



Douglas Partners

Geotechnics • Environment • Groundwater

Integrated Practical Solutions

REPORT

on

PHASE 1 CONTAMINATION ASSESSMENT

**STATE SPORTS CENTRE DEVELOPMENT SITE 13
CNR SARAH DURACK AVENUE
AND OLYMPIC BOULEVARD
SYDNEY OLYMPIC PARK**

Prepared for
AV JENNINGS LTD

Project 44559A
February 2007



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EXECUTIVE SUMMARY

BACKGROUND

This report details the methodology and results of a Phase 1 Contamination Assessment undertaken by Douglas Partners Pty Ltd (DP), at the State Sports Centre development site, Site 13, located on the corner of Sarah Durack Avenue and Olympic Boulevard, Sydney Olympic Park. The assessment was conducted on behalf of A V Jennings Ltd and it was carried out in accordance with our fee proposal and attached conditions of engagement, dated 12 December 2006, which were accepted by Mr Rob Kardos on behalf of AV Jennings Ltd.

The site has an area of approximately 5000 m² (0.5 ha) and is occupied by a ground level car park and bus turning bay with associated landscaping. The site is currently used as a bus/coach stop for the State Sports Centre. It is understood that the current investigation has been requested to support a development application for the construction of a multi-storey commercial/office building with one basement level car park.

The objectives of the current investigation were to conduct a review of available site history information and undertake a limited soil sampling and analytical programme targeting a range of common contaminants. The report presents the findings of the investigation and provides comments relating to the likely degree/ extent of soil contamination and the suitability of the site for the proposed development. This report also provides a preliminary in-situ waste classification of the materials encountered.

At the time of the investigation the site was occupied by a concrete and asphalt paved bus/coach parking and loading bay and areas of landscaping. Site observations indicated a difference on elevation between the subject site and the adjacent State Sports Centre of approximately 5 to 6 m indicating the potential for substantial filling to be present on the site.

The site history information indicated that until 1986 the site was mainly used as paddocks which were probably part of the Homebush meatworks (abattoir) holding yards. The site was thereafter redeveloped as the State Sports Centre. The site history did not indicate any specific issues of concern for the subject site; however, there are a number of EPA Notices

and Licences applicable to the adjacent car park and golf range north of the site and the Aquatic Centre west of the site. The potential for contamination is therefore assessed to be low to medium.

Based on site observations and historical information, intrusive soil samples were obtained from seven test bores and five test pits and selected soil samples were analysed for a suite of commonly occurring contaminants, including TPH, BTEX, PAH, heavy metals, phenols, PCB, OCP, and asbestos.

SOIL CONTAMINATION

The analytical results indicated that the all of the soil samples analysed recorded contaminant concentrations within the adopted health-based site assessment criteria for a commercial or industrial site.

Assessment of the subsoils with respect to impacts on plants is not relevant given the proposed development will not include any landscaped areas and in view of the planned bulk excavation.

On the basis of the analytical findings, it is considered that the site is suitable for the proposed office development and that no remedial works are deemed necessary.

GROUNDWATER

Groundwater was measured on four occasions in TB6 and found to fluctuate between a depth of 2.63 m and 4.0 m below ground level. The high variability may be the result of the influence of drilling fluids used during bore construction, heavy rainfall during this period and the proximity of the piezometer to a stormwater drain. Groundwater was not encountered in any of the other test bores during augering, but was encountered in the adjacent test pit (TP5) at a depth of 2.6 m. It is assumed that groundwater flows in a north to north- east direction across the site towards Powells Creek.

No free product was observed or chemical odours noted during groundwater sampling. The groundwater was noted as having high silt content as evidenced by the high turbidity levels. Electrical conductivity levels reflect the freshwater nature of the groundwater.

The groundwater sample was analysed for heavy metals, TPH, BTEX, PAH, OCPs, PCBs and phenols. Groundwater was also analysed for pH, oil and grease, total and ferrous iron, chloride, sulphate and total suspended solids for geotechnical and disposal purposes which are discussed in DP report 44559, but included here for reference purposes. Groundwater results were generally below the laboratory detection limits and hence within the GILs. On this basis it is considered that there is no significant evidence that the groundwater has been affected by activities conducted on the subject site, however, there are some minor exceedances of the GIL for heavy metals discussed more fully below.

Generally, the concentrations of heavy metals were below the GILs with the exception of zinc. Although the concentration of zinc exceeded the adopted GIL, elevated levels of heavy metals, in particular zinc, are not uncommon in groundwater affected by urban activities. Furthermore, zinc concentrations in soil were low, further indicating that the marginally elevated concentrations of zinc in groundwater is not attributed to the subject site and is more likely to be reflective of background concentrations.

ACID SULPHATE SOILS

The assessment indicates that the potential acid sulphate soils may exist in the clay material below the water table. However, the results are more consistent with that of acidic soils with a Sulphidic element rather than acid sulphate soils or potential acid sulphate soils. Furthermore, the total actual (TPA) and Sulphidic acidity (TSA) were also below the action criteria. It is therefore considered that the material is not acid sulphate or potential acid sulphate, but rather a naturally occurring acidic soil. DP conclude that there is no need for an acid sulphate soils management plan to be implemented.

WASTE CLASSIFICATION

Laboratory results were compared to NSW EPA's *Environmental Guidelines: Assessment, Classification and Management of Liquid and Non-Liquid Waste* (NSW EPA 1999).

Based on the total and leachable contaminant concentrations the filling materials encountered are provisionally classified as **Inert Waste** which can be disposed of at an EPA licensed, inert waste landfill. The underlying natural clays and shale bedrock is classified as Virgin Excavated Natural Material (**VENM**) and can be reused or disposed of as such provided it is not cross-contaminated with the filling material and/or any anthropogenic inclusions. Appropriate arrangements with the receiving landfill operator should be obtained prior to the disposal of any material. The waste classification is provisionally only and that at the time of excavation the filling material should be stockpiled and re-sampled to provide a final waste classification.

This classification is only valid for the materials as described in this report, if material is encountered on-site that does not meet the above description or if other signs of environmental concern or potentially contaminating materials are found, then the material should be segregated and an additional classification prepared.

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KP/RL:jlb
Project 44559A
13 February 2007

REPORT ON
PHASE 1 CONTAMINATION ASSESSMENT
STATE SPORTS CENTRE DEVELOPMENT SITE 13
CORNER OF SARAH DURACK AVENUE & OLYMPIC BOULEVARD
SYDNEY OLYMPIC PARK, HOMEBUSH

1. INTRODUCTION

This report details the methodology and results of a Phase 1 Contamination Assessment undertaken by Douglas Partners Pty Ltd (DP), at the State Sports Centre development site, Site 13, located on the corner of Sarah Durack Avenue & Olympic Boulevard, Sydney Olympic Park. The assessment was conducted on behalf of A V Jennings Ltd and was carried out in accordance with our fee proposal and attached conditions of engagement, dated 12 December 2006, which were accepted by AV Jennings Ltd.

The site has an area of approximately 5000 m² (0.5 ha) and is occupied by a ground level car park and bus turning bay with associated landscaping. The site is currently used as a bus/coach stop for the State Sports Centre. It is understood that the current investigation has been requested to support a development application for the construction of a multi-storey commercial/office building with one basement level car park.

The objectives of the current investigation were to conduct a review of available site history information and undertake a limited soil sampling and analytical programme targeting a range of common contaminants. The report presents the findings of the investigation and provides comments relating to the likely degree and extent of soil contamination and the

suitability of the site for the proposed development. This report also provides a preliminary in situ waste classification of the materials encountered.

A geotechnical assessment of the site was undertaken concurrently by DP and is reported separately in a report entitled *Report on Geotechnical Investigation* (DP reference 44559).

2. SCOPE OF WORKS

2.1 Scope of Investigation

The scope of the Phase 1 Contamination Assessment was as follows:-

- Undertake a site history search including a title deeds search, a review of historical aerial photographs, Council records (Section 149 (2) certificate), and WorkCover Dangerous Goods Search;
- Review available site information with reference to local geology and Department of Natural Resources groundwater bores;
- Excavate 5 test pits to a nominal depth of 4 m or prior refusal and drill 7 test bores to a depth of 3 m into medium strength rock. Obtain soil/filling samples from the 12 pits/bores at regular intervals, at the depth of changes in the strata or upon signs of contamination.
- Obtain soil/filling samples from all test pits/bores. Screen all samples collected with a photoionisation detector (PID) to detect the presence of volatile organic compounds;
- Installation of three groundwater piezometers within the site to provide an assessment with respect to potential groundwater contamination;
- Installation of one groundwater piezometer;
- Groundwater sampling following well development and purging;
- Conduct screening tests on samples collected for acid sulphate soil (ASS) testing to identify those samples likely to contain ASS;

- Conduct laboratory analysis on selected soil samples (including 10% QA/QC) at a NATA accredited analytical laboratory for a combination of the following potential contaminants:
 - Heavy metals (As, Cd, Cr, Cu, Pb, Hg, Ni, Zn);
 - Polycyclic Aromatic Hydrocarbons (PAH);
 - Total Petroleum Hydrocarbons (TPH);
 - Monocyclic Aromatic Hydrocarbons (Benzene, Toluene, Ethylbenzene and Xylene – BTEX);
 - Polychlorinated Biphenyls (PCB);
 - Organochlorine Pesticides (OCP);
 - Suspension Peroxide Oxidation Combined Acidity and Sulphate (SPOCAS)
 - Asbestos.

In addition, the Toxicity Characteristic Leaching Procedure (TCLP) test was conducted on three selected samples.

- Conduct laboratory analysis on groundwater samples at a NATA accredited analytical laboratory for various combinations of heavy metals, TPH, BTEX PAH, VOCs, OCP, PCB, dissolved iron, pH total and ferrous iron, oil and grease, sulphate and total suspended solids.
- Provision of a Phase 1 Contamination Assessment Report, providing general comments on the level of contamination in the subsoils and groundwater and the likely suitability of the site for the proposed development. This report also includes an assessment of the potential for acid sulphate soils and provides a provisional waste classification of the materials encountered.
- Store remaining soil samples not analysed for a period of one month pending the need for further analysis.

3. SITE DESCRIPTION

3.1 Site Identification

The subject site, known as Site 13, is located at the corner of Sarah Durack Avenue & Olympic Boulevard, Sydney Olympic Park, NSW. The 0.5 ha site is identified as Lot 201 Deposited Plan 1041756 in the Parish of Concord and County of Cumberland. The local government authority is Auburn Council.

A site locality map is included as Drawing 1, **Appendix A**.

3.2 Site Description

The site is triangular in shape. At the time of the investigation there were no buildings present on the site and it was occupied by a concrete and asphalt paved bus/coach parking and loading bay and areas of landscaping. No signs of plant stress were noted.

Site observations indicated a difference in elevation between the subject site and the adjacent State Sports Centre of approximately 5 to 6 m, indicating the potential for substantial filling to be present on the site. With the exception of the potential for filling there appeared to be no other potential sources of contamination such as underground storage tanks or surface building rubble.

The surrounding land uses included:

- North: - Railway line then Aquatic Centre car park (subject of an EPA Notice) and the Aquatic Centre;
- East:- Olympic Boulevard and car parking complex (which is the subject of a EPA Notice. Refer to Section 4.6 of this report);
- South: - The State Sports Centre and Hockey Centre;
- West: - Athletics Centre.

3.3 Proposed Development

The current assessment has been undertaken for development application purposes. It is understood that the proposed development will comprise a multi-storey commercial/office development with one level of basement car park. The proposed basement car park will require bulk excavation. A provisional in-situ waste classification is included in Section 10.5 of this report.

4. SITE HISTORY

4.1 Site History

A site historical information review was conducted, comprising a review of aerial photographs, a historical title deed search for approximately the past 100 years (by Peter S. Hopley Pty Limited, Legal Searchers) and a review of available Council, EPA and WorkCover records. The site history search information is presented in **Appendix B**.

4.2 Title Deeds

The historical title deeds have been searched to obtain ownership or occupancy information on the property, including company names and the occupations of individuals. The title information can assist in the identification of previous land uses and can therefore assist in establishing whether there were potentially contaminating activities occurring at the site. The title deed search results for the current site are summarised in Table 1.

Table 1 - Historical Title Deed Record for Lot 201 in Deposited Plan 1041756

Date	Owner/Occupier	Possible Site Use
23.11.1910	Minister for Public Works	commercial
26.03.1929	Metropolitan Meat Industry Board <i>(then Metropolitan Meat Industry Meat Industry Commissioner)</i> <i>(then Metropolitan Meat Industry Meat Industry Board)</i>	Commercial/industrial
10.05.1983	Minister for Public Works	commercial
11.09.1986	# State Sports Centre Trust <i>(# Now Sydney Olympic Park Authority, after various name changes)</i>	Commercial – sports centre

Current Registered Proprietor

According to the title deeds, the property was owned by the Minister for Public Works from as early as 1910 to 1929. Thereafter, the property was owned by Metropolitan Meat Industry Board. The property was subsequently taken over by Minister of Public Works on from 1983 to 1986. State Sports Centre Trust (now Sydney Olympic Park Authority) purchased the property in September 1986, who are the current owners of the site.

Based on the title searches, it appears that the site was owned by government departments, commercial operations and/or trusts since 1910. The title deed search results for the site are included in **Appendix B**.

4.3 Aerial Photographs

Historical aerial photographs of the area for the years 1951, 1961, 1970, 1982 and 1998 were available for review from the Land Information Centre of the Department of Lands. A recent aerial photograph for 2005 was available from Google Maps. The historical images of the site area are presented in **Appendix B**.

Review of the 1951 image indicates that the site was mostly occupied with paddocks and which were probably part of the Homebush meatworks (abattoir) holding yards. In the south-east corner of the site, the photograph indicates some commercial development. The surrounding land to the east was also mixed farmland and residential with wetlands in the north-east. However, the land area to the north, south and west was a mixture of industrial and residential land use.

The 1961, 1970 and 1982 aerial photographs indicate that the site and surrounding land had remained relatively unchanged since the 1951 aerial photograph.

Review of the 1998 image shows significant land development since the 1982 photograph as the entire site had been redeveloped for the Sydney Olympic Games in 2000. This included the Sydney Olympic Park Sports Centre, golf driving range, hockey centre and tennis centre. The M4 Motorway and Homebush Bay Drive adjoining the south-east of the site had been completely developed by this time.

4.4 Council Records

The subject site is located within Auburn Council. The land has not been declared to be an “investigation area” or “remediation site” under Part 3 of the Contaminated Land Management Act 1997. The Section 149(2) Planning Certificates are included in **Appendix B**.

4.5 WorkCover NSW Dangerous Goods Database

A search of the NSW WorkCover database for the issuance of current and historic dangerous goods licences has not located any relevant records for the site. WorkCover database documents are attached in **Appendix B**.

4.6 Regulatory Notices Search

A search of Notices indicated that there are currently no Notices and/or Licences that pertain directly to the subject site. However, there are a number of such statutory items for areas adjacent to the subject site, these are summarised below. Copies of the Notices and Licences are provided in **Appendix B**.

Public Register – *Protection of the Environment Operations Act, 1997*

The DEC has registered two Licences and four Notices for the Sydney Olympic Park Area, Homebush Bay summarised below:

- A Licence (10142) held by Sydney Olympic Park authority for the Golf Driving Range, Australia Avenue, Homebush Bay for discharge to waters. Three notices for licence variation and one for approval for surrender of licence have been issued under this licence. Licence 10142 is surrendered.
- A Licence (10020) is issued to Sydney Olympic Park authority for the Sydney Olympic Area Premises (Marjorie Jackson Parkway, Edwin Flack Avenue), Homebush Bay for discharge to waters. Three notices for licence variation have been issued under this licence.
- Notice (008688) of approval of the surrender of a Licence (004887) for the Bicentennial Park premises at Homebush Bay on 9 November 1999. The notice was issued to Bicentennial Park Trust (BPT).
- Notice (007955) of preventive action on 3 August 1999. The notice was issued to Bicentennial Park Trust (BPT) as part of the stormwater trust grant scheme granting permissions to install a gross pollutant trap (GTP) in Boundary Creek to improve the water quality of Boundary Creek and Lake Belvedere. The notice indicates that both State Sports Centre Trust (SSCT) and BPT would be responsible for the construction of the GPT while BPT will be responsible for the management of the GPT.
- Notice (008546) of Licence (006445) variation for the Homebush Bay Area as defined in the Olympic Co-ordination Authority on 20 October 1999. The notice was issued to Olympic Co-ordination Authority to vary the Licence 006445 in relation to the discharge point into the Boundary Creek.
- Notice (008765) of Licence (006445) variation for the Homebush Bay Area as defined in the Olympic Co-ordination Authority on 19 November 1999. The notice was issued to Olympic Co-ordination Authority to vary the Licence 006445 in relation to the discharge point into the Boundary Creek.

- Notice (009631) of approval of the surrender of a Licence (006445) for the Homebush Bay Area as defined in the Olympic Co-ordination Authority on 19 November 1999 on 4 April 2000. The notice was issued to Olympic Co-ordination Authority.

Public Register – *Contaminated Land Management Act, 1997*

The following Notices were listed for the Sydney Olympic Park Area, Homebush Bay under the *Contaminated Land Management Act, 1997*.

- Aquatic Centre Car Park, Olympic Boulevard, Homebush Bay (Area No: 3035)
 - A current notice to Olympic Co-ordination Authority for maintaining remediation (28005) for the above premises issued on 26 August 1998;
 - Former notice to Olympic Co-ordination Authority for a remediation order (508) for the above premises issued and revoked on 26 Aug 1998 and 1 Sep 1998 respectively;
 - Former notice to Olympic Co-ordination Authority for a remediation order (488) for the above premises issued and revoked on 4 May 1998 and 1 Sep 1998 respectively;
 - Former notice to Olympic Co-ordination Authority for a remediation order (411) for the above premises issued and revoked on 11 Aug 1995 and 4 May 1998 respectively;
 - Former notice to Civic & Civic Pty Ltd for a remediation order (317) for the above premises issued and revoked on 21 Dec 1992 and 11 Aug 1995 respectively;
 - Former notice to State Rail Authority for a remediation order (309) for the above premises issued and revoked on 3 Feb 1992 and 11 Aug 1995 respectively;
 - Former notice to State Rail Authority for a remediation order (198) for the above premises issued and revoked on 18 Jan 1991 and 3 Feb 1992 respectively;

- State Sports Centre, Australia Avenue, Homebush Bay (Area No: 3036, north of the current subject site)
 - A current notice to Olympic Co-ordination Authority for maintaining remediation (28005) for the above premises issued on 26 August 1998;
 - Former notice to Olympic Co-ordination Authority for a remediation order (509) for the above premises issued and revoked on 26 Aug 1998 and 1 Sep 1998 respectively;
 - Former notice to Olympic Co-ordination Authority for a remediation order (489) for the above premises issued and revoked on 4 May 1998 and 1 Sep 1998 respectively;
 - Former notice to Olympic Co-ordination Authority for a remediation order (460) for the above premises issued and revoked on 26 Sep 1997 and 1 Sep 1998 respectively;
 - Former notice to State Sports Centre for a remediation order (127) for the above premises issued and revoked on 12 April 1989 and 4 May 1998 respectively;

4.7 Previous Reports

There are, to DP's knowledge, no previous reports specifically relating to subject site. However, URS completed a preliminary contamination and geotechnical investigation of the neighbouring site, the car park referred to as P3 and the driving range which is to the north of the subject site. In summary, the findings of this report indicated that the URS site fill materials were variably impacted by TPH, ethyl benzene and xylene, at levels in excess of the relevant guidelines. Elevated concentrations of copper, zinc, chromium, mercury and TPH were also detected in the groundwater at levels in excess of the ANZECC 2000 guidelines. The findings of this report suggest the possibility for similar conditions in the subject site. A copy of the URS report is provided in **Appendix C**.

5. GEOLOGY, TOPOGRAPHY AND HYDROGEOLOGY

Reference to the Sydney 1:100 000 Geological Series Sheet indicates that the site is underlain by soil/rock from the Wianamatta Group which comprises black to dark grey shale and laminate. Clay and shale were encountered underneath filling material as described in the test bore/pit logs in **Appendix E**.

The NSW Department of Natural Resources (DNR) conducted a search of registered groundwater bores within a 3 km radius of the site. Eleven bores were identified, with registered uses for monitoring purposes (refer to **Appendix D**).

Groundwater flow direction at the subject site is difficult to infer from the surrounding topography as these areas have undergone much development including significant earthworks (cut and fill activities). It is anticipated, however, that groundwater would flow to the east and north-east towards the stormwater channel that leads into Powells Creek and then to Homebush Bay.

Stormwater runoff from the site would be expected to enter the drains along the adjacent streets.

A review of the *Acid Sulphate Soils Risk Map* Edition 2 (DLWC, 1997) indicates that the area has no known occurrences of Acid Sulphate Soils and hence there is a low probability of acid sulphate soils being present. However, the Landview planning instrument which is based on Local Environment Plans (LEPs) describes the area as being a “Class 4”. It should be noted that there are 5 classes of acid sulphate soil provided in the Landview planning instrument. These define the depths of occurrence of actual or potential acid sulphate soils and the possible need for approval of works before excavating. Class 4 acid sulphate soils applies to works beyond 2 metres below the natural ground surface and works by which the water table is likely to be lowered beyond 2 metres below the natural surface. Therefore the potential for acid sulphate soils needs to be considered.

6. POTENTIAL CONTAMINANTS

On the basis of the identified site history and also observations made during the field work, potential sources of contamination may include:-

- *Previous land use.* As the site was used as an abattoir (as indicated from aerial photographs) from 1982 until the redevelopment of the site into Olympic Park, there is the potential for organic and biological diseases such as Q fever and anthrax;
- *EPA Notices.* The EPA register indicates that the adjacent properties have previously been identified as being contaminated by petroleum hydrocarbon, poly aromatic hydrocarbons and heavy metals;
- *Evidence of filling.* Site levels indicate the potential for substantial filling to be present on the site.

Based on the above information, the potential for contamination is assessed to be low to medium. As a general screen, therefore, the following suite of common contaminants was analysed:

- Heavy metals (As, Cd, Cr, Cu, Pb, Hg, Ni, Zn);
- Total Petroleum Hydrocarbons (TPH);
- Monocyclic Aromatic Hydrocarbons (Benzene, Toluene, Ethyl benzene and Xylene - BTEX);
- Polycyclic Aromatic Hydrocarbons (PAH);
- Polychlorinated Biphenyls (PCB);
- Organochlorine Pesticides (OCP);
- Phenols; and
- Asbestos.

There is also a potential for bacteria, viruses and parasites in the soil but this is outside the scope of the current assessment.

7. FIELD WORK

7.1 Data Quality Objectives

The data quality objectives (DQO) of the Preliminary Contamination Assessment have been developed to define the type and quality of the data to achieve the project objectives and were based broadly in accordance with the seven step data quality objective process, as defined in Australian Standard (AS) *Guide to the Sampling and Investigation of Potentially Contaminated Soil Part 1: Non-volatile and Semi-volatile Compounds* (AS 4482.1 – 1997). The DQO process is outlined in the AS and defined by:

- Stating the Problem Identifying the Decision;
- Identifying Inputs to the Decision;
- Defining the Boundary of the Assessment;
- Developing a Decision Rule;
- Specifying Acceptable Limits on Decision Errors;
- Optimising the Design for Obtaining Data.

Data Quality Indicators (DQI) have been established for the project are summarised in Table 2.

Table 2 – Data Quality Indicators

Data Quality Objective	Report section where addressed
State the Problem	S1 Introduction S3 Site Description
Identify the Decision	S8 Site Assessment Criteria S10 Discussion and Conclusions
Identify Inputs to the Decision	S3 Site Description S5 Geology, Topography and Hydrology S6 Potential Contaminants S8 Site Assessment Criteria S9 Results of the Soil Investigation S10 Discussion and Conclusions
Define the Boundary of the Assessment	S3 Site Description
Develop a Decision Rule	S8 Site Assessment Criteria
Specify Acceptable Limits on Decision Errors	S7.1 DQI, Appendix E
Optimise the Design for Obtaining Data.	S7 Field Work

7.2 Sampling Rationale

Soil/ filling samples were collected from 12 pits/bores drilled over the 0.5 ha site is considered appropriate for a preliminary contamination assessment. Free groundwater was observed during test pitting in Test Pit 5 and a groundwater well was installed into Test Bore 6 for the collection and analysis of a groundwater sample.

Based on site observations and site history review, the sampling locations were placed over the accessible portion of the site with a view to provide appropriate site coverage and also to provide an indication on the potential for contamination of the subsoils.

Soil samples were collected at regular intervals based on field observations, including changes in strata and signs of contamination. Sampling locations are indicated on Drawing 1 in **Appendix A**.

7.3 Sampling Procedures

7.3.1 Piezometer Installation and Groundwater Sampling Methods

One groundwater monitoring piezometer was installed in Bore 6 to a depth of 8 m. A truck mounted drill rig using solid flight augers was used to install the well. The Test Bore Reports are presented in Appendix E.

The piezometer was constructed using 50 mm diameter acid washed class 18 PVC casing and machine slotted well screen. Joints were screw threaded, thereby avoiding the use of glues and solvents which may contaminate the groundwater. The well was completed with a gravel pack extending to 0.1 m above the well screen, a bentonite plug of at least 0.2 m thickness and backfilled with drill returns to the surface. The bore was finished with a road box on the ground surface.

Subsequent to installation, the bore was developed by removing a minimum of five bore volumes of water using disposable bailers. The bore was allowed to recharge and the groundwater sample collected on the following same day. Following the development of the well and prior to sampling, the well was micro purged and field parameters (pH, dissolved

oxygen, turbidity, electrical conductivity and temperature) analysed. Samples were only collected after field parameters had stabilised (see Section 9.2).

Collection of a groundwater sample was carried out in accordance with the methodology prescribed in the Standard DP field procedures.

The sample was obtained using a disposable bailer in order to avoid cross contamination. On this basis, an equipment rinsate was not considered necessary and hence not collected. Groundwater samples were field filtered through a 0.45 µm membrane filter prior to laboratory analysis for heavy metals.

Sample handling and transport was as set out below:-

- sample containers were labelled with individual and unique identification, including project number and sample number;
- collection of 10% replicate samples for QA/QC purposes;
- samples were placed in insulated coolers and maintained at a temperature of approximately 4°C until transported to the analytical laboratory, and
- chain of custody documentation was maintained at all times and countersigned by the receiving laboratory on transfer of samples.

All samples were dispatched to Envirolab Services, National Association Testing Authorities (NATA) accredited laboratory for analysis.

7.3.2 Soil Sampling

All sample locations were cleared for services and pipes using Dial-before-you-Dig information and an electro-magnetic sweep by an accredited service locator.

The fieldwork comprised the excavation of five test pits using a backhoe and the drilling of seven boreholes with a auger drilling rig. All sampling data was recorded on DP Test Bore Reports with essential information included in the chain-of-custody sheets. The general sampling procedure is summarised below:-

- Collect soil samples directly from the solid flight auger using disposable sampling equipment;
- transferring samples into laboratory-prepared glass jars, capping immediately and ensuring headspace within the sample jar is minimised;
- collecting a split replicate at each location into a zip lock plastic bag;
- collecting 10% replicate samples for QA/QC purposes;
- labelling sample containers with individual and unique identification, including project number, sample location and sample depth; and
- placing the glass jars, with teflon lined lid, into a cooled, insulated and sealed container for transport to the laboratory.

The drill rig augers were decontaminated between sampling locations using a high-pressure water jet.

A photoionisation detector (PID) was used to screen the headspace gases of the replicate samples placed in the sealed zip-lock bag. The PID provides an indication of the likely presence of volatile organic compounds in the soil. The PID had a 10.6eV lamp and was calibrated with isobutylene gas at 100 ppm prior to commencement of each day's field work.

EnviroLab Services, a laboratory accredited by the NATA, was employed to conduct the sample analysis. The laboratory is required to carry out routine in-house QC procedures.

7.3.3 Acid Sulphate Soil Sampling

Collection of acid sulphate soil samples was carried out in accordance with the methodology *NSW Acid Sulphate Soil Management Advisory Committee Manual (1998)* [ASSMAC] as follows:-

- Collect soil samples of material at approximately 0.5 m intervals in four of the test bores.
- Pre-screening of selected samples for pH and peroxide pH to check for potential acid sulphate producing soils.

- On the basis of the pH screening results, one sample was despatched to Envirolab Services for peroxide oxidation acidity and sulphate (POCAS) testing as per Method 21 of the *NSW Acid Sulphate Soil Management Advisory Committee Manual (1998)* [ASSMAC].

Sampling and testing equipment were decontaminated with a phosphate free detergent (Decon 90) and rinsed with distilled water between samples.

The following methodology was adopted for pH pre-screening:-

pH measurement

- placement of 10 mL of soil in small glass container;
- addition of 50 mL of water followed by thorough mixing; and
- measurement of pH using a calibrated Ionode IJ46 pH probe.

Peroxide pH measurement

- placement of 10 mL of soil in small glass container;
- addition of a few drops of pH-adjusted 30% hydrogen peroxide solution;
- observation of sample for effervescence, colour change or odour;
- addition of 50 mL of water followed by thorough mixing; and
- measurement of pH using a calibrated Ionode IJ46 pH probe.

7.4 Analytical Rationale

The analytical scheme (Table 3) was designed to assess the potential for contamination which may have arisen from current and past use of the site. A total of 18 selected soil samples (including 2 replicates, QA/QC) were analysed for various combinations of the contaminants of concern. In addition, one groundwater sample was also analysed.

Table 3 – Analytical Scheme

Sample ID (Location – Depth)	Heavy Metals	TPH/ BTEX	PAH	PCB/ OCP	Phenols	Asbestos	TCLP
TP1/0.2-0.4	✓	✓	✓	✓	✓	✓	-
TP1/0.4-0.6	✓	✓	✓	✓	✓	-	✓
TP2/0-0.2	✓	✓	✓	✓	✓	-	-
TP2/0.5-0.7	✓	✓	✓	✓	✓	✓	-
TP3/0.2-0.5	✓	✓	✓	✓	✓	✓	-
TP3/1-1.5	✓	✓	✓	✓	✓	-	✓
TP4/0.2-0.5	✓	✓	✓	✓	✓	-	✓
TP4/0.65-0.95	✓	✓	✓	✓	✓	✓	✓
TP5/0.15-0.6	✓	✓	✓	✓	✓	✓	-
TP5/1.4-2.5	✓	✓	✓	✓	✓	✓	-
TB6/3-3.5	✓	✓	✓	✓	✓	-	-
TB7/0.35-0.6	✓	✓	✓	✓	✓	✓	✓
TB8/0.5-0.6	✓	✓	✓	✓	✓	-	✓
TB8/1-1.1	✓	✓	✓	✓	✓	-	-
TB9/1.5-1.95	✓	✓	✓	✓	✓	-	-
BD1 040107	✓	✓	✓	-	-	-	-
BD3 010407	✓	✓	✓	-	-	-	-
TB106-GW	✓	✓	✓	✓	✓	-	-

8. SITE ASSESSMENT CRITERIA

8.1 Soils

The proposed development comprises the construction of a multi storey commercial office building with one basement car park. The levels of contaminants in soil were therefore assessed against the corresponding threshold concentrations for commercial and industrial sites as detailed in Table 4.

A contaminant concentration in soil/ filling material is considered to be significant if:

- i) The concentration of the contaminant is more than 2.5 times the site assessment criteria (SAC). Any location more than 2.5 times the SAC is classified as a 'hotspot', requiring further assessment/ management.
- ii) For a data of like material, the health-based criteria, the calculated 95% Upper Confidence Limit of average concentrations (excluding any 'hotspot' concentrations) exceeds the SAC.

iii) The standard deviation of the results is greater than 50% of the HIL.

Note that the statistical analysis would only apply to HILs.

Table 4 – Site Assessment Criteria

Contaminant	Adopted Criteria (SAC)	Source
TPH C ₆ – C ₉ C ₁₀ – C ₃₆	65 mg/kg 1000 mg/kg	NSW EPA ¹ Contaminated Sites <i>Guidelines for Assessing Service Station Sites</i> (1994) threshold concentrations for sensitive land use-soils. Currently there are no other comprehensive EPA endorsed investigation levels for petroleum hydrocarbons.
BTEX Benzene Toluene Ethylbenzene Xylene	1 mg/kg 1.4 mg/kg 3.1 mg/kg 14 mg/kg	
Metals Arsenic (total) Cadmium Chromium Copper Lead Mercury Nickel Zinc	500 mg/kg 100 mg/kg 60000 mg/kg 5000 mg/kg 1500 mg/kg 75 mg/kg 3000 mg/kg 35000 mg/kg	
Total Phenols	42500 mg/kg	NSW EPA Contaminated Sites <i>Guidelines for the NSW Site Auditor Scheme</i> (1998) Soil Investigation Levels for Urban Redevelopment Sites in NSW Heath-based investigation levels for Commercial and Industrial sites.
PAH Total Benzo(a)Pyrene	100 mg/kg 5 mg/kg	
PCB	50 mg/kg	
OCP aldrin + dieldrin chlordane DDT (including DDD, DDE, DDT) Heptachlor	50 mg/kg 250 mg/kg 1000 mg/kg 50 mg/kg	
VOCs Total	Not specified	
Asbestos	No asbestos present in soil at the surface	Correspondence from NSW EPA Director of Contaminated Sites to Accredited Site Auditors

Providing that the 95% UCL average is within the SAC (for health based SAC), and no concentrations of the contaminants are at hotspot level, minor exceedances of the SAC may be considered to pose insignificant human health risk under the proposed land-use.

¹ NSW EPA is now part of the NSW Department of Environment and Conservation (DEC).

It should be noted that the Provisional Phytotoxicity based Investigation levels have not be considered on the basis that there is no planned landscaping and the subject site will be subject to bulk excavation for the development of a basement level.

8.2 Groundwater

Groundwater investigation levels (GILs) are sourced from the *Australian Water Quality Guidelines (ANZECC (2000))*. Where applicable the 95% protection of species has been applied on the basis that the site is moderately to highly disturbed urban environment.

Table 5 – Groundwater Investigation Levels (GIL)

Contaminant	Adopted Criteria (GIL)	Source
TPH C ₆ – C ₉ >C ₉	150 µg/L 600 µg/L	Airport (Environment Protection) Regulations (1997), Schedule 2 Water Pollution Accepted Limits: Table 1.03 – Accepted limits of contamination [adopted due to the absence of high reliability NSW EPA or ANZECC guidelines for TPH]*
BTEX Benzene Toluene Ethylbenzene Xylene	950 µg/L 300 µg/L 140 µg/L 550 µg/L	<i>ANZECC (2000) Australian Water Quality Guidelines for the protection of 95% of freshwater species</i> NSW EPA ² Contaminated Sites Guidelines for Assessing Service Station Sites (1994) Threshold concentrations for sensitive land use, Protection of Aquatic Ecosystem is adopted in the absence of other comprehensive investigation levels for toluene or ethyl benzene in groundwater.
Metals Arsenic (V) Cadmium Chromium (VI) Copper Lead Mercury Nickel Zinc	13 µg/L 0.2 µg/L 1 µg/L 1.4 µg/L 3.4 µg/L 0.6 µg/L 11 µg/L 8 µg/L	<i>ANZECC (2000) Australian Water Quality Guidelines for the protection of 95% of freshwater species</i>
PAH Total Benzo(a)Pyrene Naphthalene	Not specified Not specified 0.016 µg/L	<i>ANZECC (2000) Australian Water Quality Guidelines for the protection of 95% of freshwater species</i>
Phenols	320 µg/L	<i>ANZECC (2000) Australian Water Quality Guidelines for the protection of 95% of freshwater species</i>
VOCs Total	Not Specified	<i>ANZECC (2000) Australian Water Quality Guidelines for the protection of 95% of freshwater species</i>

² NSW EPA is now part of the NSW Department of Environment and Conservation (DEC).

- * Other than a 'low reliability' final chronic value of 7 µg/L for petroleum hydrocarbon, which is not routinely achievable by NATA laboratories due to inability to meet the required detection limits
- NA Not Applied

8.3 Acid Sulphate Soils and Waste Classification

With respect to Acid Sulphate Soils, the relevant assessment criteria is the NSW *Acid Sulphate Soil Management Advisory Committee Manual (1998)* [ASSMAC]. The action criteria vary according to the type of material or the amount of ASS soil to be disturbed in the project. As on-site materials were observed to comprise silty clays, the action criteria adopted was for fine textured materials. Furthermore, groundwater was only encountered in the north-eastern corner of the site and, therefore, it is considered that, if present, less than 1000 tonnes of PASS or ASS would be disturbed.

For the purpose of waste classification, analytical results have been compared with the threshold concentration guidelines as provided in NSW EPA's *Environmental Guidelines: Assessment Classification and Management of Liquid and Non-Liquid Wastes (1999)*.

In view of the absence of guidance by DEC on assessment criteria for Virgin Excavated Natural Material (VENM), the following guidelines were referenced:-

- Guideline 1: The lower of the Health-based [soil] investigation levels for residential sites with accessible soils, and the provisional phytotoxicity-based investigation levels for sandy loams, as specified in NSW EPA *Guidelines for the NSW Site Auditors Scheme (1998)*.
- Guideline 2: Environmental Soil Quality Guideline 'Background Ranges', as given in the Schedule B(1) NEPC Guideline on the Investigation Levels for Soil and Groundwater (1999).
- Guideline 3: With respect to TPH and BTEX, threshold concentrations [in soil] for sensitive land use were adopted, from NSW EPA's *Guidelines for Assessing Service Station Sites, 1994* (no comprehensive TRH or BTEX health-based criteria are available in *Guidelines for the NSW Site Auditors Scheme*).

9. RESULTS OF SOIL INVESTIGATION

9.1 Field Observations

Details of the sub-surface conditions encountered during the course of the investigation are included in the Test Bore Report Sheets (Appendix E).

The depth of filling material typically extended to a depth of between 1 and 1.5 m, however, deeper filling was observed in Test Bore 6 and Test Pit 5 to a depth of up to 4 m. The filling was noted to comprise silty sand topsoil and crushed sandstone in the landscaped areas and road base and silty clay filling beneath the pavement. The filling was free of any chemical odours and staining and building rubble was not observed. The filling is underlain by natural clay and shale. No signs of gross contamination were noted in or around the test locations.

A summary of the lithological sequence encountered during the soil contamination investigation is included in Table 6.

Table 6 – Summary of Typical Lithological Sequence

Depth (m bgl)	Lithology
0 – 1-1.5	Filling – Various combinations of topsoil filling, crushed sandstone and silty clay filling
1 – 2.5	Silty Clay – red brown to orange brown silty clay with ironstone banding
>2.5	Shale – light grey and brown shale
> 2.2	Shale: grey and yellow shale

9.2 Groundwater Field Parameters

Groundwater field parameters were measured to provide indicative characteristics of the groundwater and to assist in obtaining representative groundwater samples. Groundwater field parameters are provided in Table 7.

Table 7 - Groundwater Field Parameters

Bore Hole	Time	pH	Dissolved Oxygen (ppm)	Turbidity (NTU)	Electrical Conductivity (µS)	TDS (ppm)	Temperature (°C)
TB6	1:40	3.3	3.0	>1000	1045	810	23.8
	1:41	3.2	2.4	>1000	1415	827	22.8
	1:42	3.2	2.1	>1000	1800	1068	22.4
	1:43	3.0	2.0	>1000	1980	1114	22.1
	1:44	3.0	2.0	>1000	1985	1120	22.1

The consistency achieved in the groundwater parameters would suggest that a representative groundwater sample was obtained.

9.3 Total Photoionisable Compounds (TOPIC) Results

The replicate soil samples collected in plastic bags were allowed to equilibrate under ambient temperatures before screening for Total Photoionisable Compounds (TOPIC) using a calibrated Photoionisation Detector (PID). Results of sample screening are shown in the Test Bore Reports in **Appendix E**. The PID readings were below detection limits and are thus typical of background levels in Australian soils and therefore, do not indicate the presence of significant volatile contaminants.

A landfill gas monitor was also employed during the test pit excavation to assess the potential for landfill gases, in particular, methane (CH₄). There was an inferred potential for methane gas on the basis of the known methane gases uncovered at the adjacent P3 parking lot and driving range. The readings were all below the detection limits thereby indicating that there was no significant landfill gas present. The results are included in the Test Pits Logs in **Appendix E**.

9.4 Analytical Results for Soil Samples

The results of laboratory analysis for inorganic and organic contaminants (**Appendix F**) in the soil samples are summarised in Table 8.



Table 8 - Results of Soil Analysis for Site Assessment and Provisional Waste Classification of Filling Material (All results in mg/kg unless otherwise stated)

Sample ID	Heavy Metals											Polycyclic Aromatic Hydrocarbons (PAH)		Total Petroleum Hydrocarbons (TPH)		Monocyclic Aromatic Hydrocarbons (BTEX)						Total Polychlorinated Biphenyls (PCB)	Organochlorine Pesticides (OCP)						Phenols																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
	Arsenic		Cadmium	Chromium		Copper	Lead		Mercury	Nickel		Zinc	Benzo(a)pyrene		PAH		C6-C9	C10-C36	Benzene				Toluene	Ethylbenzene	Total Xylene																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
	SCC#	TCLP##	SCC	SCC	TCLP	SCC	SCC	TCLP	SCC	SCC	TCLP	SCC	TCLP	SCC	TCLP	SCC	SCC	SCC	SCC	SCC	SCC		SCC																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
	(mg/kg)	(mg/L)	(mg/kg)	(mg/kg)	(mg/L)	(mg/kg)	(mg/kg)	(mg/L)	(mg/kg)	(mg/kg)	(mg/L)	(mg/kg)	(mg/L)	(mg/kg)	(mg/L)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)		(mg/kg)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			

Notes

#Specific Contaminant Concentration (Total Concentration)

##Toxicity Characteristic Leaching Procedure (TCLP)

NANot Applicable

NDNot Defined

A1material sample

1duplicate of sample above it

*Student's t-UCL

*labmark

NADNo asbestos detected

CDChrysotile Asbestos

1NSW EPA (1999) Environmental Guidelines: Assessment, Classification and Management of Liquid and Non-Liquid Wastes. Table A3: Contaminant Threshold Values for Waste Classification of Non-Liquid wastes without doing TCLP

2NSW EPA (1999) Environmental Guidelines: Assessment, Classification and Management of Liquid and Non-Liquid Wastes. Table A3: Contaminant Threshold Values for Waste Classification of Non-Liquid wastes with TCLP

9.5 Results of Acid Sulphate Soil Testing

The results of pH screening tests and laboratory analysis for potential acid sulphate soil samples are summarised in the following tables:-

- Table 9 - pH and Peroxide pH Screening Test Results; and
- Table 10 - Results of Laboratory Analysis for POCAS.

