenzene	98-06-6	0.5	mg/kg		----	----	----	<0.5	----
p-Isopropyltoluene	99-87-6	0.5	mg/kg		----	----	----	<0.5	----
n-Butylbenzene	104-51-8	0.5	mg/kg		----	----	----	<0.5	----
EP074B: Oxygenated Compounds									
Vinyl Acetate	108-05-4	5	mg/kg		----	----	----	<5	----
2-Butanone (MEK)	78-93-3	5	mg/kg		----	----	----	<5	----
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg		----	----	----	<5	----
2-Hexanone (MBK)	591-78-6	5	mg/kg		----	----	----	<5	----
EP074C: Sulfonated Compounds									
Carbon disulfide	75-15-0	0.5	mg/kg		----	----	----	<0.5	----
EP074D: Fumigants									
2.2-Dichloropropane	594-20-7	0.5	mg/kg		----	----	----	<0.5	----
1.2-Dichloropropane	78-87-5	0.5	mg/kg		----	----	----	<0.5	----
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg		----	----	----	<0.5	----
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg		----	----	----	<0.5	----
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg		----	----	----	<0.5	----
EP074E: Halogenated Aliphatic Compounds									
Dichlorodifluoromethane	75-71-8	5	mg/kg		----	----	----	<5	----
Chloromethane	74-87-3	5	mg/kg		----	----	----	<5	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S61	S62	S63	S65	S66
				Client sampling date / time	[19-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]
Compound	CAS Number	LOR	Unit		ES1616014-016	ES1616014-017	ES1616014-018	ES1616014-019	ES1616014-020
					Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued									
Vinyl chloride	75-01-4	5	mg/kg		----	----	----	<5	----
Bromomethane	74-83-9	5	mg/kg		----	----	----	<5	----
Chloroethane	75-00-3	5	mg/kg		----	----	----	<5	----
Trichlorofluoromethane	75-69-4	5	mg/kg		----	----	----	<5	----
1.1-Dichloroethene	75-35-4	0.5	mg/kg		----	----	----	<0.5	----
Iodomethane	74-88-4	0.5	mg/kg		----	----	----	<0.5	----
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg		----	----	----	<0.5	----
1.1-Dichloroethane	75-34-3	0.5	mg/kg		----	----	----	<0.5	----
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg		----	----	----	<0.5	----
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg		----	----	----	<0.5	----
1.1-Dichloropropylene	563-58-6	0.5	mg/kg		----	----	----	<0.5	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg		----	----	----	<0.5	----
1.2-Dichloroethane	107-06-2	0.5	mg/kg		----	----	----	<0.5	----
Trichloroethene	79-01-6	0.5	mg/kg		----	----	----	<0.5	----
Dibromomethane	74-95-3	0.5	mg/kg		----	----	----	<0.5	----
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg		----	----	----	<0.5	----
1.3-Dichloropropane	142-28-9	0.5	mg/kg		----	----	----	<0.5	----
Tetrachloroethene	127-18-4	0.5	mg/kg		----	----	----	<0.5	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg		----	----	----	<0.5	----
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg		----	----	----	<0.5	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg		----	----	----	<0.5	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg		----	----	----	<0.5	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg		----	----	----	<0.5	----
Pentachloroethane	76-01-7	0.5	mg/kg		----	----	----	<0.5	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg		----	----	----	<0.5	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg		----	----	----	<0.5	----
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	0.5	mg/kg		----	----	----	<0.5	----
Bromobenzene	108-86-1	0.5	mg/kg		----	----	----	<0.5	----
2-Chlorotoluene	95-49-8	0.5	mg/kg		----	----	----	<0.5	----
4-Chlorotoluene	106-43-4	0.5	mg/kg		----	----	----	<0.5	----
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg		----	----	----	<0.5	----
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg		----	----	----	<0.5	----
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg		----	----	----	<0.5	----
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg		----	----	----	<0.5	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S61	S62	S63	S65	S66
				Client sampling date / time	[19-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]
Compound	CAS Number	LOR	Unit		ES1616014-016	ES1616014-017	ES1616014-018	ES1616014-019	ES1616014-020
					Result	Result	Result	Result	Result
EP074F: Halogenated Aromatic Compounds - Continued									
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg		----	----	----	<0.5	----
EP074G: Trihalomethanes									
Chloroform	67-66-3	0.5	mg/kg		----	----	----	<0.5	----
Bromodichloromethane	75-27-4	0.5	mg/kg		----	----	----	<0.5	----
Dibromochloromethane	124-48-1	0.5	mg/kg		----	----	----	<0.5	----
Bromoform	75-25-2	0.5	mg/kg		----	----	----	<0.5	----
EP074H: Naphthalene									
Naphthalene	91-20-3	1	mg/kg		----	----	----	----	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		----	----	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg		----	----	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg		----	----	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		----	----	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg		----	----	----	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		----	----	----	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		----	----	----	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		----	----	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		----	----	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		----	----	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		----	----	----	----	----
Pentachlorophenol	87-86-5	2	mg/kg		----	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		----	<0.5	----	<0.5	**1.0**
Pyrene	129-00-0	0.5	mg/kg		----	<0.5	----	<0.5	**1.0**
Benz(a)anthracene	56-55-3	0.5	mg/kg		----	<0.5	----	<0.5	**0.6**
Chrysene	218-01-9	0.5	mg/kg		----	<0.5	----	<0.5	**0.6**
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		----	<0.5	----	<0.5	**0.7**
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		----	<0.5	----	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S61	S62	S63	S65	S66
				Client sampling date / time	[19-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]
Compound	CAS Number	LOR	Unit		ES1616014-016	ES1616014-017	ES1616014-018	ES1616014-019	ES1616014-020
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Benzo(a)pyrene	50-32-8	0.5	mg/kg		----	<0.5	----	<0.5	**0.6**
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		----	<0.5	----	<0.5	**4.5**
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		----	<0.5	----	<0.5	**0.7**
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		----	**0.6**	----	**0.6**	**1.0**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		----	**1.2**	----	**1.2**	**1.3**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		----	<10	----	<10	<10
C10 - C14 Fraction	----	50	mg/kg		----	<50	----	<50	<50
C15 - C28 Fraction	----	100	mg/kg		----	<100	----	<100	**110**
C29 - C36 Fraction	----	100	mg/kg		----	<100	----	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		----	<50	----	<50	**110**
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		----	<10	----	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		----	<10	----	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		----	<50	----	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		----	<100	----	<100	**180**
>C34 - C40 Fraction	----	100	mg/kg		----	<100	----	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		----	<50	----	<50	**180**
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		----	<50	----	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		----	<0.2	----	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		----	<0.2	----	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		----	<1	----	<1	<1
EP066S: PCB Surrogate									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S61	S62	S63	S65	S66
				Client sampling date / time	[19-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]
Compound	CAS Number	LOR	Unit		ES1616014-016	ES1616014-017	ES1616014-018	ES1616014-019	ES1616014-020
					Result	Result	Result	Result	Result
EP066S: PCB Surrogate - Continued									
Decachlorobiphenyl	2051-24-3	0.1	%		----	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		----	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		----	----	----	----	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.5	%		----	----	----	95.2	----
Toluene-D8	2037-26-5	0.5	%		----	----	----	77.8	----
4-Bromofluorobenzene	460-00-4	0.5	%		----	----	----	75.7	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		----	97.4	----	108	80.2
2-Chlorophenol-D4	93951-73-6	0.5	%		----	93.5	----	104	75.3
2.4.6-Tribromophenol	118-79-6	0.5	%		----	69.9	----	77.3	52.2
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		----	94.6	----	107	98.5
Anthracene-d10	1719-06-8	0.5	%		----	104	----	97.2	99.9
4-Terphenyl-d14	1718-51-0	0.5	%		----	109	----	120	111
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		----	104	----	84.5	84.7
Toluene-D8	2037-26-5	0.2	%		----	96.4	----	86.3	81.2
4-Bromofluorobenzene	460-00-4	0.2	%		----	87.2	----	80.6	72.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	S67	S70	S71	S73	S68
			Client sampling date / time	[19-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]
Compound	CAS Number	LOR	Unit	ES1616014-021	ES1616014-022	ES1616014-023	ES1616014-024	ES1616014-025
				Result	Result	Result	Result	Result
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	----	----	----	----	----
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1	%	17.3	18.2	15.9	21.0	20.8
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	----	----	----	----	No
Asbestos Type	1332-21-4	-	--	----	----	----	----	-
Sample weight (dry)	----	0.01	g	----	----	----	----	193
APPROVED IDENTIFIER:	----	-	--	----	----	----	----	S.SPOONER
EA200N: Asbestos Quantification (non-NATA)								
ø Free Fibres	----	5	Fibres	----	----	----	----	No
ø Friable Asbestos	1332-21-4	0.0004	g	----	----	----	----	<0.0004
ø Friable Asbestos (as Asbestos in Soil)	1332-21-4	0.001	% (w/w)	----	----	----	----	<0.001
ø Weight Used for % Calculation	----	0.0001	kg	----	----	----	----	0.193
ED040S : Soluble Sulfate by ICPAES								
Sulfate as SO4 2-	14808-79-8	10	mg/kg	----	----	----	----	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	10	mg/kg	----	----	----	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	6	<5	6
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	1
Chromium	7440-47-3	2	mg/kg	9	31	20	10	14
Copper	7440-50-8	5	mg/kg	30	47	31	10	129
Lead	7439-92-1	5	mg/kg	24	25	37	47	106
Nickel	7440-02-0	2	mg/kg	5	36	11	4	50
Zinc	7440-66-6	5	mg/kg	37	88	84	67	198
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	----	----	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	----	----	----	----
beta-BHC	319-85-7	0.05	mg/kg	<0.05	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S67	S70	S71	S73	S68
				Client sampling date / time	[19-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]
Compound	CAS Number	LOR	Unit		ES1616014-021	ES1616014-022	ES1616014-023	ES1616014-024	ES1616014-025
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
gamma-BHC	58-89-9	0.05	mg/kg		<0.05	----	----	----	----
delta-BHC	319-86-8	0.05	mg/kg		<0.05	----	----	----	----
Heptachlor	76-44-8	0.05	mg/kg		<0.05	----	----	----	----
Aldrin	309-00-2	0.05	mg/kg		<0.05	----	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg		<0.05	----	----	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg		<0.05	----	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg		<0.05	----	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	----	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	----	----	----	----
Dieldrin	60-57-1	0.05	mg/kg		<0.05	----	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	----	----	----	----
Endrin	72-20-8	0.05	mg/kg		<0.05	----	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	----	----	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		<0.05	----	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	----	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	----	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	----	----	----	----
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	----	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	----	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	----	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		<0.05	----	----	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-29-3	0.05	mg/kg		<0.05	----	----	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	----	----	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	----	----	----	----
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	----	----	----	----
Dimethoate	60-51-5	0.05	mg/kg		<0.05	----	----	----	----
Diazinon	333-41-5	0.05	mg/kg		<0.05	----	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	----	----	----	----
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	----	----	----	----
Malathion	121-75-5	0.05	mg/kg		<0.05	----	----	----	----
Fenthion	55-38-9	0.05	mg/kg		<0.05	----	----	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	----	----	----	----
Parathion	56-38-2	0.2	mg/kg		<0.2	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S67	S70	S71	S73	S68
				Client sampling date / time	[19-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]
Compound	CAS Number	LOR	Unit		ES1616014-021	ES1616014-022	ES1616014-023	ES1616014-024	ES1616014-025
					Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued									
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	----	----	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	----	----	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	----	----	----	----
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	----	----	----	----
Prothiofos	34643-46-4	0.05	mg/kg		<0.05	----	----	----	----
Ethion	563-12-2	0.05	mg/kg		<0.05	----	----	----	----
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	----	----	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	----	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons									
Styrene	100-42-5	0.5	mg/kg		----	----	----	----	----
Isopropylbenzene	98-82-8	0.5	mg/kg		----	----	----	----	----
n-Propylbenzene	103-65-1	0.5	mg/kg		----	----	----	----	----
1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg		----	----	----	----	----
sec-Butylbenzene	135-98-8	0.5	mg/kg		----	----	----	----	----
1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg		----	----	----	----	----
tert-Butylbenzene	98-06-6	0.5	mg/kg		----	----	----	----	----
p-Isopropyltoluene	99-87-6	0.5	mg/kg		----	----	----	----	----
n-Butylbenzene	104-51-8	0.5	mg/kg		----	----	----	----	----
EP074B: Oxygenated Compounds									
Vinyl Acetate	108-05-4	5	mg/kg		----	----	----	----	----
2-Butanone (MEK)	78-93-3	5	mg/kg		----	----	----	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg		----	----	----	----	----
2-Hexanone (MBK)	591-78-6	5	mg/kg		----	----	----	----	----
EP074C: Sulfonated Compounds									
Carbon disulfide	75-15-0	0.5	mg/kg		----	----	----	----	----
EP074D: Fumigants									
2.2-Dichloropropane	594-20-7	0.5	mg/kg		----	----	----	----	----
1.2-Dichloropropane	78-87-5	0.5	mg/kg		----	----	----	----	----
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg		----	----	----	----	----
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg		----	----	----	----	----
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg		----	----	----	----	----
EP074E: Halogenated Aliphatic Compounds									
Dichlorodifluoromethane	75-71-8	5	mg/kg		----	----	----	----	----
Chloromethane	74-87-3	5	mg/kg		----	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S67	S70	S71	S73	S68
				Client sampling date / time	[19-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]
Compound	CAS Number	LOR	Unit		ES1616014-021	ES1616014-022	ES1616014-023	ES1616014-024	ES1616014-025
					Result	Result	Result	Result	Result
EP074E: Halogenated Aliphatic Compounds - Continued									
Vinyl chloride	75-01-4	5	mg/kg		----	----	----	----	----
Bromomethane	74-83-9	5	mg/kg		----	----	----	----	----
Chloroethane	75-00-3	5	mg/kg		----	----	----	----	----
Trichlorofluoromethane	75-69-4	5	mg/kg		----	----	----	----	----
1.1-Dichloroethene	75-35-4	0.5	mg/kg		----	----	----	----	----
Iodomethane	74-88-4	0.5	mg/kg		----	----	----	----	----
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg		----	----	----	----	----
1.1-Dichloroethane	75-34-3	0.5	mg/kg		----	----	----	----	----
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg		----	----	----	----	----
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg		----	----	----	----	----
1.1-Dichloropropylene	563-58-6	0.5	mg/kg		----	----	----	----	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg		----	----	----	----	----
1.2-Dichloroethane	107-06-2	0.5	mg/kg		----	----	----	----	----
Trichloroethene	79-01-6	0.5	mg/kg		----	----	----	----	----
Dibromomethane	74-95-3	0.5	mg/kg		----	----	----	----	----
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg		----	----	----	----	----
1.3-Dichloropropane	142-28-9	0.5	mg/kg		----	----	----	----	----
Tetrachloroethene	127-18-4	0.5	mg/kg		----	----	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg		----	----	----	----	----
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg		----	----	----	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg		----	----	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg		----	----	----	----	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg		----	----	----	----	----
Pentachloroethane	76-01-7	0.5	mg/kg		----	----	----	----	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg		----	----	----	----	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg		----	----	----	----	----
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	0.5	mg/kg		----	----	----	----	----
Bromobenzene	108-86-1	0.5	mg/kg		----	----	----	----	----
2-Chlorotoluene	95-49-8	0.5	mg/kg		----	----	----	----	----
4-Chlorotoluene	106-43-4	0.5	mg/kg		----	----	----	----	----
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg		----	----	----	----	----
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg		----	----	----	----	----
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg		----	----	----	----	----
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg		----	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S67	S70	S71	S73	S68
				Client sampling date / time	[19-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]
Compound	CAS Number	LOR	Unit		ES1616014-021	ES1616014-022	ES1616014-023	ES1616014-024	ES1616014-025
					Result	Result	Result	Result	Result
EP074F: Halogenated Aromatic Compounds - Continued									
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg		----	----	----	----	----
EP074G: Trihalomethanes									
Chloroform	67-66-3	0.5	mg/kg		----	----	----	----	----
Bromodichloromethane	75-27-4	0.5	mg/kg		----	----	----	----	----
Dibromochloromethane	124-48-1	0.5	mg/kg		----	----	----	----	----
Bromoform	75-25-2	0.5	mg/kg		----	----	----	----	----
EP074H: Naphthalene									
Naphthalene	91-20-3	1	mg/kg		----	----	----	----	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		<0.5	----	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg		<0.5	----	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg		<0.5	----	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	----	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg		<0.5	----	----	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		<0.5	----	----	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		<0.5	----	----	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		<0.5	----	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		<0.5	----	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		<0.5	----	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		<0.5	----	----	----	----
Pentachlorophenol	87-86-5	2	mg/kg		<2	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	**0.6**
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	**2.9**	----	**3.3**
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	**0.7**	----	**0.6**
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	**0.6**	**4.3**	----	**5.3**
Pyrene	129-00-0	0.5	mg/kg		<0.5	**0.6**	**4.0**	----	**5.2**
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	**2.0**	----	**2.8**
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	**1.8**	----	**2.9**
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	**2.0**	----	**3.4**
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	**0.9**	----	**1.2**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S67	S70	S71	S73	S68
				Client sampling date / time	[19-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]
Compound	CAS Number	LOR	Unit		ES1616014-021	ES1616014-022	ES1616014-023	ES1616014-024	ES1616014-025
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	**1.9**	----	**2.8**
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	**0.7**	----	**1.1**
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	**0.9**	----	**1.4**
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	**1.2**	**22.1**	----	**30.6**
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	**2.5**	----	**3.7**
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	**2.7**	----	**3.9**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	**3.0**	----	**4.2**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	----	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	----	<50
C15 - C28 Fraction	----	100	mg/kg		<100	**110**	**110**	----	**210**
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	----	**160**
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	**110**	**110**	----	**370**
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	----	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	----	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	----	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	**160**	**150**	----	**320**
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	----	**100**
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	**160**	**150**	----	**420**
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	----	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	----	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	----	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	----	<0.5
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	----	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	----	<1
EP066S: PCB Surrogate									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S67	S70	S71	S73	S68
				Client sampling date / time	[19-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]
Compound	CAS Number	LOR	Unit		ES1616014-021	ES1616014-022	ES1616014-023	ES1616014-024	ES1616014-025
					Result	Result	Result	Result	Result
EP066S: PCB Surrogate - Continued									
Decachlorobiphenyl	2051-24-3	0.1	%		70.1	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		95.8	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		87.1	----	----	----	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.5	%		----	----	----	----	----
Toluene-D8	2037-26-5	0.5	%		----	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.5	%		----	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		99.2	95.6	107	----	90.0
2-Chlorophenol-D4	93951-73-6	0.5	%		95.3	91.0	99.4	----	86.5
2.4.6-Tribromophenol	118-79-6	0.5	%		78.1	74.2	85.9	----	86.5
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		97.6	92.4	99.0	----	100
Anthracene-d10	1719-06-8	0.5	%		96.2	102	108	----	106
4-Terphenyl-d14	1718-51-0	0.5	%		110	107	113	----	112
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		86.2	104	101	----	108
Toluene-D8	2037-26-5	0.2	%		87.6	91.1	90.5	----	93.0
4-Bromofluorobenzene	460-00-4	0.2	%		80.8	80.4	82.0	----	76.8