Table 9 - Results of ASS Field Testing

Sample ID	pH	Peroxide pH	pH Change	Observations		
				Effervescence	Odour	Colour Change
6/1-1.5	5.1	3.2	1.9	moderate	None	None
6/3-3.5	4.1	3.1	1	Very vigorous	None	None
7/0.5-0.6	8.2	7.3	0.9	moderate	None	None
7/1.5-2	5.3	2.5	2.8	Very vigorous	None	None
8/0.5-0.6	5.5	3.9	1.6	moderate	None	None
8/1-1.1	4.6	3.3	1.3	moderate	None	None
8/1.5-2	4.6	1.8	2.8	moderate	None	None
9/0.5-0.6	5.6	4.6	2	moderate	None	None
9/1.5-2	4.4	1.9	2.5	moderate	None	None
9/2.5-2.6	5.1	3.1	2	vigorous	None	None

Table 10 - Results of Laboratory Analysis for POCAS

Sample Location and Depth	S _{POS} (%)	pH _{KCl}	pH _{ox}	TAA (Mol H ⁺ /tonne)	TPA (Mol H ⁺ /tonne)	TSA (Mol H ⁺ /tonne)
104/3.0	0.009	3.5	4.4	62	82	20
Action Criteria* (less than 1000 tonnes disturbed)	0.1	4	3	62	62	62

Notes:

TAA Total Actual Acidity

TPA Total Potential Acidity

TSA Total Sulphidic Acidity (TPA-TAA)

* Action Criteria based on 'Fine Texture, medium to heavy clays and silty clays for less than 1000 tonnes'

BOLD Exceeds Action Criteria

9.6 Results of Groundwater Analysis

Groundwater sampling and analyses were conducted at Bore 6 on 16/1/07. The groundwater levels are presented in Table 11. Analytical results are presented in Table 12 to 15.

Table 11 – Groundwater Levels Bore TB6

Date	Depth to Ground Water (m)	Groundwater RL (m)
15/1/07	2.63	109.87
16/1/07	2.7	109.8
19/1/07	4	108.5
30/1/07	3.5	109

The inferred groundwater direction is to the north to north east towards Powells Creek and Homebush Bay. It is not possible to draw any further conclusions about local groundwater flow directions based on the field investigation as groundwater was only observed in the north east corner of the site in Test Pit 5 and Test Bore 6.

The results of groundwater analyses and field measurements are summarised in the following tables:-

- *Table 12 – Groundwater Potential Contaminants (Heavy Metals, and pH);*
- *Table 13 - Ground Water Potential Contaminants (BTEX, TPH).*
- *Table 13 - Ground Water Potential Contaminants (PAH, OCP, PCB and Phenols). and*
- *Table 14 – Groundwater Potential Contaminants (Ferrous iron, total iron, oil and grease, chloride, sulphate and total suspended solids)*

Table 12 – Groundwater (Heavy Metals)
(all results in mg/L unless otherwise stated)

Sample	pH	Iron	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc
TB106-GW	5	2.7	<0.001	0.0002	<0.005	<0.005	0.0015	<0.0001	0.011	0.063
GIL	-	-	0.013	0.0002	0.001	0.0014	0.0034	0.0006	0.011	0.008

NA Not Applicable, concentration meets guideline levels without hardness modified trigger values
BOLD Exceeds GIL

Table 13 – Groundwater (BTEX, TPH)
(all results in mg/L unless otherwise stated)

Sample	Mono Aromatic Hydrocarbons				(TPH)			
	Benzene	Ethyl-benzene	Toluene	Xylenes	C6 – C9	C10-C14	C15-C28	C29-C36
TB106-GW	<0.001	<0.001	<0.001	<0.003	<0.01	<0.05	<0.1	<0.1
GIL	0.01	0.3	0.8	0.6	0.15	0.6		

Table 14 – Groundwater (PAH, OCPs, PCBs and Phenols)
(all results in mg/L unless otherwise stated)

Sample	OCP	PCB	Phenols	PAH		
	Total	Total	Total	Total	B(a)P	Napthalene
TB106-GW	<0.004	<0.012	<0.05	<0.016	<0.001	<0.001
GIL	-	-	-	-	-	0.16

Table 15 – Groundwater (Ferrous iron, total iron, oil and grease, chloride, sulphate and total suspended solids)(all results in mg/L unless otherwise stated)

Sample	Fe		Oil and Grease	Cl ⁻	SO ₄ ²⁻	TSS
	Ferrous	Total				
TB106-GW	3.8	88	<5	380	130	2870
GIL	-	-	-	-	-	-

10. DISCUSSION AND CONCLUSIONS

10.1 Site History

At the time of the investigation the site was occupied by a concrete and asphalt paved bus/coach parking and loading bay and areas of landscaping. Site observations indicated a difference on elevation between the subject site and the adjacent State Sports Centre of approximately 5 to 6 m indicating the potential for substantial filling to be present on the site.

The site history information indicated that until 1986 the site was mainly used as paddocks which were probably part of the Homebush meatworks (abattoir) holding yards. The site was thereafter redeveloped as the State Sports Centre. The site history did not indicate any specific issues of concern for the subject site; however, there are a number of EPA Notices and Licences applicable to the adjacent car park and golf range north of the site and the Aquatic Centre west of the site. The potential for contamination is therefore assessed to be low to medium.

Based on site observations and historical information, intrusive soil samples were obtained from seven test bores and five test pits and selected soil samples were analysed for a suite of commonly occurring contaminants, including TPH, BTEX, PAH, heavy metals, phenols, PCB, OCP, and asbestos.

10.2 Soil Contamination

The analytical results presented in Table 8 indicated that all of the soil samples analysed recorded contaminant concentrations within the adopted health-based site assessment criteria for a commercial or industrial site.

It is further considered that an assessment of the subsoils with respect to impacts on plants is not relevant given the proposed development will not include any landscaped areas and in view of the planned bulk excavation.

On the basis of the analytical findings, it is considered that the site is suitable for the proposed office development and that no remedial works are deemed necessary.

All materials removed from the site must be classified for waste disposal (see Section 10.5).

10.3 Groundwater

Groundwater was measured on four occasions in TB6 and found to fluctuate between a depth of 2.63 m and 4.0 m below ground level. The high variability may be the result of the influence of drilling fluids used during bore construction, heavy rainfall during this period and the proximity of the piezometer to a stormwater drain. Groundwater was not encountered in any of the other test bores during augering, but was encountered in the adjacent test pit (TP5) at a depth of 2.6 m. It is assumed that groundwater flows in a north to north-east direction across the site towards Powells Creek.

No free product was observed or chemical odours noted during groundwater sampling. The groundwater was noted as having high silt content as evidenced by the high turbidity levels presented in Table 7. Electrical conductivity levels, also shown in Table 7, reflect the freshwater nature of the groundwater.

Groundwater samples were analysed for heavy metals, TPH, BTEX, PAH, OCPs, PCBs and phenols. Groundwater was also analysed for pH, oil and grease, total and ferrous iron, chloride, sulphate and total suspended solids for geotechnical and disposal purposes which are discussed in DP report 44559, but included here for reference purposes. Groundwater results were generally below the laboratory detection limits and hence within the GILs. On this basis it is considered that there is no significant evidence that the groundwater has been affected by activities conducted on the subject site, however, there are some minor exceedances of the GIL for heavy metals as discussed below.

Generally, the concentrations of heavy metals, as presented in Table 12, were below the GILs with the exception of zinc. Although the concentration of zinc exceeded the adopted GIL, elevated levels of heavy metals, in particular zinc, are not uncommon in groundwater affected by urban activities e.g. runoff from roads. Furthermore, a review of the analytical results for zinc concentrations in soil showed that they were low, further indicating that the marginally elevated concentrations of zinc in groundwater is not likely to be attributed to the subject site and is more likely to be reflective of background concentrations.

10.4 Acid Sulphate Soils

The samples analysed comprised material collected from below the water table.

The significant findings based on the analytical results presented in Tables 9 and 10 are:-

- The samples submitted for SPOCAS analysis comprised silty clay filling (6/3-3.5), material collected from below the water table;
- With respect to the 'Sulphur Trail' criteria, Peroxide Oxidisable Sulphur (S_{POS}) levels were within the action criteria;
- With respect to the 'Acid Trail' criteria, for TPA exceeded the action criteria. Results, therefore, indicate that the material in these locations may be Potential Acid Sulphate Soil (PASS).

The assessment indicates that potential acid sulphate soils may exist in the clay material below the water table, however, the results are more consistent with those from naturally acidic soils with a sulphidic element rather than acid sulphate soils or potential acid sulphate soils. This is confirmed by the SRAS or residual acidity which was <0.005 %w/w and the S_{pos} which was also below the action criteria. Furthermore, the total actual (TPA) and Sulphidic acidity (TSA) were also below the action criteria. It is therefore considered that the material is not acid sulphate or potential acid sulphate, but rather a naturally occurring acidic soil. Accordingly, it is considered that there is no requirement for the preparation or implementation of an acid sulphate soils management plan.

10.5 Waste Classification

Laboratory results were compared to NSW EPA's *Environmental Guidelines: Assessment, Classification and Management of Liquid and Non-Liquid Waste* (1999) for Inert Waste Screening Threshold Values (NSW EPA 1999).

Based on the total and leachable contaminant concentrations the filling materials encountered and described in the test bore logs is provisionally classified as **Inert Waste**

which can be disposed of at an EPA licensed, inert waste landfill. The underlying natural clays and shale bedrock is classified as Virgin Excavated Natural Material (**VENM**) and can be reused or disposed of as such provided it is not cross-contaminated with the filling material and/or any anthropogenic inclusions.

This provisional waste classification is only valid for the materials as described in this report, if material is encountered on-site that does not meet the above description or if other signs of environmental concern or potentially contaminating materials are found, then the material should be segregated and an additional classification will be required.

Appropriate arrangement with the receiving landfill should be obtained prior to the disposal of any material.

At the time of excavation, the filling material should be stockpiled and re-sampled to provide a final waste classification supported by sufficient analysis depending on the volume of material involved.

11. LIMITATIONS OF THIS REPORT

The scope of the site assessment activities and consulting services undertaken by DP were limited to those detailed in the proposal dated 12 December 2006 and accepted by Mr Rob Kardos on behalf of AV Jennings Ltd.

DP's assessment is necessarily based upon the result of a limited site investigation and the restricted programme of surface and subsurface sampling, screening and chemical testing which was set out in the proposal. DP cannot provide unqualified warranties with regards to site contamination nor does DP assume any liability for site conditions not observed or accessible during the time of the investigations.

Despite all reasonable care and diligence, the ground conditions encountered and concentrations of contaminants measured may not be representative of conditions between the locations sampled and investigated. In addition, site characteristics may change over

time due to activities such as spillages of contaminating substances. These changes may occur subsequent to DP's investigations and assessment.

This report, its associated documentation and the information herein have been prepared solely for the use AV Jennings Ltd. Any reliance assumed by third parties on this report shall be at such parties' own risk.

DOUGLAS PARTNERS PTY LTD

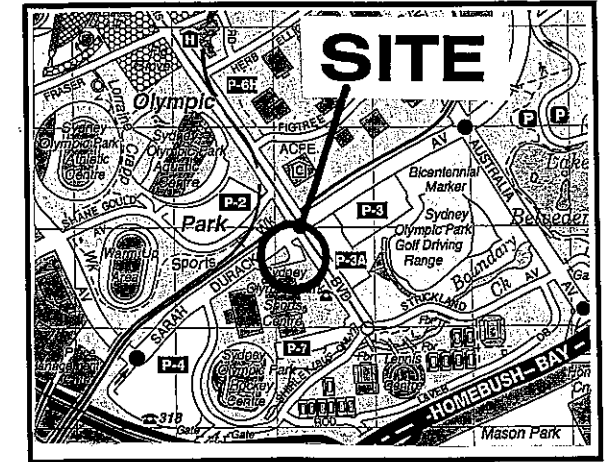
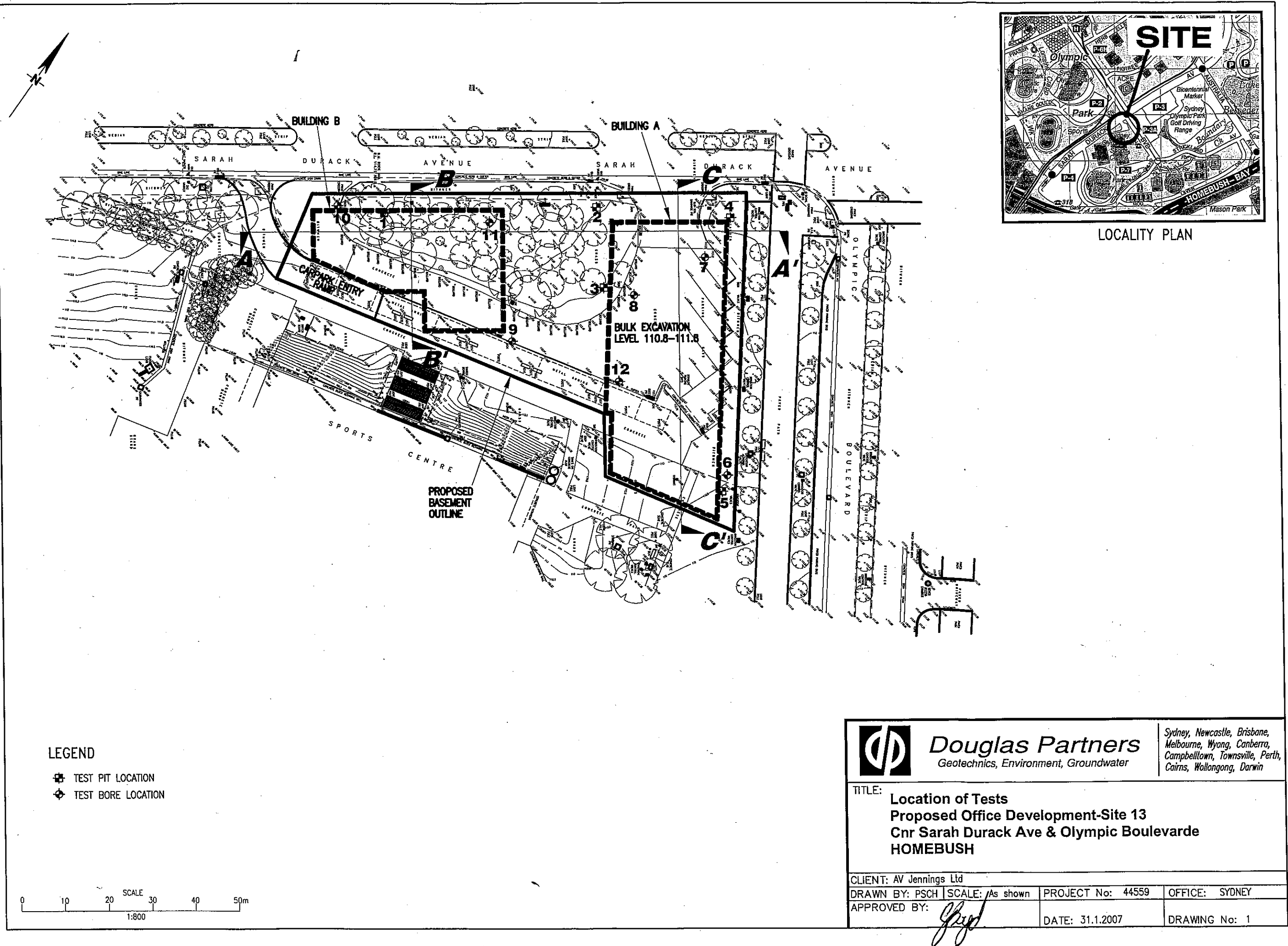
Reviewed by

Kurt Plambeck
Environmental Engineer

J.M Nash
Principal

APPENDIX A
Site Drawing and Notes Relating to This Report

P:144559 HOME BUSH, cnr Sarah Durack Ave & Olympic Boulevard - Geotech GRBIDrawings\44559-1.dwg, 28/2007 1:51:08 PM



LOCALITY PLAN

LEGEND

- TEST PIT LOCATION
- TEST BORE LOCATION



Douglas Partners
Geotechnics, Environment, Groundwater

Sydney, Newcastle, Brisbane,
Melbourne, Wyoong, Canberra,
Campbelltown, Townsville, Perth,
Cairns, Wollongong, Darwin

TITLE: **Location of Tests**
Proposed Office Development-Site 13
Cnr Sarah Durack Ave & Olympic Boulevard
HOME BUSH

CLIENT: AV Jennings Ltd	DRAWN BY: PSCH	SCALE: As shown	PROJECT No: 44559	OFFICE: SYDNEY
APPROVED BY:	DATE: 31.1.2007	DRAWING No: 1		

NOTES RELATING TO THIS REPORT

Introduction

These notes have been provided to amplify the geotechnical report in regard to classification methods, specialist field procedures and certain matters relating to the Discussion and Comments section. Not all, of course, are necessarily relevant to all reports.

Geotechnical reports are based on information gained from limited subsurface test boring and sampling, supplemented by knowledge of local geology and experience. For this reason, they must be regarded as interpretive rather than factual documents, limited to some extent by the scope of information on which they rely.

Description and Classification Methods

The methods of description and classification of soils and rocks used in this report are based on Australian Standard 1726, Geotechnical Site Investigations Code. In general, descriptions cover the following properties - strength or density, colour, structure, soil or rock type and inclusions.

Soil types are described according to the predominating particle size, qualified by the grading of other particles present (eg. sandy clay) on the following bases:

Soil Classification	Particle Size
Clay	less than 0.002 mm
Silt	0.002 to 0.06 mm
Sand	0.06 to 2.00 mm
Gravel	2.00 to 60.00 mm

Cohesive soils are classified on the basis of strength either by laboratory testing or engineering examination. The strength terms are defined as follows.

Classification	Undrained Shear Strength kPa
Very soft	less than 12
Soft	12—25
Firm	25—50
Stiff	50—100
Very stiff	100—200
Hard	Greater than 200

Non-cohesive soils are classified on the basis of relative density, generally from the results of standard penetration tests (SPT) or Dutch cone penetrometer tests (CPT) as below:

Relative Density	SPT "N" Value (blows/300 mm)	CPT Cone Value (q_c — MPa)
Very loose	less than 5	less than 2
Loose	5—10	2—5
Medium dense	10—30	5—15
Dense	30—50	15—25
Very dense	greater than 50	greater than 25

Rock types are classified by their geological names. Where relevant, further information regarding rock classification is given on the following sheet.

Sampling

Sampling is carried out during drilling to allow engineering examination (and laboratory testing where required) of the soil or rock.

Disturbed samples taken during drilling provide information on colour, type, inclusions and, depending upon the degree of disturbance, some information on strength and structure.

Undisturbed samples are taken by pushing a thin-walled sample tube into the soil and withdrawing with a sample of the soil in a relatively undisturbed state. Such samples yield information on structure and strength, and are necessary for laboratory determination of shear strength and compressibility. Undisturbed sampling is generally effective only in cohesive soils.

Details of the type and method of sampling are given in the report.

Drilling Methods.

The following is a brief summary of drilling methods currently adopted by the Company and some comments on their use and application.

Test Pits — these are excavated with a backhoe or a tracked excavator, allowing close examination of the in-situ soils if it is safe to descent into the pit. The depth of penetration is limited to about 3 m for a backhoe and up to 6 m for an excavator. A potential disadvantage is the disturbance caused by the excavation.

Large Diameter Auger (eg. Pengo) — the hole is advanced by a rotating plate or short spiral auger, generally 300 mm or larger in diameter. The cuttings are returned to the surface at intervals (generally of not more than 0.5 m) and are disturbed but usually unchanged in moisture content. Identification of soil strata is generally much more reliable than with continuous spiral flight augers, and is usually supplemented by occasional undisturbed tube sampling.

Continuous Sample Drilling — the hole is advanced by pushing a 100 mm diameter socket into the ground and withdrawing it at intervals to extrude the sample. This is the most reliable method of drilling in soils, since moisture content is unchanged and soil structure, strength, etc. is only marginally affected.

Continuous Spiral Flight Augers — the hole is advanced using 90—115 mm diameter continuous spiral flight augers which are withdrawn at intervals to allow sampling or in-situ testing. This is a relatively economical means of drilling in clays and in sands above the water

table. Samples are returned to the surface, or may be collected after withdrawal of the auger flights, but they are very disturbed and may be contaminated. Information from the drilling (as distinct from specific sampling by SPTs or undisturbed samples) is of relatively lower reliability, due to remoulding, contamination or softening of samples by ground water.

Non-core Rotary Drilling — the hole is advanced by a rotary bit, with water being pumped down the drill rods and returned up the annulus, carrying the drill cuttings. Only major changes in stratification can be determined from the cuttings, together with some information from 'feel' and rate of penetration.

Rotary Mud Drilling — similar to rotary drilling, but using drilling mud as a circulating fluid. The mud tends to mask the cuttings and reliable identification is again only possible from separate intact sampling (eg. from SPT).

Continuous Core Drilling — a continuous core sample is obtained using a diamond-tipped core barrel, usually 50 mm internal diameter. Provided full core recovery is achieved (which is not always possible in very weak rocks and granular soils), this technique provides a very reliable (but relatively expensive) method of investigation.

Standard Penetration Tests

Standard penetration tests (abbreviated as SPT) are used mainly in non-cohesive soils, but occasionally also in cohesive soils as a means of determining density or strength and also of obtaining a relatively undisturbed sample. The test procedure is described in Australian Standard 1289, "Methods of Testing Soils for Engineering Purposes" — Test 6.3.1.

The test is carried out in a borehole by driving a 50 mm diameter split sample tube under the impact of a 63 kg hammer with a free fall of 760 mm. It is normal for the tube to be driven in three successive 150 mm increments and the 'N' value is taken as the number of blows for the last 300 mm. In dense sands, very hard clays or weak rock, the full 450 mm penetration may not be practicable and the test is discontinued.

The test results are reported in the following form.

- In the case where full penetration is obtained with successive blow counts for each 150 mm of say 4, 6 and 7
as 4, 6, 7
 N = 13
- In the case where the test is discontinued short of full penetration, say after 15 blows for the first 150 mm and 30 blows for the next 40 mm
as 15, 30/40 mm.

The results of the tests can be related empirically to the engineering properties of the soil.

Occasionally, the test method is used to obtain samples in 50 mm diameter thin walled sample tubes in clays. In such circumstances, the test results are shown on the borelogs in brackets.

Cone Penetrometer Testing and Interpretation

Cone penetrometer testing (sometimes referred to as Dutch cone — abbreviated as CPT) described in this report has been carried out using an electrical friction cone penetrometer. The test is described in Australian Standard 1289, Test 6.4.1.

In the tests, a 35 mm diameter rod with a cone-tipped end is pushed continuously into the soil, the reaction being provided by a specially designed truck or rig which is fitted with an hydraulic ram system. Measurements are made of the end bearing resistance on the cone and the friction resistance on a separate 130 mm long sleeve, immediately behind the cone. Transducers in the tip of the assembly are connected by electrical wires passing through the centre of the push rods to an amplifier and recorder unit mounted on the control truck.

As penetration occurs (at a rate of approximately 20 mm per second) the information is plotted on a computer screen and at the end of the test is stored on the computer for later plotting of the results.

The information provided on the plotted results comprises: —

- Cone resistance — the actual end bearing force divided by the cross sectional area of the cone — expressed in MPa.
- Sleeve friction — the frictional force on the sleeve divided by the surface area — expressed in kPa.
- Friction ratio — the ratio of sleeve friction to cone resistance, expressed in percent.

There are two scales available for measurement of cone resistance. The lower scale (0—5 MPa) is used in very soft soils where increased sensitivity is required and is shown in the graphs as a dotted line. The main scale (0—50 MPa) is less sensitive and is shown as a full line.

The ratios of the sleeve friction to cone resistance will vary with the type of soil encountered, with higher relative friction in clays than in sands. Friction ratios of 1%—2% are commonly encountered in sands and very soft clays rising to 4%—10% in stiff clays.

In sands, the relationship between cone resistance and SPT value is commonly in the range:—

$$q_c \text{ (MPa)} = (0.4 \text{ to } 0.6) N \text{ (blows per 300 mm)}$$

In clays, the relationship between undrained shear strength and cone resistance is commonly in the range:—

$$q_c = (12 \text{ to } 18) c_u$$

Interpretation of CPT values can also be made to allow estimation of modulus or compressibility values to allow calculation of foundation settlements.

Inferred stratification as shown on the attached reports is assessed from the cone and friction traces and from experience and information from nearby boreholes, etc. This information is presented for general guidance, but must be regarded as being to some extent interpretive. The test method provides a continuous profile of engineering properties, and where precise information on soil classification is required, direct drilling and sampling may be preferable.

Hand Penetrometers

Hand penetrometer tests are carried out by driving a rod into the ground with a falling weight hammer and measuring the blows for successive 150 mm increments of penetration. Normally, there is a depth limitation of 1.2 m but this may be extended in certain conditions by the use of extension rods.

Two relatively similar tests are used.

- Perth sand penetrometer — a 16 mm diameter flat-ended rod is driven with a 9 kg hammer, dropping 600 mm (AS 1289, Test 6.3.3). This test was developed for testing the density of sands (originating in Perth) and is mainly used in granular soils and filling.
- Cone penetrometer (sometimes known as the Scala Penetrometer) — a 16 mm rod with a 20 mm diameter cone end is driven with a 9 kg hammer dropping 510 mm (AS 1289, Test 6.3.2). The test was developed initially for pavement subgrade investigations, and published correlations of the test results with California bearing ratio have been published by various Road Authorities.

Laboratory Testing

Laboratory testing is carried out in accordance with Australian Standard 1289 "Methods of Testing Soil for Engineering Purposes". Details of the test procedure used are given on the individual report forms.

Bore Logs

The bore logs presented herein are an engineering and/or geological interpretation of the subsurface conditions, and their reliability will depend to some extent on frequency of sampling and the method of drilling. Ideally, continuous undisturbed sampling or core drilling will provide the most reliable assessment, but this is not always practicable, or possible to justify on economic grounds. In any case, the boreholes represent only a very small sample of the total subsurface profile.

Interpretation of the information and its application to design and construction should therefore take into account the spacing of boreholes, the frequency of sampling and the possibility of other than 'straight line' variations between the boreholes.

Ground Water

Where ground water levels are measured in boreholes, there are several potential problems;

- In low permeability soils, ground water although present, may enter the hole slowly or perhaps not at all during the time it is left open.
- A localised perched water table may lead to an erroneous indication of the true water table.
- Water table levels will vary from time to time with seasons or recent weather changes. They may not be

the same at the time of construction as are indicated in the report.

- The use of water or mud as a drilling fluid will mask any ground water inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water observations are to be made.

More reliable measurements can be made by installing standpipes which are read at intervals over several days, or perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from a perched water table.

Engineering Reports

Engineering reports are prepared by qualified personnel and are based on the information obtained and on current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal (eg. a three storey building), the information and interpretation may not be relevant if the design proposal is changed (eg. to a twenty storey building). If this happens, the Company will be pleased to review the report and the sufficiency of the investigation work.

Every care is taken with the report as it relates to interpretation of subsurface condition, discussion of geotechnical aspects and recommendations or suggestions for design and construction. However, the Company cannot always anticipate or assume responsibility for:

- unexpected variations in ground conditions — the potential for this will depend partly on bore spacing and sampling frequency
- changes in policy or interpretation of policy by statutory authorities
- the actions of contractors responding to commercial pressures.

If these occur, the Company will be pleased to assist with investigation or advice to resolve the matter.

Site Anomalies

In the event that conditions encountered on site during construction appear to vary from those which were expected from the information contained in the report, the Company requests that it immediately be notified. Most problems are much more readily resolved when conditions are exposed than at some later stage, well after the event.

Reproduction of Information for Contractual Purposes

Attention is drawn to the document "Guidelines for the Provision of Geotechnical Information in Tender Documents", published by the Institution of Engineers, Australia. Where information obtained from this investigation is provided for tendering purposes, it is recommended that all information, including the written report and discussion, be made available. In circumstances where the discussion or comments section

is not relevant to the contractual situation, it may be appropriate to prepare a specially edited document. The Company would be pleased to assist in this regard and/or to make additional report copies available for contract purposes at a nominal charge.

Site Inspection

The Company will always be pleased to provide engineering inspection services for geotechnical aspects of work to which this report is related. This could range from a site visit to confirm that conditions exposed are as expected, to full time engineering presence on site.

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APPENDIX B
Site History Information



Photo 1 1951 Aerial Photograph



Photo 2 1961 Aerial Photograph



Photo 3 1970 Aerial Photograph

Preliminary Contamination Assessment
Corner of Sarah Durack Avenue and Olympic Boulevard, Homebush

Project
44559A

February
2007

Plate
1



Photo 4 1982 Aerial Photograph

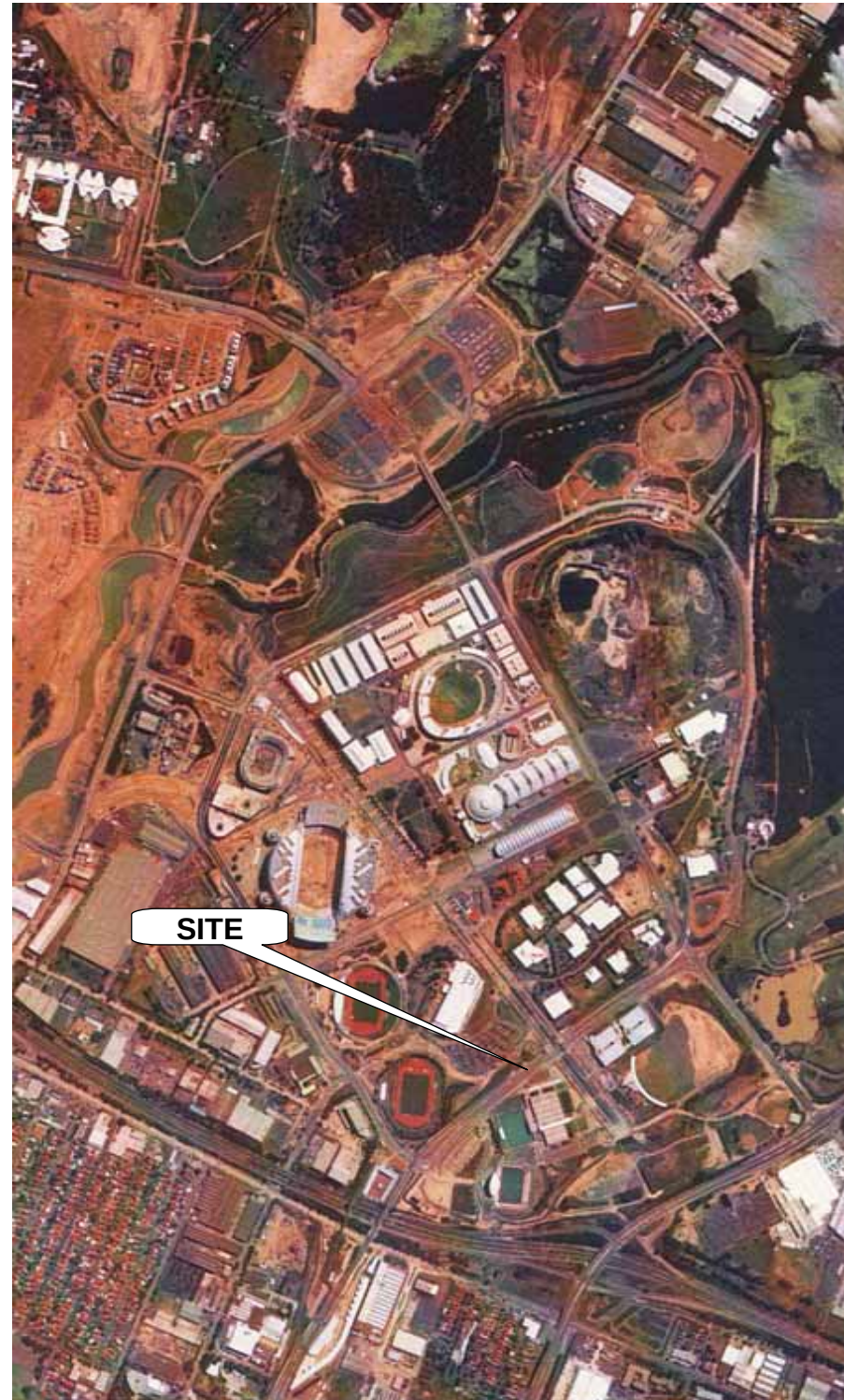


Photo 5 1998 Aerial Photograph



Photo 6 2005 Aerial Photograph

Preliminary Contamination Assessment
 Corner of Sarah Durack Avenue and Olympic Boulevard, Homebush

Project
 44559A

February
 2007

Plate
 2



ACN: 093 398 611
ABN: 61 093 412 474

Peter S. Hopley Pty Limited
Legal Searchers

1 Boronia Avenue
Mount Annan , NSW , 2567
Mobile: 0412 199 304
Fax 9233 4590 (Attn Box 29)

SUMMARY AS TO OWNERS.

Property: Sarah Durack Avenue, Homebush

Description: - Part Lot 201 D.P. 1041756

23.11.1910	Minister for Public Works	Vol 2106 Fol 53
26.03.1929	Metropolitan Meat Industry Board <i>(then Metropolitan Meat Industry Meat Industry Commissioner)</i> <i>(then Metropolitan Meat Industry Meat Industry Board)</i>	Vol 6129 Fol 216
10.05.1983	Minister for Public Works	Vol 15164 Fol 117
11.09.1986	# State Sports Centre Trust <i>(# Now Sydney Olympic Park Authority, after various name changes)</i>	201/1041756

Current Registered Proprietor

Cadastral Records Enquiry Report

Requested Parcel : Lot 201 DP 1041756

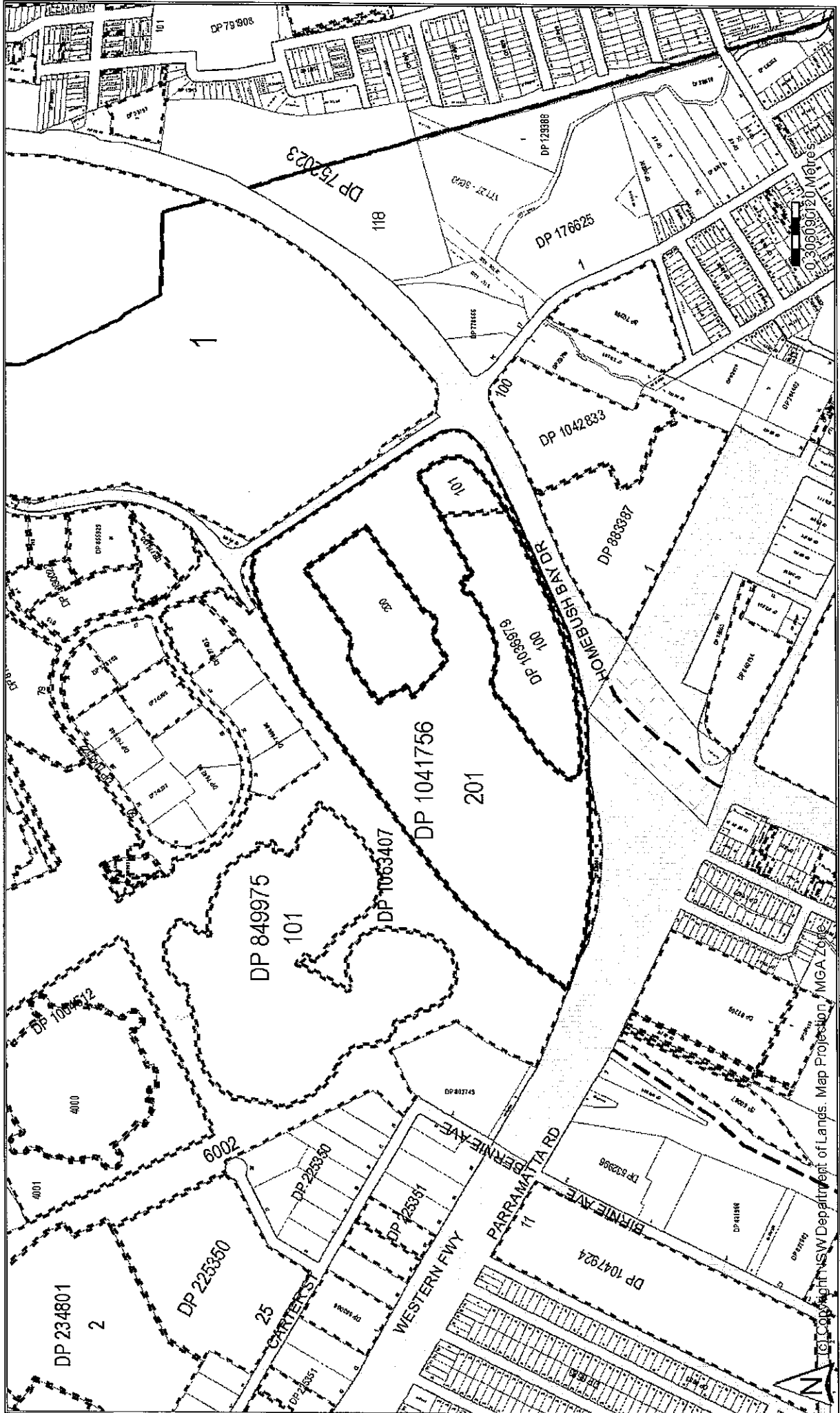
Identified Parcel : Lot 201 DP 1041756

Locality : LIDCOMBE

LGA : AUBURN

Parish : CONCORD

County : CUMBERLAND

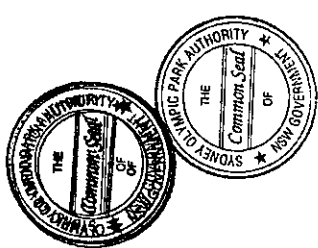


SIGNATURES, AND SEALS ONLY

Signed by an Officer Licensed as delegate of the Surveyor General, I hereby declare that I have no notice of the revocation of such delegation in the presence of:

Signature of witness: *Rebecca*
SIPA by the Delegation

Signature of witness: *BRYAN HARRISON*
Print Name of witness



Crown Lands Office Approval

PLAN APPROVED: *Submitted Officer*
Land District: *Submitted Officer*
Page No: *Submitted Officer*
Field Book: *Submitted Officer*

Subdivision Certificate

I certify that the provisions of s.89(1) of the Environmental Planning and Assessment Act 1979 have been satisfied in relation to the subdivision of the land shown in the plan.

Subdivision Certificate no: *Submitted Officer*
Date of issue: *Submitted Officer*
I am a: *Submitted Officer*

Consent Authority: *Submitted Officer*
Date of consent: *Submitted Officer*
Accreditation no: *Submitted Officer*
Subdivision Certificate no: *Submitted Officer*
I am a: *Submitted Officer*

I am the plan in it to be lodged electronically in the Land Titles Office and should include a signature in an electronic or digital format.