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	S69	S74	S75	S76	----
			Client sampling date / time	[19-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]	----
Compound	CAS Number	LOR	Unit	ES1616014-026	ES1616014-027	ES1616014-028	ES1616014-029	--------
				Result	Result	Result	Result	----
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	----	----	----	----	----
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1	%	21.0	15.2	11.9	19.7	----
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	----	No	----	----	----
Asbestos Type	1332-21-4	-	--	----	-	----	----	----
Sample weight (dry)	----	0.01	g	----	203	----	----	----
APPROVED IDENTIFIER:	----	-	--	----	S.SPOONER	----	----	----
EA200N: Asbestos Quantification (non-NATA)								
ø Free Fibres	----	5	Fibres	----	No	----	----	----
ø Friable Asbestos	1332-21-4	0.0004	g	----	<0.0004	----	----	----
ø Friable Asbestos (as Asbestos in Soil)	1332-21-4	0.001	% (w/w)	----	<0.001	----	----	----
ø Weight Used for % Calculation	----	0.0001	kg	----	0.203	----	----	----
ED040S : Soluble Sulfate by ICPAES								
Sulfate as SO4 2-	14808-79-8	10	mg/kg	----	----	----	----	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	10	mg/kg	----	----	----	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	6	<5	<5	5	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	2	<1	----
Chromium	7440-47-3	2	mg/kg	14	10	23	14	----
Copper	7440-50-8	5	mg/kg	12	8	360	15	----
Lead	7439-92-1	5	mg/kg	14	19	148	15	----
Nickel	7440-02-0	2	mg/kg	2	3	49	2	----
Zinc	7440-66-6	5	mg/kg	10	11	215	11	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	----	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	----	----	----
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S69	S74	S75	S76	----
				Client sampling date / time	[19-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]	----
Compound	CAS Number	LOR	Unit		ES1616014-026	ES1616014-027	ES1616014-028	ES1616014-029	--------
					Result	Result	Result	Result	----
EP068A: Organochlorine Pesticides (OC) - Continued									
gamma-BHC	58-89-9	0.05	mg/kg		<0.05	<0.05	----	----	----
delta-BHC	319-86-8	0.05	mg/kg		<0.05	<0.05	----	----	----
Heptachlor	76-44-8	0.05	mg/kg		<0.05	<0.05	----	----	----
Aldrin	309-00-2	0.05	mg/kg		<0.05	<0.05	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg		<0.05	<0.05	----	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg		<0.05	<0.05	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg		<0.05	<0.05	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	<0.05	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	<0.05	----	----	----
Dieldrin	60-57-1	0.05	mg/kg		<0.05	<0.05	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	<0.05	----	----	----
Endrin	72-20-8	0.05	mg/kg		<0.05	<0.05	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	<0.05	----	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		<0.05	<0.05	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	<0.05	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	<0.05	----	----	----
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	<0.2	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	<0.05	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	<0.2	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		<0.05	<0.05	----	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-29-3	0.05	mg/kg		<0.05	<0.05	----	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	<0.05	----	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	<0.05	----	----	----
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	<0.2	----	----	----
Dimethoate	60-51-5	0.05	mg/kg		<0.05	<0.05	----	----	----
Diazinon	333-41-5	0.05	mg/kg		<0.05	<0.05	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	<0.05	----	----	----
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	<0.2	----	----	----
Malathion	121-75-5	0.05	mg/kg		<0.05	<0.05	----	----	----
Fenthion	55-38-9	0.05	mg/kg		<0.05	<0.05	----	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	<0.05	----	----	----
Parathion	56-38-2	0.2	mg/kg		<0.2	<0.2	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S69	S74	S75	S76	----
				Client sampling date / time	[19-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]	----
Compound	CAS Number	LOR	Unit		ES1616014-026	ES1616014-027	ES1616014-028	ES1616014-029	--------
					Result	Result	Result	Result	----
EP068B: Organophosphorus Pesticides (OP) - Continued									
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	<0.05	----	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	<0.05	----	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	<0.05	----	----	----
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	<0.05	----	----	----
Prothiofos	34643-46-4	0.05	mg/kg		<0.05	<0.05	----	----	----
Ethion	563-12-2	0.05	mg/kg		<0.05	<0.05	----	----	----
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	<0.05	----	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	<0.05	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons									
Styrene	100-42-5	0.5	mg/kg		----	----	----	----	----
Isopropylbenzene	98-82-8	0.5	mg/kg		----	----	----	----	----
n-Propylbenzene	103-65-1	0.5	mg/kg		----	----	----	----	----
1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg		----	----	----	----	----
sec-Butylbenzene	135-98-8	0.5	mg/kg		----	----	----	----	----
1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg		----	----	----	----	----
tert-Butylbenzene	98-06-6	0.5	mg/kg		----	----	----	----	----
p-Isopropyltoluene	99-87-6	0.5	mg/kg		----	----	----	----	----
n-Butylbenzene	104-51-8	0.5	mg/kg		----	----	----	----	----
EP074B: Oxygenated Compounds									
Vinyl Acetate	108-05-4	5	mg/kg		----	----	----	----	----
2-Butanone (MEK)	78-93-3	5	mg/kg		----	----	----	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg		----	----	----	----	----
2-Hexanone (MBK)	591-78-6	5	mg/kg		----	----	----	----	----
EP074C: Sulfonated Compounds									
Carbon disulfide	75-15-0	0.5	mg/kg		----	----	----	----	----
EP074D: Fumigants									
2.2-Dichloropropane	594-20-7	0.5	mg/kg		----	----	----	----	----
1.2-Dichloropropane	78-87-5	0.5	mg/kg		----	----	----	----	----
cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg		----	----	----	----	----
trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg		----	----	----	----	----
1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg		----	----	----	----	----
EP074E: Halogenated Aliphatic Compounds									
Dichlorodifluoromethane	75-71-8	5	mg/kg		----	----	----	----	----
Chloromethane	74-87-3	5	mg/kg		----	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S69	S74	S75	S76	----
				Client sampling date / time	[19-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]	----
Compound	CAS Number	LOR	Unit		ES1616014-026	ES1616014-027	ES1616014-028	ES1616014-029	--------
					Result	Result	Result	Result	----
EP074E: Halogenated Aliphatic Compounds - Continued									
Vinyl chloride	75-01-4	5	mg/kg		----	----	----	----	----
Bromomethane	74-83-9	5	mg/kg		----	----	----	----	----
Chloroethane	75-00-3	5	mg/kg		----	----	----	----	----
Trichlorofluoromethane	75-69-4	5	mg/kg		----	----	----	----	----
1.1-Dichloroethene	75-35-4	0.5	mg/kg		----	----	----	----	----
Iodomethane	74-88-4	0.5	mg/kg		----	----	----	----	----
trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg		----	----	----	----	----
1.1-Dichloroethane	75-34-3	0.5	mg/kg		----	----	----	----	----
cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg		----	----	----	----	----
1.1.1-Trichloroethane	71-55-6	0.5	mg/kg		----	----	----	----	----
1.1-Dichloropropylene	563-58-6	0.5	mg/kg		----	----	----	----	----
Carbon Tetrachloride	56-23-5	0.5	mg/kg		----	----	----	----	----
1.2-Dichloroethane	107-06-2	0.5	mg/kg		----	----	----	----	----
Trichloroethene	79-01-6	0.5	mg/kg		----	----	----	----	----
Dibromomethane	74-95-3	0.5	mg/kg		----	----	----	----	----
1.1.2-Trichloroethane	79-00-5	0.5	mg/kg		----	----	----	----	----
1.3-Dichloropropane	142-28-9	0.5	mg/kg		----	----	----	----	----
Tetrachloroethene	127-18-4	0.5	mg/kg		----	----	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg		----	----	----	----	----
trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg		----	----	----	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg		----	----	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg		----	----	----	----	----
1.2.3-Trichloropropane	96-18-4	0.5	mg/kg		----	----	----	----	----
Pentachloroethane	76-01-7	0.5	mg/kg		----	----	----	----	----
1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg		----	----	----	----	----
Hexachlorobutadiene	87-68-3	0.5	mg/kg		----	----	----	----	----
EP074F: Halogenated Aromatic Compounds									
Chlorobenzene	108-90-7	0.5	mg/kg		----	----	----	----	----
Bromobenzene	108-86-1	0.5	mg/kg		----	----	----	----	----
2-Chlorotoluene	95-49-8	0.5	mg/kg		----	----	----	----	----
4-Chlorotoluene	106-43-4	0.5	mg/kg		----	----	----	----	----
1.3-Dichlorobenzene	541-73-1	0.5	mg/kg		----	----	----	----	----
1.4-Dichlorobenzene	106-46-7	0.5	mg/kg		----	----	----	----	----
1.2-Dichlorobenzene	95-50-1	0.5	mg/kg		----	----	----	----	----
1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg		----	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S69	S74	S75	S76	----
				Client sampling date / time	[19-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]	----
Compound	CAS Number	LOR	Unit		ES1616014-026	ES1616014-027	ES1616014-028	ES1616014-029	--------
					Result	Result	Result	Result	----
EP074F: Halogenated Aromatic Compounds - Continued									
1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg		----	----	----	----	----
EP074G: Trihalomethanes									
Chloroform	67-66-3	0.5	mg/kg		----	----	----	----	----
Bromodichloromethane	75-27-4	0.5	mg/kg		----	----	----	----	----
Dibromochloromethane	124-48-1	0.5	mg/kg		----	----	----	----	----
Bromoform	75-25-2	0.5	mg/kg		----	----	----	----	----
EP074H: Naphthalene									
Naphthalene	91-20-3	1	mg/kg		----	----	----	----	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		<0.5	<0.5	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg		<0.5	<0.5	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg		<0.5	<0.5	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	<1	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg		<0.5	<0.5	----	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		<0.5	<0.5	----	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		<0.5	<0.5	----	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		<0.5	<0.5	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		<0.5	<0.5	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		<0.5	<0.5	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		<0.5	<0.5	----	----	----
Pentachlorophenol	87-86-5	2	mg/kg		<2	<2	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S69	S74	S75	S76	----
				Client sampling date / time	[19-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]	----
Compound	CAS Number	LOR	Unit		ES1616014-026	ES1616014-027	ES1616014-028	ES1616014-029	--------
					Result	Result	Result	Result	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	**0.6**	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	<100	**130**	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	**130**	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	----	----
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	----	----
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	**170**	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	**140**	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	**310**	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	----	----
EP066S: PCB Surrogate									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S69	S74	S75	S76	----
				Client sampling date / time	[19-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]	[19-Jul-2016]	----
Compound	CAS Number	LOR	Unit		ES1616014-026	ES1616014-027	ES1616014-028	ES1616014-029	--------
					Result	Result	Result	Result	----
EP066S: PCB Surrogate - Continued									
Decachlorobiphenyl	2051-24-3	0.1	%		68.0	74.2	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		89.1	110	----	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		83.1	103	----	----	----
EP074S: VOC Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.5	%		----	----	----	----	----
Toluene-D8	2037-26-5	0.5	%		----	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.5	%		----	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		108	107	96.5	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		109	105	92.3	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		91.8	88.1	88.7	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		109	106	95.2	----	----
Anthracene-d10	1719-06-8	0.5	%		120	115	102	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		120	122	106	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		120	112	110	----	----
Toluene-D8	2037-26-5	0.2	%		98.6	90.1	92.2	----	----
4-Bromofluorobenzene	460-00-4	0.2	%		78.8	84.0	74.4	----	----