Signature of the Registrar-General

Date of issue: *Submitted Officer*

Date of issue: *Submitted Officer*

Date of issue: *Submitted Officer*

Date of issue: *Submitted Officer*

Plan Drawing only to appear in this space

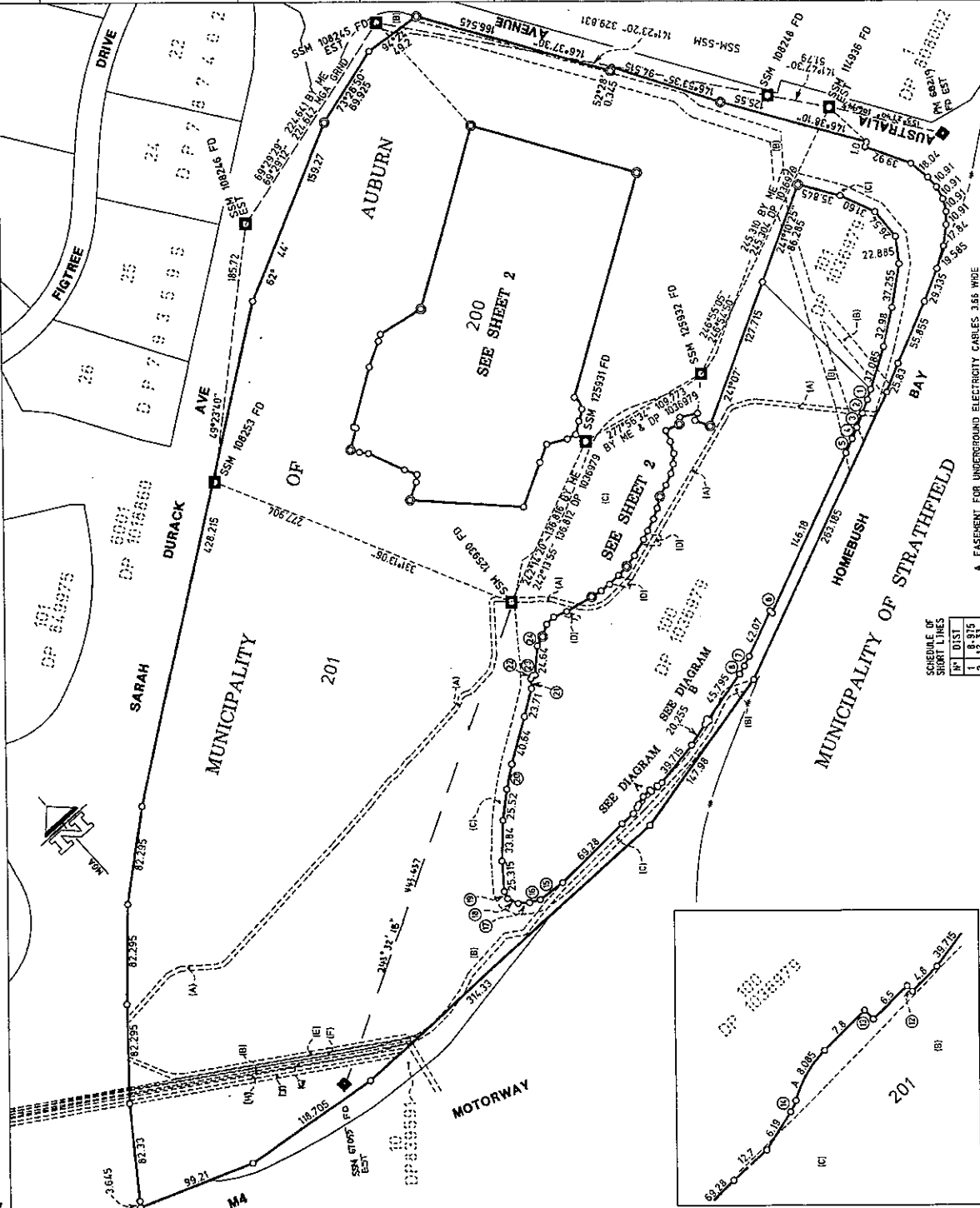


DIAGRAM A						
MARK	EASTING	NORTHING	ZONE	CLASS	ORDER	L D
SSM 108246	321 581.234	6 252 711.889	56	B	2	2
SSM 108247	321 581.234	6 252 711.889	56	B	2	2
SSM 108248	322 035.48	6 252 482.139	56	B	2	2
SSM 108249	322 003.474	6 252 551.890	56	B	2	2
SSM 108250	3221 446	6 252 581	56	B	2	2
SSM 108251	321 604	6 252 368	56	B	2	2
SSM 108252	321 581	6 252 418	56	B	2	2
SSM 123332	321 860	6 252 418	56	B	2	2

SOURCE: MGA CO-ORDINATES ADAPTED FROM SCIMS
MGA CO-ORDINATES FEBRUARY 2002
COMPILED M.S. SCALE FACTOR= 0.999997

PLAN FORM 3

DP1041756

Registered:  68.2002

This is sheet 2 of 3 sheets


Surveyor registered under Surveyors Act 2001

This is sheet 2 of 3 sheets of a plan for a subdivision of land


SUB 5102

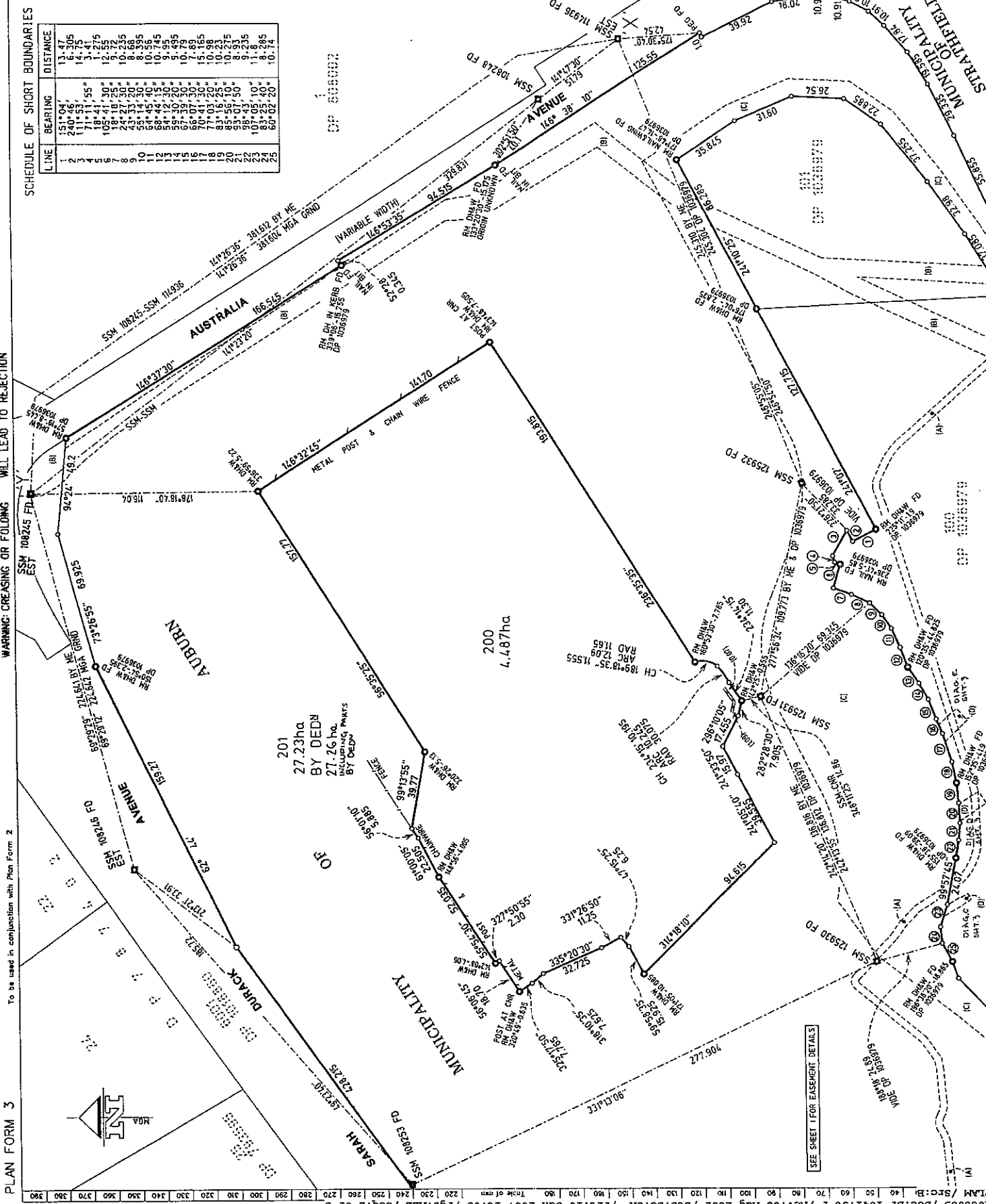
Authorised Person (Surveyor) Licensed Under the Surveyors Act 2001

For use where space is insufficient in any particular place

Form 2

Revised Rule 11 1250

SURVEYORS REFERENCE: 5220555 rev A



Registered: 6.8.2002.

It is sheet 3 of my plot in 3 sheets

This is sheet 3 of the plan of 3 sheets
covered by my certificate No. 5102

See page below for signatures

Authorized Person/General Manager/Accredited Classifier

Signed by me, Dianne Leson as Delegate of the Sydney Olympic Park Authority and I hereby declare that I have no notice of the Revocation of such Delegation in the presence of:

Signature of witness

..... SCPA by its Delegates

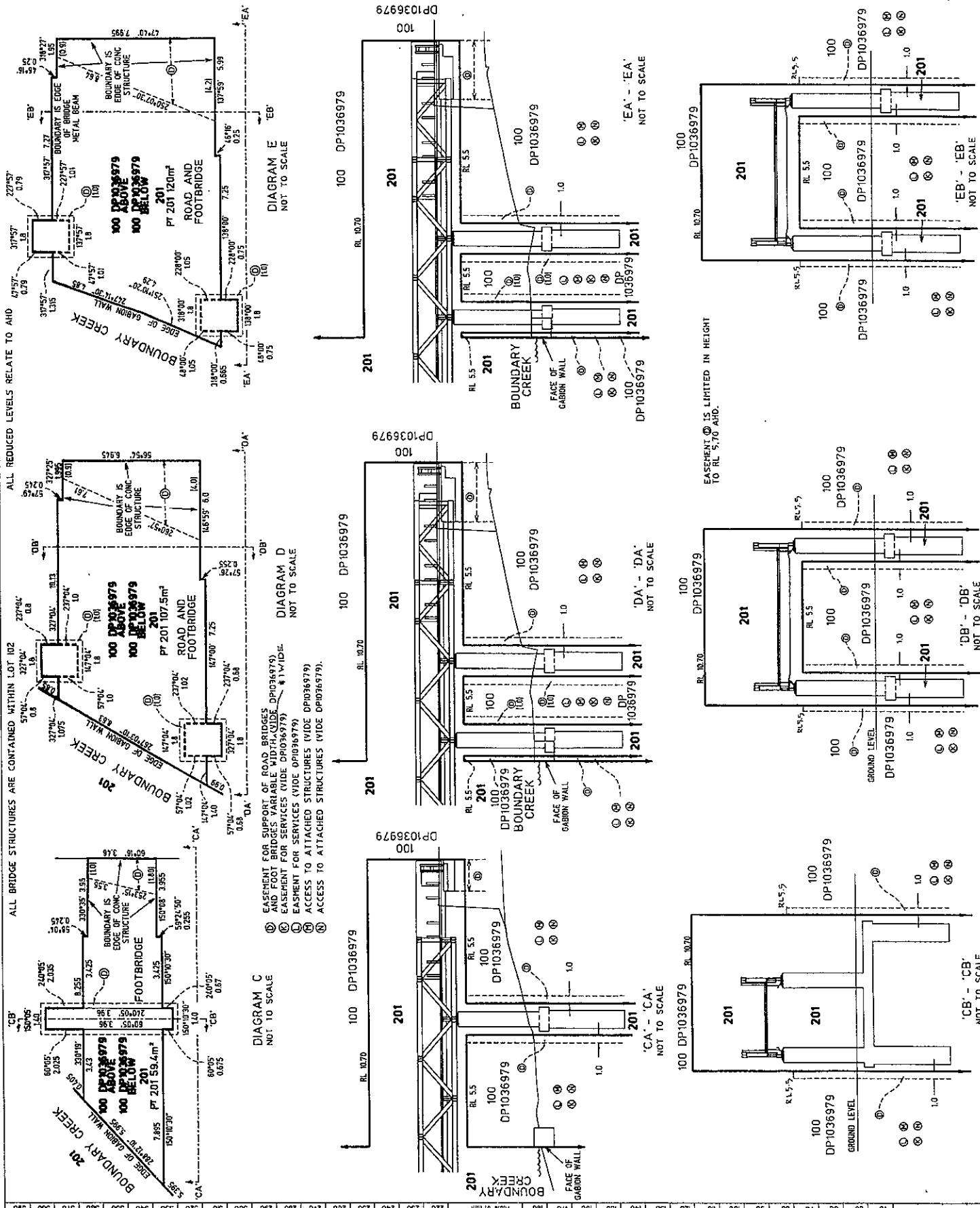
2009-10



Reduction Ratio: N.T.S.

plan Drawing only to appear in this space

INSPECTION REPORT: 320565 (20565) rev D



DP1036979

Registered:

5.8.2002

This is sheet 4 of my plan of 5 sheets

9/6/00

P. Houghton

Surveyor registered under Surveyors Act 1925
This is sheet 4 of the plan of 5 sheets
covered by my certificate No.
4102

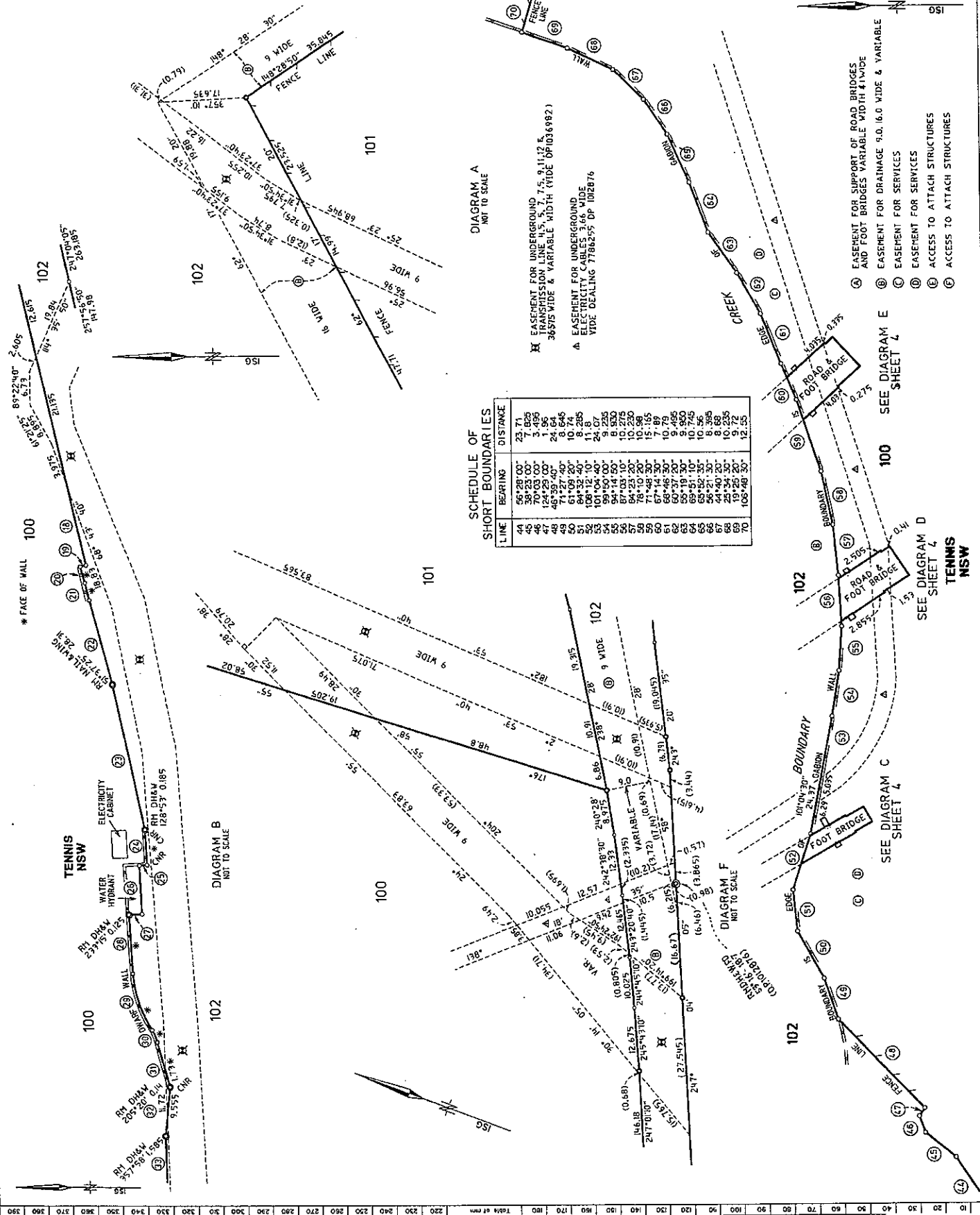
Alan Mott

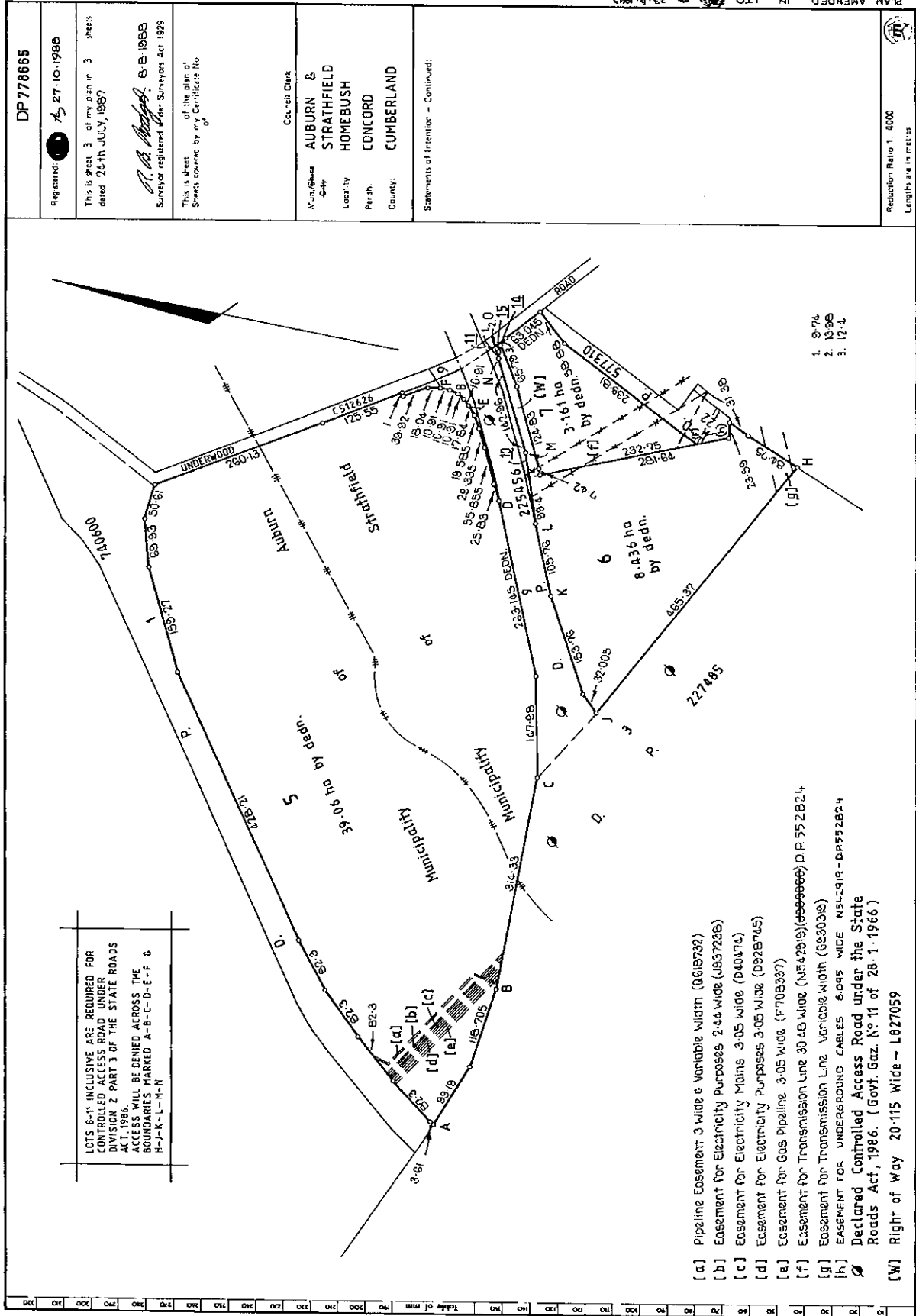
Authorised Person (Surveyor) - Signature/Official Seal
For use where space is insufficient in any
panel on Plan Form 2

Reduction Ratio: 1:500

PLAN Drawing only to appear in this space

SAUTON'S APPEALING 4/20563 (20563) rev C





WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION

To be used in conjunction with Plan Form 2

PLAN COM 39

DP 778665

Registered. 27.10.1988

This is sheet 2 of my plan in 3 sheets
dated 24th JULY, 1957.

R. B. Hargrett 8-8-1988
Surveyor registered under Surveyors Act: 19

This is sheet _____ of the plan of _____
 Sheets covered by my Certificate No _____ of _____

Council Clerk

Strathfield	Strathfield
Homebush	Homebush
Concord	Concord
Cumberland	Cumberland

Statements of Intent - Continued:

Reduction Ratio 1: 800
Lengths are in metres

D.M.R. PLAN: 5030 40955J006

Plan Drawing only to appear in this space

D.M.R. FILE: 409-1243 PT.3
D.M.R. PLAN: 5030 409550006

B29

/Req: B264866
/Doc: CT 15164-117
/Prt: 10-Jan-2007

NEW SOUTH WALES



15164-117

15164 Fol. 117

First Title Old System

Prior Title Vol. 6129 Fol. 216



EDITION 14 12 1983
ISSUED

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

[Signature]
Registrar General.



PLAN SHOWING LOCATION OF LAND

LENGTHS ARE IN METRES

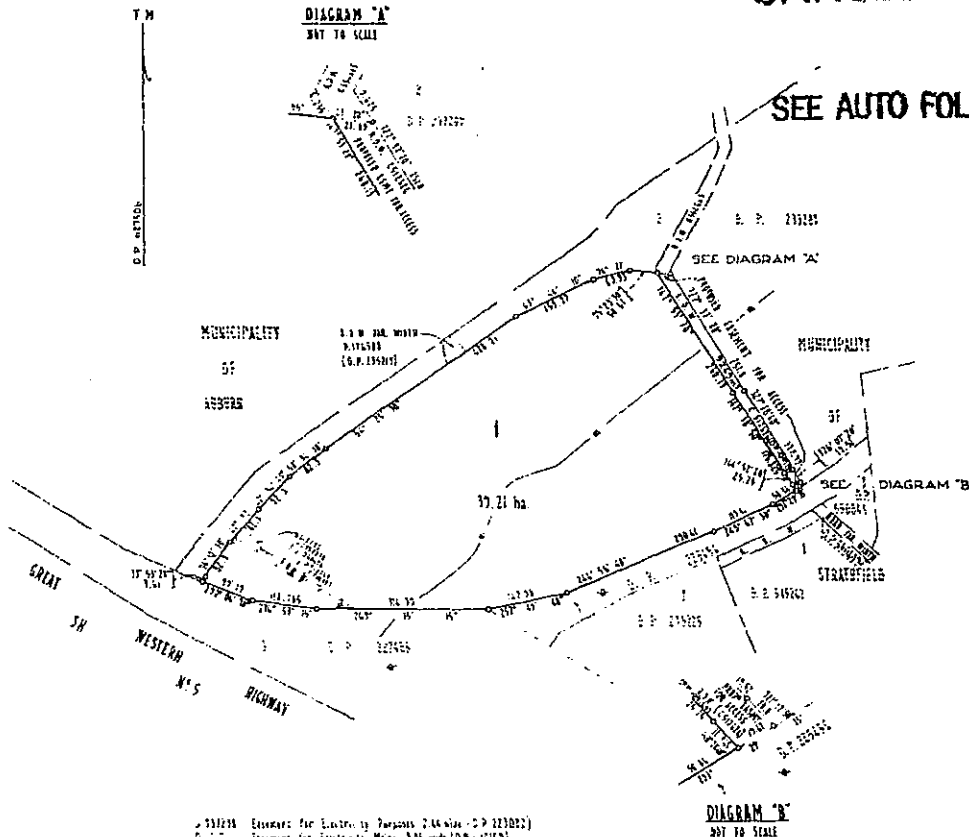


Diagram A
NOT TO SCALE

Diagram B
NOT TO SCALE

* Truncated Mainway only exists at 28th January 1955 M.H. Vol 171

LAND REFERRED TO

Lot 1 in Deposited Plan 627506 at Homebush Bay in the Municipalities of Auburn and Strathfield Parish of Concord County of Cumberland.

FIRST SCHEDULE

THE MINISTER FOR PUBLIC WORKS.

SECOND SCHEDULE

- GRN
1. D40474^p Easement for electricity mains affecting the land shown so burdened in the plan hereon.
 2. D928745^p Easement for electricity purposes affecting the land shown so burdened in the plan hereon.
 3. F708337^p Easement for gas pipeline affecting the land shown so burdened in the plan hereon.
 4. J937238^p Easement for electricity purposes affecting the land shown so burdened in the plan hereon.
 5. Q618732^p Easement for pipeline affecting the land shown so burdened in the plan hereon.
 6. T377028^p Easement for access affecting the land shown so burdened in the plan hereon.

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

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

(Page 1) Vol. 15164, Fol. 117

FIRST SCHEDULE (continued)
REGISTERED PROPRIETOR

Registrar General

State Sports Centre Trust by Application W467173. Registered 11.9.1986.



CANCELLED

SEE AUTO FOLIO

SECOND SCHEDULE (continued)

PARTICULARS

Registrar General

CANCELLATION

NOTATIONS AND UNREGISTERED DEALINGS

W467173 4/11/86
DR. 640806R

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LegalStream Australia Pty Ltd

ABN: 80 002 801 498
Level 10, 135 King Street, SYDNEY NSW 2000, AUSTRALIA * DX654, SYDNEY
Tel: (02) 9231 0122 Fax: (02) 9233 6411 www.legalstream.com.au

An Approved
LPI NSW
Information Broker

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE

10/1/2007 3:55PM

FOLIO: 1/627506

First Title(s): SEE PRIOR TITLE(S)
Prior Title(s): VOL 15164 FOL 117

Recorded	Number	Type of Instrument	C.T. Issue
28/3/1988		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
20/10/1988		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
27/10/1989	DP499044	DEPOSITED PLAN	
12/4/1990	Y760065	GRANT OF EASEMENT	
12/4/1990	Y760066	LEASE	EDITION 1
29/10/1991	Z946755	GRANT OF EASEMENT	
29/10/1991	Z946756	GRANT OF EASEMENT	
29/10/1991	Z946757	GRANT OF EASEMENT	EDITION 2
4/12/1991	E75894	GRANT OF EASEMENT	EDITION 3
29/9/1993	DP831539	DEPOSITED PLAN	
10/11/1993	I786094	DEPARTMENTAL DEALING	
16/11/1995	O671966	LEASE	EDITION 4
22/7/1996	2297364	REQUEST	FOLIO CANCELLED
15/8/2000	7022680	DEPARTMENTAL DEALING	

*** END OF SEARCH ***

plambeck

PRINTED ON 10/1/2007

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by the Registrar General in accordance with Section 96B(2) of the Real Property Act, 1900.

*ANY ENTRIES PRECEDED BY AN ASTERIX DO NOT APPEAR ON THE CURRENT EDITION OF THE CERTIFICATE OF TITLE
WARNING: THE INFORMATION APPEARING UNDER NOTATIONS HAS NOT BEEN FORMALLY RECORDED IN THE REGISTER

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ABN: 80 002 801 498
Level 10, 135 King Street, SYDNEY NSW 2000, AUSTRALIA * DX654, SYDNEY
Tel: (02) 9231 0122 Fax: (02) 9233 6411 www.legalstream.com.au

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LPI NSW
Information Broker

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE

10/1/2007 3:55PM

FOLIO: 5/778665

First Title(s): OLD SYSTEM

Prior Title(s): 1/627506

Recorded	Number	Type of Instrument	C.T. Issue
31/10/1988	DP778665	DEPOSITED PLAN	LOT RECORDED FOLIO NOT CREATED
22/7/1996	2297364	REQUEST	FOLIO CREATED EDITION 1
30/6/1998	5089960	DEPARTMENTAL DEALING	
30/11/1999	6331830	TRANSFER OF LEASE	
17/4/2000	DP1012876	DEPOSITED PLAN	
12/5/2000	6774372	DEPARTMENTAL DEALING	
22/6/2000	6224851	REQUEST	
11/9/2000	7080209	DEPARTMENTAL DEALING	
12/9/2000	7083110	DEPARTMENTAL DEALING	
13/9/2000	6677102	REQUEST	
19/9/2000	6677103	REQUEST	
22/11/2000	7237007	DEPARTMENTAL DEALING	
22/3/2001	7444723	LEASE	EDITION 2
3/8/2001	7786255	GRANT OF EASEMENT	EDITION 3
7/8/2001	7523364	REJECTED - CAVEAT	
25/1/2002	8208816	APPLICATION	
25/1/2002	8208817	APPLICATION	
31/1/2002	8315967	DEPARTMENTAL DEALING	
1/2/2002	8322840	DEPARTMENTAL DEALING	
14/5/2002	DP1036982	DEPOSITED PLAN	

END OF PAGE 1 - CONTINUED OVER

plambeck

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LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE

10/1/2007 3:55PM

FOLIO: 5/778665

PAGE 2

Recorded	Number	Type of Instrument	C.T. Issue
5/8/2002	DP1036979	DEPOSITED PLAN	FOLIO CANCELLED

*** END OF SEARCH ***

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Search Date.....: 10-Jan-07

Search Time: 3:59 PM

Search Type.....: Title Search

Client Reference: PLAMBECK

Search Reference: 5/778665

Message.....:

DP1036979 ***** FOLIO CANCELLED ***** NEW
FOLIOS HAVE BEEN CREATED FOR LOT(S) 100-102 IN
DP1036979

LegalStream Australia Pty Ltd

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Search Date.....: 10-Jan-07

Search Time: 4:05 PM

Search Type.....: Title Search

Client Reference: PLAMBECK

Search Reference: 102/1036979

Message.....:

DP1041756 ***** FOLIO CANCELLED ***** NEW
FOLIOS HAVE BEEN CREATED FOR LOT(S) 200-201 IN
DP1041756

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LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE

10/1/2007 4:01PM

FOLIO: 102/1036979

First Title(s): OLD SYSTEM

Prior Title(s): 5/778665

Recorded	Number	Type of Instrument	C.T. Issue
5/8/2002	DP1036979	DEPOSITED PLAN	FOLIO CREATED CT NOT ISSUED
6/8/2002	DP1041756	DEPOSITED PLAN	FOLIO CANCELLED

*** END OF SEARCH ***

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LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE

10/1/2007 4:12PM

FOLIO: 201/1041756

First Title(s): OLD SYSTEM
Prior Title(s): 102/1036979

Recorded	Number	Type of Instrument	C.T. Issue
6/8/2002	DP1041756	DEPOSITED PLAN	FOLIO CREATED EDITION 1
13/8/2002	8858440	DEPARTMENTAL DEALING	EDITION 2
22/10/2002	DP1016443	DEPOSITED PLAN	

*** END OF SEARCH ***

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LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: 201/1041756

SEARCH DATE	TIME	EDITION NO	DATE
10/1/2007	4:12 PM	2	13/8/2002

LAND

LOT 201 IN DEPOSITED PLAN 1041756
AT HOMEBUSH
LOCAL GOVERNMENT AREA: AUBURN
PARISH OF CONCORD COUNTY OF CUMBERLAND
TITLE DIAGRAM: DP1041756

FIRST SCHEDULE

SYDNEY OLYMPIC PARK AUTHORITY

SECOND SCHEDULE (17 NOTIFICATIONS)

1. THE LAND ABOVE DESCRIBED IS LIMITED IN STRATUM IN THE MANNER DESCRIBED IN THE TITLE DIAGRAM
2. D40474 EASEMENT FOR ELECTRICITY MAINS 3.05 WIDE AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM
3. D928745 EASEMENT FOR ELECTRICITY PURPOSES 3.05 WIDE AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM
4. J937238 EASEMENT FOR ELECTRICITY PURPOSES 2.44 WIDE AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM
5. F708337 EASEMENT FOR GAS PIPELINE 3.05 WIDE AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM
6. Q618732 EASEMENT FOR PIPELINE AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM
7. DP831539 RIGHT OF CARRIAGEWAY VARIABLE WIDTH APPURTENANT TO THE LAND ABOVE DESCRIBED
8. Z946755 EASEMENT FOR PIPELINE AFFECTING THE PART SHOWN SO BURDENED IN THE TITLE DIAGRAM
6774372 AFFECTED BY EXTINGUISHMENT OF EASEMENT IN ACCORDANCE WITH S.21A OF THE PIPELINES ACT, 1967.
SEE GOV. GAZ. 26/02/1999 FOL.1411
9. Z946756 EASEMENT FOR PIPELINE AFFECTING THE PART SHOWN SO BURDENED IN THE TITLE DIAGRAM
6224851 EASEMENT AFFECTED BY EXTINGUISHMENT IN ACCORDANCE WITH SEC 21A OF THE PIPELINES ACT, 1967
- SEE GOVT GAZ 26/2/1999 FOLIO 1411
10. Z946757 EASEMENT FOR PIPELINE AFFECTING THE PART SHOWN SO BURDENED IN THE TITLE DIAGRAM
6677102 EASEMENT AFFECTED BY EXTINGUISHMENT IN

END OF PAGE 1 - CONTINUED OVER

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LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: 201/1041756

PAGE 2

SECOND SCHEDULE (17 NOTIFICATIONS) (CONTINUED)

-
- ACCORDANCE WITH SEC 21A OF THE PIPELINES ACT, 1967
- SEE GOVT GAZ 26/2/1999 FOLIO 1411
11. 7444723 LEASE TO SYDNEY SPORTS MEDICINE CENTRE PTY LIMITED
OF PART BEING THE SYDNEY SPORTS MEDICINE CENTRE,
(APPROXIMATELY 333 METRES SQUARE) GROUND FLOOR, STATE
SPORTS CENTRE, LOT 5, SARAH DURACK AVENUE, HOMEBUSH
BAY. EXPIRES: 23/11/2005. OPTION OF RENEWAL: 5 YEARS.
12. 7786255 EASEMENT FOR UNDERGROUND ELECTRICITY CABLES 3.66
WIDE AFFECTING PART SHOWN SO BURDENED IN THE TITLE
DIAGRAM
13. DP1036982 EASEMENT FOR UNDERGROUND TRANSMISSION LINE 4.5, 5, 7,
7.5, 9, 11, 12 & 36.575 WIDE AND VARIABLE WIDTH
AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE
DIAGRAM
14. DP1036979 EASEMENT FOR SUPPORT OF ROAD BRIDGES AND FOOT BRIDGES
1 METRE(S) WIDE AND VARIABLE APPURTENANT TO THE LAND
ABOVE DESCRIBED
15. DP1036979 EASEMENT FOR DRAINAGE 9, 16 METRE(S) WIDE AND VARIABLE
AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE
DIAGRAM
16. DP1036979 EASEMENT FOR SERVICES REFERRED TO AND NUMBERED (4) IN
THE S.88B INSTRUMENT APPURTENANT TO THE LAND ABOVE
DESCRIBED
17. DP1036979 ACCESS TO ATTACH STRUCTURES REFERRED TO AND NUMBERED
(6) IN THE S.88B INSTRUMENT APPURTENANT TO THE LAND
ABOVE DESCRIBED

NOTATIONS

DP1016443 NOTE: PLAN FOR LEASE PURPOSES & PROPOSED EASEMENTS
UNREGISTERED DEALINGS: NIL

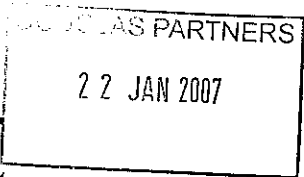
*** END OF SEARCH ***

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1 Susan Street, P.O. Box 118 Auburn, NSW Australia 1835

Douglas Partners Pty Limited
PO Box 472
WEST RYDE NSW 1685

Telephone: 9735 1222 Facsimile: 9643 1120
ABN 63 914 691 587

In reply quote:

Contact Name:

Certificate No: 4361
Receipt No: 164542
Date: 15 January 2007
Your Reference:

PLANNING CERTIFICATE

Issued under Section 149(2) of the
Environmental Planning and Assessment Act, 1979

Property Details

Address: Lot 201 Australia Avenue, HOMEBUSH BAY

Legal Description: Lot 201 DP 1041756

Owner(s) Name (as recorded by Council):

State Sports Centre Trust and Hockey Centre and Sydney Olympic Park Authority
Locked Bag 3
HOMEBUSH BAY NSW 2127

In accordance with the requirements of Section 149(2) of the *Environmental Planning and Assessment Act, 1979* (as amended), the following prescribed matters relate to the land at the date of this certificate.

Note: The information contained in Planning Certificates issued for a lot within Strata-Titled development relates to the land the development is situated on.

Names of Relevant SEPPs, REPs, LEPs and DCPs

(1) *The names of:*

- (a) *each Local Environmental Plan and Deemed Environmental Planning Instrument applying to the land, and*
- (b) *each draft Local Environmental Plan applying to the land that has been placed on exhibition under Section 66(1)(b) of the Act, and*
- (c) *each development control plan applying to the land that has been made by the relevant planning authority under Division 6 of Part 3 of the Act (including any made by the council under section 72, or the Director-General under section 51A, before the repeal of those sections).*

- 1(a) There are no Local Environmental Plans or Deemed Environmental Planning Instruments that apply to this land. Refer to Sydney Regional Environmental Plan No. 24 – Homebush Bay Area.

NOTE: Any questions about Sydney Regional Environmental Plan No. 24 – Homebush Bay Area should be directed to the Department of Infrastructure, Planning and Natural Resources on (02) 9762-8000 or <http://www.dipnr.nsw.gov.au>.

- 1(b) There are no Draft Local Environmental Plans that have been exhibited under Section 66(1)(b) of the Act that apply to this land.

- 1(c) There are no Development Control Plans that have been made by the Director-General under Section 51A of the Act that apply to this land.

There are no Development Control Plans that have been made by Council under Section 72 of the Act that apply to this land.

(2) *The names of:*

- (a) *each Regional Environmental Plan applying to the land, and*
- (b) *each draft Regional Environmental Plan applying to the land that has been placed on exhibition under section 47(b) of the Act.*
- (c) *Repealed.*

2(a) Sydney Regional Environmental Plan No. 24 – Homebush Bay Area, as amended.
Sydney Regional Environmental Plan - (Sydney Harbour Catchment) 2005.

2(b) There are no draft Regional Environmental Plans that have been placed on exhibition under Section 47(b) of the Act that apply to this land.

2(c) Repealed

(3) *The names of:*

- (a) *each State Environmental Planning Policy applying to the land, and*
- (b) *each draft State Environmental Planning Policy applying to the land that has been publicised as referred to in Section 39(2) of the Act.*

- 3(a)
- | | |
|--|---|
| State Environmental Planning Policy No. 1 | Development Standards. |
| State Environmental Planning Policy No. 4 | Development without Consent and Miscellaneous Exempt and Complying Development. |
| State Environmental Planning Policy No. 6 | Number of Storeys in a Building. |
| State Environmental Planning Policy No. 8 | Surplus Public Land. |
| State Environmental Planning Policy No. 9 | Group Homes. |
| State Environmental Planning Policy No. 10 | Retention of Low-Cost Rental Accommodation. |
| State Environmental Planning Policy No. 11 | Traffic Generating Developments. |
| State Environmental Planning Policy No. 16 | Tertiary Institutions. |
| State Environmental Planning Policy No. 19 | Bushland in Urban Areas. |
| State Environmental Planning Policy No. 21 | Caravan Parks. |
| State Environmental Planning Policy No. 22 | Shops and Commercial Premises. |
| State Environmental Planning Policy No. 27 | Prison Sites. |
| State Environmental Planning Policy No. 30 | Intensive Agriculture. |
| State Environmental Planning Policy No. 32 | Urban Consolidation (Redevelopment of Urban Land). |
| State Environmental Planning Policy No. 33 | Hazardous and Offensive Development. |
| State Environmental Planning Policy No. 37 | Continued Mines and Extractive Industries. |
| State Environmental Planning Policy No. 45 | Permissibility of Mining. |
| State Environmental Planning Policy No. 48 | Major Putrescible Landfill Sites. |
| State Environmental Planning Policy No. 50 | Canal Estate Development. |
| State Environmental Planning Policy No. 55 | Remediation of Land. |
| State Environmental Planning Policy No. 60 | Exempt and Complying Development. |
| State Environmental Planning Policy No. 64 | Advertising and Signage. |
| State Environmental Planning Policy No. 65 | Design Quality of Residential Flat Development. |
| State Environmental Planning Policy No. 70 | Affordable Housing (Revised Schemes). |
| State Environmental Planning Policy | Building Sustainability Index: BASIX 2004. |
| State Environmental Planning Policy | ARTC Rail Infrastructure 2004. |

State Environmental Planning Policy

Repeal of Concurrence and Referral Provisions 2004.

State Environmental Planning Policy

Sydney Metropolitan Water Supply 2004.

State Environmental Planning Policy

(Major Projects) 2005.

State Environmental Planning Policy

(Seniors Living) 2004, as amended.

- 3(b) Draft State Environmental Planning Policy No. 66 Integration of Land Use and Transport.
Draft State Environmental Planning Policy Application of Development Standards 2004.
Draft State Environmental Planning Policy (Infrastructure) 2006.

Note: Any questions regarding State Environmental Planning Policies, Regional Environmental Planning Policies or Development Control Plans under section 51A of the Act should be directed to the Department of Infrastructure Planning and Natural resources on (02) 9762-8000 or www.dipnr.nsw.gov.au

Zoning and Land Use under relevant LEPs

For each *Local Environmental Plan, Deemed Environmental Planning Instrument and draft Local Environmental Plan applying to the land in any zone (however described)*:

- (a) *the identity of the zone, whether by reference to a name (such as "Residential Zone" or "Heritage Area") or by reference to a number (such as "Zone No. 2(a))",*
 - (b) *the purpose for which the plan or instrument provides that development may be carried out within the zone without the need for development consent,*
 - (c) *the purposes for which the plan or instrument provides that development may not be carried out within the zone except with development consent,*
 - (d) *the purposes for which the plan or instrument provides that development is prohibited within the zone,*
 - (e) *whether any development standards applying to the land fix minimum land dimensions for the erection of a dwelling-house on the land and, if so, the minimum land dimensions so fixed,*
 - (f) *whether the land includes or comprises critical habitat,*
 - (g) *whether the land is in a conservation area (however described),*
 - (h) *whether an item of environmental heritage (however described) is situated on the land.*
- (a) The zoning and land use provisions of Sydney Regional Environmental Plan No. 24 – Homebush Bay Area apply to this land.

Sydney Regional Environmental Plan No. 24 – Homebush Bay Area may be obtained via the internet from www.legislation.nsw.gov.au or by contacting the Department of Infrastructure, Planning and Natural Resources on 9762 8000.

Any questions about Sydney Regional Environmental Plan No. 24 – Homebush Bay Area should be directed to the Department of Infrastructure, Planning and Natural Resources.

look-up
on internet

- (b) Refer to Sydney Regional Environmental Plan No. 24 – Homebush Bay Area.
- (c) Refer to Sydney Regional Environmental Plan No. 24 – Homebush Bay Area.
- (d) Refer to Sydney Regional Environmental Plan No. 24 – Homebush Bay Area. 44352
- (e) There are no development standards applying to this land that fix a minimum land dimension for the erection of a dwelling-house.
- (f) The land does not include or comprise critical habitat.
- (g) The land is not located within a Heritage Conservation Area under the provisions of Sydney Regional Environmental Plan No. 24 – Homebush Bay Area.
The land is not located within an Environmental Conservation Area under the provisions of

Sydney Regional Environmental Plan No. 24 – Homebush Bay Area.

- (h) The land has not been identified as containing an item of environmental heritage significance under the provisions of Sydney Regional Environmental Plan No. 24 – Homebush Bay Area.

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 Public Works.

Council has not been notified by the Department of Public Works that the land is affected by the operation of Section 38 or 39 of the Coastal Protection Act, 1979.

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.

The land is not located in an area proclaimed to be a mine subsidence district within the meaning of Section 15 of the Mine Subsidence Compensation Act, 1961.

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.*
- (a) The land is not affected by any road widening or road realignment under Division 2 of Part 3 of the Roads Act 1993, as amended.
 - (b) The land is not affected by any road widening or road realignment under any Environmental Planning Instrument.
 - (c) The land is not affected by any road widening or road realignment under a Council resolution.

Council and other public authority policies on Hazard Risk Restriction

Whether or not the land is affected by a policy:

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

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

- (a) The land is not affected by a policy that has been adopted by Council that restricts the development of the land because of the likelihood of land slip, bushfire, flooding, tidal inundation, subsidence, acid sulphate soils or any other risk.
- (b) Council has been notified of the Acid Sulphate Soils Planning Guidelines prepared by the Department of Infrastructure, Planning and Natural Resources. All land located within the Auburn Local Government Area has been identified as being Class 1 to 5 (high to low probability of acid sulphate soils being present) on the Acid Sulphate Soils Risk Maps published by the Department of Infrastructure, Planning and Natural Resources.

Land Reserved for Acquisition

Whether or not any Environmental Planning Instrument, Deemed Environmental Planning Instrument or draft Environmental Planning Instrument applying to the land provides for the acquisition of the land by a public authority, as referred to in Section 27 of the Act.

The land is not affected by an Environmental Planning Instrument, Deemed Environmental Planning Instrument or draft Environmental Planning Instrument that provides for the acquisition of the land by a public authority referred to in Section 27 of the Act.

Contributions Plans

The name of each Contributions Plan applying to the land:

- Section 94 Development Contributions Plan – Open Space.
- Section 94 Development Contributions Plan – Community Services and Facilities.
- Section 94 Development Contributions Plan – Multicultural and Youth Services.

Matters arising under the Contaminated Land Management Act, 1997

Section 59(2) of the Contaminated Land Management Act, 1997 prescribes the following additional matters that are to be specified in a planning certificate:

- (a) *that the land to which the certificate relates is within land declared to be an "investigation area" or "remediation site" under Part 3 of that Act (if it is within such an area or site at the date when the certificate is issued),*
 - (b) *that the land to which the certificate relates is subject to an "investigation order" or a "remediation order" within the meaning of that Act (if it is subject to such an order at the date when the certificate is issued),*
 - (c) *that the land to which the certificate relates is the subject of a voluntary investigation proposal (or voluntary remediation proposal) the subject of the Environmental Protection Authority's agreement under Section 19 or 26 of that Act (if it is the subject of such a proposal, and the proposal has not been fully carried out, at the date when the certificate is issued),*
 - (d) *that the land to which the certificate relates is the subject of a site audit statement within the meaning of Part 4 of that Act (if a copy of such a statement has been provided at any time to the local authority issuing the certificate).*
-
- (a) The land has not been declared to be an "investigation area" or "remediation site" under Part 3 of the Contaminated Land Management Act 1997, as amended.
 - (b) The land is not subject to an "investigation order" or a "remediation order" within the meaning of the Contaminated Land Management Act 1997, as amended.
 - (c) The land is not the subject of a voluntary investigation proposal (or voluntary remediation proposal) that is the subject of the Environment Protection Authority's agreement under Section 19 or 26 of the Contaminated Land Management Act 1997, as amended, and that has not been fully carried out.
 - (d) The land is not the subject of a site audit statement within the meaning of Part 4 of the Contaminated Land Management Act 1997, as amended.

Bush Fire Prone Land

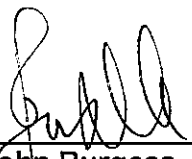
If any of the land is bush fire prone land (as defined in the Act), a statement that all or, as the case may be, some of the land is bush fire prone land. If none of the land is bush fire prone land, a statement to that effect.

The land is not located within an area that is bush fire prone as defined by the Environmental Planning and Assessment Act, 1979, as amended.

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).

The land is not affected by a Property Vegetation Plan under the *Native Vegetation Act, 2003*.

 (N. Samad)
John Burgess
General Manager

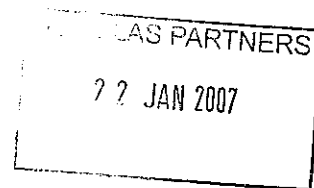
Please Note:

A Section 149(5) Certificate provides additional information relating to the subject land, including:

- Resolutions by Council to prepare a Draft Local Environmental Plan;
- Draft Development Control Plans;
- Cumberland Plain Native Vegetation.



Our Ref: D07/004353
Your Ref: Kurt Plambeck



18 January 2007

Attention: Mr Kurt Plambeck
Douglas Partners
PO Box 472
WEST RYDE NSW 1685

Dear Mr Plambeck

RE SITE: Cnr Sarah Durak Ave & Olympic Blvd, Homebush

I refer to your search request and acknowledge receipt on 18 January 2007 requesting information on licences to Keep Dangerous Goods for the above site.

A search of the Stored Chemical Information Database (SCID) and the microfiche records held by WorkCover will be conducted and any records pertaining to the above-mentioned premises will be forwarded to you. Please note there may be a delay if the file needs to be requested from our storage warehouse, which is located offsite.

If you have any further queries, please contact Dangerous Goods Licensing Unit on (02) 4321 5500.

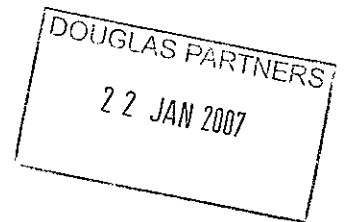
Ian Gough
Team Leader
Dangerous Goods

WorkCover. **Watching out for you.**

WorkCover NSW ABN 77 682 742 966 92-100 Donnison Street Gosford NSW 2250 Locked Bag 2906 Lisarow NSW 2252
Telephone 02 4321 5000 Facsimile 02 4325 4145 WorkCover Assistance Service 13 10 50
DX 731 Sydney Website www.workcover.nsw.gov.au



Our Ref: D07/004353
Your Ref: Kurt Plambeck



18 January 2007

Attention: Mr Kurt Plambeck
Douglas Partners
PO Box 472
WEST RYDE NSW 1685

Dear Mr Plambeck

RE SITE: Cnr Sarah Durak Ave & Olympic Blvd, Homebush

I refer to your search request of 18 January 2007 requesting information on licences to Keep Dangerous Goods for the above site.

A search of the Stored Chemical Information Database (SCID) and the microfiche records held by WorkCover has not located any records pertaining to the above-mentioned premises.

If you have any further queries, please contact Dangerous Goods Licensing staff on (02) 4321 5500.

A handwritten signature in black ink, appearing to read 'I. Gough'.

Ian Gough
Team Leader
Dangerous Goods

WorkCover. **Watching out for you.**

Application - Site Search for Licence to Keep Dangerous Goods

1 Accompanying this application you must also provide:

- * A letter of Authorisation from the owner of the land to be searched
- * A Map showing the actual location of the land to be searched

D07/00 4353

2 Company Applying for Site Search

ABN

Douglas Partners

3 Postal Address of Applicant

Postcode

Po Box 472 West Ryde 2114
2114

4 Contact for Site Search Inquiries

Name

Phone

Fax

KURT PLAMBECK (02) 9809 0666 (02) 9809 4095

5 Existing Licence Number (if known)

35/

6 Street Address of Site to Be Searched

Development site B Sydney Olympic park

Unit / No

Street

Suburb / Town

Postcode

CNR SARAH DRAC and Homebush

Nearest Cross Street

Olympic bld

- See Attached maps.

7 Trading Name / Site Occupier's Name / Previous Occupiers Name

STATE SPORTS CENTRE

8 Payment details

I understand that the fee for a site search is \$132 per site (inclusive of GST)

For multiple sites provide a separate attachment listing the required site details

Total Number of Sites

1

X

\$132

Total amount payable

\$ 132

By Cheque

Enclose a cheque made payable to WorkCover NSW

American Express

☐

Bankcard

☐

MasterCard

☐

Visa

☐

Card Number

Expiry date

Cardholders Name

Cardholders Signature

\$ 132-

Date 17-1-07

Rec. No. 487716

9 Printed name of applicant

Signature of Applicant

KURT PLAMBECK

Kurt Plambeck

WorkCover guarantees that your application will be processed within 10 days of receipt if all information is provided.

Please send your application marked Confidential, to: Dangerous Goods Licensing,
WorkCover NSW, Locked Bag 2906, LISAROW NSW 2252

Hotline: (02) 4321 5500 - Fax: (02) 9287 5500

Department of Environment and Conservation (NSW)
Contacts | Feedback | Search whole of DEC

Botanic Gardens Trust
Environment Protection Authority
National Parks and Wildlife Service



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matched

5 licences (with applications or notices matching your search)
plus 13 notices (where no licence is available online. [See faq.](#))

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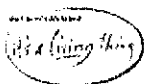
Document number	Name	Address	Status/Notice type
6708	BRONSON & JACOBS PTY LTD licence summary	5 PARKVIEW DRIVE HOMEBUSH BAY 2127	Issued
5192	SITA AUSTRALIA PTY LTD licence summary	3 BURROWAY ROAD HOMEBUSH BAY 2127	Surrendered
10020	SYDNEY OLYMPIC PARK AUTHORITY licence summary	Marjorie Jackson Parkway, Edwin Flack Avenue HOMEBUSH BAY 2127	Issued
10142	SYDNEY OLYMPIC PARK AUTHORITY licence summary	Australia Avenue HOMEBUSH BAY 2127	Surrendered
4560	TRANSPACIFIC INDUSTRIES PTY. LTD. licence summary	CORNER OF PONDAGE LINK & HILL RD HOMEBUSH BAY 2127	Issued
008688	BICENTENNIAL PARK notice summary	AUSTRALIA AVENUE HOMEBUSH BAY 2140	S 80 Surrender Licence
007955	BICENTENNIAL PARK TRUST notice summary	AUSTRALIA AVENUE HOMEBUSH BAY 2127	S 96 Prevention Notice
007954	HOMEBUSH BAY AREA AS DEFINED IN THE OLYMPIC CO-ORDINATION AUTHORITY ACT (1995) notice summary	(SEE ATTACHED PLAN) HOMEBUSH BAY 2127	S 58 Licence Variation

008546	HOMEBUSH BAY AREA AS DEFINED IN THE OLYMPIC CO-ORDINATION AUTHORITY ACT (1995) notice summary	(SEE ATTACHED PLAN) HOMEBUSH BAY 2127	S 58 Licence Variation
008765	HOMEBUSH BAY AREA AS DEFINED IN THE OLYMPIC CO-ORDINATION AUTHORITY ACT (1995) notice summary	(SEE ATTACHED PLAN) HOMEBUSH BAY 2127	S 58 Licence Variation
009631	HOMEBUSH BAY AREA AS DEFINED IN THE OLYMPIC CO-ORDINATION AUTHORITY ACT (1995) notice summary	(SEE ATTACHED PLAN) HOMEBUSH BAY 2127	S 80 Surrender Licence
008873	OLYMPIC MULTI USE ARENA notice summary	CNR OLYMPIC BOULEVARD & EDWIN FLACK AVE HOMEBUSH BAY 2140	S 80 Surrender Licence
009270	SYDNEY SHOWGROUND & EXHIBITION COMPLEX notice summary	1 SHOWGROUND ROAD HOMEBUSH BAY 2127	S 80 Surrender Licence
1058451	TRANSPACIFIC INDUSTRIES PTY. LTD. notice summary	CNR PONDAGE LINK & HILL RDS HOMEBUSH BAY 2127	S 96 Prevention Notice
008616	WASTE RECYCLING AND PROCESSING SERVICE OF NSW notice summary	LIQUID WASTE PLANT (LWP), HILL ROAD HOMEBUSH BAY 2127	S 58 Licence Variation
010901	WASTE RECYCLING AND PROCESSING SERVICE OF NSW notice summary	LIQUID WASTE PLANT (LWP), HILL ROAD HOMEBUSH BAY 2127	S 58 Licence Variation
010918	WASTE RECYCLING AND PROCESSING SERVICE OF NSW notice summary	LIQUID WASTE PLANT (LWP), HILL ROAD HOMEBUSH BAY 2127	S 58 Licence Variation
011082	WASTE RECYCLING AND PROCESSING SERVICE OF NSW notice summary	LIQUID WASTE PLANT (LWP), HILL ROAD HOMEBUSH BAY 2127	S 58 Licence Variation

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N008688

Notice No: 008688 Issued: 09-Nov-1999
Notice Type: POEO S.80 SURRENDER OF TRANS.LICENCE
Premise: BICENTENNIAL PARK
 HOMEBUSH BAY 2140
Industry: WASTE MANAGEMENT-LANDFILL DEPOTS
Local Gov: AUBURN
Catchment: SYDNEY COAST-GEORGES RVR

.....
Approval of the surrender of a licence

Section 80(2) Protection of the Environment Operations Act 1997

Registered Post

BICENTENNIAL PARK TRUST
P.O. BOX 170
CONCORD WEST NSW 2138

Our ref: N 008688 L 004887
 501488/B01

Date: 9 November 1999

APPROVAL OF THE SURRENDER OF A LICENCE

BACKGROUND

- (a) BICENTENNIAL PARK TRUST ("the licensee") applied to the Environment Protection Authority ("EPA") to surrender the licence 004887.

APPROVAL OF THE SURRENDER OF A LICENCE

The surrender of licence 004887 is approved.

This notice is issued under section 80(2) of the Protection of the Environment Operations Act 1997.

The surrender of the licence takes effect when this notice is given to the licensee.

The approval of the surrender is subject to the following conditions :-

1. You must provide the EPA with a Certificate of Compliance in relation to compliance with the conditions of your licence during the period beginning on the date your licence was granted or, if it was a renewed licence, the date of its last renewal and ending on the date of surrender of the licence.
2. The Certificate must be provided to the EPA as specified in accordance with your conditions of the licence, the surrender of which this notice approves.
3. The content and form of the Certificate must be as set out in accordance with your licence conditions.
4. The Certificate must be signed as set out in your licence conditions.

N008688

.....
Peter Ayres
Manager Sydney Local Government
SYDNEY
(by Delegation)

RELEVANT INFORMATION :

- * No fees are refundable on the surrender of a licence (s.80 of the Protection of the Environment Operations Act 1997).
- * On the date that the surrender of your licence takes effect the current licence fee period comes to an end. However, the surrender of your licence does not affect your liability to pay fees owing to the EPA for that licence fee period or for any earlier licence fee period.

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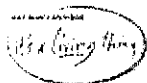
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Organisation: BICENTENNIAL PARK
Premises: AUSTRALIA AVENUE HOMEBUSH BAY 2140
LGA: AUBURN
Issue date: 09 Nov 99
Notice type: S 80 Surrender Licence



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Summary of Notice No: 007955

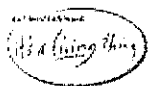
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Organisation: BICENTENNIAL PARK TRUST
Premises: AUSTRALIA AVENUE HOMEBUSH BAY 2127
LGA: AUBURN
Issue date: 03 Aug 99
Notice type: S 96 Prevention Notice



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Direction to take preventive action

Registered Post

Date: 3 August 1999

BACKGROUND

- 4 After the first six (6) inspections, the Bicentennial Park Trust

N007955

is to develop a maintenance schedule which includes details on the maintenance and cleaning of the Unit that will ensure that the Total Holding Catchment Capacity of the Unit is not exceeded, allowing pollution to enter the waters of Boundary Creek.

- 5 All waste generated in the Unit must be disposed of to a facility that can lawfully receive the waste.
- 6 The following records are to be kept:
 - a) The time and date of each inspection along with the names of all people present during the inspection;
 - b) The volume of waste contained within the waste collection basket expressed as a percentage of the maximum design operating capacity at each inspection;
 - c) The time and date of each time the unit is cleaned; and
 - d) Relevant details concerning the maintenance or operation of the Unit.
- 7 All records required by this notice will be kept for a minimum period of 3 years. An annual report will be made to the Appropriate Regulatory Authority (ie the EPA) containing all information as required by condition 6 of this notice.

This notice is issued under section 96 of the Protection of the Environment Operations Act 1997.

It is an offence against that Act not to comply with this notice.

However this notice does not begin to operate immediately and you can appeal against the notice.

At the end of this notice there is information about when the notice begins to operate, the penalty for not complying with it and about how you can appeal against it.

FEE TO BE PAID

You are required by law to pay a fee of \$320 for the administrative costs of issuing this notice.

It is an offence not to pay this fee. However you can apply for an extension of time to pay the fee or for the fee to be waived. At the end of this notice there is information about how and when to pay the fee and how to apply for an extension or a waiver of the fee.

NEIL SHEPHERD
Director-General

INFORMATION ABOUT THIS PREVENTION NOTICE

Penalty for not complying with this notice

- * The maximum penalty for a corporation is \$250,000 and a further \$120,000 for each day the offence continues. The maximum penalty for an individual is \$120,000 and a further \$60,000 for each day the offence continues.

Appeals against this notice

- * You can appeal to the Land and Environment Court against this notice. The deadline for lodging your appeal is 24-Aug-1999 which is 21 days after you were served with the notice.

When this notice begins to operate

N007955

- * This notice does not operate :
 - (a) until the 21 day appeal period has expired without you lodging an appeal, or
 - (b) if you do lodge an appeal, until the Land and Environment Court confirms the notice or you withdraw the appeal,whichever happens first.

Deadline for paying fee

- * The fee must be paid by no later than 02-Sep-1999 which is 30 days after the date of this notice unless you appeal to a court against the notice. If you do appeal the fee does not have to be paid unless and until the court confirms the notice.

How to pay the fee

- * Please send a cheque for the fee to your EPA regional office, see below.

How to apply for extension of time to pay/waiver of fee

- * Any application should be made in writing to the EPA and sent to :
 - The Regional Manager
 - EPA SYDNEY Regional Office
 - LOCKED BAG 1502
 - BANKSTOWN 2200

The application should set out clearly why you think your application should be granted.

Other costs

- * The Protection of the Environment Operations Act allows the EPA to recover from you reasonable costs and expenses it incurs in monitoring action taken under this notice, ensuring the notice is complied with and associated matters. (If you are going to be required to pay these costs and expenses you will be sent a separate notice called a 'Compliance Cost Notice' later.)

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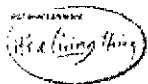
Notice summary

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Summary of Notice No: 008546

[View this Notice](#)**Organisation:** HOMEBUSH BAY AREA AS DEFINED IN THE OLYMPIC CO-ORDINATION AUTHORITY ACT (1995)**Premises:** (SEE ATTACHED PLAN) HOMEBUSH BAY 2127**LGA:** AUBURN**Issue date:** 20 Oct 99**Notice type:** S 58 Licence Variation[Print-friendly version](#)

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Notice No: 008546 N008546
Notice Type: POEO S.58 VARIATION OF LICENCE
Premise: HOMEBUSH BAY AREA AS DEFINED IN THE OLYMPIC CO-ORDINATION AUTHORITY
ACT (1995)
Industry: HOMEBUSH BAY 2127
Local Gov: CONSTRUCTION SITE
Catchment: AUBURN
 SYDNEY COAST-GEORGES RVR

.....
Variation of licence 006445

Section 58(5) Protection of the Environment Operations Act 1997

Registered Post

OLYMPIC CO-ORDINATION AUTHORITY
6 HERB ELLIOTT AVENUE
HOMEBUSH BAY NSW 2127

Our ref: N 008546 L 006445
501798/B01

Date: 20 October 1999

NOTICE OF VARIATION OF LICENCE 006445

BACKGROUND

- (a) OLYMPIC CO-ORDINATION AUTHORITY ("the licensee") is the holder of environment protection licence 006445 ("the licence") under the Protection of the Environment Operations Act 1997 ("the POEO Act").
- (b) With respect to the licence, the Environment Protection Authority (EPA) granted a licence to the Olympic Coordination Authority (OCA) on 20 April 1999.
- (c) The OCA has requested that one discharge point for the Olympic Park Tennis Centre be removed from the licence in order to continue construction works.

VARIATION OF LICENCE 006445

By this notice the EPA varies licence 006445 by :-
revoking the following discharge point:

Location of discharge point:
Outlet from sedimentation basin no.4 into Boundary Creek, located approximately 10 metres east of the Southern Busway Bridge.

Code number of authorised discharge point:008

Discharge Classification:
DRAIN WITH DISCHARGE OF MORE THAN 50 BUT LESS THAN 200
KILOLITRES PER DAY.

Notes:

- a) Except, as provided by s.84(2) of the POEO Act, each variation begins to operate 21 days from the date of this notice, unless another date is specified in this notice.
- b) Section 84(2) provides that a variation to a licence does not operate until :
 - * 21 days after the notice of the decision to vary the licence is given to the licensee, or
 - * if an appeal against the decision is lodged, until the Land and Environment Court determines the appeal, or
 - * the licensee notifies the EPA in writing that no appeal is to be made against the decision to vary the licence,which ever first occurs.

This notice is issued under section 58(5) of the POEO Act.

.....
Peter Yates
DIRECTOR SPECIAL OPERATIONS PROJECTS
SYDNEY
(by Delegation)

INFORMATION ABOUT THIS NOTICE:

- * Section 287 of the POEO Act enables appeals to be made in connection with decisions about a licence application within 21 days after the notice of the decision is given to the applicant.

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Summary of Notice No: 008765

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Organisation: HOMEBUSH BAY AREA AS DEFINED IN THE OLYMPIC CO-ORDINATION AUTHORITY ACT (1995)

Premises: (SEE ATTACHED PLAN) HOMEBUSH BAY 2127

LGA: AUBURN

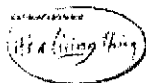
Issue date: 19 Nov 99

Notice type: S 58 Licence Variation



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Notes:

- a) Except, as provided by s.84(2) of the POEO Act, each variation begins to operate 21 days from the date of this notice, unless another date is specified in this notice.
- b) Section 84(2) provides that a variation to a licence does not operate until :
 - * 21 days after the notice of the decision to vary the licence is given to the licensee, or
 - * if an appeal against the decision is lodged, until the Land and Environment Court determines the appeal, or
 - * the licensee notifies the EPA in writing that no appeal is to be made against the decision to vary the licence,which ever first occurs.

This notice is issued under section 58(5) of the POEO Act.

.....
Peter Yates
DIRECTOR SPECIAL OPERATIONS PROJECTS
SYDNEY
(by Delegation)

INFORMATION ABOUT THIS NOTICE:

- * Section 287 of the POEO Act enables appeals to be made in connection with decisions about a licence application within 21 days after the notice of the decision is given to the applicant.

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Summary of Notice No: 009631

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Organisation: HOMEBUSH BAY AREA AS DEFINED IN THE OLYMPIC CO-ORDINATION AUTHORITY ACT (1995)

Premises: (SEE ATTACHED PLAN) HOMEBUSH BAY 2127

LGA: AUBURN

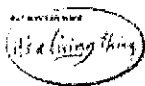
Issue date: 04 Apr 00

Notice type: S 80 Surrender Licence



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N009631

Notice No: 009631 Issued: 04-Apr-2000
Notice Type: POEO S.80 SURRENDER OF LICENCE
Premise: HOMEBUSH BAY AREA AS DEFINED IN THE OLYMPIC CO-ORDINATION AUTHORITY
ACT (1995)
HOMEBUSH BAY 2127
Industry: CONSTRUCTION SITE
Local Gov: AUBURN
Catchment: SYDNEY COAST-GEORGES RVR

.....
Approval of the surrender of a licence

Section 80(2) Protection of the Environment Operations Act 1997

Registered Post

OLYMPIC CO-ORDINATION AUTHORITY
7 FIGTREE DRIVE
HOMEBUSH BAY NSW 2127

Our ref: N 009631 L 006445
501798/B01

Date: 4 April 2000

APPROVAL OF THE SURRENDER OF A LICENCE

BACKGROUND

- (a) OLYMPIC CO-ORDINATION AUTHORITY ("the licensee") applied to the Environment Protection Authority ("EPA") to surrender the licence 006445.

APPROVAL OF THE SURRENDER OF A LICENCE

The surrender of licence 006445 is approved.

The approval of the surrender is subject to the following conditions :-

- 1 If you have not already done so, you must provide the EPA with a Certificate of Compliance in relation to compliance with the conditions of your licence during the period beginning on the date your licence was granted or, if it was a renewed licence, the date of its last renewal and ending on the date of surrender of the licence.
- 2 The Certificate must be provided to the EPA as specified in accordance with your conditions of the licence, the surrender of which this notice approves.
- 3 The content and form of the Certificate must be set out in accordance with your licence conditions.
- 4 The Certificate must be signed as set out in your licence conditions.

Note: The surrender of the licence takes effect when this notice is given to the licensee.

N009631

This notice is issued under section 80(2) of the Protection of the Environment Operations Act 1997.

.....
Peter Yates
DIRECTOR SPECIAL OPERATIONS PROJECTS
SYDNEY
(by Delegation)

RELEVANT INFORMATION :

- * No fees are refundable on the surrender of a licence (s.80 of the Protection of the Environment Act 1997).
- * On the date that the surrender of your licence takes effect the current licence fee period comes to an end. However, the surrender of your licence does not affect your liability to pay fees owing to the EPA for that licence fee period or for any earlier licence fee period.
- * If you have not already paid the administrative fee for the licence fee period which has just come to an end on the surrender of your licence you must still do so. Please note that the administrative fee for a licence fee period must be paid no later than 60 days after the beginning of that licence fee period. (cl. 29 of the Protection of the Environment Operations (General) Regulation 1998).
- * Any load-based fees payable in relation to the licence fee period ending on the surrender of the licence must be paid no later than 60 days after the surrender of the licence. (cl.31 of the Protection of the Environment Operations (General) Regulation 1998).

Department of Environment and Conservation (NSW)

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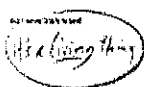
Notice summary

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Summary of Notice No: 008873

[View this Notice](#)**Organisation:** OLYMPIC MULTI USE ARENA**Premises:** CNR OLYMPIC BOULEVARD & EDWIN FLACK AVE
HOMEBUSH BAY 2140**LGA:** AUBURN**Issue date:** 11 Feb 00**Notice type:** S 80 Surrender Licence[Print-friendly version](#)

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Section 80(2) Protection of the Environment Operations Act 1997

ABIGROUP CONTRACTORS PTY LTD
25-29 BRIDGE STREET
PYMBLE NSW 2073

APPROVAL OF THE SURRENDER OF A LICENCE

BACKGROUND

- (a) ABIGROUP CONTRACTORS PTY LTD ("the licensee") applied to the Environment Protection Authority ("EPA") to surrender the licence 006247.

APPROVAL OF THE SURRENDER OF A LICENCE

The surrender of licence 006247 is approved.

This notice is issued under section 80(2) of the Protection of the Environment Operations Act 1997.

The surrender of the licence takes effect when this notice is given to the licensee.

The approval of the surrender is subject to the following conditions :-

1. If you have not already done so, you must provide the EPA with a Certificate of Compliance in relation to compliance with the conditions of your licence during the period beginning on the date your licence was granted or, if it was a renewed licence, the date of its last renewal and ending on the date of surrender of the licence.
2. The Certificate must be provided to the EPA as specified in accordance with your conditions of the licence, the surrender of which this notice approves.
3. The content and form of the Certificate must be as set out in accordance with your licence conditions.
4. The Certificate must be signed as set out in your licence conditions.

N008873

.....
Peter Yates
DIRECTOR SPECIAL OPERATIONS PROJECTS
SYDNEY
(by Delegation)

RELEVANT INFORMATION :

- * No fees are refundable on the surrender of a licence (s.80 of the Protection of the Environment Operations Act 1997).
- * On the date that the surrender of your licence takes effect the current licence fee period comes to an end. However, the surrender of your licence does not affect your liability to pay fees owing to the EPA for that licence fee period or for any earlier licence fee period.



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Summary of Licence No: 10020

[View this licence](#) (PDF document 212 kb)

Licence holder: SYDNEY OLYMPIC PARK AUTHORITY

Premises: SYDNEY OLYMPIC PARK
Marjorie Jackson Parkway, Edwin Flack Avenue
HOMEBUSH BAY 2127

LGA: Auburn **Catchment:** Sydney Coast-Georges River

Administrative fee: \$475.00

Status of licence: Issued

Licence type: Premises

Activity type: Misc Licensed Discharge to Waters (any)
Sewage Treatment - small plants

Licence review: Completed 26 May 04

Applications

Number	Application type	Current status	Date
141735 View application	Licence Variation	Approved	05 Feb 03
10020 View application	New Licence	Approved	15 Jul 99

Notices

Number	Issue date	Notice type
1063016 View notice	01 Sep 06	S 58 Licence Variation
1039389 View notice	16 Dec 04	S 58 Licence Variation
009163 View notice	20 Jan 00	S 58 Licence Variation

Annual Return Information [information about non compliance](#)

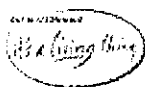
Start date	End date	Date received	Non-compliance	LBL Data
10 Sep 05	09 Sep 06	02 Nov 06		Not

				available
10 Sep 04	09 Sep 05	15 Nov 05	No	Not available
10 Sep 03	09 Sep 04	10 Nov 04	No	Details
10 Sep 02	09 Sep 03	07 Nov 03	No	Details
10 Sep 01	09 Sep 02	04 Nov 02	No	Not available
10 Sep 00	09 Sep 01	08 Nov 01	No	Not available
10 Sep 99	09 Sep 00	07 Dec 00	Yes	Details Not available



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Licence summary

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Summary of Licence No: 10142

[View this licence](#) (PDF document 160 kb)**Licence holder:** SYDNEY OLYMPIC PARK AUTHORITY

Premises: Golf Driving Range
Australia Avenue HOMEBUSH BAY 2127
LGA: Auburn **Catchment:** Sydney Coast-Georges River

Administrative fee: \$1,425.00

Status of licence: Surrendered**Licence type:** Premises**Activity type:** Misc Licensed Discharge to Waters (any)

Applications

Number	Application type	Current status	Date
140033 View application	Licence Surrender	Approved	15 Sep 00

Notices

Number	Issue date	Notice type
1002246 View notice	27 Mar 01	S 80 Surrender Licence
010430 View notice	29 Jul 00	S 58 Licence Variation
009162 View notice	31 Jan 00	S 58 Licence Variation
008912 View notice	03 Dec 99	S 58 Licence Variation

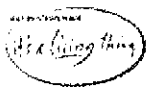
Annual Return Information [information about non compliance](#)

Start date	End date	Date received	Non-compliance	LBL Data
08 Oct 00	23 Apr 01			Not subject to LBL
08 Oct 99	07 Oct 00	02 Jan 01	No	Not subject to LBL



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Sports Centre
Suburb: Homebush Bay

Area No: 3035

The information below was correct at the time the notices were issued.

Site: Aquatic Centre Car Park

Address: Olympic Boulevard, Homebush Bay, 2127

LGA: Auburn Council

Occupier: Sydney Olympic Park Authority

Lot 1 DP 740600 Lot 1 DP 774130 Lot 27 DP 793595 Lot 101 DP 849975 Lot 102 DP 849975

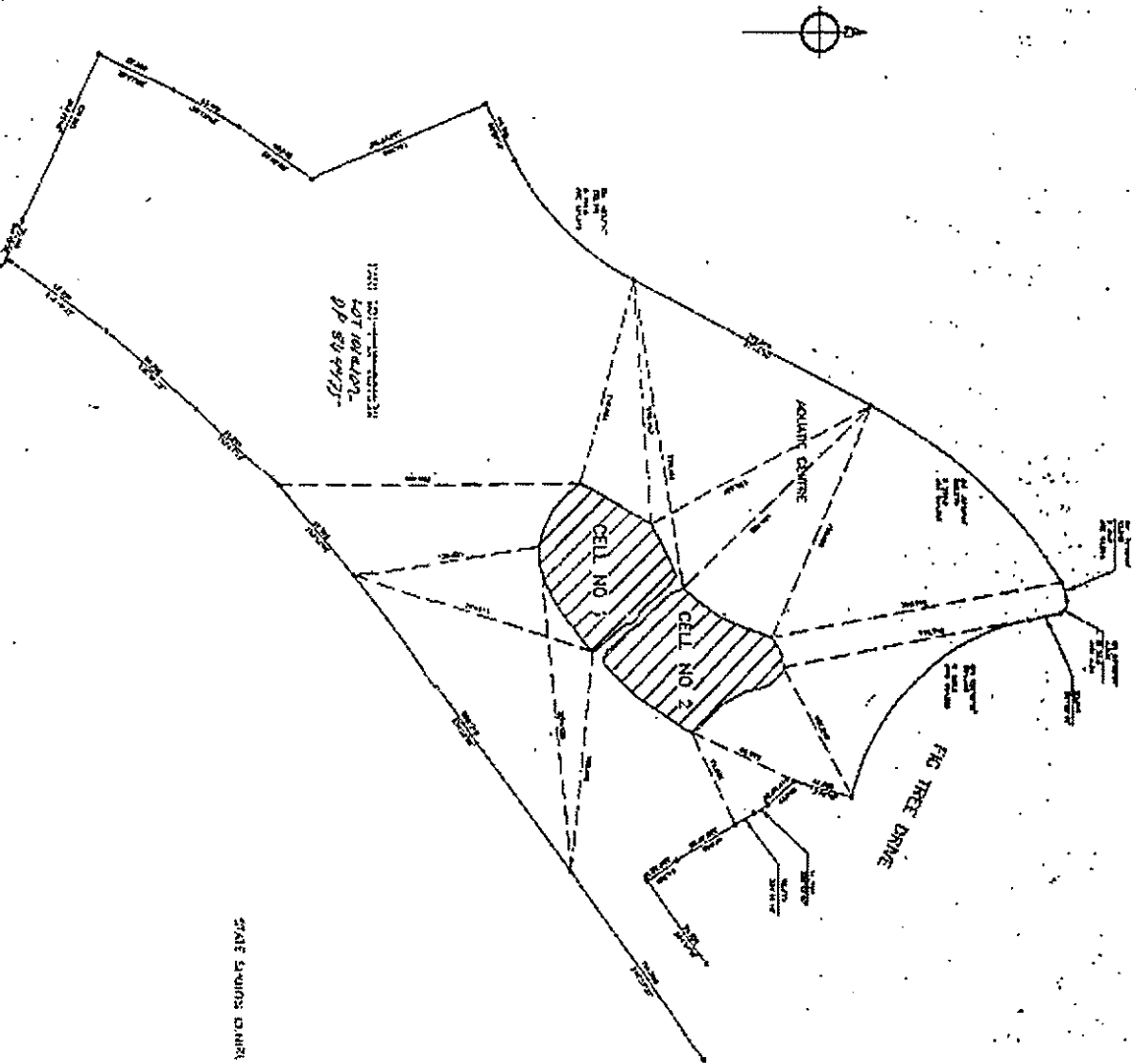
Notices relating to this site (1 current and 6 former)

(Map) where available, maps show the part of the site affected by the notice

* notice matched search criteria

Notice recipient	Notice type & number	Status	Date
Olympic Co-ordination Authority	Notice for Maintaining Remediation* 28005	Current	Issued 26 Aug 1998
Olympic Co-ordination Authority	Remediation Order* 508	Former	Issued 26 Aug 1998 Revoked 01 Sep 1998
Olympic Co-ordination Authority	Remediation Order* 488	Former	Issued 04 May 1998 Revoked 01 Sep 1998
Olympic Co-ordination Authority	Remediation Order* 411 Map	Former	Issued 11 Aug 1995 Revoked 04 May 1998
Civic & Civic Pty Ltd	Remediation Order* 317	Former	Issued 21 Dec 1992 Revoked 11 Aug 1995
State Rail Authority	Remediation Order* 309	Former	Issued 03 Feb 1992 Revoked 11 Aug 1995
State Rail Authority	Remediation Order* 198	Former	Issued 18 Jan 1991 Revoked 03 Feb 1992

15 January 2007



Environment Protection Authority	
Maintenance of remediation notice	
Section 28 of the Contaminated Land Management Act 1997	

REGISTERED MAIL

The Olympic Coordination Authority
Level 36, Governor Macquarie Tower
1 Farrer Place
SYDNEY NSW 2000

Notice Number: 28005

Area # 3035

Date: 26 August 1998

The Olympic Coordination Authority (the "recipient") must maintain remediation action in accordance with the requirements set out in this notice.

This notice is issued under section 28 of the Contaminated Land Management Act 1997 ("the Act")

Previous notices have been issued on the recipient under the Environmentally Hazardous Chemicals (EHC) Act as detailed below:

- Notice # 118, issued on 10 January 1989, under s.35 of the EHC Act.
- Notice # 198, issued on 18 January 1991, under s.35 of the EHC Act.
- Notice # 309, issued on 3 February 1992, under s.35 of the EHC Act.
- Notice # 317, issued on 21 December 1992, under s.35 of the EHC Act.
- Notice # 411, issued on 11 August 1995, under s.35 of the EHC Act.
- Notice # 488, issued on 4 May 1998, under s.35 of the EHC Act.

1. Land to which this notice applies ("the land")

The premises located at Olympic Boulevard, Homebush Bay, NSW, known as the Aquatic Centre Carpark, and currently occupied by recipient.

Premises references:

- Lot 101, DP 849975

2. Commencement of maintenance of remediation

This Notice takes effect on 1 September 1998 and continues in force until it is otherwise varied or revoked.

3. Maintenance requirements

The EPA requires the recipient to maintain the following remediation action in relation to the land:

- a) The occupier of the land is to provide the Environment Protection Authority (EPA) with a revised interim Environmental Management Plan for the land by 30 September 1998, which addresses the issues raised in the letter from the EPA to the OCA dated 22 April 1998;
- b) The occupier of the land must refrain from disturbing any part of the land below a depth of one half metre (0.5m) below the surface, unless a prior written approval is obtained from the EPA;

4. Notification of change of owner/occupier

At least 30 days prior to the recipient selling, transferring, leasing or otherwise relinquishing responsibility for the land, the recipient should give written notification to the EPA confirming the name of the prospective owner or occupier.

NEIL SHEPHERD
Director-General

(signed)

CATHY DYER
Manager Contaminated Sites
(by Delegation)

NOTE:

Breaches of this Notice

A person who fails to comply with a notice issued under section 28 of the Act is guilty of an offence. Heavy penalties may be imposed where a person fails to comply with directions given in a notice issued under section 28 of the Act.

Information recorded by EPA

Section 58 of the Contaminated Land Management Act 1997 and clause 6 of the Contaminated Land Management Regulation 1998 requires the EPA to maintain a public record. A copy of this notice will be included in the public record.



Print



Close page

Site and notice details

Your search for: Name (site, occupier, owner, recipient): State Sports Centre 12 notices on 2 sites were matched.
Suburb: Homebush Bay

Area No: 3036

The information below was correct at the time the notices were issued.

Site: State Sports Centre

Address: Australia Avenue, Homebush Bay, 2127

LGA: Strathfield Municipal Council

Occupier: State Sports Centre Trust

Lot 5 DP 778665

Notices relating to this site (1 current and 4 former)

(Map) where available, maps show the part of the site affected by the notice

* notice matched search criteria

Notice recipient	Notice type & number	Status	Date
Olympic Co-ordination Authority	Notice for Maintaining Remediation* 28006	Current	Issued 26 Aug 1998
Olympic Co-ordination Authority	Remediation Order* 509	Former	Issued 26 Aug 1998 Revoked 01 Sep 1998
Olympic Co-ordination Authority	Remediation Order* 489	Former	Issued 04 May 1998 Revoked 01 Sep 1998
Olympic Co-ordination Authority	Remediation Order* 460	Former	Issued 26 Sep 1997 Revoked 01 Sep 1998
State Sports Centre Trust	Remediation Order* 127 Map	Former	Issued 12 Apr 1989 Revoked 04 May 1998

15 January 2007

Environment Protection Authority	
Maintenance of remediation notice	
Section 28 of the Contaminated Land Management Act 1997	

REGISTERED MAIL

The Olympic Coordination Authority
Level 36, Governor Macquarie Tower
1 Farrer Place
SYDNEY NSW 2000

Notice Number: 28006

Area # 3036

Date: 26 August 1998

The Olympic Coordination Authority (the "recipient") must maintain remediation action in accordance with the requirements set out in this notice.

This notice is issued under section 28 of the Contaminated Land Management Act 1997 ("the Act")

Previous notices have been issued on the recipient under the Environmentally Hazardous Chemicals (EHC) Act as detailed below:

- Notice # 127, issued on 12 April 1989, under s.35 of the EHC Act.
- Notice # 460, issued on 26 September 1997, under s.35 of the EHC Act.
- Notice # 489, issued on 4 May 1998, under s.35 of the EHC Act.