Analytical Results

Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	Client sample ID - Client sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	S40 - [18-Jul-2016]	Mid grey clay soil with several loose bundles of friable asbestos fibres approx 2 x 1 x 0.5 mm.
EA200: Description	S43 - [18-Jul-2016]	Mid brown clay soil.
EA200: Description	S53 - [18-Jul-2016]	Mid brown clay soil with one loose bundle of friable asbestos fibres approx 2 x 1 x 0.5 mm.
EA200: Description	S54 - [19-Jul-2016]	Mid brown clay soil.
EA200: Description	S68 - [19-Jul-2016]	Mid grey clay soil.
EA200: Description	S74 - [19-Jul-2016]	Mid brown clay soil.

Surrogate Control Limits

Sub-Matrix: **SOIL**

Compound	CAS Number	Recovery Limits (%) Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	39	149
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	49	147
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	35	143
EP074S: VOC Surrogates			
1.2-Dichloroethane-D4	17060-07-0	64	130
Toluene-D8	2037-26-5	66	136
4-Bromofluorobenzene	460-00-4	60	122
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	133
Toluene-D8	2037-26-5	74	132
4-Bromofluorobenzene	460-00-4	72	130

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **ES1616014**	Page	: 1 of 25
Client	: **SMEC TESTING SERVICES PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: C MATTHAI(STS)	Contact	:
Address	: 14/1 Cowpasture Place Wetherill Park NSW	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: ----	Date Samples Received	: 21-Jul-2016
Order number	: ----	Date Analysis Commenced	: 22-Jul-2016
C-O-C number	: ----	Issue Date	: 28-Jul-2016
Sampler	: ----		
Site	: ----		
Quote number	: ----		
No. of samples received	: 34		
No. of samples analysed	: 29		

NATA Accredited Laboratory 825
Accredited for compliance with
ISO/IEC 17025.

NATA
WORLD RECOGNISED ACCREDITATION

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ashesh Patel	Inorganic Chemist	Sydney Inorganics, Smithfield, NSW
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
RICHARD TEA	Lab technician	Sydney Inorganics, Smithfield, NSW
Shaun Spooner	Asbestos Identifier	Newcastle - Asbestos, Mayfield West, NSW

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
= Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA002 : pH (Soils) (QC Lot: 527704)									
ES1615679-001	Anonymous	EA002: pH Value	----	0.1	pH Unit	5.8	5.8	0.00	0% - 20%
EA002 : pH (Soils) (QC Lot: 528078)									
ES1616006-002	Anonymous	EA002: pH Value	----	0.1	pH Unit	8.1	8.1	0.00	0% - 20%
ES1615827-001	Anonymous	EA002: pH Value	----	0.1	pH Unit	5.0	5.0	0.00	0% - 20%
EA055: Moisture Content (QC Lot: 528166)									
ES1616009-001	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1	%	18.4	19.2	4.38	0% - 50%
ES1616013-008	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1	%	38.3	38.1	0.366	0% - 20%
EA055: Moisture Content (QC Lot: 528167)									
ES1616014-008	S57	EA055-103: Moisture Content (dried @ 103°C)	----	1	%	20.3	19.8	2.16	0% - 20%
ES1616014-019	S65	EA055-103: Moisture Content (dried @ 103°C)	----	1	%	18.7	17.0	9.90	0% - 50%
EA055: Moisture Content (QC Lot: 528168)									
ES1616014-029	S76	EA055-103: Moisture Content (dried @ 103°C)	----	1	%	19.7	19.6	0.00	0% - 50%
ES1616049-007	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1	%	53.4	53.2	0.245	0% - 20%
ED040S: Soluble Major Anions (QC Lot: 527706)									
ES1616014-009	S58	ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	70	80	15.9	No Limit
ED040S: Soluble Major Anions (QC Lot: 528080)									
ES1616110-002	Anonymous	ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	230	240	0.00	0% - 20%
ES1615827-001	Anonymous	ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	20	20	0.00	No Limit
ED045G: Chloride by Discrete Analyser (QC Lot: 527708)									
ES1616014-009	S58	ED045G: Chloride	16887-00-6	10	mg/kg	250	250	0.00	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 528079)									
ES1616110-002	Anonymous	ED045G: Chloride	16887-00-6	10	mg/kg	100	100	0.00	0% - 50%
ES1615827-001	Anonymous	ED045G: Chloride	16887-00-6	10	mg/kg	<10	<10	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG005T: Total Metals by ICP-AES (QC Lot: 528285)									
ES1616013-002	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	6	6	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	5	6	20.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	14	25	56.4	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	15	16	8.03	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	53	58	9.78	0% - 50%
ES1616014-003	S42	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	11	8	30.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	6	4	43.6	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	18	8	78.8	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	19	14	31.8	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	14	7	66.8	No Limit
EG005T: Total Metals by ICP-AES (QC Lot: 528477)									
ES1615774-044	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	6	7	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	2	2	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	36	39	6.95	No Limit
ES1616014-013	S54	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	8	6	31.6	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	3	<2	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	25	23	10.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	27	23	15.9	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	18	11	49.8	No Limit
EG005T: Total Metals by ICP-AES (QC Lot: 528478)									
ES1616014-023	S71	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	20	16	23.8	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	11	9	25.8	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	6	7	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	31	33	3.91	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	37	59	45.8	0% - 50%
		EG005T: Zinc	7440-66-6	5	mg/kg	84	97	14.3	0% - 50%
ES1616174-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	5	6	24.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	3	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EG005T: Total Metals by ICP-AES (QC Lot: 528478) - continued									
ES1616174-001	Anonymous	EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	10	8	26.7	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	10	8	29.2	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	78	56	32.2	0% - 50%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 528286)									
ES1616013-002	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
ES1616014-003	S42	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 528476)									
ES1615774-044	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
ES1616014-013	S54	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 528479)									
ES1616014-023	S71	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
ES1616174-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 526368)									
ES1616014-004	S43	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 526367)									
ES1616014-004	S43	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 526367)									
ES1616014-004	S43	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 526367) - continued									
ES1616014-004	S43	EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 526358)									
ES1616014-004	S43	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 526361)									
ES1616014-003	S42	EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074B: Oxygenated Compounds (QC Lot: 526358)									
ES1616014-004	S43	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP074B: Oxygenated Compounds (QC Lot: 526358) - continued									
ES1616014-004	S43	EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.00	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.00	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.00	No Limit
EP074B: Oxygenated Compounds (QC Lot: 526361)									
ES1616014-003	S42	EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	<5	0.00	No Limit
		EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	<5	0.00	No Limit
		EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	<5	0.00	No Limit
		EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	<5	0.00	No Limit
EP074C: Sulfonated Compounds (QC Lot: 526358)									
ES1616014-004	S43	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074C: Sulfonated Compounds (QC Lot: 526361)									
ES1616014-003	S42	EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074D: Fumigants (QC Lot: 526358)									
ES1616014-004	S43	EP074: 2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074D: Fumigants (QC Lot: 526361)									
ES1616014-003	S42	EP074: 2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 526358)									
ES1616014-004	S43	EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP074E: Halogenated Aliphatic Compounds (QC Lot: 526358) - continued									
ES1616014-004	S43	EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.00	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 526361)									
ES1616014-003	S42	EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Chloromethane	74-87-3	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	<5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP074E: Halogenated Aliphatic Compounds (QC Lot: 526361) - continued									
ES1616014-003	S42	EP074: Bromomethane	74-83-9	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Chloroethane	75-00-3	5	mg/kg	<5	<5	0.00	No Limit
		EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	<5	0.00	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 526358)									
ES1616014-004	S43	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 526361)									
ES1616014-003	S42	EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074G: Trihalomethanes (QC Lot: 526358)									
ES1616014-004	S43	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074G: Trihalomethanes (QC Lot: 526361)									
ES1616014-003	S42	EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP074H: Naphthalene (QC Lot: 526358)									
ES1616014-004	S43	EP074: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EP074H: Naphthalene (QC Lot: 526361)									
ES1616014-003	S42	EP074: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 526363)									
ES1615942-004	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075(SIM)A: Phenolic Compounds (QC Lot: 526363) - continued									
ES1615942-004	Anonymous	EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.00	No Limit
ES1616013-002	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.00	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 526365)									
ES1616014-015	S56	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.00	No Limit
ES1616014-004	S43	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075(SIM)A: Phenolic Compounds (QC Lot: 526365) - continued									
ES1616014-004	S43	EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.00	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 526363)									
ES1615942-004	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	0.5	0.7	29.6	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	1.4	1.7	18.9	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	1.5	1.8	17.8	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	1.0	1.2	17.8	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	1.0	1.2	22.8	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	1.7	2.1	21.9	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	0.6	0.8	29.4	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	1.2	1.4	19.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	0.8	1.0	20.4	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	1.2	1.5	19.4	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	10.9	# 13.4	20.6	0% - 20%
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	1.6	1.9	17.1	No Limit
ES1616013-002	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 526363) - continued									
ES1616013-002	Anonymous	EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 526365)									
ES1616014-015	S56	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
ES1616014-004	S43	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 526365) - continued									
ES1616014-004	S43	EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 526357)									
ES1616014-004	S43	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 526360)									
ES1616014-020	S66	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
ES1616014-003	S42	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 526364)									
ES1615942-004	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	110	130	14.5	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
ES1616013-002	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	240	230	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	350	360	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 526366)									
ES1616014-015	S56	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
ES1616014-004	S43	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 526357)									
ES1616014-004	S43	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 526360)									
ES1616014-020	S66	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
ES1616014-003	S42	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 526364)									
ES1615942-004	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	180	200	10.4	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 526364) - continued									
ES1616013-002	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	400	390	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	460	500	8.26	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 526366)									
ES1616014-015	S56	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
ES1616014-004	S43	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080: BTEXN (QC Lot: 526357)									
ES1616014-004	S43	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EP080: BTEXN (QC Lot: 526360)									
ES1616014-020	S66	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
ES1616014-003	S42	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
ED040S: Soluble Major Anions (QCLot: 527706)								
ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	<10	150 mg/kg	96.9	80	120
ED040S: Soluble Major Anions (QCLot: 528080)								
ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	<10	150 mg/kg	96.6	80	120
ED045G: Chloride by Discrete Analyser (QCLot: 527708)								
ED045G: Chloride	16887-00-6	10	mg/kg	<10	50 mg/kg	112	75	125
				<10	5000 mg/kg	102	79	117
ED045G: Chloride by Discrete Analyser (QCLot: 528079)								
ED045G: Chloride	16887-00-6	10	mg/kg	<10	50 mg/kg	101	75	125
				<10	5000 mg/kg	106	79	117
EG005T: Total Metals by ICP-AES (QCLot: 528285)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	103	86	126
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	98.4	83	113
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	97.3	76	128
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	98.2	86	120
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	99.1	80	114
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	103	87	123
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	108	80	122
EG005T: Total Metals by ICP-AES (QCLot: 528477)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	106	86	126
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	102	83	113
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	94.2	76	128
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	103	86	120
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	99.6	80	114
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	105	87	123
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	108	80	122
EG005T: Total Metals by ICP-AES (QCLot: 528478)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	104	86	126
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	98.5	83	113
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	94.4	76	128
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	97.8	86	120
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	97.1	80	114
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	102	87	123
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	101	80	122

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EG035T: Total Recoverable Mercury by FIMS (QCLot: 528286)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	87.8	70	105
EG035T: Total Recoverable Mercury by FIMS (QCLot: 528476)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	92.6	70	105
EG035T: Total Recoverable Mercury by FIMS (QCLot: 528479)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	75.7	70	105
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 526368)								
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	111	62	126
EP068A: Organochlorine Pesticides (OC) (QCLot: 526367)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	94.0	69	113
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	94.1	65	117
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	103	67	119
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	96.1	68	116
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	102	65	117
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	90.7	67	115
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	101	69	115
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	103	62	118
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	106	63	117
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	100	66	116
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	107	64	116
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	105	66	116
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	109	67	115
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	91.2	67	123
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	110	69	115
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	109	69	121
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	103	56	120
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	94.2	62	124
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	96.5	66	120
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	104	64	122
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	80.7	54	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 526367)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	96.7	59	119
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	95.9	62	128
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	77.6	54	126
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	92.5	67	119
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	104	70	120
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	98.2	72	120
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	89.0	68	120
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	98.6	68	122

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP068B: Organophosphorus Pesticides (OP) (QCLot: 526367) - continued								
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	105	69	117
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	104	76	118
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	92.9	64	122
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	106	70	116
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	101	69	121
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	104	66	118
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	93.7	68	124
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	100	62	112
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	106	68	120
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	99.0	65	127
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	62.3	41	123
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 526358)								
EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	1 mg/kg	99.3	67	113
EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	1 mg/kg	103	65	117
EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	1 mg/kg	102	66	122
EP074: 1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	1 mg/kg	103	68	118
EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	1 mg/kg	108	69	119
EP074: 1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	1 mg/kg	106	69	117
EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	1 mg/kg	102	69	115
EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	1 mg/kg	106	66	118
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	1 mg/kg	106	59	125
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 526361)								
EP074: Styrene	100-42-5	0.5	mg/kg	<0.5	1 mg/kg	81.7	67	113
EP074: Isopropylbenzene	98-82-8	0.5	mg/kg	<0.5	1 mg/kg	86.4	65	117
EP074: n-Propylbenzene	103-65-1	0.5	mg/kg	<0.5	1 mg/kg	89.5	66	122
EP074: 1.3.5-Trimethylbenzene	108-67-8	0.5	mg/kg	<0.5	1 mg/kg	90.8	68	118
EP074: sec-Butylbenzene	135-98-8	0.5	mg/kg	<0.5	1 mg/kg	94.3	69	119
EP074: 1.2.4-Trimethylbenzene	95-63-6	0.5	mg/kg	<0.5	1 mg/kg	91.9	69	117
EP074: tert-Butylbenzene	98-06-6	0.5	mg/kg	<0.5	1 mg/kg	89.8	69	115
EP074: p-Isopropyltoluene	99-87-6	0.5	mg/kg	<0.5	1 mg/kg	95.2	66	118
EP074: n-Butylbenzene	104-51-8	0.5	mg/kg	<0.5	1 mg/kg	92.2	59	125
EP074B: Oxygenated Compounds (QCLot: 526358)								
EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	10 mg/kg	97.1	30	156
EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	10 mg/kg	96.0	58	136
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	10 mg/kg	92.6	62	132
EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	10 mg/kg	96.4	54	136
EP074B: Oxygenated Compounds (QCLot: 526361)								
EP074: Vinyl Acetate	108-05-4	5	mg/kg	<5	10 mg/kg	86.5	30	156