1. Land to which this notice applies ('the land')

The premises located at Australia Avenue, Homebush Bay, NSW, known as the State Sports Centre Golf Driving Range, and currently occupied by the recipient.

Premises references:

- Lot 5, DP 778665

2. Commencement of maintenance of remediation

This Notice takes effect on 1 September 1998 and continues in force until it is otherwise varied or revoked.

3. Maintenance requirements

The EPA requires the recipient to maintain the following remediation action in relation to the land:

- a) The occupier of the land is to provide the Environment Protection Authority (EPA) with an interim Environmental Management Plan for the land which includes proposals for an on-going monitoring program for the landfill by 30 September 1998;
- b) The occupier of the land must refrain from disturbing any part of the land below a depth of one half metre (0.5m) below the surface, unless a prior approval is obtained from the EPA.

4. Notification of change of owner/occupier

At least 30 days prior to the recipient selling, transferring, leasing or otherwise relinquishing responsibility for the land, the recipient should give written notification to the EPA confirming the

name of the prospective owner or occupier.

NEIL SHEPHERD
Director-General

(signed)

CATHY DYER
Manager Contaminated Sites
(by Delegation)

NOTE:

Breaches of this Notice

A person who fails to comply with a notice issued under section 28 of the Act is guilty of an offence. Heavy penalties may be imposed where a person fails to comply with directions given in a notice issued under section 28 of the Act.

Information recorded by EPA

Section 58 of the Contaminated Land Management Act 1997 and clause 6 of the Contaminated Land Management Regulation 1998 requires the EPA to maintain a public record. A copy of this notice will be included in the public record.

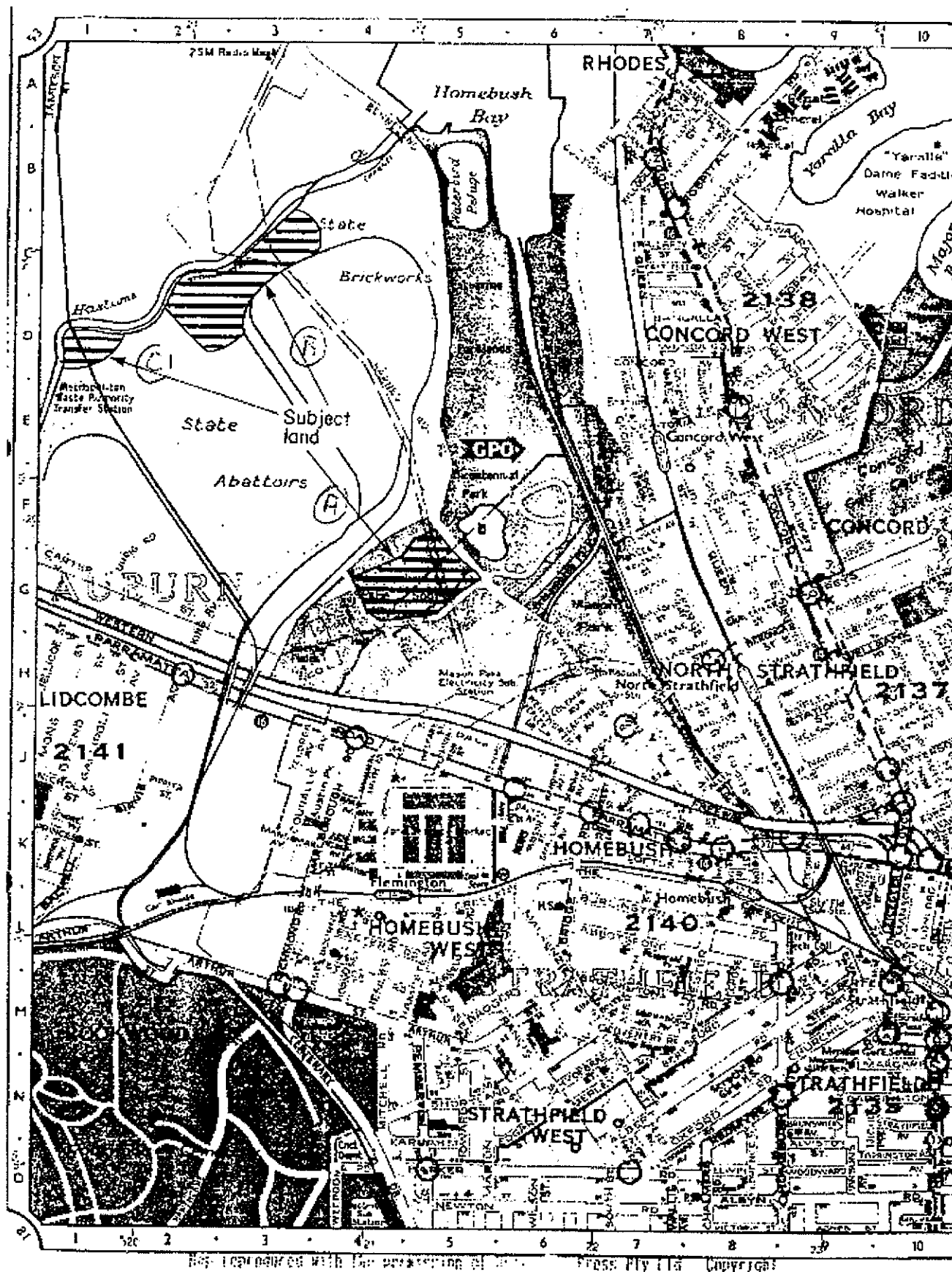


Figure 2. Dioxin Contaminated Sites - Homebush Bay

REGISTERED MAIL

The Manager
The Olympic Coordination Authority
Level 36, Governor Macquarie Tower
1 Farrer Place
Sydney NSW 2000

Our Reference:
Section 35 Notice # 508/3035
Your Reference.

26 AUG 1998

Contact: Cathy Dyer (02) 9325 5724

ENVIRONMENTALLY HAZARDOUS CHEMICALS ACT. 1985:
NOTICE UNDER SECTION 35

WHEREAS:

- A. The Olympic Coordination Authority (OCA) is the occupier of premises known as the "Aquatic Centre Carpark", located at Olympic Boulevard, Homebush Bay, which is described as Lot 101 in Deposited Plan 849975 (the "Premises").
- B. The Premises have been used for the carrying on of a prescribed activity, namely the disposal of industrial waste material.
- C. The Premises are deemed to be contaminated by reason of their being affected by industrial wastes which are contaminated with a wide range of contaminants including hydrocarbons, polycyclic aromatic hydrocarbons and heavy metals, such as to render the Premises environmentally degraded.
- D. Notices pursuant to Section 35 of the Environmentally Hazardous Chemicals Act 1985, have been served on the OCA, as the occupier of the Premises, on the following dates:
 - Notice number 411/3035 11 August 1995
 - Notice number 488/3035 4 May 1998

TAKE NOTICE THAT:

In accordance with the powers vested in the EPA by the provisions of the Environmentally Hazardous Chemicals Act 1985, the EP A hereby revokes all Section 35 Notices associated with the premises, effective as of 1 September 1998.

NEIL SHEPHERD
Director-General

CATHY DYER

26 AUG 1998

Manager Contaminated Sites
(by delegation)

REGISTERED MAIL

The Olympic Co-ordination Authority
Level 36, Governor Macquarie Tower
1 Farrer Place SYDNEY NSW 2000

Our Reference: Section 35 Notice # 488/3035

Your Reference:

Contact: J Libby

Attention: Dr C Grant

**ENVIRONMENTALLY HAZARDOUS CHEMICALS ACT, 1985:
NOTICE UNDER SECTION 35**

WHEREAS:

- A. The Olympic Co-ordination Authority (OCA) is the occupier of premises located at Olympic Boulevard, Homebush Bay, which is described as part of Lot 101 in Deposited Plan 849975 ("the premises"). The premises is called the Aquatic Centre Car Park.
- B. The premises have been used for the carrying on of a prescribed activity, namely the disposal of industrial waste material.
- C. The premises are deemed to be contaminated by reason of their being affected by industrial wastes which are contaminated with a wide range of contaminants including hydrocarbons, polycyclic aromatic hydrocarbons and heavy metals, such as to render the premises environmentally degraded.
- D. A notice pursuant to Section 35 of the Environmentally Hazardous Chemicals Act 1985, has been served on the OCA, as the occupier of the premises (Notice Number 411/3035, dated 11 August 1995).

TAKE NOTICE THAT:

In accordance with the powers vested in the Environment Protection Authority (EPA) by the provisions of Section 35 of the Environmentally Hazardous Chemicals Act 1985, the EPA revokes Notice Number 411/3035 and directs the OCA as occupier of the premises to:

- 1. Provide the EPA with a revised interim Environmental Management Plan for the premises by 30 September 1998 which addresses the issues raised in the letter from the EPA to the OCA dated 22 April 1998.
- 2. Refrain from disturbing any part of the premises below a depth of one half metre (0.5m) below the surface, unless a prior written approval is obtained from the EPA.

NOTE:

- I. This Notice does not derogate from the need to obtain and comply with any necessary pollution control approvals or licences under the Pollution Control Act 1970, or any planning approvals or consents required under the Environmental Planning and Assessment Act 1979, for the purpose of complying with this Notice.
- II. Within 30 days of the occupier selling, transferring, leasing or otherwise relinquishing

responsibility for the premises, the occupier should give written notification to the EPA confirming:

The name of the prospective owner or occupier; and

That the occupier has notified the prospective owner or occupier of the conditions of this notice.

- III. Section 35(5) of the Environmentally Hazardous Chemicals Act 1985, provides that non-compliance with a direction given under Section 35 is an offence against this Act.

NEIL SHEPHERD
Director-General

(signed – 04/05/1998)

P B YATES
Director- Special Operations Projects
(by delegation)

CERTIFIED MAIL

The Director General
Olympic Co-ordination Authority
Private Bag 3
Post Office
HOMEBUSH NSW 2140

Our Reference: Notice No 411
UB Area No 3035

Your Reference:

11 AUG 1995
Contact: J Libby

**ENVIRONMENTALLY HAZARDOUS CHEMICALS ACT 1985
NOTICE UNDER SECTION 35**

WHEREAS:

- A. The Olympic Co-ordination Authority is the occupier of premises located at Figtree Drive Homebush, defined as Cell No 1 and Cell No 2 on Thiess Drawing No 500140 and forming part of the Aquatic Centre area designated as Part of Lot 101 and Lot 102 in DP 849975 (hereinafter "the premises").
- B. The premises have been used for a "prescribed activity" namely the disposing of chemical wastes including wastes containing heavy metals, asbestos, cyanide and polycyclic aromatic hydrocarbons.
- C. The premises are contaminated as a consequence of the "prescribed activity" described in Clause B.

TAKE NOTICE THAT:

In accordance with the powers vested in the Environment Protection Authority (EPA) by the provisions of Section 35 of the Environmentally Hazardous Chemicals Act, 1985, the EPA until further notice directs that:

- 1. No structures are to be erected on the premises without the written approval of the EPA.
- 2. The hazard marker (plastic mesh buried at a nominal depth of 1.0 metre over the area covered by the landfill) must not be penetrated without the written approval of the EPA.
- 3. Operations and maintenance of the landfill area are to be carried out as described in the document titled "Area 4 Remediation and Bulk Earthworks Stage 2 - Operations and Maintenance Manual" Revision A dated 7 February 1994 produced by Thiess Environmental Services.
- 4. The EPA is to be notified if the premises to which this Notice relates is to be sold or if the occupancy of the premises is to be transferred.

This Notice revokes the directions given in Section 35 Notices which were served on the previous occupiers of this premises as listed below:

NOTICE No	DATE	ISSUED ON
118	11-1-89	Homebush Abattoir Corporation

198	18-1-91	State Rail Authority of NSW
309	3-2-92	State Rail Authority of NSW
317	21-12-92	Civil & Civic Pty Ltd

This Notice does not derogate from the provisions of any relevant environmental planning instrument which may control the use of the land on which the premises are located or from any other Act administered by the EPA.

NEIL SHEPHERD
Director General

(signed -11/08/1995)

per Errol Samuel
Director Hazardous Substances Branch
by Authorisation

cc Regional Manager Inner Sydney Register of Section 35 Notices The General Manager
Auburn Council

Map

CERTIFIED MAIL

The Chief Executive
Civil & Civic Pty Ltd
Level 13, Tower Building
Australia Square
SYDNEY NSW 2000

Our reference:

Your reference: 400196D1 jgl:ac

ENVIRONMENTALLY HAZARDOUS CHEMICALS ACT, 1985
NOTICE UNDER SECTION 35

WHEREAS:-

- A. Civil & Civic Pty Ltd is the occupier of premises located at Fig Tree Drive Homebush, being part of lot 27 in DP 793595 and part of lot 1 in DP 774130.
- B. The premises have been used in connection with the carrying on of a prescribed activity, namely an act of disposing of chemical waste or any act related to such act .
- C. The premises are reasonably believed to be affected as a result of the disposing of asbestos wastes and other industrial wastes as a consequence of the carrying on of the prescribed activity.
- D. The premises are deemed to be contaminated because they are environmentally degraded as a consequence of being affected by the chemical wastes described in clause C.

TAKE NOTICE THAT:-

In accordance with the powers vested in the Environment Protection Authority (the EPA) by the provisions of Section 35 of the Environmentally Hazardous Chemicals Act, 1985, the EPA until further notice directs that:

1. This notice revokes the directions given in the notices that were served on the previous occupiers as listed below:
 - The notice dated 11 January 1989 served on the Homebush Abattoir Corporation
 - The notice dated 3 February 1992 served on the State Rail Authority of NSW.
2. Approval is hereby given to carry out remediation works on the above Premises subject to the following conditions:
 - (1) The site is to be remediated by excavating all chemical wastes and chemically

contaminated soil and reburying them in an engineered, landfill located below the proposed Aquatic Centre car park.

- (2) The design of the engineered landfill is to be approved by the EPA prior to the commencement of the landfilling operation.
 - (3) All remediation and validation work is to be carried out in accordance with the EPA guideline entitled "Sporting Facilities Precinct Remediation and Validation Criteria" dated 25 August, 1992 (copy attached).
 - (4) No contaminated material is to be removed from the premises.
 - (5) A pollution control approval under the Pollution Control Act, 1970 is to be obtained from the EPA prior to the commencement of works.
3.
 - (1) Should you wish to undertake any further works on the premises which could constitute prescribed remedial action, you shall do so only in accordance with an approval in writing given by the EPA.
 - (2) You shall give the EPA prior notice before commencing any works approved pursuant to Sub-C1ause (1).
 - (3) For the purpose of this Clause, prescribed remedial action is as defined in Section 33(2) of the Act, namely a reference to -
 - (a) ascertaining the nature and extent of the contamination of the premises;
 - (b) preparing a remedial action plan for the premises and, if required, a long-term management plan;
 - (c) removing the cause of the contamination from the premises;
 - (d) reducing the contamination of the premises;
 - (e) eliminating or reducing any danger arising from the contamination of the premises; or
 - (f) restoring the premises.
 - (4) The above definition includes (but is not limited to) works which have the effect or intention of:
 - (a) dispersing or covering the contamination;
 - (b) removing or disposing of any soil, sand, rock, water or any solid or liquid material of any kind from the premises;
 - (c) vacating, or ceasing to carry on any activity upon, the premises or any part thereof;
 - (d) disturbance of the premises below a depth of 0.5 metres.
4. If you become aware that the premises to which this notice relates is to be sold, that occupancy of the premises is to be transferred or responsibility for the premises otherwise relinquished:

- (a) within one month of becoming aware, you shall inform the EPA in writing, and
- (b) where you are advised of the name of the prospective owner or occupier you, within 48 hours, in writing shall:
 - (i) notify the EPA, and
 - (ii) notify the intending purchaser or occupier of the conditions of this notice.

The role of the EPA is regulatory. Any advice required by you must be obtained as a result of your own independent enquiries.

This notice does not derogate from the provisions of any relevant Environmental Planning instrument which may control the use of land on which the premises are located or from any other Act administered by the EPA.

Failure to comply with this notice, may result in proceedings being commenced under section 57 of the Environmentally Hazardous Chemicals Act to remedy or restrain a breach of the direction given herein. The EPA retains the right to commence a prosecution for any offence committed under any Pollution Control Act. You are advised that it is an offence if an occupier, without lawful authority, wilfully or negligently disposes of a waste or causes any substance to leak, spill or otherwise escape in manner which harms or is likely to harm the environment pursuant to Sections 5 and 6 of the Environmental Offences and Penalties Act, 1989. The maximum penalty is one million dollars.

NEIL SHEPHERD
Director-General

(signed – 21/12/1992)

per Errol Samue1
Director Hazardous Substances Branch
by Authorisation

cc Regional Manager Inner Sydney
cc Town Clerk Municipality of Auburn
cc Register of Section 35 Notices

[M: \WP51 \JIM' SECT. 35 jl:ac]

The Chief Executive
State Rail Authority of NSW
11-31 York Street
SYDNEY NSW 2000

400196D1

ENVIRONMENTALLY HAZARDOUS CHEMICALS ACT, 1985
NOTICE UNDER SECTION 35

Whereas:

1. The State Rail Authority is the occupier of premises:
 - 1.1 located at Homebush Bay adjacent to and west of the State Sports Centre being described as lot 1 in DP 740600, Parish of Concord, County of Cumberland; and
 - 1.2 contaminated by the prescribed activity of the disposal of chemical wastes, including gasworks and asbestos wastes; and
 - 1.3 deemed to be contaminated by reason of their being environmentally degraded.
2. The Commission is concerned about the continuing flow of leachate from the tip, which contains cyanide and phenolic compounds well in excess of the limits prescribed under the Clean Waters Act, 1970, and which may pollute the Bicentennial Park lake and Homebush Bay.
3. The Commission is also concerned that unless control action is taken, wind-blown asbestos fibre from the tip may pollute the surrounding environment, including the adjacent State Sports Centre open areas.
4. Development plans for the adjacent Sports Facilities Precinct subsequent to the issue of the Commission's Section 35 Notice, dated 18th January 1991, necessitate the revision of the directions in that Notice.
5. The site is now to be remediated in two stages. The first stage is an interim remediation stage and is covered by this Notice. The second stage will involve the relocation of contaminated soil to a secure landfill site and will be covered by a subsequent Notice.
6. Agreement has been reached, in principle, between representatives of the Authority and of the Commission, regarding the terms of this Notice.

TAKE NOTICE THAT:

In accordance with the powers vested in the State Pollution Control Commission by the provisions of Section 35 of the Environmentally Hazardous Chemicals Act, 1985, the Commission hereby:

Directs that:-

The Notice dated 18th January 1991 is hereby revoked and is replaced by this Notice with the following conditions:

1. Containment of the Embankment

Eroded areas of the embankment are to be built up using contaminated soil excavated as part of the drainage improvements.

All bare soil areas on the embankment are to be covered with matting or other materials approved in writing by the Commission, to prevent further soil erosion and windblown material from leaving the site.

2. Drainage Improvements

The existing leachate spoon drain is to be enlarged and extended so that it collects all leachate emanating from the embankment. The surface of the drain is to be sealed.

A second spoon drain is to be constructed to collect storm water from the adjacent State Sports Centre area and overflow from the leachate spoon drain during periods of heavy rain.

This storm water drain shall:-

- Be located between the leachate drain and the fence.
- Run the entire length of the embankment.
- Be at a level such that, during periods of heavy rain, stormwater overflowing the leachate drain will flow into it.
- Have the surface sealed to prevent erosion.
- Direct stormwater away from the leachate collection sump.

3. Leachate Collection Sump The sump is to be fitted with a level indicator.

A high flow diversion pit is to be installed at the inlet to the sump.

The sump pump-out facility and access to it shall be such as to allow the emptying of the sump during periods of wet weather.

4. Excavated Material

No excavated material is to leave the site, it is to be used in building up the eroded area on the embankment. Contaminated soil in the depression down stream of the leachate sump is to be relocated on to the embankment.

5. Design Approval

The detailed design of the work which is the subject of this Notice is to be submitted to the Commission for approval prior to the commencement of work.

6. Other Work

All other work carried out on these premises with the intention, or having the effect, of

- (a) reducing the contamination of the premises; or
- (b) restoring or rehabilitating the premises; or

- (c) moving, removing, or disposing of, any soil, sand, rock, water or other solid or liquid material of any kind from the premises; or
- (d) would result in the disturbance of any chemically contaminated land on the premises.

shall be carried out only after prior notice to the Commission and in accordance with an approval, in writing, given by the Commission.

7. Timing

The work which is the subject of this Notice is to be completed within three months from the date that the Department of Planning gives development consent for the work.

The Authority is to provide the Commission with a monthly report, in writing to the Manager, Waste Management Branch, detailing the progress of the work.

8. Operation of the Leachate Collection System

The sump is to be pumped out when the level reaches 75% full.

The sump is to be pumped out immediately after periods of rain.

The leachate spoon drain is to be kept Clear of silt. Erosion of the embankment is to be prevented.

A written record of sump pumpouts is to be kept and forwarded to the Commission on a monthly basis. The report is to include the sump level at the report date.

9. Notification of Sale

- (a) Where the premises to which this Notice relates is to be sold, or responsibility for the premises otherwise relinquished, and the occupier is also the owner of such premises, the occupier shall inform, in writing, any intending purchaser or occupier of the conditions of this Notice, during negotiations for the sale or transfer of the premises.
- (b) Where the occupier of the premises intends or is advised that the premises are to be sold, or that the occupancy of the premises is to be transferred, the occupier shall notify the Commission, in writing, of the impending sale or transfer and, where it may be advised, of the name of the prospective owner or occupier, subject to clause 9(c), at least one month prior to the date of impending sale or transfer; and
- (c) Where such intention is formed or advice is given within one month of the intended sale or transfer of the premises, the occupier shall notify the Commission, in writing, immediately after such intention is formed or advice is given.

(signed - 03/02/1992)

Warwick Forest
ACTING DIRECTOR

cc: Auburn Municipal Council
SPCC Section 35 Register

[en.haz.chem]

-

CERTIFIED MAIL

The Chief Executive
State Rail Authority of NSW
11-31 York Street
SYDNEY NSW 2000

18 JAN 1991

[1W.WMBBE001.LTR)
400196D1 BB: LDZ

ENVIRONMENTALLY HAZARDOUS CHEMICALS ACT, 1985
NOTICE UNDER SECTION 35

Whereas:

1. The State Rail Authority is the occupier of premises:
 - 1.1 located at Homebush Bay adjacent to and west of the State Sports Centre being described as Lot 1 in DP 740600, Parish of Concord, County of Cumberland; and
 - 1.2 contaminated by the prescribed activity of the disposal of chemical wastes, including gasworks and asbestos wastes; and
 - 1.3 deemed to be contaminated by reason of their being environmentally degraded.
2. The Commission is concerned about the continuing flow of leachate from the tip, which contains cyanide and phenolic compounds well in excess of the limits prescribed under the Clean Waters Act, 1970, and which may pollute the Bicentennial Park lake and Homebush Bay.
3. The Commission is also concerned that unless control action is taken, wind-blown asbestos fibre from the tip may pollute the surrounding environment, including the adjacent State Sports Centre open areas.
4. An agreement was reached in principle between representatives of the Authority and of the Commission, regarding the terms of this Notice.

TAKE NOTICE THAT:

In accordance with the powers vested in the State Pollution Control Commission by the provisions of section 35 of the Environmentally Hazardous Chemicals Act, 1986, the Commission hereby:

Directs that:-

- (a) An all weather effluent pump-out facility shall be installed adjacent to the holding well located at the south eastern corner of the waste disposal site, so that, in periods of wet weather the effluent holding well can be emptied.
- (b) The entire tip surface paying particular emphasis to the exposed eastern face, shall be adequately sealed to prevent the ingress of rain water using an impermeable membrane barrier or other suitable impermeable barrier approved by the Commission in writing. Such action will prevent the evolution of wind-blown asbestos and assist greatly in the control of chemically contaminated leachate leaving the tip site, especially after rain.

- (c) The surface of the tip shall have a minimum of a 1:100 fall to the west. This will reduce rain water lying on the tip surface and will direct water away from the effluent catch drain and holding well, located on the eastern side of the tip.
 - (d) All material removed from the eastern face of the tip, resulting from batter reconstruction activities, shall be buried at the northern end of the tip under not less than one metre of compacted clay cover. Any significant levels of contamination (guideline: Dutch level C) shall be chemically neutralized by a method approved by the Commission and dependant on the chemical constituency of the waste made such material shall be buried to a depth of at least one metre.
 - (e) An orange polythene marker mesh shall be used to cover the whole of the tip surface and shall be laid between the interface of the impermeable barrier and the top soil cover.
 - (f) The tip surface shall be revegetated, based on advice received from the Soil Conservation Service of NSW. Details of the revegetation proposal shall be submitted to the Commission for approval before revegetation activities commence.
 - (g) The security fence enclosing the tip shall be maintained in a manner so as to prevent public access to the tip area.
 - (h) A monitoring programme shall be conducted to confirm the effectiveness of the remedial works and shall be designed to identify any additional work required. Initially the sampling programme will involve the construction of three monitoring wells, two within 10 meters of the perimeter of the disposal site and on the down gradient of the site, and one at least 150 meters away from the site and in the direction of the groundwater flow. (The final location of the monitoring wells and the monitoring frequency must be approved by the site inspector from the State Pollution Control Commission). Also, the programme shall identify any pollutants leaving the tip site including those pollutants which may be migrating underground, beyond the eastern boundary fence line of the tip.
- 2 All other work carried out on these premises with the intention, or having the effect, of
- (a) reducing the contamination of the premises; or
 - (b) restoring or rehabilitating the premises; or
 - (c) moving, removing, or disposing of, any soil, sand, rock, water or other solid or liquid material of any kind from the premises; or
 - (d) would result in the disturbance of any chemically contaminated land on the premises.
- shall be carried out only after prior notice to the Commission and in accordance with an approval, in writing, given by the Commission.
- 3 Where the premises to which this notice relates is to be sold, or responsibility for the premises otherwise relinquished, and the occupier is also the owner of such premises, the occupier shall inform, in writing, any intending purchaser or occupier of the conditions of this notice, during negotiations for the sale or transfer of the premises.
- 4 (a) Where the occupier of the premises intends or is advised that the premises are to be sold, or that the occupancy of the premise is to be transferred, the occupier shall notify the Commission, in writing, of the impending sale or transfer and, where it may

be advised, of the name of the prospective owner or occupier, subject to clause 4(b), at least one month prior to the date of impending sale or transfer; and

(b) Where such intention is formed or advice is given within one month of the intended sale or transfer of the premises, the occupier shall notify the Commission, in writing, immediately after such intention is formed or advice is given.

- 5 (a) Compliance with item 1(a) shall occur within 90 days of the date of this notice.
- (b) Compliance with items 1(b), 1(c), 1(d) and 1(e) shall occur within 120 days of the date of this notice.
- (c) Progress reports with respect to compliance with items 1(b), 1(c), 1(d) and 1(e) shall be submitted to the Commission within 60 days and 90 days of the date of this notice.
- (d) Within 150 days of the date of this notice, a detailed written report, prepared by a suitably qualified person, shall be submitted to the Commission regarding compliance with conditions 1(b), 1(c), 1(d) and 1(e).
- (e) Within 200 days of the date of this notice, a detailed written report, prepared by a suitably qualified person shall be submitted to the Commission regarding compliance with condition 1(h).

Professor John Niland
DIRECTOR

cc: AuburnMunicipal Council
SPCC Section 35 Register

REGISTERED MAIL

The Manager
The Olympic Coordination Authority
Level 36, Governor Macquarie Tower
1 Farrer Place
Sydney NSW 2000

Our Reference:
Section 35 Notice # 509/3036
Your Reference.

26 AUG 1998

Contact: Cathy Dyer (02) 9325 5724

ENVIRONMENTALLY HAZARDOUS CHEMICALS ACT. 1985:
NOTICE UNDER SECTION 35

WHEREAS:

- A. The Olympic Coordination Authority (OCA) is the occupier of premises known as the "State Sports Centre Golf Driving Range", located at Australia Avenue, Homebush Bay, which is described as Lot 5 in Deposited Plan 778665 (the "Premises").
- B. The Premises have been used for the carrying on of a prescribed activity, namely the disposal of industrial and municipal waste material.
- C. The Premises are deemed to be contaminated by reason of their being affected by industrial and municipal wastes which are contaminated with a wide range of contaminants including hydrocarbons, polycyclic aromatic hydrocarbons and heavy metals, such as to render the Premises environmentally degraded.
- D. A notice pursuant to section 35 of the Environmentally Hazardous Chemicals Act 1985, has been served on the State Sports Centre, being the nominated occupier of the Premises at the time (Notice Number 127/3036, dated 12 April 1989).
- E. A further notice pursuant to Section 35 of the Environmentally Hazardous Chemicals Act 1985, has been served on the OCA, as the occupier of the Premises (Notice Number 488/3035, dated 4 May 1998).

TAKE NOTICE THAT:

In accordance with the powers vested in the EPA by the provisions of the Environmentally Hazardous Chemicals Act 1985, the EP A hereby revokes all Section 35 Notices associated with the premises, effective as of 1 September 1998.

NEIL SHEPHERD
Director-General

CATHY DYER

26 AUG 1998

Manager Contaminated Sites
(by delegation)

REGISTERED MAIL

The Olympic Co-ordination Authority
Level 36, Governor Macquarie Tower
1 Farrer Place
SYDNEY NSW 2000

Our Reference: Section 35 Notice #489/3036

Contact: J. Libby

Attention: Dr C Grant

**ENVIRONMENTALLY HAZARDOUS CHEMICALS ACT, 1985:
NOTICE UNDER SECTION 35**

WHEREAS:

- A. The Olympic Co-ordination Authority (OCA) is the occupier of premises located at Australia Av, Homebush Bay, which is described as part of Lot 5 in Deposited Plan 778665 ("the premises"). The premises is called the State Sports Centre Golf Driving Range.
- B. The premises have been used for the carrying on of a prescribed activity, namely the disposal of industrial and municipal waste material.
- C. The premises are deemed to be contaminated by reason of their being affected by industrial and municipal wastes which are contaminated with a wide range of contaminants including hydrocarbons, polycyclic aromatic hydrocarbons and heavy metals, such as to render the premises environmentally degraded.
- D. A notice pursuant to Section 35 of the Environmentally Hazardous Chemicals Act 1985, has been served on the State Sports Centre, being the nominated occupier of the premises at that time (Notice Number 127/3036, dated 12 April 1989).

TAKE NOTICE THAT:

In accordance with the powers vested in the Environment Protection Authority (EPA) by the provisions of Section 35 of the Environmentally Hazardous Chemicals Act 1985, the EPA revokes Notice Number 127/3036 and directs the OCA as occupier of the premises to:

- 1. Provide the EPA with an interim Environmental Management Plan for the premises which includes proposals for an ongoing monitoring program for the landfill by 30 September 1998.
- 2. Refrain from disturbing any part of the premises below a depth of one half metre (0.5m) below the surface, unless a prior written approval is obtained from the EPA.

NOTE:

- 1. This Notice does not derogate from the need to obtain and comply with any necessary pollution control approvals or licences under the Pollution Control Act 1970,

or any planning approvals or consents required under the Environmental Planning and Assessment Act 1979, for the purpose of complying with this Notice.

- II. Within 30 days of the occupier selling, transferring, leasing or otherwise relinquishing responsibility for the premises, the occupier should give written notification to the EPA confirming:

The name of the prospective owner or occupier; and

That the occupier has notified the prospective owner or occupier of the conditions of this notice.

- III. Section 35(5) of the Environmentally Hazardous Chemicals Act 1985, provides that non-compliance with a direction given under Section 35 is an offence against this Act.

NEIL SHEPHERD
Director-General

(signed) 4.5.98

P B YATES
Director – Special Operations Projects
(by delegation)

REGISTERED MAIL

The Olympic Co-ordination Authority
Level 36, Governor Macquarie Tower
1 Farrer Place
SYDNEY NSW 2000

Our Reference: Section 35 Notice # 460/3036

Your Reference:

Contact: J Libby

Attention Mr E Samuel

**ENVIRONMENTALLY HAZARDOUS CHEMICALS ACT, 1985
NOTICE UNDER SECTION 35**

WHEREAS:

The Olympic Coordination Authority (OCA) is the occupier of premises located at Australia Avenue, Homebush, which is described as part of Lot 5 in Deposited Plan 778665 as defined on Bee & Lethbridge Drawing No 6431.210 ("the premises"). The premises is part of the State Sports Centre.

The premises have been used for the carrying on of a prescribed activity, namely the act of disposal of industrial and municipal waste material.

The premises are deemed to be contaminated by reason of their being affected by industrial and municipal wastes which are contaminated with a wide range of contaminants including hydrocarbons, polycyclic aromatic hydrocarbons and heavy metals, such as to render the premises environmentally degraded.

Notice No. 127/3036 dated 12 April 1989, pursuant to Section 35 of the Environmentally Hazardous Chemicals Act 1985, has been served on the State Sports Centre Trust as the former occupier of the premises. This notice prohibits the disturbance of land below a depth of 0.5 metres without the written approval of the Environment Protection Authority (EPA).

The EPA has received a letter from the OCA dated 22 September 1997, requesting EPA approval to construct a multi-storey car park within the area covered by Section 35 notice No 127/3036.

The EPA has received the following information in relation to the proposed development:

- A facsimile from Leighton Contractors Pty Ltd (Leighton) to the EPA dated 9 July 1997, which included Work Method Statements;
- A letter from Gutteridge Haskins & Davey Pty Ltd (GHD) to the EPA dated 22 August 1997, which included a report from Dames & Moore Pty Ltd titled "Letter Report, Gas Management Measures, Avenue 1 Car Park, Homebush Bay", dated 5 August 1997;
- A letter from GHD to the EPA dated 9 September 1997, which included detailed drawings of the proposed car park and, a letter from Leighton to GHD dated 29 August 1997, which addressed some of the matters raised by the EPA;

- A letter from Leighton to GHD dated 12 September 1997, which addressed further matters that had been raised by the EPA; and
- A letter from Leighton to the EPA dated 25 September 1997, clarifying matters addressed in the 12 September 1997 letter.

TAKE NOTICE THAT:

In accordance with the powers vested in the Environment Protection Authority (EPA) by the provisions of Section 35 of the Environmentally Hazardous Chemicals Act 1985, the EPA directs the OCA as occupier of the premises to:

1. Construct the proposed car park in accordance with the designs and procedures detailed in the documents listed in Clause F above.
2. Handle any drums, remains of drums, sludges or other suspect materials that are encountered during excavations according to the protocol that has been agreed between the OCA and the EPA.
3. Within three months of the completion of the car park, provide to the EPA a validation report from Dames & Moore confirming that:
 - The gas drainage system has been installed as specified;
 - The car park is suitable for the proposed use from the point of view of any potential adverse human health effects from landfill gas in the underlying landfill;
 - Testing has been carried out to confirm that gas is not collecting in enclosed spaces and service lines; and
 - Testing has been carried out to confirm that leachate from the landfill cannot migrate to the environment via the car park area.

Within three months of the completion of the car park, provide to the EPA an Operations and Maintenance Manual for the car park which includes the design details and the operating and maintenance procedures for the gas extraction system.

Carry out all works in accordance with the EPA approval that has been issued under Section 17 of the Pollution Control Act 1970 (Approval No 3168).

Note:

This notice does not derogate from the need to obtain and comply with any pollution control approvals or licences under the Pollution Control Act 1970, or any planning approvals or consents required under the Environmental Planning and Assessment Act 1979, for the purpose of complying with this notice.

Section 35(5) of the Environmentally Hazardous Chemicals Act 1985, provides that non-compliance with a direction given under Section 35 is an offence against this Act.

NEIL SHEPHERD
Director-General

(signed – 26/09/1997)

P B YATES

Director - Special Operations Projects
(by delegation)

cc Mr R Staib, GHD Mr P Johnston, State Sports Centre

CERTIFIED MAIL

The Director
State Sports Centre
P O Box 135
FLEMINGTON MARKETS NSW 2129 216

94000 D1 MV:HH

12 APR 1989

Environmentally Hazardous Chemicals Act, 1985
Notice Under Section 35

In accordance with the powers vested in the State Pollution Control Commission by the provisions of Section 35 of the Environmentally Hazardous Chemicals Act, 1985, your Organisation, being the occupier of premises -

- located at Homebush, indicated as Area A in Figure 2 on page 4a of the SPCC Assessment Report 86/1 of 28 February 1986 (page attached), and known as the State Sports Centre;
- contaminated by the prescribed activity of the disposal of chemical wastes, namely wastes suspected of being dioxin contaminated, generated during the manufacture of pesticides; and
- deemed to be contaminated by reason of their being environmentally degraded;

is directed that:

1. All work carried out on these premises with the intention, or having the effect, of

a) reducing the contamination of the premises;

b) restoring or rehabilitating the premises; or

c) removing, or disposing of, any soil, sand rock, water or other solid or liquid material of any kind from the premises;

which would result in the disturbance of any land on the premises below a depth of one half (0.5) metre, shall be carried out only after prior notice to the Commission and in accordance with an approval in writing given by the Commission; and

2. Where the premises to which this notice relates is to be sold, or responsibility for the premises otherwise relinquished, and the occupier is also the owner of such premises, he shall inform any intending purchaser or occupier of the conditions of this notice, in writing, during negotiations for the sale or transfer of the premises; and

3. Where the occupier of the premises to which this notice relates is also the owner of such premises, he shall inform the Commission, in writing, should the premises be sold, or responsibility transferred to another occupier, within one month of the date of the transfer of the owner or occupier, and shall further inform the Commission, at that time, of the name of the intending new owner or occupier.

(Signed)

W.G. FORREST
Acting Director

Date:

Att: Page 4a of Assessment Report 86/1, 28 February 1986.

, [5W-HH-MI SC4- L- MV3] ·

Map

APPENDIX C
Copy of URS Report

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URS Australia Pty Ltd (URS) was engaged by the Sydney Olympic Park Authority (SOPA) to undertake an environmental and geotechnical investigation of the site referred to as Site 9. Site 9 is located at the corner of Olympic Boulevard and Sarah Durack Avenue, Sydney Olympic Park, NSW (refer Figure 1) and is further bounded by the Golf Driving Range to the East and the car park referred to as 'P3' to the North of the site.

The work was undertaken in accordance with the URS proposal dated 18 October 2002, which was accepted and authorised by SOPA in their email dated 1st November 2002.

1.1 Objectives

The objective of the investigation was to evaluate any encountered subsurface contamination across the site and to provide preliminary geotechnical information regarding the suitability of the site for the proposed multi-storey development.

URS understands that the site is proposed for redevelopment for either one or two commercial buildings with possible basement car parking. It is further understood that this may be extended to incorporate retail outlets at ground level. The specific objectives are further summarised below:

1.1.1 Environmental Aspect

- Assessment of sample analytical results against NSW EPA endorsed guidelines for industrial/commercial land use;
- Assessment of the sample analytical results against NSW EPA endorsed guidelines for waste disposal (to assess disposal options for the materials should they require excavation as part of the proposed future development);
- Provision of a report with a summary of the site findings and the type, extent and level of impacts to soil (based on the proposed future land use) and groundwater, if present, and relevant recommendations.

1.1.2 Geotechnical Aspect

- Characterisation of the subsurface profile and bedrock encountered, and the associated geotechnical properties;
- Provision of recommendations for appropriate strategies for both shallow and deep foundations, including typical design parameters; and
- Provision of appropriate recommendations for retaining wall construction regarding safety and stability when dealing with deep excavations.

Scope of Work

SECTION 2

The scope of work undertaken to achieve the above objectives, was as follows:

- Drilling of six boreholes (BH111 to BH116 inclusive) by solid flight auger drilling methods across the site;
- Field screening of selected soil samples using a photo-ionisation detector (PID) to determine the presence of volatile organic compounds (VOCs);
- Standard penetration tests (SPTs) to assess the density and consistency of existing soil material;
- Collection of soil samples from each borehole for analysis for the potential chemicals of concern and geotechnical properties;
- Collection and analysis (via Point Load Tests) of three rock samples for the purposes of assessing the strength of the insitu rock;
- Installation of a shallow groundwater monitoring well at one borehole location;
- Gauging and sampling of the groundwater from the monitoring well;
- Analysis of selected soil and groundwater samples for the chemicals of concern; and
- Preparation of a report detailing the work performed, the results obtained from the investigation and recommendations relevant to the proposed development.

3.1 Site Description

The site is located on the corner of Olympic Boulevard and Sarah Durack Avenue, Sydney Olympic Park bounded by the Golf Driving Range to the East and 'P3' car park to the North. Access is gained via Sarah Durack Avenue (via the Golf Driving Range entrance).

The site comprises an approximately rectangular plot of land and is approximately 4,836 m² in area. At the time of the investigation, the majority of the site was covered with a thin layer of asphalt, while the remaining area consisted of lightly vegetated garden beds. A drainage easement runs along the site parallel to the 'P3' facility.

An electronic parking ticket machine is located at the north-western end of the site, in an area surrounded by short grass.

3.1.1 Surrounding Land Use

The site is located in a commercial/industrial area. The surrounding land use is as follows:

- North P3 Car Park;
- East Golf Driving Range;
- South Olympic Boulevard; and
- West Sarah Durack Avenue.

A site location plan and borehole location plan are presented in Figures 1 and 2, respectively.

3.1.2 Site History

URS understand that a Phase I Environmental Audit has not been undertaken for the site (and is not included in the scope for this investigation). Consequently, the history of the site, and the results of previous investigations which may have been undertaken at, or proximal to the site, are not known.

However, the Homebush Bay district is known to have received extensive amounts of fill and waste during the previous use of the area for landfilling.