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP074B: Oxygenated Compounds (QCLot: 526361) - continued								
EP074: 2-Butanone (MEK)	78-93-3	5	mg/kg	<5	10 mg/kg	69.5	58	136
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	5	mg/kg	<5	10 mg/kg	85.6	62	132
EP074: 2-Hexanone (MBK)	591-78-6	5	mg/kg	<5	10 mg/kg	74.7	54	136
EP074C: Sulfonated Compounds (QCLot: 526358)								
EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	1 mg/kg	102	54	126
EP074C: Sulfonated Compounds (QCLot: 526361)								
EP074: Carbon disulfide	75-15-0	0.5	mg/kg	<0.5	1 mg/kg	81.8	54	126
EP074D: Fumigants (QCLot: 526358)								
EP074: 2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	99.2	60	126
EP074: 1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	86.4	68	124
EP074: cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	83.0	51	119
EP074: trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	80.3	52	114
EP074: 1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	100	63	115
EP074D: Fumigants (QCLot: 526361)								
EP074: 2.2-Dichloropropane	594-20-7	0.5	mg/kg	<0.5	1 mg/kg	89.7	60	126
EP074: 1.2-Dichloropropane	78-87-5	0.5	mg/kg	<0.5	1 mg/kg	86.4	68	124
EP074: cis-1.3-Dichloropropylene	10061-01-5	0.5	mg/kg	<0.5	1 mg/kg	79.8	51	119
EP074: trans-1.3-Dichloropropylene	10061-02-6	0.5	mg/kg	<0.5	1 mg/kg	79.2	52	114
EP074: 1.2-Dibromoethane (EDB)	106-93-4	0.5	mg/kg	<0.5	1 mg/kg	86.6	63	115
EP074E: Halogenated Aliphatic Compounds (QCLot: 526358)								
EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	10 mg/kg	103	30	148
EP074: Chloromethane	74-87-3	5	mg/kg	<5	10 mg/kg	124	41	141
EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	10 mg/kg	112	43	147
EP074: Bromomethane	74-83-9	5	mg/kg	<5	10 mg/kg	105	47	141
EP074: Chloroethane	75-00-3	5	mg/kg	<5	10 mg/kg	103	49	143
EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	10 mg/kg	122	49	135
EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	106	54	126
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	102	43	129
EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	102	64	120
EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	97.1	67	125
EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	97.6	69	121
EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	102	65	117
EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	101	65	123
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	101	59	125
EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	95.7	65	125
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	108	70	118
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	88.9	68	118
EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	94.2	64	126

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP074E: Halogenated Aliphatic Compounds (QCLot: 526358) - continued								
EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	91.4	68	122
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	114	67	143
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	94.2	62	122
EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	96.7	54	128
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	96.7	55	129
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	97.1	65	121
EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	96.4	61	125
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	99.6	20	134
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	93.5	53	129
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	105	50	128
EP074E: Halogenated Aliphatic Compounds (QCLot: 526361)								
EP074: Dichlorodifluoromethane	75-71-8	5	mg/kg	<5	10 mg/kg	78.9	30	148
EP074: Chloromethane	74-87-3	5	mg/kg	<5	10 mg/kg	89.6	41	141
EP074: Vinyl chloride	75-01-4	5	mg/kg	<5	10 mg/kg	83.3	43	147
EP074: Bromomethane	74-83-9	5	mg/kg	<5	10 mg/kg	86.0	47	141
EP074: Chloroethane	75-00-3	5	mg/kg	<5	10 mg/kg	89.3	49	143
EP074: Trichlorofluoromethane	75-69-4	5	mg/kg	<5	10 mg/kg	86.7	49	135
EP074: 1.1-Dichloroethene	75-35-4	0.5	mg/kg	<0.5	1 mg/kg	91.0	54	126
EP074: Iodomethane	74-88-4	0.5	mg/kg	<0.5	1 mg/kg	86.6	43	129
EP074: trans-1.2-Dichloroethene	156-60-5	0.5	mg/kg	<0.5	1 mg/kg	91.8	64	120
EP074: 1.1-Dichloroethane	75-34-3	0.5	mg/kg	<0.5	1 mg/kg	89.4	67	125
EP074: cis-1.2-Dichloroethene	156-59-2	0.5	mg/kg	<0.5	1 mg/kg	92.2	69	121
EP074: 1.1.1-Trichloroethane	71-55-6	0.5	mg/kg	<0.5	1 mg/kg	84.5	65	117
EP074: 1.1-Dichloropropylene	563-58-6	0.5	mg/kg	<0.5	1 mg/kg	82.4	65	123
EP074: Carbon Tetrachloride	56-23-5	0.5	mg/kg	<0.5	1 mg/kg	81.4	59	125
EP074: 1.2-Dichloroethane	107-06-2	0.5	mg/kg	<0.5	1 mg/kg	91.6	65	125
EP074: Trichloroethene	79-01-6	0.5	mg/kg	<0.5	1 mg/kg	87.6	70	118
EP074: Dibromomethane	74-95-3	0.5	mg/kg	<0.5	1 mg/kg	91.7	68	118
EP074: 1.1.2-Trichloroethane	79-00-5	0.5	mg/kg	<0.5	1 mg/kg	92.8	64	126
EP074: 1.3-Dichloropropane	142-28-9	0.5	mg/kg	<0.5	1 mg/kg	95.9	68	122
EP074: Tetrachloroethene	127-18-4	0.5	mg/kg	<0.5	1 mg/kg	85.7	67	143
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	0.5	mg/kg	<0.5	1 mg/kg	81.9	62	122
EP074: trans-1.4-Dichloro-2-butene	110-57-6	0.5	mg/kg	<0.5	1 mg/kg	71.4	54	128
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	0.5	mg/kg	<0.5	1 mg/kg	75.8	55	129
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	0.5	mg/kg	<0.5	1 mg/kg	97.9	65	121
EP074: 1.2.3-Trichloropropane	96-18-4	0.5	mg/kg	<0.5	1 mg/kg	87.2	61	125
EP074: Pentachloroethane	76-01-7	0.5	mg/kg	<0.5	1 mg/kg	95.2	20	134
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	0.5	mg/kg	<0.5	1 mg/kg	77.8	53	129
EP074: Hexachlorobutadiene	87-68-3	0.5	mg/kg	<0.5	1 mg/kg	94.5	50	128

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP074F: Halogenated Aromatic Compounds (QCLot: 526358)								
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	98.5	68	116
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	97.6	70	1147
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	99.4	68	122
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	103	67	123
EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	101	70	116
EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	102	67	117
EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	101	70	114
EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	97.5	48	122
EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	97.6	52	122
EP074F: Halogenated Aromatic Compounds (QCLot: 526361)								
EP074: Chlorobenzene	108-90-7	0.5	mg/kg	<0.5	1 mg/kg	90.8	68	116
EP074: Bromobenzene	108-86-1	0.5	mg/kg	<0.5	1 mg/kg	92.5	70	1147
EP074: 2-Chlorotoluene	95-49-8	0.5	mg/kg	<0.5	1 mg/kg	93.0	68	122
EP074: 4-Chlorotoluene	106-43-4	0.5	mg/kg	<0.5	1 mg/kg	95.1	67	123
EP074: 1.3-Dichlorobenzene	541-73-1	0.5	mg/kg	<0.5	1 mg/kg	98.0	70	116
EP074: 1.4-Dichlorobenzene	106-46-7	0.5	mg/kg	<0.5	1 mg/kg	98.0	67	117
EP074: 1.2-Dichlorobenzene	95-50-1	0.5	mg/kg	<0.5	1 mg/kg	92.5	70	114
EP074: 1.2.4-Trichlorobenzene	120-82-1	0.5	mg/kg	<0.5	1 mg/kg	88.5	48	122
EP074: 1.2.3-Trichlorobenzene	87-61-6	0.5	mg/kg	<0.5	1 mg/kg	91.6	52	122
EP074G: Trihalomethanes (QCLot: 526358)								
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	100.0	66	124
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	85.7	61	121
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	87.3	63	121
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	95.3	60	126
EP074G: Trihalomethanes (QCLot: 526361)								
EP074: Chloroform	67-66-3	0.5	mg/kg	<0.5	1 mg/kg	89.5	66	124
EP074: Bromodichloromethane	75-27-4	0.5	mg/kg	<0.5	1 mg/kg	80.0	61	121
EP074: Dibromochloromethane	124-48-1	0.5	mg/kg	<0.5	1 mg/kg	78.3	63	121
EP074: Bromoform	75-25-2	0.5	mg/kg	<0.5	1 mg/kg	74.6	60	126
EP074H: Naphthalene (QCLot: 526358)								
EP074: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	94.0	67	129
EP074H: Naphthalene (QCLot: 526361)								
EP074: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	94.7	67	129
EP075(SIM)A: Phenolic Compounds (QCLot: 526363)								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	6 mg/kg	93.1	71	125
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	6 mg/kg	90.0	72	124
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	6 mg/kg	89.2	71	123
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	12 mg/kg	88.8	67	127

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP075(SIM)A: Phenolic Compounds (QCLot: 526363) - continued								
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	6 mg/kg	66.4	54	114
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	6 mg/kg	91.0	68	126
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	6 mg/kg	81.8	66	120
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	6 mg/kg	85.7	70	120
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	6 mg/kg	83.8	70	116
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	6 mg/kg	70.7	54	114
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	6 mg/kg	71.6	60	114
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	12 mg/kg	20.0	10	57
EP075(SIM)A: Phenolic Compounds (QCLot: 526365)								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	6 mg/kg	103	71	125
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	6 mg/kg	98.6	72	124
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	6 mg/kg	97.8	71	123
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	12 mg/kg	97.3	67	127
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	6 mg/kg	65.1	54	114
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	6 mg/kg	96.2	68	126
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	6 mg/kg	91.2	66	120
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	6 mg/kg	94.9	70	120
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	6 mg/kg	94.3	70	116
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	6 mg/kg	79.8	54	114
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	6 mg/kg	77.9	60	114
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	12 mg/kg	11.8	10	57
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 526363)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	88.0	77	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	84.4	72	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	86.2	73	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	82.4	72	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	84.0	75	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	85.2	77	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	84.2	73	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	83.6	74	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	89.3	69	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	91.8	75	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	93.8	68	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	94.9	74	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	89.6	70	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	85.8	61	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	85.7	62	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	92.6	63	121

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 526365)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	95.8	77	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	92.8	72	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	92.9	73	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	89.0	72	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	90.6	75	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	91.4	77	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	89.9	73	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	89.3	74	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	97.1	69	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	97.8	75	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	90.4	68	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	96.9	74	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	97.8	70	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	76.4	61	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	76.3	62	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	76.4	63	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 526357)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	95.9	68	128
EP080/071: Total Petroleum Hydrocarbons (QCLot: 526360)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	98.8	68	128
EP080/071: Total Petroleum Hydrocarbons (QCLot: 526364)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	95.7	75	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	99.4	77	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	96.1	71	129
EP080/071: Total Petroleum Hydrocarbons (QCLot: 526366)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	101	75	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	103	77	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	98.8	71	129
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 526357)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	97.7	68	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 526360)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	98.1	68	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 526364)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	250 mg/kg	104	77	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	105	74	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	150 mg/kg	100	63	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 526366)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 526366) - continued								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	250 mg/kg	106	77	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	102	74	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	150 mg/kg	99.1	63	131
EP080: BTEXN (QCLot: 526357)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	93.4	62	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	102	67	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	93.2	65	117
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	98.2	66	118
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	98.2	68	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	109	63	119
EP080: BTEXN (QCLot: 526360)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	79.6	62	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	75.8	67	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	76.9	65	117
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	82.0	66	118
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	80.0	68	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	86.0	63	119

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
ED045G: Chloride by Discrete Analyser (QCLot: 527708)							
ES1616014-009	S58	ED045G: Chloride	16887-00-6	1250 mg/kg	91.3	70	130
ED045G: Chloride by Discrete Analyser (QCLot: 528079)							
ES1615827-001	Anonymous	ED045G: Chloride	16887-00-6	1250 mg/kg	96.1	70	130
EG005T: Total Metals by ICP-AES (QCLot: 528285)							
ES1616013-002	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	103	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	101	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	101	70	130
		EG005T: Copper	7440-50-8	250 mg/kg	100	70	130
		EG005T: Lead	7439-92-1	250 mg/kg	100	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	97.8	70	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 528285) - continued							
ES1616013-002	Anonymous	EG005T: Zinc	7440-66-6	250 mg/kg	99.7	70	130
EG005T: Total Metals by ICP-AES (QCLot: 528477)							
ES1615774-044	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	105	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	96.4	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	98.2	70	130
		EG005T: Copper	7440-50-8	250 mg/kg	103	70	130
		EG005T: Lead	7439-92-1	250 mg/kg	95.4	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	95.0	70	130
		EG005T: Zinc	7440-66-6	250 mg/kg	93.8	70	130
EG005T: Total Metals by ICP-AES (QCLot: 528478)							
ES1616014-023	S71	EG005T: Arsenic	7440-38-2	50 mg/kg	98.4	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	101	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	103	70	130
		EG005T: Copper	7440-50-8	250 mg/kg	104	70	130
		EG005T: Lead	7439-92-1	250 mg/kg	104	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	99.3	70	130
		EG005T: Zinc	7440-66-6	250 mg/kg	98.8	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 528286)							
ES1616013-002	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	73.2	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 528476)							
ES1615774-044	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	116	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 528479)							
ES1616014-023	S71	EG035T: Mercury	7439-97-6	5 mg/kg	77.5	70	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 526368)							
ES1616014-004	S43	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	109	70	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 526367)							
ES1616014-004	S43	EP068: gamma-BHC	58-89-9	0.5 mg/kg	84.8	70	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	85.4	70	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	84.7	70	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	87.4	70	130
		EP068: Endrin	72-20-8	2 mg/kg	87.5	70	130
		EP068: 4.4`-DDT	50-29-3	2 mg/kg	84.2	70	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 526367)							
ES1616014-004	S43	EP068: Diazinon	333-41-5	0.5 mg/kg	83.2	70	130
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	97.1	70	130
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	79.0	70	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP068B: Organophosphorus Pesticides (OP) (QCLot: 526367) - continued							
ES1616014-004	S43	EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	89.1	70	130
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	86.9	70	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 526358)							
ES1616014-004	S43	EP074: 1.1-Dichloroethene	75-35-4	2.5 mg/kg	72.2	70	130
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	78.0	70	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 526361)							
ES1616014-003	S42	EP074: 1.1-Dichloroethene	75-35-4	2.5 mg/kg	97.8	70	130
		EP074: Trichloroethene	79-01-6	2.5 mg/kg	93.1	70	130
EP074F: Halogenated Aromatic Compounds (QCLot: 526358)							
ES1616014-004	S43	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	87.1	70	130
EP074F: Halogenated Aromatic Compounds (QCLot: 526361)							
ES1616014-003	S42	EP074: Chlorobenzene	108-90-7	2.5 mg/kg	101	70	130
EP075(SIM)A: Phenolic Compounds (QCLot: 526363)							
ES1615942-004	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	96.4	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	90.7	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	82.0	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	90.3	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	43.2	20	130
EP075(SIM)A: Phenolic Compounds (QCLot: 526365)							
ES1616014-004	S43	EP075(SIM): Phenol	108-95-2	10 mg/kg	85.1	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	98.7	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	79.1	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	123	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	75.3	20	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 526363)							
ES1615942-004	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	82.6	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	89.8	70	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 526365)							
ES1616014-004	S43	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	96.7	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	111	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 526357)							
ES1616014-004	S43	EP080: C6 - C9 Fraction	----	32.5 mg/kg	77.8	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 526360)							
ES1616014-003	S42	EP080: C6 - C9 Fraction	----	32.5 mg/kg	77.4	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 526364)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 526364) - continued							
ES1615942-004	Anonymous	EP071: C10 - C14 Fraction	----	523 mg/kg	93.3	73	137
		EP071: C15 - C28 Fraction	----	2319 mg/kg	96.3	53	131
		EP071: C29 - C36 Fraction	----	1714 mg/kg	117	52	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 526366)							
ES1616014-004	S43	EP071: C10 - C14 Fraction	----	523 mg/kg	102	73	137
		EP071: C15 - C28 Fraction	----	2319 mg/kg	96.1	53	131
		EP071: C29 - C36 Fraction	----	1714 mg/kg	118	52	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 526357)							
ES1616014-004	S43	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	75.7	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 526360)							
ES1616014-003	S42	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	76.6	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 526364)							
ES1615942-004	Anonymous	EP071: >C10 - C16 Fraction	----	860 mg/kg	100	73	137
		EP071: >C16 - C34 Fraction	----	3223 mg/kg	118	53	131
		EP071: >C34 - C40 Fraction	----	1058 mg/kg	109	52	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 526366)							
ES1616014-004	S43	EP071: >C10 - C16 Fraction	----	860 mg/kg	89.9	73	137
		EP071: >C16 - C34 Fraction	----	3223 mg/kg	105	53	131
		EP071: >C34 - C40 Fraction	----	1058 mg/kg	110	52	132
EP080: BTEXN (QCLot: 526357)							
ES1616014-004	S43	EP080: Benzene	71-43-2	2.5 mg/kg	70.9	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	76.9	70	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	72.4	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	74.3	70	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	79.7	70	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	85.1	70	130
EP080: BTEXN (QCLot: 526360)							
ES1616014-003	S42	EP080: Benzene	71-43-2	2.5 mg/kg	71.0	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	73.2	70	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	70.1	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	70.1	70	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	71.1	70	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	71.0	70	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES1616014**	Page	: 1 of 12
Client	: **SMEC TESTING SERVICES PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: C MATTHAI(STS)	Telephone	: +61-2-8784 8555
Project	: ----	Date Samples Received	: 21-Jul-2016
Site	: ----	Issue Date	: 28-Jul-2016
Sampler	: ----	No. of samples received	: 34
Order number	: ----	No. of samples analysed	: 29

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **Duplicate outliers exist - please see following pages for full details.**
- **Surrogate recovery outliers exist for all regular sample matrices - please see following pages for full details.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Duplicate (DUP) RPDs							
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons	ES1615942--004	Anonymous	**Sum of polycyclic aromatic hydrocarbons**	----	20.6 %	0% - 20%	**RPD exceeds LOR based limits**