4.1 - Field Investigations

The field activities conducted as part of this investigation are summarised below:

- The field investigation was undertaken between 11 and 12 November 2002. The field work involved drilling of six boreholes (BH111 to BH116 inclusive) and was observed by an Environmental Scientist from URS. The boreholes were drilled using 125 mm spiral flight augers to tungsten carbide (TC) bit refusal. At two locations, the boreholes were advanced using NMLC diamond coring techniques to enable collection of samples of the bedrock materials.
- All site work was conducted under a project specific health and safety plan.
- Prior to commencing field work activities, each sampling location was cleared for underground services by qualified services locating operators (Online) and visually inspected (for appropriateness) prior to intrusive investigations, by Mr Tim Cook (SOPA). Sub-surface drilling for both the environmental and geotechnical investigations was undertaken by Terratest Pty Ltd.
- Soil samples were collected at regular intervals from all six boreholes to assess the presence of soil contamination. The samples collected for environmental purposes were placed in 150-mL sterilised glass jars with teflon lids. Sample jars were then placed in a chilled cooler prior to transport to the laboratory.
- Sample intervals and other details are presented in the borehole logs attached in Appendix C. Standard Penetrometer Tests (SPTs) were conducted within the soil and highly weathered rock horizons to assess insitu consistency and density. The results of the SPTs are provided in Section 6.0. Geotechnical soil samples were also collected from three of the six boreholes (BH113, BH115 and BH116) for the purposes of geotechnical material property testing, this information is also provided on the borehole logs. Geotechnical soil and rock samples were placed in plastic bags, labelled with the depth interval, sample location and date of collection. Rock strengths were assessed by observing the auger penetration and examination of the recovered rock core.
- All samples were delivered to the environmental and geotechnical laboratories using URS chain of custody procedures.
- Soil samples were screened on site for the potential presence of VOCs by performing headspace readings using a portable photo-ionisation detector (PID). The PID was calibrated with a 100ppm isobutylene 'standard gas', adjusted to read in benzene equivalents. The PID headspace testing provides screening data that assists in the development of the laboratory analysis program.
- All holes, with the exception of BH112 and BH116, have been reinstated. BH112 was completed with a flush mounted groundwater monitoring well gatic cover. BH116 was located within a vegetated area and this area was made good prior to leaving the site.

- The groundwater monitoring well (BH112) consists of 50mm PVC installed to bedrock and screened from approximately 4.5m below the existing ground level (i.e. 1m above the static water level) to the bottom of the well.
- Landfill-like odours were noted in all the boreholes, typically within the fill material, but also noted extending into the residual clay.

4.2 Environmental Laboratory Analysis

4.2.1 Soils

Seven primary and one field duplicate soil samples were submitted to Australian laboratory Services (ALS), a NATA accredited laboratory for analysis on the basis of screening by recorded PID readings, visual and olfactory assessment. The samples were analysed for the following:

- Inorganics –As, Cu, Cd, Cr, Pb, Hg, Ni and Zn;
- TPH;
- BTEX; and
- PAHs.

Results of the analysis are discussed in Section 5.0.

4.2.2 Groundwater

One groundwater sample and one field duplicate sample were collected from monitoring well BH112 and analysed for:

- Inorganics –As, Cu, Cd, Cr, Pb, Hg, Ni and Zn;
- TPH;
- BTEX; and
- PAHs.

Results of the analyses are discussed in Section 5.0.

4.2.3 Analytical Data Validation

Analytical data validation is the process of assessing whether data is in compliance with method requirements and project specifications. The primary objectives of this process are to ensure that data of known quality are reported, and to identify if the data can be used to fulfil the overall project objectives.

The data validation guidelines adopted are based upon guidance documents published by the United States Environmental Protection Agency (US EPA) February 1994. The process involves the checking of analytical procedure compliance and an assessment of the accuracy and precision of analytical data from a range of quality control measurements, generated from both the field sampling and analytical programs.

Specific elements that have been checked and assessed for this project include:

- preservation and storage of samples upon collection and during transport to the laboratory;
- sample holding times;
- use of appropriate analytical and field sampling procedures;
- required limits of reporting;
- frequency of conducting quality control measurements;
- laboratory blank results;
- field duplicate results;
- laboratory duplicate results;
- matrix spike/matrix spike duplicate (MS/MSD) results;
- surrogates spike results; and
- the occurrence of apparently unusual or anomalous results, e.g., laboratory results that appear to be inconsistent with field observations or measurements.

4.3 Geotechnical Assessment and Laboratory Analysis

Six soil samples and two rock samples obtained during the drilling investigations were submitted to Australian Soil Testing (AST), a NATA accredited laboratory for analysis of the following tests.

Three soil samples of cohesive materials encountered during the investigation were tested for Atterberg limits. These samples were collected from BH113, BH115 and BH116 at depths of 6.0m, 3.0m and 3.0m, respectively. Two particle size distributions were undertaken for samples collected from BH113 and BH116 at 7.5m and 1.5m, respectively. Three point load tests were carried out on cored bedrock samples obtained from BH113 (from 9.75 to 10.0m) and BH116 (from 8.03 to 8.35m and from 9.42 to 9.61m).

Results are provided in Section 6.0.

4.3.1 Additional Fieldwork

Upon request from SOPA, additional boreholes were undertaken on 12 November 2002 to attempt to locate the former Samsung foundation piles. This work was not in the original scope of work. URS was directed on site as to the location of the trial boreholes by Mr. Tim Cook from SOPA. Six shallow boreholes (to approximately 2m depth) were attempted. No former foundation piles were located within this investigation and no groundwater was observed in these boreholes. The holes were reinstated at the surface with cold mix asphalt.

5.1 - Field Observations

5.1.1 Soil

The boreholes generally encountered between 3.0m and 7.0m of fill in a clayey matrix overlying residual natural clay. The fill generally comprises soft to very stiff clay, with some glass, wood, fabric and foam. The thickness of the clay layer which was encountered in all holes except BH114 and BH116 (clayey sand was encountered below the fill in BH114 and shale was observed immediately below the fill in BH116) varied from 1.6m (BH115) to 3.5m (BH113). A landfill-like odour was detected typically in the fill layer in all holes with the exception of BH115 and BH116. PID screening of the soils samples indicated generally low levels of VOCs in the soils, with a maximum concentration of 42.6 parts per million detected in the soil sampled from BH111 (7.5 m).

The residual clay layer was typically very stiff, of high plasticity, light grey with orange mottling. The residual material was typically underlain by low strength shale until refusal using a tungsten-carbide or (TC) bit. Depth to bedrock varied between 5.7m (BH115) and 9.3m (BH111). Borehole logs are provided in Appendix C.

5.1.2 Groundwater

Groundwater was encountered at 5.5m (BH111 and BH112) and 6.0m (BH116) during the investigation works. A shallow groundwater monitoring well was installed at BH112 in compliance with the proposal brief. A graphical representation of the constructed well is provided in Appendix C. This monitoring well was developed, purged, and sampled in accordance with standard URS sampling procedures.

5.2 Soil/Groundwater Contamination Results

The analytical testing carried out by ALS is recreated in Tables 5.1 to 5.4. The laboratory reports are presented in Appendix A and the Chain of Custody documentation is provided in Appendix B.

5.2.1 Contamination Assessment Guidelines

The following NSW EPA endorsed guidelines were used for the assessment of the soil and groundwater analytical results:

- National Environmental Protection Measure (1999) *National Environment Protection (Assessment of Site Contamination) Measure (NEPM)*, *NEPM - Schedule B Guidelines 1-10 Health Investigation Levels (HILs)*. As the site is to be developed for commercial/industrial land use, the HIL Level F (Commercial/Industrial) is considered to be appropriate. These guidelines are used to assess the PAH and inorganic soil analytical results:

- NSW EPA *Guidelines for Assessing Service Station Sites* (1994). These guidelines are used to assess the TPH and BTEX soil analytical results;
- National Environmental Protection Measure (1999) *National Environment Protection (Assessment of Site Contamination) Measure (NEPM)*. NEPM – Schedule B Guidelines 1-10 Ecological Investigation Levels (EILs). The EILs are used to assess potential ecological impacts due to the chemical concentrations in soil; and
- ANZECC/ARMCANZ (2000) *Australian Water Quality Guidelines for the Protection of Aquatic Ecosystems*. Trigger Values for Freshwater with a 95 % Level of Protection were considered the most appropriate guidelines given the environmental setting.

It is noted that the EILs are applicable only to planted areas. Since the future layout of the site is not completely known, all of the analytical results have been compared with the EILs.

5.2.2 Soil Chemical Analysis Results

The analytical results for the soil samples are detailed in Tables 5.1 to 5.3 and indicate the following:

- The concentrations of inorganics in all of the analysed samples were below the relevant NEPM HIL F guidelines. Some of the soil samples contained concentrations of cadmium, chromium, copper, lead and zinc above the EILs. These samples are highlighted in Table 5.1;
- The concentrations of TPH (C₆-C₉) were detected above the NSW EPA (1994) guideline of 65 mg/kg in samples BH111_7.5 (381 mg/kg), BH112_6.0 (267 mg/kg) and BH116_6.0 (159 mg/kg). The concentrations of TPH (C₆-C₉) were below the guideline value or below the laboratory limit of reporting (LOR) in all other samples;
- The concentrations of TPH (C₁₀-C₃₆) were detected above the NSW EPA (1994) guideline of 1 000 mg/kg in samples BH111_7.5 (10 660 mg/kg), BH112_6.0 (15 318 mg/kg), BH114_7.5 (2 772 mg/kg) and BH116_6.0 (1 447 mg/kg). The concentrations of TPH (C₁₀-C₃₆) were below the guideline value or below the laboratory limit of reporting (LOR) in all other samples;
- The concentrations of benzene and toluene were not detected above the relevant NSW EPA (1994) guidelines or LOR in any of the samples. These samples are highlighted in Table 5.2;
- The concentrations of ethyl benzene were detected above the NSW EPA (1994) guideline of 50 mg/kg in sample BH111_7.5 (78.8 mg/kg). The concentrations of ethyl benzene were below the guideline value or below the laboratory limit of reporting (LOR) in all other samples;
- The concentrations of total xylene were detected above the NSW EPA (1994) guideline of 25 mg/kg in samples BH111_7.5 (59.2 mg/kg) and BH116_6.0 (44.3 mg/kg). The concentrations of ethyl benzene were below the guideline value or below the laboratory limit of reporting (LOR) in all other samples;

Table 5.1
Soil Analytical Results - Heavy Metals

Sample Location		BH111_4.5		BH111_7.5		BH112_6.0		BH113_3.0		BH114_7.5		BH115_1.5		BH116_6.0	
Date		11-Nov-02		11-Nov-02		11-Nov-02		11-Nov-02		11-Nov-02		11-Nov-02		11-Nov-02	
	Units	LOR	NEPM HIL F	NEPM EIL											
Arsenic	mg/kg	1	500	20	10	10	7	7	7	6	7	7	7	7	7
Cadmium	mg/kg	1	100	3	11	7	<1	<1	<1	<1	<1	<1	<1	1	1
Chromium (VI)	mg/kg	1	500	1	39	54	32	11	11	11	16	16	16	203	203
Copper	mg/kg	1	5000	100	102	111	22	31	31	50	41	41	41	87	87
Nickel	mg/kg	1	3000	60	13	21	3	17	17	35	32	32	32	23	23
Lead	mg/kg	1	1500	600	222	383	49	28	28	33	38	38	38	892	892
Zinc	mg/kg	1	35000	200	1390	1910	2460	69	69	289	118	118	118	1690	1690
Mercury	mg/kg	0.1	75	1	0.2	0.3	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.5	0.5

Notes:

LOR - Laboratory Limit of Reporting.
NEPM HIL F - Soil Guideline for Sites with Proposed Commercial/Industrial Landuse.
NEPM EIL - Soil Guideline for Ecological Impact Assessment.
1390 - Sample Concentration Above the NEPM EIL

Table 5.2
Soil Analytical Results - TPH / BTEX

Sample Location Date	Units	LOR	NSW EPA (1994)	BH111_4.5 11-Nov-02	BH111_7.5 11-Nov-02	BH112_6.0 11-Nov-02	BH113_3.0 11-Nov-02	BH114_7.5 11-Nov-02	BH115_1.5 11-Nov-02	BH116_6.0 11-Nov-02
Total Petroleum Hydrocarbons										
C6 - C9 Fraction	mg/kg	2	65	<2	381	267	<2	19	<2	159
C10 - C14 Fraction	mg/kg	50		96	1940	588	<50	271	<50	165
C15 - C28 Fraction	mg/kg	100		497	5500	12600	<100	1670	172	941
C29 - C36 Fraction	mg/kg	100		214	3220	2130	<100	831	109	341
C10-C36 Total	mg/kg		1000	807	10660	15318	0	2772	281	1447
BTEX Compounds										
Benzene	mg/kg	0.2	1	<0.2	0.8	0.4	<0.2	0.3	<0.2	<0.2
Toluene	mg/kg	0.2	130.0	<0.2	94.1	0.7	<0.2	2.5	<0.2	1.8
Chlorobenzene	mg/kg	0.2		<0.2	1.6	<0.2	<0.2	0.5	<0.2	<0.2
Ethylbenzene	mg/kg	0.2	50.0	<0.2	78.8	1.3	<0.2	4.7	<0.2	14.7
meta- & para- Xylene	mg/kg	0.2		<0.2	44.8	3	<0.2	2.6	<0.2	34.3
ortho- Xylene	mg/kg	0.2		<0.2	14.4	1.2	<0.2	1.2	<0.2	10
Total Xylene	mg/kg		25	ND	59.2	4.2	ND	3.8	ND	44.3

Notes:

LOR - Laboratory Limit of Reporting.

NSW EPA (1994) - Guidelines for Assessing Service Station Sites.

10660 - Concentration Above the Guidelines for Assessing Service Station Sites.

ND - Not Detected.

- The concentrations of total PAH were less than the NEPM HIL F guideline or LOR in all samples. These samples are highlighted in Table 5.3; and
- The concentrations of total PAH were less than the NEPM HIL F guideline or LOR in all samples.

5.2.3 Groundwater Chemical Analysis Results

The analytical results for the groundwater samples are detailed in Table 5.4 and indicate the following:

- The concentrations of chromium were detected above the Trigger Value of 1 µg/L in the original (11 µg/L) and duplicate (10 µg/L) samples. It is noted that the Trigger Value used is for chromium (VI), while the analysis provided concentrations for total chromium (there is no guideline value for total chromium);
- The concentrations of copper were detected slightly above the Trigger Value of 1.4 µg/L in the original (2 µg/L) and duplicate (2 µg/L) samples;
- The concentrations of zinc were detected above the Trigger Value of 8 µg/L in the original (25 µg/L) and duplicate (25 µg/L) samples;
- The concentration of mercury was detected slightly above the Trigger Value of 0.6 µg/L in the duplicate sample (2 µg/L). Mercury was not detected above the LOR in the original sample, however the LOR (1 µg/L) is slightly above the Trigger Value;
- Slightly elevated concentrations of TPH were detected in the original (3 862 µg/L) and duplicate (5 272.4 µg/L) samples;
- Cadmium, anthracene, fluoranthene and benzo(a)pyrene were not detected above the LOR. However, the LOR for these chemicals were slightly above the relevant Trigger Values; and
- The concentrations of all other chemicals were either below the Trigger Value or IIWLs, or did not have a Trigger Value.

5.2.4 Waste Classification

Based on the results of the total concentration and TCLP (see Table 5.5) analytical results, URS considers that the sampled materials are classifiable as Inert to Industrial Waste. Classification of some of the material as Industrial Waste is due to the elevated concentrations of TPH (C₁₀-C₃₆) in samples BH111_7.5 (10 660 mg/kg) and BH112_6.0 (15 318 mg/kg).

5.3 Data Quality

On the basis of the analytical data validation procedure employed, the overall quality of the analytical data produced is considered to be of an acceptable standard for interpretive use.

Table 5.3
Soil Analytical Results - PAHs

Sample Location Date	BH111_4.5 11-Nov-02	BH111_7.5 11-Nov-02	BH112_6.0 11-Nov-02	BH113_3.0 11-Nov-02	BH114_7.5 11-Nov-02	BH115_1.5 11-Nov-02	BH116_8.0 11-Nov-02
	NEPM	NEPM	NEPM	NEPM	NEPM	NEPM	NEPM
Units	LOR	LOR	LOR	LOR	LOR	LOR	LOR
Polyaromatic Hydrocarbons							
Naphthalene	mg/kg	0.5					
2-Methylnaphthalene	mg/kg	0.5					
Acenaphthylene	mg/kg	0.5					
Acenaphthene	mg/kg	0.5					
Fluorene	mg/kg	0.5					
Fluoranthene	mg/kg	0.5					
Anthracene	mg/kg	0.5					
Fluoranthene	mg/kg	0.5					
Pyrene	mg/kg	0.5					
N 7-Fluorenylacetamide	mg/kg	0.5					
Benzo (a) anthracene	mg/kg	0.5					
Chrysene	mg/kg	0.5					
Benzo (b) & (k) fluoranthene	mg/kg	1					
7,12-Dimethylbenz(a)anthracene	mg/kg	0.5					
Benzo (a) pyrene	mg/kg	0.5					
3-Methylcholanthrene	mg/kg	0.5					
Indeno (1,2,3-cd) pyrene	mg/kg	0.5					
Dibenz (a,h) anthracene	mg/kg	0.5					
Benzo (g,h,i) perylene	mg/kg	0.5					
PAHs (Total)	mg/kg	-	100				

Notes:

LOR - Laboratory Limit of Reporting.

NEPM HIL F - Soil Guideline for Sites with Proposed Commercial/Industrial Landuse.

NI) - Not Detected.

Table 5.4
Groundwater Analytical Results

Sample Location		BH112		QC02	
Date		12-Nov-02		12-Nov-02	
ANZECC/ARMCANZ (2000)					
Freshwater Values					
	Units	LOR	95% Level of Protection		
Metals					
Arsenic (Total)	µg/l	1	13 ^a	4	3
Cadmium (Total)	µg/l	1	0.2	<1	<1
Chromium (Total)	µg/l	1	1 ^b	11	10
Copper (Total)	µg/l	1	1.4	2	2
Nickel (Total)	µg/l	1	11	4	4
Lead (Total)	µg/l	1	3.4	<1	<1
Zinc (Total)	µg/l	1	8	25	25
Mercury (Total)	µg/l	0.1	0.5	<1.0	2
Total Petroleum Hydrocarbons					
C6 - C8 Fraction	µg/l	20		356	363
C10 - C14 Fraction	µg/l	50		2180	2170
C15 - C28 Fraction	mg/l	100		4	19.4
C29 - C36 Fraction	µg/l	50		15.5	2700
C ₂ - C ₃₆			7	2052	5272.4
BTEX Compounds					
Benzene	µg/l	1	950	40	40
Toluene	µg/l	2	180 ^c	3	3
Chlorobenzene	µg/l	2		<2	<2
Ethylbenzene	µg/l	2	80 ^c	5	10
meta- & para- Xylene	µg/l	2	75 ^c	5	6
ortho- Xylene	µg/l	2	350	2	2
Polynuclear Aromatic Hydrocarbons					
Napthalene	µg/l	2	16	12	13
2-Methylnaphthalene	µg/l	2		3	3
2-Chloronaphthalene	µg/l	2		<2	<2
Acenaphthylene	µg/l	2		<2	<2
Acenaphthene	µg/l	2		<2	<2
Flourene	µg/l	2		<2	<2
Phenanthrene	µg/l	2	2	<2	<2
Anthracene	µg/l	2	0.4	<2	<2
Flouranthene	µg/l	2	1.4	<2	<2
Pyrene	µg/l	2		<2	<2
N-2-Fluorenylacetamide	µg/l	2		<2	<2
Benz (a) anthracene	µg/l	2		<2	<2
Chrysene	µg/l	2		<2	<2
Benzo (b) & (k) flouranthene	µg/l	4		<4	<4
7,12-Dimethylbenz(a)anthra	ug/L	2		<2	<2
Benzo (a) pyrene	µg/l	2	0.2	<2	<2
3-Methylcholanthrene	µg/l	2		<2	<2
Indeno (1,2,3,cd) pyrene	µg/l	2		<2	<2
Dibenz (a,h) anthracene	µg/l	2		<2	<2
Benzo (g,h,i) perylene	µg/l	2		<2	<2

Notes:

a - Trigger Value for Arsenic (V) Used in the Absence of a Trigger Value for Total Arsenic.

b - Trigger Value for Chromium (VI) Used in the Absence of a Trigger Value for Total Chromium.

c - Indicative Interim Working Level Used in the Absence of a Trigger Value for Relevant Chemical.

LOR - Laboratory Limit of Reporting.

25
<1.0

* - Concentration Above Trigger Value.

* - LOR Greater Than Trigger Value or Indicative Interim Working Level.

Table 5.5
Soil Analytical Results - TCLP

Sample Location	BH111_7.5	
Date	11-Nov-02	
	Units	LOR
Benzo(a)pyrene	ug/L	2 < 2
Lead	mg/L	0.1 0.3

Notes:
LOR - Laboratory Limit of Reporting.

A data validation summary sheet is provided in Appendix E.

6.1 -- General

The 1:100 000 Geological series sheet indicates that the site is underlain by dark grey shale and laminite commonly referred to as Ashfield Shale, of the Wianamatta Group. This typically weathers to form overlying clays of medium to high plasticity.

Based on the subsurface investigations undertaken at the site, three main geological units have been identified. These are listed below in order of increasing depth from the ground surface:

- fill (Unit 1);
- soft to very stiff residual clay clayey sand (Unit 2);
- shale bedrock (Unit 3).

A detailed record of specific conditions encountered at each borehole location is provided on the borehole logs, presented in Appendix D. The inferred boundary between the various units are presented on Section A-A (refer Figure 3). A summary description of each of the units is provided below.

6.1.1 Unit 1 - Fill

Unit 1 material was encountered in all boreholes and was found to extend from the surface or from immediately below existing asphaltic concrete layers (approximately 30 mm) to a depth ranging from 3.0 to 7.0 m. The near surface fill mainly comprised a very dense mixture of roadbase and sandstone overlying very soft to very stiff clay fill. In general the fill appeared to be poorly compacted at depth with soft layers encountered typically in BH112 and BH116. Construction type fill was noted in all the boreholes and typically consisted of paper, glass, foam, wood in a clayey matrix. Strong landfill-like odour was typically noted in the fill.

Table 6.1 below presents a summary of the SPT testing carried out within Unit 1, which was used to assess the in situ strength/relative density.

Table 6.1 – SPT RESULTS, FILL (UNIT 1)

Sample ID	SPT 'N' Value	Inferred In situ Strength/Density
BH112_1.5m	2	Very Soft
BH112_3.0m	13	Stiff
BH112_4.5m	17	Very Stiff
BH113_1.5m	20	Very Stiff
BH113_3.0m	12	Stiff
BH115_1.5m	>20	Very Stiff
BH116_1.5m	27	Very Stiff
BH116_3.0m	3	Very Soft to Soft
BH116_4.5m	9	Stiff
BH116_6.0m	>10	Stiff

6.1.2 Unit 2 - Residual Clay

Unit 2 residual clay/clayey sand was encountered below Unit 1 and typically comprised mainly firm to hard clay or medium dense clayey sand. The range in thickness for Unit 2 was approximately 1.5 to 3.0 m.

Table 6.2 below presents a summary of the SPT testing carried out within Unit 2, which was used to assess the in situ strength/relative density.

Table 6.2 – SPT RESULTS, RESIDUAL SOIL (UNIT 2)

SAMPLE ID	SPT 'N' Value	Inferred In situ Strength/Density
BH112_6.0m	7	Firm
BH112_7.5m	36	Hard
BH113_4.5m	12	Stiff
BH113_6.0m	18	Very Stiff
BH115_3.0m	6	Firm

6.1.3 Unit 3 - Bedrock

Shale bedrock was encountered in all boreholes at depths ranging from 4.6 to 8.8 m below the existing groundwater level. The shale bedrock has been subdivided into two distinct units (3A and 3B) consistent with weathering and strength properties of the rock mass, as discussed below.

Unit 3A

Auger drilling and SPT testing were undertaken within the upper zone of this unit, to TC-Bit refusal. Based on drilling penetration rates and SPT testing, the shale within this unit was inferred as low strength and highly weathered. Refusal on low strength, highly weathered shale (inferred from TC-bit refusal) was encountered at depths ranging between 4.6 m (BH115) to 8.8 m (BH111).

Unit 3B

Based on the field assessment of the recovered core, medium to high strength, slightly weathered shale was encountered in the cored boreholes (BH113 and BH116). This is confirmed by the results of the Point Load Tests as summarised in Table 6.4. The core recovered in BH113 consisted of typically Class IV shale, while the core recovered from BH116 was typically Class III shale.

6.2 Laboratory Results

The testing carried out by AST has been reproduced in Tables 6.3 and 6.4 below. The laboratory reports are presented in Appendix D.

Two of the five samples collected were obtained from the fill layer, which included clayey sand/clay of typically medium plasticity. Two samples were obtained from the residual clay layer. These samples were typically of high plasticity. One sample was also collected from the completely weathered shale layer. In the samples tested, the liquid limit ranged from a low plasticity of 30% (BH116_3.0) to a high plasticity of 68% (BH115_3.0) while the plasticity index ranged from 14% (BH116_3.0) to 46% (BH115_3.0). These ranges indicate that the residual clay has a medium to very high shrink/swell potential.

Geotechnical Assessment

SECTION 6

Table 6.3 – Geotechnical Soil Classification Results

Sample Identification	Sample Description	Particle Density (t/m^3)	Liquid Limit	Plasticity Index	Level of Plasticity
BH113_7.5m	Extremely Weathered SHALE	2.53	-	-	-
BH116_1.5m	silty gravelly SAND (FILL)	2.47	-	-	-
BH113_6.0m	CLAY	N/A	48	26	Medium
BH115_3.0m	CLAY	N/A	68	46	High
BH116_3.0m	gravelly sandy CLAY (FILL)	N/A	30	14	Low

Note: - No: Tested

Table 6.4 – Point Load Strength Index Test

Sample Identification	Test Orientation	Point Load Strength Is 50 (MPa)	Strength (Based on AS1726-1993)
BH113 (9.75-10m)	Axial	1.83	High
BH116 (8.03-8.35m)	Axial	0.58	Medium
BH116 (9.42-9.61m)	Axial	1.2	High

7.1 - Environmental

On the basis of the soil and groundwater analytical results, URS concludes the following:

- Fill materials are variably impacted with elevated concentrations of TPH, ethyl benzene and xylene within the sampled fill materials. Field observations (odour and PID readings – as noted in the borehole logs) indicate that this impact may extend into the underlying residual clays at concentrations which may exceed the Service Station Guidelines;
- Concentrations of inorganics and PAHs were not detected above the relevant guidelines for the proposed commercial/industrial future land use. However, concentrations of some of the inorganics were above the EILs. Soils containing concentrations of inorganics above the EILs should not be used within the top 1 m of soils in landscaped areas of the potential future development;
- The soil sample analytical results indicated that the fill materials underlying the site are classifiable as Inert to Industrial Waste. Depending on the volume of soil which would require excavation as part of the future development, additional sampling and analysis of the material may be required to allow disposal;
- Concentrations of TPH, inorganics and PAHs in the groundwater were detected above the relevant Trigger Values or IIWLs. However, since the concentrations in groundwater are generally low, since there limited amount of groundwater intersected at the site, and since there is limited potential for the groundwater at the site to impact the environment, the concentrations in groundwater are not considered to be significant. However, any water collected from below retaining walls etc will have to be treated or discharged appropriately. Discharge of the collected waters to sewer would require a Trade Waste Agreement from Sydney Water;

This investigation has found that site soils variably contained concentrations of TPH, ethyl benzene and xylene above the Service Station Guidelines (sensitive land use). The Service Station Guidelines were developed for sensitive land use types, where potential exposure pathways to impacted soils include ingestion, inhalation (of vapours diffusing from soil) and adsorption, such as may be present in a residential garden. Potential exposure to impacted soils is less likely at a commercial site due to:

- Greater proportion of the site being sealed, reducing the potential for ingestion, inhalation and adsorption;
- Different land use (less recreational, no market gardening, limited child usage); and
- Less residence time at the site.

On the basis of the (likely) restriction of potential exposure pathways to the impacted soils under a commercial land use setting, URS consider that the site soils are unlikely to pose a risk to the health of future occupants. However, in the absence of EPA endorsed guidelines for Industrial/Commercial land use, and to quantify the potential risks posed (and how they might be mitigated through remedial or

construction measures), URS propose that a site specific human health risk assessment be conducted supported by additional sampling. The risk assessment should consider:

- The development layout and occupant usage;
- Chemical concentrations in the soil, water and vapour phases; and
- Exposure pathways, including relations to the building and basement design and sealing.

Depending on the results of risk assessment, the amount of soil requiring excavation/remediation may conceivably be limited to only that requiring excavation to construct the proposed development.

However, by retaining impacted soils on site, unsealed areas of the site may require placement of a layer of clean fill to prevent exposure of site occupants to the impacted soils. Such an approach is unlikely to be required in sealed areas of the site. Retention of impacted soils on site would also require the drafting of an environmental management plan (EMP).

A remediation action plan (RAP) has been prepared as a separate document and details remedial approaches which may be required, depending on the outcome of the proposed risk assessment. Depending on the requirements of NSW Planning, it is likely that an accredited NSW EPA Auditor will be required to review the investigation report, risk assessment and RAP to assess their adequacy.

7.2 Geotechnical

We understand that specific information of the development with respect to exact locations, founding levels and building loads have not been established. However, based on current knowledge of the subsurface conditions and the likely type of structure to be built, geotechnical advice and preliminary recommendations on the following areas are provided:

- site preparation and general earthworks;
- building foundations;
- pavements; and
- retaining walls.

It is emphasised that the recommendations are preliminary and that additional investigations should be carried out prior to construction when final details of the development are available.

7.3 Site Preparation and General Earthworks

The site is relatively flat and it is anticipated that cutting required will be limited to achieving the design levels. Deep excavations required to construct basement car parking would extend through the fill and the residual clay to bedrock, depending on the depth of the proposed basement excavation. This should be readily achievable using conventional earthmoving equipment.

Any fill used during site works for achieving design levels should consist of a well graded granular material such as ripped sandstone or similar. Density tests should be carried out to check the fill compaction, with level 2 testing (Guidelines on earthworks for commercial and residential developments AS 3798) recommended as the minimum requirement for this project.

All associated earthworks including placement and compaction should also be carried out in accordance with AS 3798.

7.3.1 Site Classification

Due to the significant depth of fill encountered across the site, the site would generally be classified Class "P" in accordance with AS2870-1996 "Residential Slabs and Footings". Class "P" refers to sites which are affected by uncontrolled fill. Foundation design should be undertaken in accordance with the recommendations outlined in AS2870-1996 and those provided below. The Class "P" classification may be upgraded depending on the methods adopted for site improvement.

7.4 Pavements

Normal pavements may be able to be constructed on the existing fill material subject to impact roller compaction and proof rolling in the presence of a geotechnical engineer. Any soft spots identified should be made good using select fill materials. However, heavy pavements such as those to be regularly trafficked by trucks or industrial pavements would require improvement of subsurface conditions as described below:

- Remove material down to a minimum depth of 600mm;
- Compact using an impact roller;
- Proof roll and make good any soft spots;
- Backfill using suitable material (excavated material may be suitable subject to approval by a geotechnical engineer) of loose layer thickness of 250mm (max) and compacted to at least 98% of Maximum Dry Density (standard) to $\pm 2\%$ of optimum moisture content using 6 to 8 passes of a vibrating drum roller of minimum weight 5 tonnes per metre width of drum.

7.5 Building Foundations

7.5.1 High Level Foundations

The investigation has revealed that the site is covered by a varying thickness of fill between 3.0m and 7.0m overlying residual soils comprising clay with a firm to hard consistency of medium to very high shrink/swell potential. Based on the proposed design of a multi storey commercial building with 1-2

levels of basement, it is anticipated that the use of high level footings would be inappropriate due to anticipated differential settlement. However, depending on the design loads and the tolerable differential settlements of the proposed structure, it may be feasible to carry out ground improvement techniques sufficient to allow high level footing construction. Typical ground improvement techniques could comprise:

- excavation of the uncontrolled fill and replacement with engineered fill;
- ground improvement using high energy compaction such as impact rolling;
- preloading and monitoring settlements over a period of time; and/or
- a combination of any of the above.

The feasibility of the above ground improvement techniques would be dependent on timing of the project, economic constraints, final surface levels, required column loads and allowable settlements as designed for by the design engineer. Once the structural configuration (including the number of basement levels) and building loads are known, the suitability of the above alternatives with respect to the use of high level foundation systems can be further assessed.

7.5.2 Piled Foundations

The preferred option to minimise the potential total or differential settlements, is to support all structural loads on piles founded on the underlying bedrock. Based on the condition encountered and the apparent ease of drilling through the fill material experienced during the investigations, the following pile types are considered to be suitable:

- driven piles;
- bored piles; and
- grout injected piles.

Driven Piles

The use of driven precast concrete or cast in situ piles may provide a cost-effective solution, however environmental issues associated with noise and vibration during installation may inhibit their use. However, provided driven piles are feasible, the recommended design parameters provided in Table 5.1 should be adopted for preliminary pile design. Various driven pile types may be considered, including:

- precast concrete piles;
- steel H piles; and
- timber piles (fitted with a suitable driving shoe).

All piles should be driven until an adequate "set" (pile head settlement per hammer blow) is achieved, and a minimum pile length should be established to ensure that the pile head is generally within the target founding zone. Depending on the type of pile adopted, a suitable founding level would be within the shale bedrock located at approximately 9 to 10 metres below existing ground surface. Advice from a piling contractor should be sought to determine the most cost effective pile type appropriate for the anticipated site conditions, and allowable pile loads.

As a guide, steel H piles and precast concrete piles can be used for allowable pile loads of 15 to 40 tonnes (depending on the pile dimensions). The allowable timber pile load is expected to be governed by the pile characteristics, rather than geotechnical design parameters.

Bored and Flight Augered Piles

Bored piles may be suitable for pile construction at this site, however temporary steel caissons (to support unstable sidewalls) would probably be required during bored pile construction. This is due to the likely groundwater seepage anticipated at approximately 5m below the surface (predominantly in the south-eastern part of the site) and due to the presence of select soft fill material observed at this depth.

Allowance would also be required for dewatering the pile caissons prior to pouring concrete. In addition, for bored pile construction, a boring rig (equipped with rock auger) would be required.

Flight augered piles involve the injection of a grout mix into an augered borehole while the auger cutting head is withdrawn. The advantage of this technique over bored piles is that the borehole does not need to be supported and thus the problems with dewatering and sidewall collapse are negated.

- For design of any of the above piles, it is recommended that a piling contractor be consulted and given the available data on the site, such that the most economical working design can be achieved.

Recommended preliminary geotechnical design parameters for pile foundations are provided below in Table 7.1. Once the preferred foundation option is adopted for the proposed development, further investigation work (involving core recovery and classification) will be required to optimise the founding level.

7.5.3 Preliminary Assessment of Pile Design Capacities

We have interpreted the underlying shale bedrock, based on the guidelines presented in Pells et al. "*Design Loadings for Foundations on Shale and Sandstone in the Sydney Region*", Australian Geomechanics Journal, 1978 and more recently the same paper revised in December 1998, which provided preliminary end bearing and shaft adhesion parameters (refer Table 7.1).

It should be noted that the classification provided is for design of foundations and incorporates recommended allowances for rock defects such as fracture zones and clay seams. The actual intact rock strength in some cases may be higher than the rock classification suggests, and reference should be made to the bore log when assessing the excavation characteristics of the material.

Table 7.1 – ROCK CLASSIFICATION AND PRELIMINARY ALLOWABLE DESIGN PRESSURES

Typical Depth (m)	Rock Type and Classification	Allowable End Bearing Pressure q_a (MPa)	Allowable Shaft Adhesion f_a (kPa)
8-10.0	Shale, Class IV	1	150
8-10.5	Shale, Class III	1-3.5*	150-350*

* The upper bound value is to be used only subject to obtaining cores from pile base and testing in the laboratory to ascertain the unconfined compressive strength (q_u) $q_a = 0.5q_u$ or 3.5 MPa $f_a = 0.05q_u$.

It is recommended that the above allowable design pressures be adopted for the preliminary design of piles. These values assume that piles are socketed a minimum of 500 mm into Class II to III shale, or the pile diameter whichever is greater in the underlying bedrock. For bored pile construction, it will be necessary to use a cleaning bucket to ensure that the base of the pile is clean of drilling debris. If pile capacities rely on shaft adhesion then it will also be necessary to use a sidewall roughing tool to ensure that the design shaft adhesion values can be achieved. Shaft adhesion in the fill and overburden soils should be ignored for design purposes. Uplift values should be taken as 50% of the allowable shaft adhesion values.

It should be noted that only limited information (2 boreholes across the site) is available regarding the subsurface bedrock. The conditions encountered may vary and pile depths or socketing requirements may need to be changed to suit the conditions encountered.

For piles proportioned according to these design parameters the anticipated settlement should not exceed 1% of the pile diameter.

7.5.4 Testing Requirements

To check pile construction we recommend that dynamic load testing be carried out during the pile installation to confirm the pile bearing capacity, particularly during the installation of the initial piles. Provided adequate care is taken during the testing, dynamic load testing is a non-destructive test during which an energy wave is applied to the pile head and the pile response measured. Alternatively, static pile load testing may be undertaken, however this is likely to be more costly than dynamic testing methods. Pile load testing frequency is recommended to be in the order of 5 % of the total piles to be installed. The frequency of pile load testing may be relaxed once sufficient confidence is gained in the construction methodology and pile performance.

Whenever dynamic load testing is carried out for a project, we also recommend that signal matching be undertaken on the initial batch of piles to be installed (say the first 5 to 10 piles) and then once every 5 to 10 piles which are load tested, in order to provide sufficient confidence in the results of the dynamic pile load testing.

Integrity tests should also be carried out on, say, 1 out of 5 piles, to check for defects in the pile construction, such as necking, cracking, and voids. Integrity testing uses a small weight to impart an energy wave to the pile. Instruments attached to the pile record the wave travel, and interpretation of the data can provide information on the as constructed pile properties. This test is considerably cheaper than a dynamic load test.

For bored piles, we recommend that piles be inspected by an experienced geotechnical engineer to check the quality of the exposed foundation material, adequacy of pile cleaning and confirm design parameters, prior to pouring concrete. All footings should be excavated, cleaned, inspected and poured with minimal delay, to avoid deterioration of the bearing surface. It will be important to monitor the pile borehole cleaning, and that the cleaning process is carefully undertaken. Placement of the concrete for bored piles will most probably have to be carried out using a tremmie, since some water would be expected in the base of the pile borehole. Inspection of the completed pile borehole may be carried out using a TV camera, or if site conditions allow, a visual inspection may be carried out providing appropriate OH&S procedures are followed.

The pile testing program should be reviewed by an experienced geotechnical engineer once the pile type, design loads and founding levels are known.

7.5.5 Stability Issues During Excavation

Removal of material (soil or rock) from an excavation may cause the material remaining in the void to potentially collapse into the hole. Workcover have very strict guidelines about working in excavated areas and they include not working in an excavation greater than 1.5m depth without appropriate shoring. This can include, but is not limited to temporary or permanent supports such as sheet piling, timber piling, diaphragm wall, trench shields etc. All shoring installed on site should be inspected by a suitably qualified engineer. If shoring is not employed at the site, then battering of the excavations may be undertaken. It is recommended that the batters be no steeper than 45°, however battering will require more surface space to be occupied than shoring will. Shoring can be undertaken as close to the neighbouring property boundaries as recommended by a suitably qualified geotechnical engineer.

Based on the groundwater noted during the investigation phase, it may be necessary to de-water the excavation, however this may require further investigation, as only one groundwater monitoring well was installed during the investigation phase. The amount of water likely to be encountered during the excavation phase may not be accurately reflected in the groundwater well located on the site.

As with all excavations, especially deep ones, it must be ensured that appropriate signage and security fencing be erected to warn the public of the excavation.

More detailed and specific recommendations should be provided by a suitably qualified engineer prior to construction regarding the appropriate stabilising methods for the proposed methods of construction.

7.6 Retaining Walls

It is recommended that retaining walls (permanent or temporary) be designed using a conventional triangular pressure distribution and a coefficient of lateral earth pressures of approximately 0.5. The influence of groundwater pressure and an appropriate surcharge load should also be considered in the design.

For the excavation of the basement car park, consideration could be given to the installation of a retaining wall (e.g. sheet piles etc) to support the sides of the excavation. It is further emphasised that appropriate drainage behind the retaining wall is required to ensure that significant pressures do not build up behind the wall causing failure. While free draining material should be placed below retaining walls provision should be made to drain and collect the seepage water. This water is contaminated and will require appropriate treatment prior to disposal. This is applicable to both temporary and permanent retaining walls. All retaining walls should be inspected during construction by a qualified geotechnical engineer.

7.7 General

All ground surfaces for pavement and foundation construction including the inspection of sockets and bases for bored piles should be carried out by a qualified geotechnical engineer to confirm that the actual ground conditions are consistent with those used in the assessments and recommendations in this report. The history of the site and its immediate environs suggests that there may be potential gas related issues to be mitigated during construction. Excavation and installation of piles should give due consideration to this potential problem.

It is also reiterated that this report is based on a preliminary investigation. Additional geotechnical investigations should be carried out prior to detailed design when the footprint of the development and other relevant details become known. This would involve between two to three additional boreholes taken deeper to bedrock to confirm the socketing requirements for proposed pile foundations and to prove the depth of a better class rock (say Class II) which would provide higher capacities.