Regular Sample Surrogates

Sub-Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Samples Submitted							
EP075(SIM)S: Phenolic Compound Surrogates	ES1616014-003	S42	**Phenol-d6**	13127-88-3	125 %	63-123 %	**Recovery greater than upper data quality objective**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA002 : pH (Soils)							
Soil Glass Jar - Unpreserved (EA002) S58, S60	**18-Jul-2016**	**25-Jul-2016**	25-Jul-2016	✓	**25-Jul-2016**	25-Jul-2016	✓
Soil Glass Jar - Unpreserved (EA002) S56, S65	**19-Jul-2016**	**26-Jul-2016**	26-Jul-2016	✓	**26-Jul-2016**	26-Jul-2016	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content							
Soil Glass Jar - Unpreserved (EA055-103)							
S40, S41, S42, S43, S49, S50, S52, S57, S58, S53, S59, S60	**18-Jul-2016**	**----**	----	----	**25-Jul-2016**	01-Aug-2016	✓
Soil Glass Jar - Unpreserved (EA055-103)							
S54, S55, S56, S61, S62, S63, S65, S66, S67, S70, S71, S73, S68, S69, S74, S75, S76	**19-Jul-2016**	**----**	----	----	**25-Jul-2016**	02-Aug-2016	✓
EA200: AS 4964 - 2004 Identification of Asbestos in Soils							
Snap Lock Bag: Separate bag received (EA200)							
S40, S43, S53	**18-Jul-2016**	**----**	----	----	**27-Jul-2016**	14-Jan-2017	✓
Snap Lock Bag: Separate bag received (EA200)							
S54, S68, S74	**19-Jul-2016**	**----**	----	----	**27-Jul-2016**	15-Jan-2017	✓
EA200N: Asbestos Quantification (non-NATA)							
Snap Lock Bag: Separate bag received (EA200N)							
S40, S43, S53	**18-Jul-2016**	**----**	----	----	**27-Jul-2016**	14-Jan-2017	✓
Snap Lock Bag: Separate bag received (EA200N)							
S54, S68, S74	**19-Jul-2016**	**----**	----	----	**27-Jul-2016**	15-Jan-2017	✓
ED040S : Soluble Sulfate by ICPAES							
Soil Glass Jar - Unpreserved (ED040S)							
S58, S60	**18-Jul-2016**	**25-Jul-2016**	15-Aug-2016	✓	**25-Jul-2016**	22-Aug-2016	✓
Soil Glass Jar - Unpreserved (ED040S)							
S56, S65	**19-Jul-2016**	**26-Jul-2016**	16-Aug-2016	✓	**26-Jul-2016**	23-Aug-2016	✓
ED045G: Chloride by Discrete Analyser							
Soil Glass Jar - Unpreserved (ED045G)							
S58, S60	**18-Jul-2016**	**25-Jul-2016**	15-Aug-2016	✓	**25-Jul-2016**	22-Aug-2016	✓
Soil Glass Jar - Unpreserved (ED045G)							
S56, S65	**19-Jul-2016**	**26-Jul-2016**	16-Aug-2016	✓	**26-Jul-2016**	23-Aug-2016	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG005T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
S40, S41, S42, S43, S49, S50, S52	**18-Jul-2016**	**25-Jul-2016**	14-Jan-2017	✓	**26-Jul-2016**	14-Jan-2017	✓
Soil Glass Jar - Unpreserved (EG005T)							
S57, S58, S53, S59, S60	**18-Jul-2016**	**26-Jul-2016**	14-Jan-2017	✓	**26-Jul-2016**	14-Jan-2017	✓
Soil Glass Jar - Unpreserved (EG005T)							
S54, S55, S56, S61, S62, S63, S65, S66, S67, S70, S71, S73, S68, S69, S74, S75, S76	**19-Jul-2016**	**26-Jul-2016**	15-Jan-2017	✓	**26-Jul-2016**	15-Jan-2017	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
S40, S41, S42, S43, S49, S50, S52	**18-Jul-2016**	**25-Jul-2016**	15-Aug-2016	✓	**26-Jul-2016**	15-Aug-2016	✓
Soil Glass Jar - Unpreserved (EG035T)							
S57, S58, S53, S59, S60	**18-Jul-2016**	**26-Jul-2016**	15-Aug-2016	✓	**26-Jul-2016**	15-Aug-2016	✓
Soil Glass Jar - Unpreserved (EG035T)							
S54, S55, S56, S61, S62, S63, S65, S66, S67, S70, S71, S73, S68, S69, S74, S75, S76	**19-Jul-2016**	**26-Jul-2016**	16-Aug-2016	✓	**26-Jul-2016**	16-Aug-2016	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066)							
S43, S60	**18-Jul-2016**	**25-Jul-2016**	01-Aug-2016	✓	**25-Jul-2016**	03-Sep-2016	✓
Soil Glass Jar - Unpreserved (EP066)							
S55, S67, S69, S74	**19-Jul-2016**	**25-Jul-2016**	02-Aug-2016	✓	**25-Jul-2016**	03-Sep-2016	✓
EP068A: Organochlorine Pesticides (OC)							
Soil Glass Jar - Unpreserved (EP068)							
S43, S60	**18-Jul-2016**	**25-Jul-2016**	01-Aug-2016	✓	**25-Jul-2016**	03-Sep-2016	✓
Soil Glass Jar - Unpreserved (EP068)							
S55, S67, S69, S74	**19-Jul-2016**	**25-Jul-2016**	02-Aug-2016	✓	**25-Jul-2016**	03-Sep-2016	✓
EP068B: Organophosphorus Pesticides (OP)							
Soil Glass Jar - Unpreserved (EP068)							
S43, S60	**18-Jul-2016**	**25-Jul-2016**	01-Aug-2016	✓	**25-Jul-2016**	03-Sep-2016	✓
Soil Glass Jar - Unpreserved (EP068)							
S55, S67, S69, S74	**19-Jul-2016**	**25-Jul-2016**	02-Aug-2016	✓	**25-Jul-2016**	03-Sep-2016	✓
EP074A: Monocyclic Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP074)							
S42, S43, S60	**18-Jul-2016**	**22-Jul-2016**	25-Jul-2016	✓	**25-Jul-2016**	25-Jul-2016	✓
Soil Glass Jar - Unpreserved (EP074)							
S55, S65	**19-Jul-2016**	**22-Jul-2016**	26-Jul-2016	✓	**25-Jul-2016**	26-Jul-2016	✓
EP074B: Oxygenated Compounds							
Soil Glass Jar - Unpreserved (EP074)							
S42, S43, S60	**18-Jul-2016**	**22-Jul-2016**	25-Jul-2016	✓	**25-Jul-2016**	25-Jul-2016	✓
Soil Glass Jar - Unpreserved (EP074)							
S55, S65	**19-Jul-2016**	**22-Jul-2016**	26-Jul-2016	✓	**25-Jul-2016**	26-Jul-2016	✓
EP074C: Sulfonated Compounds							
Soil Glass Jar - Unpreserved (EP074)							
S42, S43, S60	**18-Jul-2016**	**22-Jul-2016**	25-Jul-2016	✓	**25-Jul-2016**	25-Jul-2016	✓
Soil Glass Jar - Unpreserved (EP074)							
S55, S65	**19-Jul-2016**	**22-Jul-2016**	26-Jul-2016	✓	**25-Jul-2016**	26-Jul-2016	✓
EP074D: Fumigants							
Soil Glass Jar - Unpreserved (EP074)							
S42, S43, S60	**18-Jul-2016**	**22-Jul-2016**	25-Jul-2016	✓	**25-Jul-2016**	25-Jul-2016	✓
Soil Glass Jar - Unpreserved (EP074)							
S55, S65	**19-Jul-2016**	**22-Jul-2016**	26-Jul-2016	✓	**25-Jul-2016**	26-Jul-2016	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP074E: Halogenated Aliphatic Compounds							
Soil Glass Jar - Unpreserved (EP074) S42, S43, S60	**18-Jul-2016**	**22-Jul-2016**	25-Jul-2016	✓	**25-Jul-2016**	25-Jul-2016	✓
Soil Glass Jar - Unpreserved (EP074) S55, S65	**19-Jul-2016**	**22-Jul-2016**	26-Jul-2016	✓	**25-Jul-2016**	26-Jul-2016	✓
EP074F: Halogenated Aromatic Compounds							
Soil Glass Jar - Unpreserved (EP074) S42, S43, S60	**18-Jul-2016**	**22-Jul-2016**	25-Jul-2016	✓	**25-Jul-2016**	25-Jul-2016	✓
Soil Glass Jar - Unpreserved (EP074) S55, S65	**19-Jul-2016**	**22-Jul-2016**	26-Jul-2016	✓	**25-Jul-2016**	26-Jul-2016	✓
EP074G: Trihalomethanes							
Soil Glass Jar - Unpreserved (EP074) S42, S43, S60	**18-Jul-2016**	**22-Jul-2016**	25-Jul-2016	✓	**25-Jul-2016**	25-Jul-2016	✓
Soil Glass Jar - Unpreserved (EP074) S55, S65	**19-Jul-2016**	**22-Jul-2016**	26-Jul-2016	✓	**25-Jul-2016**	26-Jul-2016	✓
EP074H: Naphthalene							
Soil Glass Jar - Unpreserved (EP074) S43, S60	**18-Jul-2016**	**22-Jul-2016**	25-Jul-2016	✓	**25-Jul-2016**	25-Jul-2016	✓
Soil Glass Jar - Unpreserved (EP074) S55	**19-Jul-2016**	**22-Jul-2016**	26-Jul-2016	✓	**25-Jul-2016**	26-Jul-2016	✓
EP075(SIM)A: Phenolic Compounds							
Soil Glass Jar - Unpreserved (EP075(SIM)) S43, S60	**18-Jul-2016**	**25-Jul-2016**	01-Aug-2016	✓	**25-Jul-2016**	03-Sep-2016	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) S55, S67, S69, S74	**19-Jul-2016**	**25-Jul-2016**	02-Aug-2016	✓	**25-Jul-2016**	03-Sep-2016	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM)) S40, S42, S43, S52, S58, S53, S59, S60	**18-Jul-2016**	**25-Jul-2016**	01-Aug-2016	✓	**25-Jul-2016**	03-Sep-2016	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) S54, S55, S56, S62, S65, S66, S67, S70, S71, S68, S69, S74, S75	**19-Jul-2016**	**25-Jul-2016**	02-Aug-2016	✓	**25-Jul-2016**	03-Sep-2016	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080)							
S40, S42, S43, S52, S58, S53, S59, S60	**18-Jul-2016**	**22-Jul-2016**	01-Aug-2016	✓	**25-Jul-2016**	01-Aug-2016	✓
Soil Glass Jar - Unpreserved (EP071)							
S40, S42, S43, S52, S58, S53, S59, S60	**18-Jul-2016**	**25-Jul-2016**	01-Aug-2016	✓	**25-Jul-2016**	03-Sep-2016	✓
Soil Glass Jar - Unpreserved (EP080)							
S54, S55, S56, S62, S65, S66, S67, S70, S71, S68, S69, S74, S75	**19-Jul-2016**	**22-Jul-2016**	02-Aug-2016	✓	**25-Jul-2016**	02-Aug-2016	✓
Soil Glass Jar - Unpreserved (EP071)							
S54, S55, S56, S62, S65, S66, S67, S70, S71, S68, S69, S74, S75	**19-Jul-2016**	**25-Jul-2016**	02-Aug-2016	✓	**25-Jul-2016**	03-Sep-2016	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP080)							
S40, S42, S43, S52, S58, S53, S59, S60	**18-Jul-2016**	**22-Jul-2016**	01-Aug-2016	✓	**25-Jul-2016**	01-Aug-2016	✓
Soil Glass Jar - Unpreserved (EP071)							
S40, S42, S43, S52, S58, S53, S59, S60	**18-Jul-2016**	**25-Jul-2016**	01-Aug-2016	✓	**25-Jul-2016**	03-Sep-2016	✓
Soil Glass Jar - Unpreserved (EP080)							
S54, S55, S56, S62, S65, S66, S67, S70, S71, S68, S69, S74, S75	**19-Jul-2016**	**22-Jul-2016**	02-Aug-2016	✓	**25-Jul-2016**	02-Aug-2016	✓
Soil Glass Jar - Unpreserved (EP071)							
S54, S55, S56, S62, S65, S66, S67, S70, S71, S68, S69, S74, S75	**19-Jul-2016**	**25-Jul-2016**	02-Aug-2016	✓	**25-Jul-2016**	03-Sep-2016	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080)							
S40, S42, S43, S52, S58, S53, S59, S60	**18-Jul-2016**	**22-Jul-2016**	01-Aug-2016	✓	**25-Jul-2016**	01-Aug-2016	✓
Soil Glass Jar - Unpreserved (EP080)							
S54, S55, S56, S62, S65, S66, S67, S70, S71, S68, S69, S74, S75	**19-Jul-2016**	**22-Jul-2016**	02-Aug-2016	✓	**25-Jul-2016**	02-Aug-2016	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Chloride Soluble By Discrete Analyser	ED045G	3	18	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Anions - Soluble	ED040S	3	18	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055-103	6	60	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	4	39	**10.26**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	6	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH (1:5)	EA002	3	28	**10.71**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	6	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	6	44	**13.64**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	6	44	**13.64**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	4	39	**10.26**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	3	21	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	2	5	**40.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Chloride Soluble By Discrete Analyser	ED045G	4	18	**22.22**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Anions - Soluble	ED040S	2	18	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	3	44	**6.82**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	3	44	**6.82**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	21	**9.52**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	2	5	**40.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Chloride Soluble By Discrete Analyser	ED045G	2	18	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Anions - Soluble	ED040S	2	18	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	3	44	**6.82**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	3	44	**6.82**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	21	**9.52**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	2	5	**40.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Chloride Soluble By Discrete Analyser	ED045G	2	18	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Matrix Spikes (MS) - Continued							
PAH/Phenols (SIM)	EP075(SIM)	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	3	44	**6.82**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	3	44	**6.82**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	21	**9.52**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	2	5	**40.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH (1:5)	EA002	SOIL	In house: Referenced to APHA 4500H+. pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM (2013) Schedule B(3) (Method 103)
Moisture Content	EA055-103	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Asbestos Identification in Soils	EA200	SOIL	AS 4964 - 2004 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
Asbestos Classification and Quantitation per NEPM 2013	* EA200N	SOIL	Asbestos Classification and Quantitation per NEPM 2013 with Confirmation of Identification by AS 4964 - 2004 Gravimetric determination of Asbestos Containing Material, Friable Asbestos and sample weight and calculation of percentage concentrations per NEPM protocols. Friable Asbestos is reported as the equivalent weight in the sample received after accounting for sub-sampling (where applicable for the <7mm and/or <2mm fractions).
Major Anions - Soluble	ED040S	SOIL	In house: Soluble Anions are determined off a 1:5 soil / water extract by ICPAES.
Chloride Soluble By Discrete Analyser	ED045G	SOIL	In house: Referenced to APHA 4500-Cl- E. The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride.in the presence of ferric ions the librated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm. Analysis is performed on a 1:5 soil / water leachate.
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM (2013) Schedule B(3) (Method 504,505)
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40.
Volatile Organic Compounds	EP074	SOIL	In house: Referenced to USEPA SW 846 - 8260B Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 501)

Analytical Methods	Method	Matrix	Method Descriptions
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260B Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve.

Preparation Methods	Method	Matrix	Method Descriptions
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of distilled water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB1617787**	Page	: 1 of 6
Client	: **SMEC TESTING SERVICES PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: CARSTEN MATTHAI	Contact	:
Address	: P O BOX 6989 WETHERILL PARK NSW, AUSTRALIA 2164	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: ----	Telephone	: +61-7-3243 7222
Project	: 21024	Date Samples Received	: 12-Jul-2016 08:20
Order number	: 13153	Date Analysis Commenced	: 12-Jul-2016
C-O-C number	: ----	Issue Date	: 18-Jul-2016 13:04
Sampler	: J K		
Site	: ----		
Quote number	: ----		
No. of samples received	: 2		
No. of samples analysed	: 2		

NATA Accredited Laboratory 825
Accredited for compliance with
ISO/IEC 17025.