URS Australia Pty Ltd (URS) has prepared this report for the use of Sydney Olympic Park Authority and any other parties that may rely on the report in accordance with the usual care and thoroughness of the consulting profession. It is based on generally accepted practices and standards at the time it was prepared. No other warranty, expressed or implied, is made as to the professional advice included in this report. It is prepared in accordance with the scope of work and for the purpose outlined in the Proposal dated 18 October 2002.

The methodology adopted and sources of information used by URS are outlined in this report. URS has made no independent verification of this information beyond the agreed scope of works and URS assumes no responsibility for any inaccuracies or omissions. No indications were found during our investigations that information contained in this report as provided to URS was false.

- This report was prepared between 13th and 4th December 2002 and is based on the conditions encountered and information reviewed at the time of preparation. URS disclaims responsibility for any changes that may have occurred after this time.

This report should be read in full. No responsibility is accepted for use of any part of this report in any other context or for any other purpose or by third parties. This report does not purport to give legal advice. Legal advice can only be given by qualified legal practitioners.

This Phase 2 environmental site assessment addresses the likelihood of environmental liability resulting from past and current known uses of the property and the immediately adjacent properties.

This investigation is limited to visual observation of surface conditions at the property, sampling and analysis of soil and groundwater. The sampling and/or laboratory analysis undertaken as part of this investigation is confined to a limited number of surface and near surface soil samples.

Opinions and recommendations contained in this report are based upon data provided by representatives of Sydney Olympic Park Authority and information gained during site inspection and fieldwork. This approach reflects current professional practice for Phase 2 environmental site assessments.

This investigation addresses the likelihood of hazardous substance contamination resulting from past and current known uses of the subject facility. Given the limited and mutually agreed scope of work, URS does not guarantee that hazardous materials do not exist at the subject property. Similarly, a property which appears to be unaffected by hazardous materials at the time of our assessment may later, due to natural phenomena or human intervention, become contaminated.

As a result, certain conditions such as those listed hereafter may not have been revealed:

- naturally occurring toxins in the sub-surface soils, rocks, water or the toxicity of the on-site flora;
- toxicity of substances common in current habitable environments such as stored household products, building materials and consumables;
- sub-surface contaminant concentrations that do not exceed present regulatory standards but may exceed future standards; and/or

Limitations

SECTION 8

- unknown site contamination such as dumping or accidental spillage which may occur following the site visit by URS.

Subsurface conditions can vary across a particular site and cannot be explicitly defined by these investigations. It is unlikely therefore that the results and estimations expressed in this report will represent the extremes of conditions within the site or the conditions at any location removed from the specific points of sampling. Subsurface conditions including contaminant concentrations can also change in a short time.

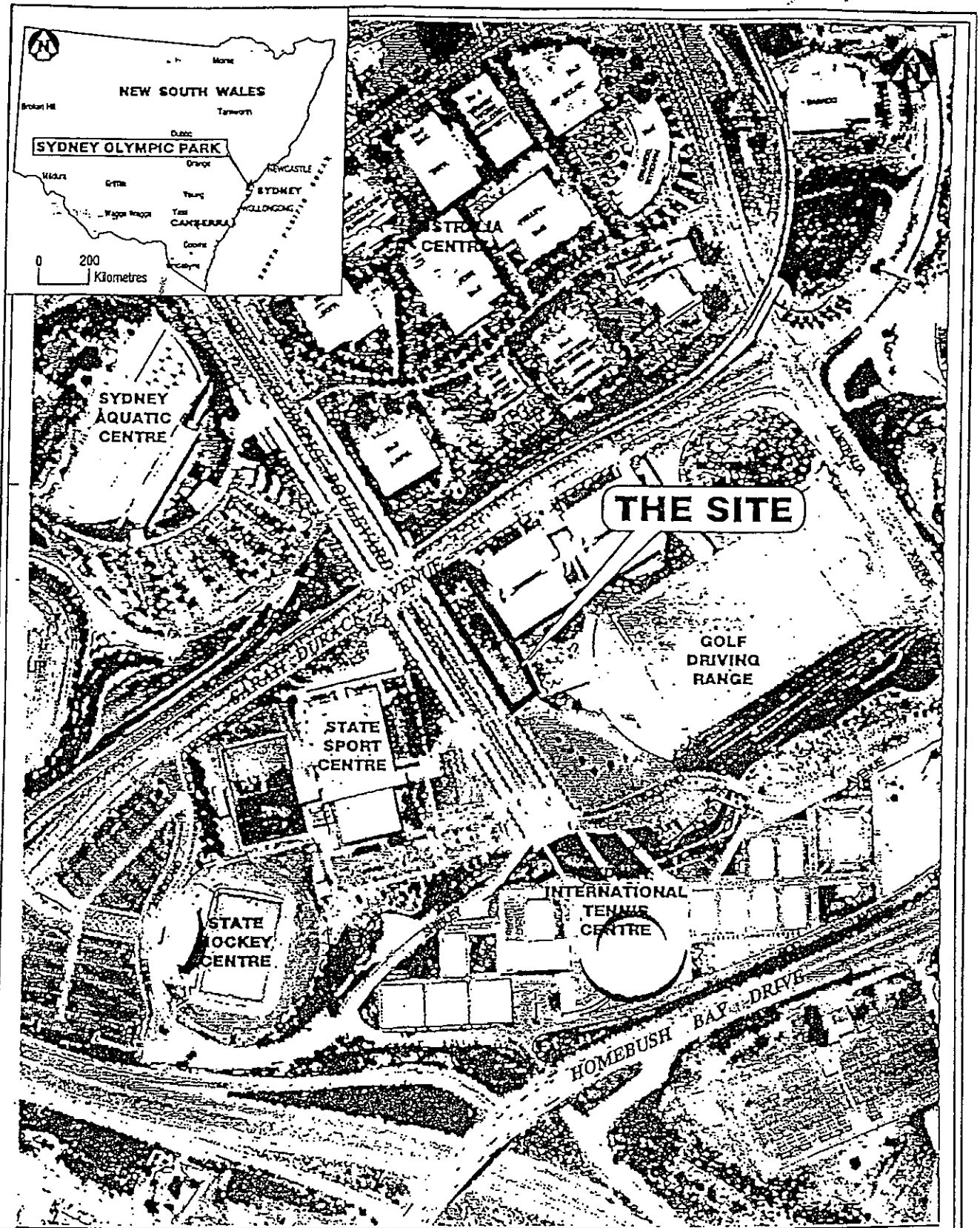
The information in this report is considered to be accurate at the date of issue and is in accordance with conditions at the site at the dates sampled.

- This report contains information obtained by inspection, sampling, testing or other means of investigation. This information is directly relevant only to the points in the ground where they were obtained at the time of the assessment. The borehole logs indicate the inferred ground conditions only at the specific locations tested. The precision with which conditions are indicated depends largely on the frequency and method of sampling, and the uniformity of conditions as constrained by the project budget limitations. The behaviour of groundwater and some aspects of contaminants in soil and groundwater are complex. Our conclusions are based upon the analytical data presented in this report and our experience. Future advances in regard to the understanding of chemicals and their behaviour, and changes in regulations affecting their management, could impact on our conclusions and recommendations regarding their potential presence on this site.

- Where conditions encountered at the site are subsequently found to differ significantly from those anticipated in this report, URS must be notified of any such findings and be provided with an opportunity to review the recommendations of this report.

Whilst to the best of our knowledge information contained in this report is accurate at the date of issue, subsurface conditions, including groundwater levels can change in a limited time. Therefore this document and the information contained herein should only be regarded as valid at the time of the investigation unless otherwise explicitly stated in this report.

Figures



CLIENT
SYDNEY OLYMPIC PARK AUTHORITY
 PROJECT
DEVELOPMENT SITE 9

TITLE
SITE LOCATION PLAN

0 25 50 75 100 200
 metres

DESIGNED: MM
 DRAWN: HC
 DATE 19-11-02

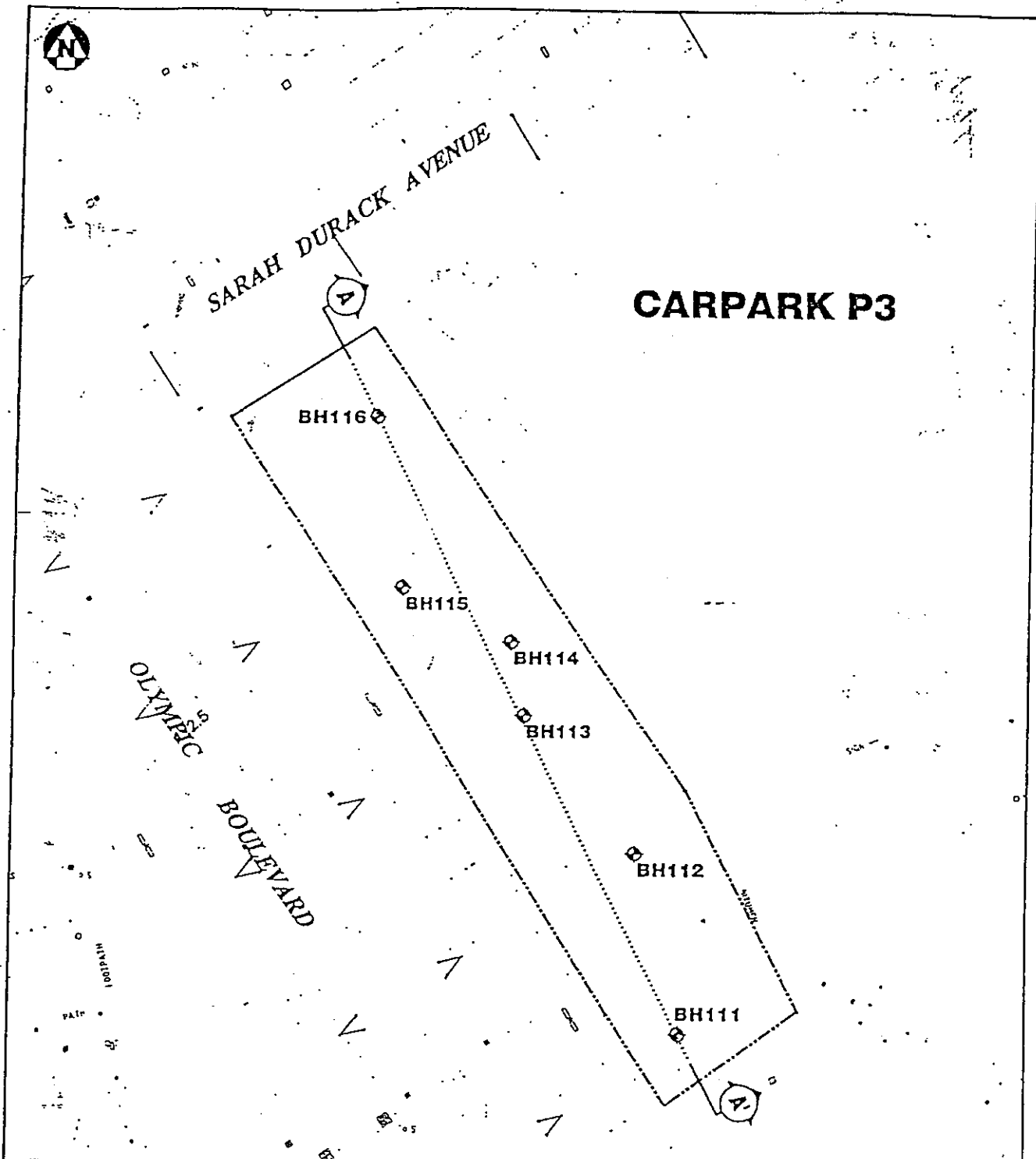
APPROVED: JJA
 DATE 20/11/02
 STATUS: DRAFT

PROJECT: 50244-004
 CAD FILE: 003.DWG
 REVISION: A

URS

FIGURE
1

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LEGEND

◻ BH116 BOREHOLE LOCATION

--- SITE BOUNDARY

⊙ A CROSS SECTION LOCATION

CLIENT

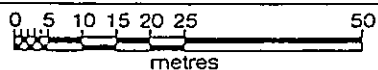
SYDNEY OLYMPIC PARK AUTHORITY

PROJECT

DEVELOPMENT SITE 9

TITLE

BOREHOLE LOCATION PLAN



DESIGNED MM

DRAWN HC

DATE: 19-11-02

APPROVED MM

DATE 24/12

STATUS: DRAFT

PROJECT 50244-004

CAD FILE 002.DWG

REVISION A

URS

FIGURE

2

Appendix A

Environmental Analytical Results



CERTIFICATE OF ANALYSIS

CONTACT: MS M MOYES
 CLIENT: URS AUSTRALIA PTY LTD
 ADDRESS: LEVEL 3, 116 MILLER STREET
 NORTH SYDNEY NSW 2060

BATCH: EB50524
 SUB BATCH: 0
 LABORATORY: BRISBANE
 DATE RECEIVED: 13/11/2002
 DATE COMPLETED: 19/11/2002
 SAMPLE TYPE: SOLID
 No. of SAMPLES: 8

ORDER No.: 50244-004
 PROJECT:

COMMENTS

Results apply to sample(s) as submitted. Samples as received digested by USEPA method 200.2 (modified) prior to the determination of metals. Results reported on a dry weight basis. This report supersedes any previous preliminary reports of the same batch number.

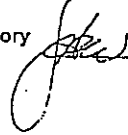
NOTES

This is the Final Report and supersedes any preliminary reports with this batch number. All pages of this report have been checked and approved for release.

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Signatory 

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 Bogor
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AMERICAS

Vancouver
 Santiago
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Batch: EB50524

Sub Batch: 0

Date of Issue: 20/11/2002

Client: URS AUSTRALIA PTY LTD

Client Reference:

CERTIFICATE OF ANALYSIS



METHOD	ANALYSIS DESCRIPTION	Laboratory I.D.		SAMPLE IDENTIFICATION								
		UNIT	LOR	1	2	3	4	5	6	7	8	
EA-055	Moisture Content (dried @ 103°C)	%	0.1	20.7	32.8	19.0	16.8	28.2	10.7	12.8	26.5	
EG-005T	Arsenic - Total	mg/kg	1	10	10	12	7	7	6	7	7	
EG-005T	Cadmium - Total	mg/kg	1	11	7	7	<1	<1	<1	<1	1	
EG-005T	Chromium - Total	mg/kg	1	39	54	33	11	32	11	16	203	
EG-005T	Copper - Total	mg/kg	1	102	111	103	31	22	50	41	87	
EG-005T	Nickel - Total	mg/kg	1	13	21	15	17	3	35	32	23	
EG-005T	Lead - Total	mg/kg	1	222	363	155	26	49	33	30	892	
EG-005T	Zinc - Total	mg/kg	1	1390	1910	1110	69	2460	209	118	1690	
EG-035T	Mercury - Total	mg/kg	0.1	0.2	0.3	0.2	0.2	0.2	0.3	0.2	0.5	

Batch: EB50524

Sub Batch: 0

Date of Issue: 20/11/2002

Client: URS AUSTRALIA PTY LTD

Client Reference:

QUALITY CONTROL REPORT



METHOD	ANALYSIS DESCRIPTION	Laboratory I.D.		SAMPLE IDENTIFICATION					CHECKS AND SPIKES	
		Date Sampled	UNIT	LOR	200 13/11/2002 METHOD BLANK1	201 13/11/2002 Inorg1 LCS	1 11/11/2002 BH111 4.5 MS	1 11/11/2002 BH111 4.5 MSD	11 12/11/2002 BH111G 6.0 CHK	
FA-055	Moisture Content (dried @ 103°C)			0.1						
EG-005T	Arsenic - Total	%	mg/kg	1	<1	93.0%	95.0%	10.7%	7.7	
EG-005T	Cadmium - Total	mg/kg	mg/kg	1	<1	91.0%	90.0%	97.0%	6	
EG-005T	Chromium - Total	mg/kg	mg/kg	1	<1	96.0%	83.0%	78.0%	4.1	
EG-005T	Copper - Total	mg/kg	mg/kg	1	<1	98.0%	97.0%	103%	220	
EG-005T	Nickel - Total	mg/kg	mg/kg	1	<1	100%	97.0%	100%	Nil	
EG-005T	Lead - Total	mg/kg	mg/kg	1	<1	95.0%	103%	110%	26	
EG-005T	Zinc - Total	mg/kg	mg/kg	1	<1	101%	Not Det'd	95%	956	
EG-005T	Mercury - Total	mg/kg	mg/kg	0.1	<0.1	115%	97.0%	97.0%	1550	



CERTIFICATE OF ANALYSIS

CONTACT: MS M MOYES
CLIENT: URS AUSTRALIA PTY LTD
ADDRESS: LEVEL 3, 116 MILLER STREET
NORTH SYDNEY NSW 2060

BATCH: EB50524
SUB BATCH: 1
LABORATORY: BRISBANE
DATE RECEIVED: 13/11/2002
DATE COMPLETED: 19/11/2002
SAMPLE TYPE: SOLID
No. of SAMPLES: 8

ORDER No.: 50244-004

PROJECT:

COMMENTS

Results apply to sample(s) as submitted. Samples analysed on an as received basis. Results reported on a dry weight basis.

NOTES

This is the Final Report and supersedes any preliminary reports with this batch number. All pages of this report have been checked and approved for release.

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Signatory

C. Cornu

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Batch:

EB50524

Sub Batch:

1

Date of Issue:

20/11/2002

Client:

URS AUSTRALIA PTY LTD

Client Reference:

CERTIFICATE OF ANALYSIS



METHOD	ANALYSIS DESCRIPTION	Laboratory I.D.		SAMPLE IDENTIFICATION						
		Date Sampled	UNIT	1	2	3	4	5	6	7
EA-055	Moisture Content (dried @ 103°C)	11/11/2002	%	BH111_4.5	11/11/2002	11/11/2002	11/11/2002	11/11/2002	12/11/2002	12/11/2002
EP-071-SS	TOTAL PETROLEUM HYDROCARBONS			BH111_4.5	BH111_7.5	QC01	BH113_3.0	BH112_6.0	BH114_7.5	BH115_1.5
EP-071-SS	C6 - C9 Fraction	0.1	%	20.7	32.8	19.0	16.8	28.2	10.7	12.8
EP-071-SS	C10 - C14 Fraction	2	mg/kg	<2	381	<2	<2	267	19	<2
EP-071-SS	C15 - C28 Fraction	50	mg/kg	96	1940	51	<50	508	271	159
EP-071-SS	C29 - C36 Fraction	100	mg/kg	487	5500	421	<100	12 mg/kg	1670	165
EP-080-SS	BTEX	100	mg/kg	214	3220	159	<100	2130	831	941
EP-080-SS	Benzene	0.2	mg/kg	<0.2	0.8	<0.2	<0.2	0.4	0.3	<0.2
EP-080-SS	Toluene	0.2	mg/kg	<0.2	94.1	<0.2	<0.2	0.7	2.5	<0.2
EP-080-SS	Chlorobenzene	0.2	mg/kg	<0.2	1.6	<0.2	<0.2	<0.2	0.5	<0.2
EP-080-SS	Ethylbenzene	0.2	mg/kg	<0.2	78.8	<0.2	<0.2	1.3	4.7	<0.2
EP-080-SS	meta- & para-Xylene	0.2	mg/kg	<0.2	44.8	<0.2	<0.2	3.0	2.6	<0.2
EP-080-SS	ortho-Xylene	0.2	mg/kg	<0.2	14.4	<0.2	<0.2	1.2	1.2	<0.2
EP-080S-SS	VOLATILE TPH/BTEX COMPOUND SURROGATES									
EP-080S-SS	1,2-Dichloroethane-D4	1	%	86	55	79	89	68	91	85
EP-080S-SS	Toluene-D8	1	%	94	54	96	96	64	95	73
EP-080S-SS	4-Bromofluorobenzene	1	%	89	77	77	70	75	87	69



METHOD	ANALYSIS DESCRIPTION	UNIT	LOR	SAMPLE IDENTIFICATION				CHECKS AND SPIKES	
				Laboratory I.D.		200	402		403
				Date Sampled		13/11/2002	13/11/2002		13/11/2002
				METHOD	SCS	TPHT3773	DCS		
				BLANK1					
EA-055	Moisture Content (dried @ 103°C)	%	0.1						
EP-071-SS	TOTAL PETROLEUM HYDROCARBONS								
EP-071-SS	C6 - C9 Fraction	mg/kg	2	<2	100%		96.2%		
EP-071-SS	C10 - C14 Fraction	mg/kg	50	<50	100%		107%		
EP-071-SS	C15 - C28 Fraction	mg/kg	100	<100	73.2%		82.1%		
EP-071-SS	C29 - C36 Fraction	mg/kg	100	<100					
EP-080-SS	BTEX								
EP-080-SS	Benzene	mg/kg	0.2	<0.2	98.8%		96.1%		
EP-080-SS	Toluene	mg/kg	0.2	<0.2	101%		99.8%		
EP-080-SS	Chlorobenzene	mg/kg	0.2	<0.2	101%		99.5%		
EP-080-SS	Ethylbenzene	mg/kg	0.2	<0.2	101%		98.8%		
EP-080-SS	meta- & para-Xylene	mg/kg	0.2	<0.2	103%		97.3%		
EP-080-SS	ortho-Xylene	mg/kg	0.2	<0.2	103%		98.8%		
EP-080S-SS	VOLATILE TPH/BTEX COMPOUND SURROGATES								
EP-080S-SS	1,2-Dichloroethane-D4	%	1	87	100		101		
EP-080S-SS	Toluene-D8	%	1	83	101		102		
EP-080S-SS	4-Bromofluorobenzene	%	1	83	103		104		

**CERTIFICATE OF ANALYSIS**

CONTACT: MS M MOYES
CLIENT: URS AUSTRALIA PTY LTD
ADDRESS: LEVEL 3, 116 MILLER STREET
NORTH SYDNEY NSW 2060

BATCH: EB50524
SUB BATCH: 2
LABORATORY: BRISBANE
DATE RECEIVED: 13/11/2002
DATE COMPLETED: 19/11/2002
SAMPLE TYPE: SOLID
No. of SAMPLES: 8

ORDER No.: 50244-004

PROJECT:

COMMENTS

Results apply to sample(s) as submitted. Samples analysed on an as received basis. Results reported on a dry weight basis. Particular samples required dilution prior to analysis due to matrix interferences. LOR values have been adjusted accordingly. This report supersedes any previous preliminary reports of the same batch number.

NOTES

This is the Final Report and supersedes any preliminary reports with this batch number. All pages of this report have been checked and approved for release.

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No. 825

Batch: EB50524

Sub Batch: 2

Date of Issue: 20/11/2002

Client: URS-AUSTRALIA PTY LTD

Client Reference:

CERTIFICATE OF ANALYSIS



METHOD	ANALYSIS DESCRIPTION	Laboratory I.D.		SAMPLE IDENTIFICATION							
		Date Sampled	LOR	1	2	3	4	5	6	7	8
	UNIT			11/11/2002 BH111_4.5	11/11/2002 BH111_7.5	11/11/2002 QC01	11/11/2002 BH113_3.0	11/11/2002 BH112_6.0	12/11/2002 BH114_7.5	12/11/2002 BH115_1.5	12/11/2002 BH116_6.0
EA-055	Moisture Content (dried @ 103°C)	%	0.1	20.7	32.8	19.0	16.0	20.7	10.7	12.8	26.5
EP-075B-SS	POLYNUCLEAR AROMATICS										
EP-075B-SS	Naphthalene	mg/kg	0.5	<0.5	21.0	<0.5	<0.5	6.4	21.0	<0.5	3.9
EP-075B-SS	2-Methylnaphthalene	mg/kg	0.5	<0.5	12.2	<0.5	<0.5	3.3	6.2	<0.5	0.9
EP-075B-SS	2-Chloronaphthalene	mg/kg	0.5	<0.5	<5.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
EP-075B-SS	Acenaphthylene	mg/kg	0.5	<0.5	<5.0	<0.5	<0.5	<0.5	2.2	<0.5	<0.5
EP-075B-SS	Acenaphthene	mg/kg	0.5	<0.5	<5.0	<0.5	<0.5	<0.5	1.2	<0.5	<0.5
EP-075B-SS	Fluorene	mg/kg	0.5	<0.5	<5.0	<0.5	<0.5	<0.5	1.0	<0.5	<0.5
EP-075B-SS	Phenanthrene	mg/kg	0.5	<0.5	18.0	<0.5	<0.5	0.6	7.1	2.0	<0.5
EP-075B-SS	Anthracene	mg/kg	0.5	<0.5	<5.0	<0.5	<0.5	<0.5	1.5	0.5	<0.5
EP-075B-SS	Fluoranthene	mg/kg	0.5	0.6	<5.0	<0.5	<0.5	<0.5	2.0	1.7	1.0
EP-075B-SS	Pyrene	mg/kg	0.5	0.7	<5.0	<0.5	<0.5	<0.5	3.6	1.6	1.1
EP-075B-SS	N-2-Fluorenylacetylamide	mg/kg	0.5	<0.5	<5.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
EP-075B-SS	Benz(a)anthracene	mg/kg	0.5	<0.5	<5.0	<0.5	<0.5	<0.5	1.0	0.7	<0.5
EP-075B-SS	Chrysene	mg/kg	0.5	<0.5	<5.0	<0.5	<0.5	<0.5	1.1	0.6	<0.5
EP-075B-SS	Benzo(b) & (k)fluoranthene	mg/kg	1	<1	<10	<1	<1	<1	<1	<1	<1
EP-075B-SS	7,12-Dimethylbenz(a)anthracene	mg/kg	0.5	<0.5	<5.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
EP-075B-SS	Benzo(a)pyrene	mg/kg	0.5	<0.5	<5.0	<0.5	<0.5	<0.5	0.8	0.5	<0.5
EP-075B-SS	3-Methylcholanthrene	mg/kg	0.5	<0.5	<5.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
EP-075B-SS	Indeno(1,2,3-cd)pyrene	mg/kg	0.5	<0.5	<5.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
EP-075B-SS	Dibenz(a,h)anthracene	mg/kg	0.5	<0.5	<5.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
EP-075B-SS	Benzo(g,h,i)perylene	mg/kg	0.5	<0.5	<5.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
EP-075T-SS	BASE/NEUTRAL EXTRACTABLE SURROGATES	mg/kg	0.5	<0.5	<5.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
EP-075T-SS	Nitrobenzene-D5	%	1	63	47	62	67	68	71	67	49
EP-075T-SS	1,2-Dichlorobenzene-D4	%	1	43	31	48	42	50	56	37	41
EP-075T-SS	2-Fluorobiphenyl	%	1	58	43	58	60	56	60	59	49
EP-075T-SS	Anthracene-d10	%	1	51	45	50	54	40	51	56	44
EP-075T-SS	p-Terphenyl-D14	%	1	51	44	50	55	37	53	55	44

Batch:

EB50524

Sub Batch:

2

Date of Issue:

20/11/2002

Client:

URS AUSTRALIA PTY LTD

Client Reference:

QUALITY CONTROL REPORT



METHOD	ANALYSIS DESCRIPTION	Laboratory I.D.		UNIT	LOR	SAMPLE IDENTIFICATION					CHECKS AND SPIKES	
		Date Sampled				200 13/11/2002	404 13/11/2002	405 13/11/2002	1 11/11/2002	2 11/11/2002		
		METHOD BLANK1	SVOC-S1280 SCS					SVOC-S1280 DCS	11/11/2002 BH111_4_5 CIK	11/11/2002 BH111_7_5 MSD		
EA-055	Moisture Content (dried @ 103°C)			%	0.1				20.7			
EP-075B-SS	POLYNUCLEAR AROMATICS											
EP-075B-SS	Naphthalene	<0.5	86.2%	mg/kg	0.5			85.2%	<0.5			
EP-075B-SS	2-Methylnaphthalene	<0.5	86.6%	mg/kg	0.5			87.2%	<0.5			
EP-075B-SS	2-Chloronaphthalene	<0.5	84.8%	mg/kg	0.5			83.2%	<0.5			
EP-075B-SS	Acenaphthylene	<0.5	86.6%	mg/kg	0.5			85.4%	<0.5			
EP-075B-SS	Acenaphthene	<0.5	83.0%	mg/kg	0.5			83.2%	<0.5			
EP-075B-SS	Fluorene	<0.5	79.6%	mg/kg	0.5			81.6%	<0.5			
EP-075B-SS	Phenanthrene	<0.5	84.2%	mg/kg	0.5			85.8%	0.6			
EP-075B-SS	Anthracene	<0.5	80.0%	mg/kg	0.5			81.6%	<0.5			
EP-075B-SS	Fluoranthene	<0.5	86.0%	mg/kg	0.5			86.6%	0.6			
EP-075B-SS	Pyrene	<0.5	84.8%	mg/kg	0.5			85.6%	0.6			
EP-075B-SS	N-2-Fluorenylacetamide	<0.5	84.8%	mg/kg	0.5			83.4%	<0.5			
EP-075B-SS	Benzo(a)anthracene	<0.5	78.4%	mg/kg	0.5			78.0%	<0.5			
EP-075B-SS	Chrysene	<0.5	84.8%	mg/kg	0.5			85.2%	<0.5			
EP-075B-SS	Benzo(b) & k fluoranthene	<1	79.4%	mg/kg	1			81.6%	<1			
EP-075B-SS	7,12-Dimethylbenz(a)anthracene	<0.5	71.2%	mg/kg	0.5			71.2%	<0.5			
EP-075B-SS	Benzo(a)pyrene	<0.5	76.4%	mg/kg	0.5			77.6%	<0.5			
EP-075B-SS	3-Methylcholanthrene	<0.5	76.2%	mg/kg	0.5			76.2%	<0.5			
EP-075B-SS	Indeno(1,2,3-cd)pyrene	<0.5	83.8%	mg/kg	0.5			84.0%	<0.5			
EP-075B-SS	Dibenz(a,h)anthracene	<0.5	86.0%	mg/kg	0.5			86.0%	<0.5			
EP-075B-SS	Dibenz(a,h)perylene	<0.5	84.4%	mg/kg	0.5			85.0%	<0.5			
EP-075T-SS	BASE/NEUTRAL EXTRACTABLE SURROGATES											
EP-075T-SS	Nitrobenzene-D5	88	85	%	1			84	57	74		
EP-075T-SS	1,2-Dichlorobenzene-D4	69	77	%	1			74	41	50		
EP-075T-SS	2-Fluorobiphenyl	81	86	%	1			85	49	53		
EP-075T-SS	Anthracene-d10	71	79	%	1			70	45	63		
EP-075T-SS	p-Terphenyl-D14	72	79	%	1			77	43	70		

ALS Environmental



ORGANICS QUALITY CONTROL REPORT

BATCH No. EB50524

DATE BATCH RECEIVED : 13/11/02

CLIENT : URS Australia Pty Ltd

DATE BATCH COMPLETED : 25/11/02

Where applicable, internal standards are added to sample extracts prior to instrumental analysis.

Absolute peak areas and retention times fall within the criteria specified in the individual methods.

Method Code	Test	Matrix	Method Reference		QC Lot Number	Date Samples Extracted	Date Samples Analysed
			Extraction	Analysis			
EP-071	TPH-Volatile	Soil	USEPA 5030 A	USEPA 8260A	VOC63773	18/11/02	18/11/02
	-Semivolatile	Soil	Tumbler	USEPA 8015A	TPHT3773	15/11/02	15/11/02
EP-075	Semivolatile Scan	Soil	Tumbler	USEPA 8270 B	SVOC61280	14/11/02	15/11/02
EP-080	BTEX	Soil	USEPA 5030 A	USEPA 8260A	VOC63773	18/11/02	18/11/02

ALS Environmental



ORGANICS QUALITY CONTROL - Sample Identification

Batch No.: EB50524

Client: URS Australia Pty Ltd

ALS Sample ID	Client Sample ID	Date Sampled
-1	BH111_4.5	11/11/02
-2	BH111_7.5	11/11/02

BATCH QUALITY CONTROL

ALS EP-071 : Total Petroleum Hydrocarbons by Fractions

QC Lot No. : VOCS3773

ANALYST: SHANE JIMMINK

MATRIX : Soil

Volatile Components

COMPOUND	Level Of	Blank	Spike	SPIKE RESULTS				Control Limits		
	Reporting	Conc	Conc	SCS	DCS	Av.	RPD	Recovery		RPD
	(LOR)			Conc	Conc	Rec.		(%)		
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	%	%	Low	High	%
C6-C9	2.0	<LOR	20	20.0	19.2	98	4	87	109	20

COMMENTS :

- 1) The control limits are based on ALS laboratory statistical data. (Method QWI-ORG/06)
- 2) *: Recovery or RPD falls outside of the recommended control limits.

BATCH QUALITY CONTROL

ALS EP-071 : Total Petroleum Hydrocarbons by Fractions

Matrix : Soil

Analyst : J. Boden

QC Lot : TPHT3773

Semivolatile Components

COMPOUND	Level Of	Blank	Spike	Spike Results				Control Limits		
	Reporting	Conc.	Conc.	SCS	DCS	Av.	RPD	Recovery		RPD
	(LOR)			Conc.	Conc.	Rec.		%		
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	%	%	Low	High	%
C10-C14	50	<LOR	300	300	322	104	7	70	135	20
C15-C28	100	<LOR	560	410	460	78	11	70	120	20
C29-C36	50	<LOR	N/A	N/A	N/A	N/A	N/A	60	120	20

COMMENTS:

- 1) The control limits are based on ALS laboratory statistical data (Method QWI-ORG/07).
- 2) * : Recovery or RPD falls outside the recommended control limit.

BATCH QUALITY CONTROL

ALS EP-075 : SEMIVOLATILE SCAN

QC LOT No. :

SVOCS1280

ANALYST:

T. Devantier

MATRIX:

Soil

COMPOUND	Blank Conc.	Spike Level	QC SPIKE RESULTS				Control Limits		
			SCS Conc	DCS Conc	Average Rec.	RPD	Recovery		RPD
	mg/kg	mg/kg	mg/kg	mg/kg	%	%	Low	High	%
EP-075A : PHENOLS									
Phenol	<LOR	1.25	0.84	0.90	74	5	51	104	35
2-Chlorophenol	<LOR	1.25	0.93	0.93	75	0	55	105	35
2-Methylphenol	<LOR	1.25	0.92	0.74	65	19	41	117	35
3,4-Methylphenol	<LOR	2.50	1.74	1.54	66	12	42	112	35
2-Nitrophenol	<LOR	1.25	0.93	0.93	74	0	40	110	35
2,4-Dimethylphenol	<LOR	1.25	0.74	0.57	52	26	41	114	35
2,4-Dichlorophenol	<LOR	1.25	0.85	0.58	58	39	44	114	35
2,6-Dichlorophenol	<LOR	1.25	0.90	0.59	60	-41	56	105	35
4-Chloro-3-methylphenol	<LOR	1.25	0.93	0.91	74	3	47	116	35
2,4,6-Trichlorophenol	<LOR	1.25	0.97	0.78	66	11	49	115	35
2,4,5-Trichlorophenol	<LOR	1.25	1.0	0.71	70	31	43	112	35
Pentachlorophenol	<LOR	1.25	0.79	0.55	58	20	31	121	35
EP-075B : POLYAROMATIC HYDROCARBONS									
Naphthalene	<LOR	1.25	1.08	1.07	86	1	59	107	35
2-Methylnaphthalene	<LOR	1.25	1.08	1.09	87	1	57	108	35
2-Chloronaphthalene	<LOR	1.25	1.05	1.04	84	2	58	108	35
Acenaphthalene	<LOR	1.25	1.08	1.07	86	1	57	110	35
Acenaphthene	<LOR	1.25	1.04	1.04	83	0	54	107	35
Fluorene	<LOR	1.25	1.00	1.02	81	2	60	107	35
Phenanthrene	<LOR	1.25	1.05	1.07	85	2	55	116	35
Anthracene	<LOR	1.25	1.00	1.02	81	2	57	109	35
Fluoranthrene	<LOR	1.25	1.08	1.08	86	1	61	115	35
Pyrene	<LOR	1.25	1.06	1.07	85	1	61	114	35
N-2-Fluorenylacetimide	<LOR	1.25	0.81	0.79	64	2	34	125	35
Benz(a)anthracene	<LOR	1.25	0.98	0.98	79	0	53	118	35
Chrysene	<LOR	1.25	1.05	1.07	85	0	52	122	35
Benzo(b) & (k) fluoranthene	<LOR	2.50	1.99	2.04	81	3	42	127	35
7,12-Dimethyl benz(a)anthracene	<LOR	1.25	0.89	0.89	71	0	36	114	35
Benzo(a)pyrene	<LOR	1.25	0.96	0.97	77	2	51	121	35
3-Methylcholanthrene	<LOR	1.25	0.95	0.95	76	0	43	120	35
Indeno(1,2,3-cd)pyrene	<LOR	1.25	1.05	1.06	84	1	50	123	35
Dibenz(a,h)anthracene	<LOR	1.25	1.08	1.08	86	0	46	127	35
Benzo(g,h,i)perylene	<LOR	1.25	1.06	1.06	85	1	43	126	35

COMMENTS :

- 1) The control limits are based on ALS laboratory statistical data (Method QWI-ORG/07).
- 2) *: Recovery or RPD falls outside the recommended limits.

BATCH QUALITY CONTROL

ALS EP-080 : BTEX ANALYSIS

QC Lot No. : VOCS3773
MATRIX : Soil

ANALYST: SHANE JIMMINK

COMPOUND	Blank Results	Spike Conc	QC SPIKE RESULTS				Control Limits		
			SCS Conc	DCS Conc	Av. Rec.	RPD	Recovery		RPD
	mg/kg	mg/kg	mg/kg	mg/kg	%	%	Low	High	%
Benzene	<LOR	1.0	1.0	1.0	97	3	89	109	20
Toluene	<LOR	1.0	1.0	1.0	101	1	89	109	20
Chlorobenzene	<LOR	1.0	1.0	1.0	100	2	90	109	20
Ethylbenzene	<LOR	1.0	1.0	1.0	100	2	89	110	20
m- & p-Xylene	<LOR	1.0	1.0	1.0	100	5	90	109	20
o-Xylene	<LOR	1.0	1.0	1.0	101	5	89	110	20

COMMENTS :

- 1) The control limits are based on ALS laboratory statistical data. (Method QWI-ORG/07)
- 2) * : Recovery or RPD falls outside of the recommended control limits.

BATCH QUALITY CONTROL - DUPLICATE

ALS EP-075 : Semivolatile Organic Compounds

QC LOT No. : SVOCs1280
 MATRIX : Soils
 ANALYST : T. Devantier

COMPOUND	LOR	QC DUPLICATE RESULTS			
		EB50524	EB50524	RPD	Cont. Limit
		1	10		
	mg/kg	mg/kg	mg/kg		%
EP-075B : POLYNUCLEAR AROMATIC HYDROCARBONS					
Naphthalene	0.25	<0.25	<0.25	n/a	
2-Methylnaphthalene	0.25	<0.25	<0.25	n/a	
2-Chloronaphthalene	0.25	<0.25	<0.25	n/a	
Acenaphthylene	0.25	<0.25	<0.25	n/a	
Acenaphthene	0.25	<0.25	<0.25	n/a	
Fluorene	0.25	<0.25	<0.25	n/a	
Phenanthrene	0.25	0.33	0.485	38	No limit
Anthracene	0.25	<0.25	<0.25	n/a	
Fluoranthene	0.25	0.515	0.465	10.2	No limit
Pyrene	0.25	0.545	0.485	11.7	No limit
N-2-Fluorenylacetamide	0.25	<0.25	<0.25	n/a	
Benz(a)anthracene	0.25	<0.25	<0.25	n/a	
Chrysene	0.25	0.255	<0.25	1.98	No limit
Benzo(b)&(k)fluoranthene	0.5	<0.5	<0.5	n/a	
7,12-Dimethylbenz(a)anthracene	0.25	<0.25	<0.25	n/a	
Benzo(a)pyrene	0.25	0.255	<0.25	1.98	No limit
3-Methylchloanthrene	0.25	<0.25	<0.25	n/a	
Indeno(1,2,3-cd)pyrene	0.25	<0.25	<0.25	n/a	
Dibenz(a,h)anthracene	0.25	<0.25	<0.25	n/a	
Benzo(g,h,i)perylene	0.25	<0.25	<0.25	n/a	
EP-075T : BASE/NEUTRAL EXTRACTABLE SURROGATES					
Nitrobenzene-d5	1%	62.6%	56.5%	10.2	0 - 20
1,2-Dichlorobenzene-d4	1%	43%	41.2%	4.28	0 - 20
2-Fluorobiphenyl	1%	57.6%	49.1%	15.9	0 - 20
Anthracene-d10	1%	51.4%	44.5%	14.4	0 - 20
4-Terphenyl-d14	1%	50.9%	43%	16.8	0 - 20

Note: The permitted range for RPD (relative percent deviation) is specified in ALS Method QWI-EN/38 and is 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%.

Results > 20 times LOR, 0% - 20%.

BATCH QUALITY CONTROL - MATRIX SPIKE/DUPLICATE							
ALS EP-075 : Semivolatile Organic Compounds							
QC LOT No. :	SVOCS1280		ANALYST :		T. Devantier		
MATRIX:	Soils		Sample ID:		EB50524-2		
COMPOUND	Sample Results	Spike Level	SPIKE QC RESULTS				Cont. Limit
			MS Rec.	MSD Rec.	Average Rec.	RPD	RPD
	mg/kg	mg/kg	%	%	%	%	%
EP-075B : POLYAROMATIC HYDROCARBONS							
Acenaphthene	<2.5	0.25	ND	ND	n/a	n/a	0 - 35
Pyrene	<2.5	0.25	ND	ND	n/a	n/a	0 - 35
EP-075T : BASE/NEUTRAL EXTRACTABLE SURROGATES							
Nitrobenzene-d5	47%	0.5	76	73.6	74.8	3.21	0 - 35
1,2-Dichlorobenzene-d4	31%	0.5	51.1	50.4	50.8	1.38	0 - 35
2-Fluorobiphenyl	43%	0.5	55.1	53.3	54.2	3.32	0 - 35
Anthracene-d10	45%	0.5	65	62.6	64.3	5.29	0 - 35
4-Terphenyl-d14	44%	0.5	71.5	70.4	71	1.55	0 - 35

COMMENTS:

- 1) The RPD control limits are fixed.
- 2) *: RPD falls outside the recommended control limit.