NATA
WORLD RECOGNISED ACCREDITATION

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Andrew Epps	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD
Matt Frost	Senior Organic Chemist	Brisbane Inorganics, Stafford, QLD
Matt Frost	Senior Organic Chemist	Brisbane Organics, Stafford, QLD

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP080: High LCS recovery deemed acceptable as all associated analyte results are less than LOR.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	S11	S24	----	----	----
			Client sampling date / time	[05-Jul-2016]	[07-Jul-2016]	----	----	----
Compound	CAS Number	LOR	Unit	EB1617787-001	EB1617787-002	--------	--------	--------
				Result	Result	----	----	----
EA055: Moisture Content								
Moisture Content (dried @ 103°C)	----	1	%	5.9	20.8	----	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	15	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	----	----	----
Chromium	7440-47-3	2	mg/kg	11	20	----	----	----
Copper	7440-50-8	5	mg/kg	36	19	----	----	----
Lead	7439-92-1	5	mg/kg	29	29	----	----	----
Nickel	7440-02-0	2	mg/kg	5	5	----	----	----
Zinc	7440-66-6	5	mg/kg	30	26	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	----	----	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg	0.6	<0.5	----	----	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg	0.8	<0.5	----	----	----
Pyrene	129-00-0	0.5	mg/kg	0.8	<0.5	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	2.2	<0.5	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	0.6	0.6	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	1.2	1.2	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	S11	S24	----	----	----
			Client sampling date / time	[05-Jul-2016]	[07-Jul-2016]	----	----	----
Compound	CAS Number	LOR	Unit	EB1617787-001	EB1617787-002	--------	--------	--------
				Result	Result	----	----	----
EP080/071: Total Petroleum Hydrocarbons - Continued								
C10 - C14 Fraction	----	50	mg/kg	<50	<50	----	----	----
C15 - C28 Fraction	----	100	mg/kg	<100	<100	----	----	----
C29 - C36 Fraction	----	100	mg/kg	<100	<100	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	----	----	----
>C10 - C16 Fraction	----	50	mg/kg	<50	<50	----	----	----
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	----	----	----
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	----	----	----
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	----	----	----
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	----	----	----
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	----	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	----	----	----
Naphthalene	91-20-3	1	mg/kg	<1	<1	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	**101**	**99.2**	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%	**92.1**	**90.9**	----	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%	**53.2**	**48.3**	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	**86.2**	**85.2**	----	----	----
Anthracene-d10	1719-06-8	0.5	%	**83.8**	**81.3**	----	----	----
4-Terphenyl-d14	1718-51-0	0.5	%	**101**	**108**	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**115**	**112**	----	----	----
Toluene-D8	2037-26-5	0.2	%	**110**	**107**	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	S11	S24	----	----	----
				Client sampling date / time	[05-Jul-2016]	[07-Jul-2016]	----	----	----
Compound	CAS Number	LOR	Unit		EB1617787-001	EB1617787-002	--------	--------	--------
					Result	Result	----	----	----
EP080S: TPH(V)/BTEX Surrogates - Continued									
4-Bromofluorobenzene	460-00-4	0.2	%		**131**	**127**	**----**	**----**	**----**

Surrogate Control Limits

Sub-Matrix: **SOIL**

Compound	CAS Number	Recovery Limits (%) Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	35	155
2-Chlorophenol-D4	93951-73-6	42	153
2.4.6-Tribromophenol	118-79-6	26	157
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	34	157
Anthracene-d10	1719-06-8	37	153
4-Terphenyl-d14	1718-51-0	42	172
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	53	134
Toluene-D8	2037-26-5	60	131
4-Bromofluorobenzene	460-00-4	59	127

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EB1617787**	Page	: 1 of 6
Client	: **SMEC TESTING SERVICES PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: CARSTEN MATTHAI	Contact	:
Address	: P O BOX 6989 WETHERILL PARK NSW, AUSTRALIA 2164	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: ----	Telephone	: +61-7-3243 7222
Project	: 21024	Date Samples Received	: 12-Jul-2016
Order number	: 13153	Date Analysis Commenced	: 12-Jul-2016
C-O-C number	: ----	Issue Date	: 18-Jul-2016
Sampler	: J K		
Site	: ----		
Quote number	: ----		
No. of samples received	: 2		
No. of samples analysed	: 2		

NATA Accredited Laboratory 825
Accredited for compliance with
ISO/IEC 17025.

NATA
WORLD RECOGNISED ACCREDITATION

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Andrew Epps	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD
Matt Frost	Senior Organic Chemist	Brisbane Inorganics, Stafford, QLD
Matt Frost	Senior Organic Chemist	Brisbane Organics, Stafford, QLD

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
= Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA055: Moisture Content (QC Lot: 516029)									
EB1617784-001	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1	%	5.4	5.3	2.38	No Limit
EG005T: Total Metals by ICP-AES (QC Lot: 516085)									
EB1617787-001	S11	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	11	13	10.5	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	5	6	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	36	41	12.8	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	29	33	13.4	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	30	20	41.5	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 516086)									
EB1617787-001	S11	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 516025)									
EB1617784-001	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 516025) - continued									
EB1617784-001	Anonymous	EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 515037)									
EB1617784-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 516026)									
EB1617784-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 515037)									
EB1617784-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 516026)									
EB1617784-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080: BTEXN (QC Lot: 515037)									
EB1617784-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit

Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 516085)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	118.9 mg/kg	106	84	123
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	1.87125 mg/kg	111	88	117
EG005T: Chromium	7440-47-3	2	mg/kg	<2	22.7 mg/kg	102	83	125
EG005T: Copper	7440-50-8	5	mg/kg	<5	55 mg/kg	112	86	122
EG005T: Lead	7439-92-1	5	mg/kg	<5	72.1 mg/kg	107	84	119
EG005T: Nickel	7440-02-0	2	mg/kg	<2	16.6 mg/kg	96.6	89	126
EG005T: Zinc	7440-66-6	5	mg/kg	<5	182.3 mg/kg	116	87	127
EG035T: Total Recoverable Mercury by FIMS (QCLot: 516086)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.09821 mg/kg	94.9	78	122
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 516025)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	1.5 mg/kg	101	74	119
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	1.5 mg/kg	94.6	74	118
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	1.5 mg/kg	101	83	121
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	1.5 mg/kg	98.5	81	116
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	1.5 mg/kg	108	72	117
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	1.5 mg/kg	110	72	115
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	1.5 mg/kg	109	70	116
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	1.5 mg/kg	108	70	134
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	1.5 mg/kg	93.6	64	120
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	1.5 mg/kg	116	66	119
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	1.5 mg/kg	78.3	59	129
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	1.5 mg/kg	104	70	129
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	1.5 mg/kg	95.8	76	121
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	1.5 mg/kg	97.2	53	135
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	1.5 mg/kg	97.6	45	134
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	1.5 mg/kg	105	64	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 515037)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	16 mg/kg	94.1	66	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 516026)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	318 mg/kg	108	79	123
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	531 mg/kg	109	77	123
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 515037)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 515037) - continued								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	18.5 mg/kg	91.8	66	119
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 516026)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	428 mg/kg	109	81	122
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	395 mg/kg	107	74	122
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----
EP080: BTEXN (QCLot: 515037)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	92.0	73	105
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	101	73	105
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	104	67	104
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	# 108	66	106
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	102	68	105
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	104	72	115

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG005T: Total Metals by ICP-AES (QCLot: 516085)							
EB1617787-002	S24	EG005T: Arsenic	7440-38-2	50 mg/kg	99.8	70	130
		EG005T: Cadmium	7440-43-9	25 mg/kg	106	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	101	70	130
		EG005T: Copper	7440-50-8	50 mg/kg	103	70	130
		EG005T: Lead	7439-92-1	50 mg/kg	96.8	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	106	70	130
		EG005T: Zinc	7440-66-6	50 mg/kg	95.3	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 516086)							
EB1617787-002	S24	EG035T: Mercury	7439-97-6	2.5 mg/kg	110	70	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 516025)							
EB1617784-003	Anonymous	EP075(SIM): Acenaphthene	83-32-9	1.5 mg/kg	101	70	130
		EP075(SIM): Pyrene	129-00-0	1.5 mg/kg	108	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 515037)							
EB1617784-003	Anonymous	EP080: C6 - C9 Fraction	----	8 mg/kg	91.0	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 516026)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP080/071: Total Petroleum Hydrocarbons (QCLot: 516026) - continued							
EB1617784-003	Anonymous	EP071: C10 - C14 Fraction	----	318 mg/kg	102	70	130
		EP071: C15 - C28 Fraction	----	531 mg/kg	104	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 515037)							
EB1617784-003	Anonymous	EP080: C6 - C10 Fraction	C6_C10	8 mg/kg	93.7	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 516026)							
EB1617784-003	Anonymous	EP071: >C10 - C16 Fraction	----	428 mg/kg	105	70	130
		EP071: >C16 - C34 Fraction	----	395 mg/kg	102	70	130
EP080: BTEXN (QCLot: 515037)							
EB1617784-003	Anonymous	EP080: Benzene	71-43-2	2 mg/kg	82.2	70	130
		EP080: Toluene	108-88-3	2 mg/kg	91.7	70	130

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EB1617787**	Page	: 1 of 5
Client	: **SMEC TESTING SERVICES PTY LTD**	Laboratory	: Environmental Division Brisbane
Contact	: CARSTEN MATTHAI	Telephone	: +61-7-3243 7222
Project	: 21024	Date Samples Received	: 12-Jul-2016
Site	: ----	Issue Date	: 18-Jul-2016
Sampler	: J K	No. of samples received	: 2
Order number	: 13153	No. of samples analysed	: 2

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Matrix Spike outliers occur.**
- **Laboratory Control outliers exist - please see following pages for full details.**
- **Surrogate recovery outliers exist for all regular sample matrices - please see following pages for full details.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Laboratory Control Spike (LCS) Recoveries							
EP080: BTEXN	QC-515037-002	----	**meta- & para-Xylene**	108-38-3 106-42-3	108 %	66-106%	**Recovery greater than upper control limit**

Regular Sample Surrogates

Sub-Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Samples Submitted							
EP080S: TPH(V)/BTEX Surrogates	EB1617787-001	S11	**4-Bromofluorobenzene**	460-00-4	131 %	59-127 %	**Recovery greater than upper data quality objective**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / *Container / Client Sample ID(s)*	*Sample Date*	*Extraction / Preparation*			*Analysis*		
		Date extracted	*Due for extraction*	*Evaluation*	*Date analysed*	*Due for analysis*	*Evaluation*
EA055: Moisture Content							
Soil Glass Jar - Unpreserved (EA055-103)							
S11	**05-Jul-2016**	**----**	----	----	**13-Jul-2016**	19-Jul-2016	✓
Soil Glass Jar - Unpreserved (EA055-103)							
S24	**07-Jul-2016**	**----**	----	----	**13-Jul-2016**	21-Jul-2016	✓
EG005T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
S11	**05-Jul-2016**	**13-Jul-2016**	01-Jan-2017	✓	**14-Jul-2016**	01-Jan-2017	✓
Soil Glass Jar - Unpreserved (EG005T)							
S24	**07-Jul-2016**	**13-Jul-2016**	03-Jan-2017	✓	**14-Jul-2016**	03-Jan-2017	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
S11	**05-Jul-2016**	**13-Jul-2016**	02-Aug-2016	✓	**14-Jul-2016**	02-Aug-2016	✓
Soil Glass Jar - Unpreserved (EG035T)							
S24	**07-Jul-2016**	**13-Jul-2016**	04-Aug-2016	✓	**14-Jul-2016**	04-Aug-2016	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP071)							
S11	**05-Jul-2016**	**13-Jul-2016**	19-Jul-2016	✓	**14-Jul-2016**	22-Aug-2016	✓
Soil Glass Jar - Unpreserved (EP071)							
S24	**07-Jul-2016**	**13-Jul-2016**	21-Jul-2016	✓	**14-Jul-2016**	22-Aug-2016	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM))							
S11	**05-Jul-2016**	**13-Jul-2016**	19-Jul-2016	✓	**14-Jul-2016**	22-Aug-2016	✓
Soil Glass Jar - Unpreserved (EP075(SIM))							
S24	**07-Jul-2016**	**13-Jul-2016**	21-Jul-2016	✓	**14-Jul-2016**	22-Aug-2016	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080)							
S11	**05-Jul-2016**	**12-Jul-2016**	19-Jul-2016	✓	**14-Jul-2016**	19-Jul-2016	✓
Soil Glass Jar - Unpreserved (EP080)							
S24	**07-Jul-2016**	**12-Jul-2016**	21-Jul-2016	✓	**14-Jul-2016**	21-Jul-2016	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055-103	1	6	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	6	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	10	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	6	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	6	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055-103	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40.
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260B Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve.

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.