BATCH QUALITY CONTROL - DUPLICATE

ALS EP-071 : Total Petroleum Hydrocarbons by Fractions

Svol QC Lot : TPHT3773
Vol QC Lot : VOCS3773

Analyst : J Boden
Matrix : Soil

COMPOUND	QC DUPLICATE RESULTS		
	EB 50400	EB 50400	RPD
	-41	-41 D	
	mg/kg	mg/kg	%
C 6-C 9	<LOR	<LOR	-
C10-C14	<LOR	<LOR	-
C15-C28	<LOR	<LOR	-
C29-C36	<LOR	<LOR	-

BATCH QUALITY CONTROL - DUPLICATE

ALS EP-080 : BTEX ANALYSIS

Vol QC Lot : VOCS3773
Matrix : Soil

Analyst : SHANE JIMMINK

QC DUPLICATE RESULTS			
COMPOUND	EB 50400	EB 50400	RPD
	-41	-41 D	
	mg/kg	mg/kg	%
Benzene	<LOR	<LOR	-
Toluene	<LOR	<LOR	-
Chlorobenzene	<LOR	<LOR	-
Ethylbenzene	<LOR	<LOR	-
m- & p-Xylene	<LOR	<LOR	-
o-Xylene	<LOR	<LOR	-

BATCH QUALITY CONTROL - MATRIX SPIKE/ DUPLICATE

ALS EP-071 : Total Petroleum Hydrocarbons by Fractions

Vol QC Lot : VOCS3773
Svol QC Lot : TPHT3773

Batch No: EB 50400
Spiked Sample : -42
Matrix : Soil

COMPOUND	Sample Results	Spike Level	Spike Results				Control Limits
			MS	MSD	Av.	RPD	
	mg/kg	mg/kg	Conc	Conc	Rec.		RPD
C6-C9	<LOR	10	10.9	12.6	117	15	20
C10-C14	27	300	312	314	104	1	20
C15-C28	135	560	658	668	118	1.2	20
C29-C36	68	N/A	—	—	—	—	—

COMMENTS :

- 1) LOR: level of reporting
- 2) The control limits are based on ALS laboratory statistical data. (Method QWI-ORG/05)
- 3) * : Recovery or RPD falls outside of the recommended control limits.



CERTIFICATE OF ANALYSIS

CONTACT: MS M MOYES
CLIENT: URS AUSTRALIA PTY LTD
ADDRESS: LEVEL 3, 116 MILLER STREET
NORTH SYDNEY NSW 2060

BATCH: EB50551
SUB BATCH: 0
LABORATORY: BRISBANE
DATE RECEIVED: 14/11/2002
DATE COMPLETED: 19/11/2002
SAMPLE TYPE: LIQUID
No. of SAMPLES: 2

ORDER No.: 50244-004

PROJECT:

COMMENTS

Results apply to sample(s) as submitted. Mercury LOR raised x 10 due to matrix interference. This report supersedes any previous preliminary reports of the same batch number.

NOTES

This is the Final Report and supersedes any preliminary reports with this batch number. All pages of this report have been checked and approved for release.

ISSUING LABORATORY: BRISBANE

Address
32 Shand Street
Stafford QLD 4053
Australia

Phone: 61-7-3243 7222
Fax: 61-7-3243 7218
Email: geoff.lecornu@alsenviro.com

Signatory

[Signature]

LABORATORIES

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Batch: EB50551

Sub Batch: 0

Date of Issue: 20/11/2002

Client: URS AUSTRALIA PTY LTD

Client Reference:

CERTIFICATE OF ANALYSIS



METHOD	ANALYSIS DESCRIPTION	Laboratory I.D.		1		2		SAMPLE IDENTIFICATION			
		Date Sampled		12/11/2002		12/11/2002					
		UNIT	LOR	BH112		QC02					
EG-020F	Arsenic - Filtered	ug/L	1	4		3					
EG-020F	Cadmium - Filtered	ug/L	1	<1		<1					
EG-020F	Chromium - Filtered	ug/L	1	11		10					
EG-020F	Copper - Filtered	ug/L	1	2		2					
EG-020F	Nickel - Filtered	ug/L	1	4		4					
EG-020F	Lead - Filtered	ug/L	1	<1		<1					
EG-020F	Zinc - Filtered	ug/L	1	25		25					
EG-035F	Mercury - Filtered	ug/L	0.1	<1.0		2.0					

EB50551

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20/11/2002

URS AUSTRALIA PTY LTD

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QUALITY CONTROL REPORT



METHOD	ANALYSIS DESCRIPTION	UNIT	LOR	Laboratory I.D.				SAMPLE IDENTIFICATION						CHECKS AND SPIKES
				Date Sampled	200	201	12/11/2002	12/11/2002	12/11/2002	12/11/2002	12/11/2002	12/11/2002		
					14/11/2002	14/11/2002							14/11/2002	
				METHOD	BLANK1	LCS	Inorg1	MS	MSD	CHK				
EG-020F	Arsenic - Filtered	ug/L	1	<1	<1	97.0%	104%	99.0%	4					
EG-020F	Cadmium - Filtered	ug/L	1	<1	<1	103%	111%	105%	<1					
EG-020F	Chromium - Filtered	ug/L	1	<1	<1	102%	112%	106%	11					
EG-020F	Copper - Filtered	ug/L	1	<1	<1	101%	111%	101%	2					
EG-020F	Nickel - Filtered	ug/L	1	<1	<1	102%	104%	107%	4					
EG-020F	Lead - Filtered	ug/L	1	<1	<1	100%	106%	96.0%	<1					
EG-020F	Zinc - Filtered	ug/L	1	<1	<1	108%	101%	94.0%	25					
EG-035F	Mercury - Filtered	ug/L	0.1	<0.1	<0.1	101%	82.0%	80.0%	<1.0					

ALS Environmental



CERTIFICATE OF ANALYSIS

CONTACT: MS M MOYES
CLIENT: URS AUSTRALIA PTY LTD
ADDRESS: LEVEL 3, 116 MILLER STREET
NORTH SYDNEY NSW 2060

BATCH: EB50551
SUB BATCH: 1
LABORATORY: BRISBANE
DATE RECEIVED: 14/11/2002
DATE COMPLETED: 19/11/2002
SAMPLE TYPE: LIQUID
No. of SAMPLES: 2

ORDER No.: 50244-004

PROJECT:

COMMENTS

Results apply to sample(s) as submitted. Insufficient sample was
provided for extended QC analysis.

NOTES

This is the Final Report and supersedes any preliminary reports with this batch number.
All pages of this report have been checked and approved for release.

ISSUING LABORATORY: BRISBANE

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Stafford QLD 4053
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Signatory

LABORATORIES

AUSTRALASIA

Brisbane
Melbourne
Sydney
Newcastle
Auckland

Hong Kong
Singapore
Kuala Lumpur
Bogor
Mumbai

AMERICAS

Vancouver
Santiago
Antofagasta
Lima

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tests reported herein have been performed in
accordance with its terms of accreditation. This
document shall not be reproduced except in full.



No. 825

Batch:

EB50551

Sub Batch:

1

Date of Issue:

20/11/2002

Client:

URS AUSTRALIA PTY LTD

Client Reference:

CERTIFICATE OF ANALYSIS



METHOD	ANALYSIS DESCRIPTION	Laboratory I.D.		SAMPLE IDENTIFICATION			
		Date Sampled	UNIT	1 12/11/2002 BH12	2 12/11/2002 QC02		
EP-071-WS	TOTAL PETROLEUM HYDROCARBONS						
EP-071-WS	C6 - C9 Fraction	20	ug/L	358	383		
EP-071-WS	C10 - C14 Fraction	50	ug/L	2180	2170		
EP-071-WS	C15 - C28 Fraction	100	ug/L	14.0mg/L	19.4mg/L		
EP-071-WS	C29 - C36 Fraction	50	ug/L	1310	2700		
EP-080-WS	BTEX						
EP-080-WS	Benzene	1	ug/L	40	40		
EP-080-WS	Toluene	2	ug/L	3	3		
EP-080-WS	Chlorobenzene	2	ug/L	<2	<2		
EP-080-WS	Ethylbenzene	2	ug/L	9	10		
EP-080-WS	mela- & para-Xylene	2	ug/L	5	6		
EP-080-WS	ortho-Xylene	2	ug/L	2	2		
EP-080S-WS	VOLATILE TPH/BTEX COMPOUND SURROGATES						
EP-080S-WS	1,2-Dichloroethane-D4	1	%	91	85		
EP-080S-WS	Toluene-D8	1	%	102	106		
EP-080S-WS	4-Bromofluorobenzene	1	%	102	106		

Batch: EB50551
 Sub Batch: 1
 Date of Issue: 20/11/2002
 Client: URS AUSTRALIA PTY LTD
 Client Reference:

QUALITY CONTROL REPORT



METHOD		ANALYSIS DESCRIPTION	UNIT	LOR	Laboratory I.D. Date Sampled		SAMPLE IDENTIFICATION							
					200 14/11/2002	METHOD BLANK1	402 14/11/2002 TPHW1548	SCS	403 14/11/2002 TPHW1548	DCS				
CHECKS AND SPIKES														
TOTAL PETROLEUM HYDROCARBONS														
EP-071-WS		C6 - C9 Fraction	ug/L	20	<20		92.5%		99.3%					
EP-071-WS		C10 - C14 Fraction	ug/L	50	<50		72.7%		73.2%					
EP-071-WS		C15 - C28 Fraction	ug/L	100	<100		102%		88.9%					
EP-071-WS		C29 - C36 Fraction	ug/L	50	<50									
EP-080-WS		BTEX												
EP-080-WS		Benzene	ug/L	1	<1		102%		101%					
EP-080-WS		Toluene	ug/L	2	<2		98.6%		101%					
EP-080-WS		Chlorobenzene	ug/L	2	<2		100%		102%					
EP-080-WS		Ethylbenzene	ug/L	2	<2		98.4%		103%					
EP-080-WS		meta- & para-Xylene	ug/L	2	<2		97.5%		102%					
EP-080-WS		ortho-Xylene	ug/L	2	<2		97.4%		99.9%					
EP-080S-WS		VOLATILE TPH/BTEX COMPOUND SURROGATES												
EP-080S-WS		1,2-Dichloroethane-D4	%	1	102		112		104					
EP-080S-WS		Toluene-D8	%	1	99		99		102					
EP-080S-WS		4-Bromofluorobenzene	%	1	87		101		101					

**CERTIFICATE OF ANALYSIS**

CONTACT: MS M MOYES
CLIENT: URS AUSTRALIA PTY LTD
ADDRESS: LEVEL 3, 116 MILLER STREET
NORTH SYDNEY NSW 2060

BATCH: EB50551
SUB BATCH: 2
LABORATORY: BRISBANE
DATE RECEIVED: 14/11/2002
DATE COMPLETED: 19/11/2002
SAMPLE TYPE: LIQUID
No. of SAMPLES: 2

ORDER No.: 50244-004

PROJECT:

COMMENTS

Results apply to sample(s) as submitted. Insufficient sample was provided for extended QC analysis. This report supersedes any previous preliminary reports of the same batch number.

NOTES

This is the Final Report and supersedes any preliminary reports with this batch number. All pages of this report have been checked and approved for release.

ISSUING LABORATORY: BRISBANE

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Signatory

LABORATORIES**AUSTRALASIA**

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AMERICAS

Vancouver
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Lima

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Batch: EB50551
 Sub Batch: 2
 Date of Issue: 20/11/2002
 Client: URS AUSTRALIA PTY LTD
 Client Reference:

CERTIFICATE OF ANALYSIS



METHOD	ANALYSIS DESCRIPTION	Laboratory I.D.		SAMPLE IDENTIFICATION	
		Date Sampled	LOR	UNIT	
EP-075B-WS	POLYNUCLEAR AROMATICS	12/11/2002	BH112	12/11/2002	QC02
EP-075B-WS	Naphthalene	2	2	ug/L	13
EP-075B-WS	2-Methylnaphthalene	2	2	ug/L	3
EP-075B-WS	2-Chloronaphthalene	2	2	ug/L	<2
EP-075B-WS	Acenaphthylene	2	2	ug/L	<2
EP-075B-WS	Acenaphthene	2	2	ug/L	<2
EP-075B-WS	Fluorene	2	2	ug/L	<2
EP-075B-WS	Phenanthrene	2	2	ug/L	<2
EP-075B-WS	Anthracene	2	2	ug/L	<2
EP-075B-WS	Fluoranthene	2	2	ug/L	<2
EP-075B-WS	Pyrene	2	2	ug/L	<2
EP-075B-WS	N-2-Fluorenylacetamide	2	2	ug/L	<2
EP-075B-WS	Benz(a)anthracene	2	2	ug/L	<2
EP-075B-WS	Chrysene	2	2	ug/L	<2
EP-075B-WS	Benzo(b) & (k)fluoranthene	2	2	ug/L	<2
EP-075B-WS	7,12-Dimethylbenz(a)anthracene	4	4	ug/L	<4
EP-075B-WS	Benzo(a)pyrene	2	2	ug/L	<2
EP-075B-WS	3-Methylcholanthrene	2	2	ug/L	<2
EP-075B-WS	Indeno(1,2,3-cd)pyrene	2	2	ug/L	<2
EP-075B-WS	Dibenz(a,h)anthracene	2	2	ug/L	<2
EP-075B-WS	Benzo(g,h,i)perylene	2	2	ug/L	<2
EP-075T-WS	BASE/NEUTRAL EXTRACTABLE SURROGATES				
EP-075T-WS	Nitrobenzene-D5	1	88	%	77
EP-075T-WS	1,2-Dichlorobenzene-D4	1	48	%	46
EP-075T-WS	2-Fluorobiphenyl	1	60	%	59
EP-075T-WS	Anthracene-d10	1	56	%	55
EP-075T-WS	p-Terphenyl-D14	1	55	%	48

Batch: EB50551

Sub Batch: 2

Date of Issue: 20/11/2002

Client: URS AUSTRALIA PTY LTD

Client Reference:

QUALITY CONTROL REPORT



METHOD		ANALYSIS DESCRIPTION	UNIT	LOR	Laboratory I.D. Date Sampled		200 14/11/2002	404 14/11/2002	405 14/11/2002	SAMPLE IDENTIFICATION				CHECKS AND SPIKES
							METHOD BLANK1	SVOCW881 SCS	SVOCW881 DCS					
EP-075B-WS	POLYNUCLEAR AROMATICS													
EP-075B-WS		Naphthalene	ug/L	2			<2	59.8%	64.0%					
EP-075B-WS		2-Methylnaphthalene	ug/L	2			<2	62.8%	70.0%					
EP-075B-WS		2-Chloronaphthalene	ug/L	2			<2	65.4%	75.0%					
EP-075B-WS		Acenaphthylene	ug/L	2			<2	71.4%	81.4%					
EP-075B-WS		Acenaphthene	ug/L	2			<2	72.4%	84.0%					
EP-075B-WS		Fluorene	ug/L	2			<2	75.4%	85.4%					
EP-075B-WS		Phenanthrene	ug/L	2			<2	77.4%	89.8%					
EP-075B-WS		Anthracene	ug/L	2			<2	72.4%	86.6%					
EP-075B-WS		Fluoranthene	ug/L	2			<2	77.2%	86.6%					
EP-075B-WS		Pyrene	ug/L	2			<2	80.0%	87.6%					
EP-075B-WS		N-2-Fluorenylacetylacetamide	ug/L	2			<2	75.2%	82.4%					
EP-075B-WS		Benzo(a)anthracene	ug/L	2			<2	78.6%	87.6%					
EP-075B-WS		Chrysene	ug/L	2			<2	77.8%	86.4%					
EP-075B-WS		Benzo(b) & (k)fluoranthene	ug/L	4			<4	76.7%	84.5%					
EP-075B-WS		7,12-Dimethylbenzo(a)anthracene	ug/L	2			<2	54.2%	66.2%					
EP-075B-WS		Benzo(a)pyrene	ug/L	2			<2	77.2%	84.4%					
EP-075B-WS		3-Methylcholanthrene	ug/L	2			<2	77.8%	84.6%					
EP-075B-WS		Indeno(1,2,3-cd)pyrene	ug/L	2			<2	79.8%	87.8%					
EP-075B-WS		Dibenz(a,h)anthracene	ug/L	2			<2	79.2%	88.2%					
EP-075B-WS		Benzo(g,h,i)perylene	ug/L	2			<2	80.0%	89.0%					
EP-075T-WS	BASE/NEUTRAL EXTRACTABLE SURROGATES													
EP-075T-WS		Nitrobenzene-D5	%	1			72	71	77					
EP-075T-WS		1,2-Dichlorobenzene-D4	%	1			19	18	17					
EP-075T-WS		2-Fluorobiphenyl	%	1			35	31	32					
EP-075T-WS		Anthracene-d10	%	1			85	82	97					
EP-075T-WS		p-terphenyl-D14	%	1			97	91	102					

ALS Environmental



ORGANICS QUALITY CONTROL REPORT

BATCH No. : EB50551

DATE BATCH RECEIVED : 14/11/02

CLIENT : URS Australia P/L

DATE BATCH COMPLETED : 22/11/02

Where applicable, internal standards are added to sample extracts prior to instrumental analysis.
Absolute peak areas and retention times fall within the criteria specified in the individual methods.
Continuing Calibration (CC) Standards are run at the frequency of 1 in every 20 samples.

Method Code	Test	Matrix	Method Reference		QC Lot Number	Date Samples Extracted	Date Samples Analysed
			Extraction	Analysis			
EP-071	TPH-Volatile	Water	USEPA 5030 A	USEPA 8260A	VOCW1548	NA	18/11/02
	-Semivolatile	Water	USEPA 3510B	USEPA 8015A	TPHW1548	15/11/02	18/11/02
EP-075	Semivolatile Scan	Water	USEPA 3510B	USEPA 8270B	SVOCW881	15/11/02	15/11/02
EP-080	BTEX	Water	USEPA 5030 A	USEPA 8260A	VOCW1548	NA	18/11/02

BATCH QUALITY CONTROL

ALS EP-071 : Total Petroleum Hydrocarbons by Fractions

QC Lot No. : VOCW1548

ANALYST: C. Emrich

MATRIX: Water

Volatile Components

COMPOUND	Level Of	Blank	Spike	SPIKE RESULTS				Control Limits		
	Reporting	Conc	Conc	SCS	DCS	Av.	RPD	Recovery		RPD
	(LOR)			Conc	Conc	Rec.		(%)		
	ug/L	ug/L	ug/L	ug/L	ug/L	%	%	Low	High	%
C6-C9	20.0	<LOR	200	185	199	96	7	91	114	20

COMMENTS :

- 1) The control limits are based on ALS laboratory statistical data. (Method QWI-ORG/06)
- 2)* : Recovery or RPD falls outside of the recommended control limits.

BATCH QUALITY CONTROL

ALS EP-071 : Total Petroleum Hydrocarbons by Fractions

Matrix : Water

Analyst : J. Boden

QC Lot : TPHW1548

Semivolatile Components

COMPOUND	Level Of Reporting (LOR)	Blank Conc.	Spike Conc.	Spike Results				Control Limits		
				SCS Conc.	DCS Conc.	Av. Rec.	RPD	Recovery %		RPD
	ug/L	ug/L	ug/L	ug/L	ug/L	%	%	Low	High	%
C10-C14	50	<LOR	590	429	432	73	1	50	120	20
C15-C28	100	<LOR	1130	1157	1005	96	14	70	120	20
C29-C36	50	<LOR	N/A	N/A	N/A	N/A	N/A	70	130	20

COMMENTS:

- 1) The control limits are based on ALS laboratory statistical data (Method QWI-ORG/07).
- 2) * : Recovery or RPD falls outside the recommended control limit.

BATCH QUALITY CONTROL

ALS EP-075 : SEMIVOLATILE SCAN

QC LOT No. :
MATRIX:

SVOCW881
Water

ANALYST: T. Devantier

COMPOUND	Blank	Spike	QC SPIKE RESULTS				Control Limits		
	Conc	Level	SCS	DCS	Average		Recovery		RPD
	ug/L	ug/L	Conc	Conc	Rec.	RPD	Low	High	%
EP-075A : PHENOLS									
Phenol	<LOR	5.00	1.69	1.89	36	11	3	85	35
2-Chlorophenol	<LOR	5.00	3.48	3.85	73	10	45	109	35
2-Methylphenol	<LOR	5.00	2.68	2.97	57	10	25	105	35
3- & 4-Methylphenol	<LOR	10.00	4.58	5.31	49	15	27	105	35
2-Nitrophenol	<LOR	5.00	3.63	4.01	76	10	52	118	35
2,4-Dimethylphenol	<LOR	5.00	2.37	3.14	55	28	13	113	35
2,4-Dichlorophenol	<LOR	5.00	3.27	3.64	69	11	55	117	35
2,6-Dichlorophenol	<LOR	5.00	3.28	3.73	70	-13	56	112	35
4-Chloro-3-methylphenol	<LOR	5.00	3.41	3.54	70	4	55	118	35
2,4,6-Trichlorophenol	<LOR	5.00	2.99	3.48	65	15	57	118	35
2,4,5-Trichlorophenol	<LOR	5.00	2.90	3.30	62	13	55	116	35
Pentachlorophenol	<LOR	5.00	2.47	2.67	51	8	37	153	35
EP-075B : POLYAROMATIC HYDROCARBONS									
Naphthalene	<LOR	5.00	2.99	3.20	62	7	41	101	35
2-Methylnaphthalene	<LOR	5.00	3.14	3.50	66	11	44	105	35
2-Chloronaphthalene	<LOR	5.00	3.27	3.75	70	14	47	111	35
Acenaphthalene	<LOR	5.00	3.57	4.07	76	13	54	116	35
Acenaphthene	<LOR	5.00	3.62	4.20	78	15	49	122	35
Fluorene	<LOR	5.00	3.77	4.27	80	12	60	123	35
Phenanthrene	<LOR	5.00	3.87	4.49	84	15	66	128	35
Anthracene	<LOR	5.00	3.62	4.33	80	18	63	122	35
Fluoranthrene	<LOR	5.00	3.86	4.33	82	11	66	128	35
Pyrene	<LOR	5.00	4.00	4.38	84	9	67	129	35
N-2-Fluorenylacetimide	<LOR	5.00	3.76	4.12	79	9	59	143	35
Benz(a)anthracene	<LOR	5.00	3.93	4.38	83	11	66	129	35
Chrysene	<LOR	5.00	3.89	4.32	82	10	59	138	35
Benzo(b) & (k) fluoranthene	<LOR	10.00	7.67	8.45	81	10	64	128	35
7,12-Dimethyl benz(a)anthracene	<LOR	5.00	2.71	3.31	60	20	0	139	35
Benzo(a)pyrene	<LOR	5.00	3.86	4.22	81	9	66	125	35
3-Methylchloanthrene	<LOR	5.00	3.89	4.23	81	8	54	119	35
Indeno(1,2,3-cd)pyrene	<LOR	5.00	3.99	4.39	84	10	59	150	35
Dibenz(a,h)anthracene	<LOR	5.00	3.96	4.41	84	11	59	151	35
Benzo(g,h,i)perylene	<LOR	5.00	4.00	4.45	85	11	60	152	35

COMMENTS :

- 1) The control limits are based on ALS laboratory statistical data (Method QWI-ORG/07).
- 2). *: Recovery or RPD falls outside the the recommended control limit.

BATCH QUALITY CONTROL

ALS EP-080 : BTEX ANALYSIS

QC Lot No. : VOCW1548

ANALYST: C. Emrich

MATRIX: Water

COMPOUND	Blank	Spike	QC SPIKE RESULTS				Control Limits		
	Results	Conc	SCS	DCS	Av.	RPD	Recovery		RPD
	ug/L	ug/L	ug/L	ug/L	%	%	Low	High	%
Benzene	<LOR	10	10.2	10.1	101	1	88	115	20
Toluene	<LOR	10	9.9	10.1	100	2	93	110	20
Chlorobenzene	<LOR	10	10.0	10.2	101	2	91	112	20
Ethylbenzene	<LOR	10	9.8	10.3	101	4	91	112	20
m- & p-Xylene	<LOR	10	9.8	10.2	100	5	92	111	20
o-Xylene	<LOR	10	9.7	10.0	99	3	91	111	20

COMMENTS :

- 1) The control limits are based on ALS laboratory statistical data. (Method QWI-ORG/07)
- 2) * : Recovery or RPD falls outside of the recommended control limits.



ALS Environmental

URS AUSTRALIA PTY LTD

Attention: MS M MOYES

YourOrder: 50244-004

SampleType: TCLP LEACHATE

Project:

Page-no: 1

ENV BRISBANE

Batch-no: 50787

Sub-batch: 0

No-samples: 1

Received: 22/11/02

Checked:

Method	Analysis description	Units	LOR	BB111_7.5
				11/11/02
ALS1	Initial pH		0.1	8.4
ALS2	After HCl pH		0.1	2.0
ALS3	Extraction Fluid Number		1	1
ALS4	pH After Extract		0.1	5.1
EG-005C	Lead - TCLP	mg/L	0.1	0.3

Results apply to sample(s) as submitted. The concentrations reported are those determined on the TCLP leachate. Extraction fluid #1 pH 4.22-4.93. Extraction fluid #2 pH 2.93-2.93.

AUSTRALIAN LABORATORY SERVICES P/L

ABN: 84 009 936 029

BRISBANE

Tel: 61-7-3243 7222

Fax: 61-7-3243 7218

SYDNEY

Tel: 61-2-8784 8555

Fax: 61-2-8784 8500

MELBOURNE

Tel: 61-3-9538 4444

Fax: 61-3-9538 4400

NEWCASTLE

Tel: 61-2-4968 9433

Fax: 61-2-4968 0349

AUCKLAND

Tel: 64-9-379 9437

Fax: 64-9-379 1449



ALS AUSTRALIA PTY LTD

Attention: MS M MOYES

Order: 50244-004

Sample Type: TCLP LEACHATE

Project:

Page-no: 1

ENV BRISBANE

Batch-no: 50787

Sub-batch: 1

No-samples: 1

Received: 22/11/02

Checked:

Method	Analysis description	Units	LOR	BS111 7.5
LS1	Initial pH		0.1	11/11/02
LS2	After ECI pH		0.1	8.4
LS3	Extraction Fluid Number		1	2.0
LS4	pH After Extract		0.1	1
P-075B-WS	POLYNUCLEAR AROMATICS			5.1
P-075B-WS	Benzo(a)pyrene	ug/L	2	<2
P-075S-WS	ACID EXTRACTABLE SURROGATES			
P-075S-WS	2-Fluorophenol	μ	1	44
P-075S-WS	Phenol-D6	μ	1	3
P-075S-WS	2-Chlorophenol-D4	μ	1	53
P-075S-WS	2,4,6-Tribromophenol	μ	1	65
P-075T-WS	BASE/NEUTRAL EXTRACTABLE SURRO			
P-075T-WS	Nitrobenzene-D5	μ	1	49
P-075T-WS	1,2-Dichlorobenzene-D4	μ	1	29
P-075T-WS	2-Fluorobiphenyl	μ	1	54
P-075T-WS	Anthracene-d10	μ	1	50
P-075T-WS	p-Terphenyl-D14	μ	1	54

Results apply to sample(s) as submitted. The concentrations reported are those determined on the TCLP leachate. Extraction fluid #1 pH 4.93-4.93. Extraction fluid #2 pH 2.93-2.93. This report supersedes any previous preliminary reports of the same batch number.

AUSTRALIAN LABORATORY SERVICES P/L

ABN: 84 009 936 029

BRISBANE

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MELBOURNE

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NEWCASTLE

Tel: 61-2-4968 9433

Fax: 61-2-4968 0349

AUCKLAND

Tel: 64-9-379 9437

Fax: 64-9-379 1449

ALS Environmental



CERTIFICATE OF ANALYSIS

CONTACT: MS M MOYES
CLIENT: URS AUSTRALIA PTY LTD
ADDRESS: LEVEL 3, 116 MILLER STREET
NORTH SYDNEY NSW 2060

BATCH: EB50787
SUB BATCH: 0
LABORATORY: BRISBANE
DATE RECEIVED: 22/11/2002
DATE COMPLETED: 28/11/2002
SAMPLE TYPE: TCLP LEACHATE
No. of SAMPLES: 1

ORDER No.: 50244-004

PROJECT:

COMMENTS

Results apply to sample(s) as submitted. The concentrations reported are those determined on the TCLP leachate. Extraction fluid #1 pH 4.88-4.98. Extraction fluid #2 pH 2.83-2.93.

NOTES

This is the Final Report and supersedes any preliminary reports with this batch number. All pages of this report have been checked and approved for release.

ISSUING LABORATORY: BRISBANE

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Stafford QLD 4053
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Signatory

LABORATORIES

AUSTRALASIA

Brisbane
Melbourne
Sydney
Newcastle
Auckland

Hong Kong
Singapore
Kuala Lumpur
Bogor
Mumbai

AMERICAS

Vancouver
Santiago
Antofagasta
Lima

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No. 825

Batch:

EB50787

Sub Batch:

0

Date of Issue:

28/11/2002

Client:

URS AUSTRALIA PTY LTD

Client Reference:

CERTIFICATE OF ANALYSIS



METHOD	ANALYSIS DESCRIPTION	Laboratory I.D.		SAMPLE IDENTIFICATION						
		Date Sampled	LOR	1	11/11/2002	BH111_7.5				
ALS1	Initial pH	0.1	0.1	8.4						
ALS2	After HCl pH	0.1	0.1	2.0						
ALS3	Extraction Fluid Number	1	1	1						
ALS4	pH After Extract	0.1	0.1	5.1						
EG-005C	Lead - TCLP	0.1	0.1	0.3						

Batch: EB50787
 Sub Batch: 0
 Date of Issue: 28/11/2002
 Client: URS AUSTRALIA PTY LTD
 Client Reference:

QUALITY CONTROL REPORT



METHOD	ANALYSIS DESCRIPTION	Laboratory I.D.				SAMPLE IDENTIFICATION									
		UNIT	LOR	200 22/11/2002 METHOD BLANK1	201 22/11/2002 Inorg1 LCS	202 22/11/2002 MS									
ALS1	Initial pH		0.1	---	---	---									
ALS2	After HCl pH		0.1	---	---	---									
ALS3	Extraction Fluid Number		1	1	---	---									
ALS4	pH After Extract		0.1	4.9	---	---									
EG-005C	Lead - TCLP	mg/L	0.1	<0.1	103%	90.0%									
CHECKS AND SPIKES															

ALS Environmental



CERTIFICATE OF ANALYSIS

CONTACT: MS M MOYES
CLIENT: URS AUSTRALIA PTY LTD
ADDRESS: LEVEL 3, 116 MILLER STREET
NORTH SYDNEY NSW 2060

BATCH: EB50787
SUB BATCH: 1
LABORATORY: BRISBANE
DATE RECEIVED: 22/11/2002
DATE COMPLETED: 28/11/2002
SAMPLE TYPE: TCLP LEACHATE
No. of SAMPLES: 1

ORDER No.: 50244-004

PROJECT:

COMMENTS

Results apply to sample(s) as submitted. The concentrations reported are those determined on the TCLP leachate. Extraction fluid #1 pH 4.88-4.98. Extraction fluid #2 pH 2.83-2.93. This report supersedes any previous preliminary reports of the same batch number.

NOTES

This is the Final Report and supersedes any preliminary reports with this batch number. All pages of this report have been checked and approved for release.

ISSUING LABORATORY: BRISBANE

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Signatory

C. Le Cornu

LABORATORIES

AUSTRALASIA

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Melbourne
Sydney
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Auckland

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Mumbai

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Santiago
Antofagasta
Lima

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No. 825



CERTIFICATE OF ANALYSIS

EB50787

Batch:

Sub Batch:

Date of Issue:

Client:

28/11/2002
URS AUSTRALIA PTY LTD

Client Reference:

SAMPLE IDENTIFICATION

METHOD	ANALYSIS DESCRIPTION	Laboratory I.D.		UNIT	LOR	Date Sampled		SAMPLE IDENTIFICATION				
		Initial pH	After HCl pH			11/11/2002	BH1117.5	1	2	3	4	5
ALS1	Initial pH				0.1	8.4						
ALS2	After HCl pH				0.1	2.0						
ALS3	Extraction Fluid Number				1	1						
ALS4	pH After Extract				0.1	5.1						
EP-075B-WS	POLYNUCLEAR AROMATICS											
EP-075B-WS	Benz(a)pyrene			ug/L	2	<2						
EP-075S-WS	ACID EXTRACTABLE SURROGATES											
EP-075S-WS	2-Fluorophenol			%	1	44						
EP-075S-WS	Phenol-D6			%	1	3						
EP-075S-WS	2-Chlorophenol-D4			%	1	53						
EP-075S-WS	2,4,6-Tribromophenol			%	1	65						
EP-075T-WS	BASE/NEUTRAL EXTRACTABLE SURROGATES											
EP-075T-WS	Nitrobenzene-D5			%	1	49						
EP-075T-WS	1,2-Dichlorobenzene-D4			%	1	29						
EP-075T-WS	2-Fluorobiphenyl			%	1	54						
EP-075T-WS	Anthracene-d10			%	1	50						
EP-075T-WS	p-Terphenyl-D14			%	1	54						



QUALITY CONTROL REPORT

Batch: EB50787

Sub Batch: 1

Date of Issue: 28/11/2002

Client: URS AUSTRALIA PTY LTD

Client Reference:

METHOD		ANALYSIS DESCRIPTION		UNIT	LOR	Laboratory I.D.				SAMPLE IDENTIFICATION				CHECKS AND SPIKES			
						Date Sampled		200	404	405							
								METHOD	SVOCW884	SVOCW884							
								BLANK1*	SCS	DCS							
ALS1		Initial pH				0.1											
ALS2		After HCl pH				0.1											
ALS3		Extraction Fluid Number				1											
ALS4		pH After Extract				0.1											
EP-075B-WS		POLYNUCLEAR AROMATICS															
EP-075B-WS		Benzo(a)pyrene				2		<2	83.8%	65.6%							
EP-075S-WS		ACID EXTRACTABLE SURROGATES															
EP-075S-WS		2-Fluorophenol	ug/L			1		34	45	48							
EP-075S-WS		Phenol-D6	%			1		26	38	33							
EP-075S-WS		2-Chlorophenol-D4	%			1		49	71	69							
EP-075S-WS		2,4,6-Tribromophenol	%			1		70	90	75							
EP-075T-WS		BASE/NEUTRAL EXTRACTABLE SURROGATES															
EP-075T-WS		Nitrobenzene-D5	%			1		51	83	71							
EP-075T-WS		1,2-Dichlorobenzene-D4	%			1		17	33	27							
EP-075T-WS		2-Fluorobiphenyl	%			1		29	50	39							
EP-075T-WS		Anthracene-d10	%			1		50	50	50							
EP-075T-WS		p-Terphenyl-D14	%			1		68	79	66							

ALS Environmental



ORGANICS QUALITY CONTROL REPORT

BATCH No. : EB50787

DATE BATCH RECEIVED : 22/11/02

CLIENT : URS Australia Pty Ltd

DATE BATCH COMPLETED : 29/11/02

Where applicable, internal standards are added to sample extracts prior to instrumental analysis.

Absolute peak areas and retention times fall within the criteria specified in the individual methods.

Continuing Calibration (CC) Standards are run at the frequency of 1 in every 20 samples.

Method Code	Test	Matrix	Method Reference		QC Lot Number	Date Samples Extracted	Date Samples Analysed
			Extraction	Analysis			
EP-075	Semivolatile Scan	TCLP	USEPA 3510B	USEPA 8270B	SVOCW884	26/11/02	26/11/02

BATCH QUALITY CONTROL

ALS EP-075 : SEMIVOLATILE SCAN

QC LOT No. :

SVOCW884

ANALYST:

C. Emrich

MATRIX:

Water

COMPOUND	Blank Conc	Spike Level	QC SPIKE RESULTS				Control Limits		
	ug/L	ug/L	SCS Conc	DCS Conc	Average Rec.	RPD	Recovery		RPD
			ug/L	ug/L	%	%	Low	High	%
EP-075A : PHENOLS									
Phenol	<LOR	5.00	2.33	2.03	44	13	3	85	35
2-Chlorophenol	<LOR	5.00	4.02	3.54	76	13	45	109	35
2-Methylphenol	<LOR	5.00	3.87	3.20	71	19	25	105	35
3-& 4-Methylphenol	<LOR	10.00	7.36	5.56	66	23	27	105	35
2-Nitrophenol	<LOR	5.00	4.57	3.85	84	17	52	118	35
2,4-Dimethylphenol	<LOR	5.00	4.14	3.71	79	11	13	113	35
2,4-Dichlorophenol	<LOR	5.00	4.59	3.67	83	22	55	117	35
2,6-Dichlorophenol	<LOR	5.00	4.33	3.81	79	18	56	112	35
4-Chloro-3-methylphenol	<LOR	5.00	4.75	3.83	86	21	55	118	35
2,4,6-Trichlorophenol	<LOR	5.00	4.67	3.83	85	20	57	118	35
2,4,5-Trichlorophenol	<LOR	5.00	5.26	4.34	96	19	55	116	35
Pentachlorophenol	<LOR	5.00	5.93	5.73	117	3	37	153	35
EP-075B : POLYAROMATIC HYDROCARBONS									
Naphthalene	<LOR	5.00	3.46	2.95	64	16	41	101	35
2-Methylnaphthalene	<LOR	5.00	4.19	3.13	73	29	44	105	35
2-Chloronaphthalene	<LOR	5.00	3.75	3.13	69	18	47	111	35
Acenaphthalene	<LOR	5.00	4.22	3.47	77	19	54	116	35
Acenaphthene	<LOR	5.00	3.92	3.22	71	20	49	122	35
Fluorene	<LOR	5.00	4.19	3.39	76	21	60	123	35
Phenanthrene	<LOR	5.00	4.19	3.35	75	22	66	128	35
Anthracene	<LOR	5.00	4.19	3.35	75	22	63	122	35
Fluoranthrene	<LOR	5.00	4.17	3.38	75	21	66	128	35
Pyrene	<LOR	5.00	4.20	3.38	76	22	67	129	35
N-2-Fluorenylacetimide	<LOR	5.00	4.43	3.51	79	23	59	143	35
Benz(a)anthracene	<LOR	5.00	4.18	3.38	76	21	66	129	35
Chrysene	<LOR	5.00	4.25	3.40	76	22	59	138	35
Benzo(b) & (k) fluoranthene	<LOR	10.00	8.39	6.60	75	24	64	128	35
7,12-Dimethyl benz(a)anthracene	<LOR	5.00	3.93	3.02	70	26	0	139	35
Benzo(a)pyrene	<LOR	5.00	4.19	3.28	75	24	66	125	35
3-Methylchloanthrene	<LOR	5.00	4.10	3.15	72	26	54	119	35
Indeno(1,2,3-cd)pyrene	<LOR	5.00	4.18	3.31	75	23	59	150	35
Dibenz(a,h)anthracene	<LOR	5.00	4.17	3.30	75	24	59	151	35
Benzo(g,h,i)perylene	<LOR	5.00	4.19	3.31	75	24	60	152	35

COMMENTS :

- 1) The control limits are based on ALS laboratory statistical data (Method QWI-ORG/07).
- 2). * : Recovery or RPD falls outside the the recommended control limit.

Appendix B

Chain of Custodies

THIS COLUMN FOR LAB USE ONLY

Job Code:

Due Date:

Custody seal intact? ☐ YES ☐ NO

Sample cold? ☐ YES ☐ NO

FROM: URS (AUSTRALIA)
ACN 000 691 690

DATE: 12-11-02 TO: AUS

Ph: 89255500 Fax: 89255555

Project No: 50244-004

Project Manager: M. MOYES

Agreement No:

Released for URS by: X. Sepley

Date: 12/11/02 Time: 2.15

Received for Laboratory by: X. Sepley

Date: 12/11/02 Time: 2.15

CHAIN OF CUSTODY FORM

Container Size, Type, Preservative, and Analysis

Container Identification

Size Type Preserv

Analyses

Metals (Cd, Pb, Zn, Cu, Ni, Cr, Hg)

TPH

BTEX

HPH

Lab Identification	Date	Time	Matrix	Sample Identification	Comments	Total no	Tick required analyses
11-11-02			Soil	BH111 - 1.5			H O L D
				BH111 - 3.0		4	✓ ✓ ✓ ✓ ✓
				BH111 - 4.5	①		✓ ✓ ✓ ✓ ✓
				BH111 - 6.0			✓ ✓ ✓ ✓ ✓
				BH111 - 7.5	②	4	✓ ✓ ✓ ✓ ✓
				QC #1	③	4	✓ ✓ ✓ ✓ ✓
				BH113 - 1.5			✓ ✓ ✓ ✓ ✓
				BH113 - 3.0	④	4	✓ ✓ ✓ ✓ ✓
				BH113 - 4.5			✓ ✓ ✓ ✓ ✓
				BH113 - 6.0			✓ ✓ ✓ ✓ ✓
				BH113 - 7.5			H O L D
TOTAL 16						4	4 4 4 4

Comments:

Carrier Job No:

Remarks: PLEASE NOTE; WE REQUEST A 3 DAY TURN AROUND FOR THESE RESULTS

NOTE: SAMPLES MAY CONTAIN DANGEROUS AND HAZARDOUS SUBSTANCES

- 910109
- 1 T/B
- 2 PAH

6350524
13.11.02 6.44
URGENT

THIS COLUMN FOR LAB USE ONLY		CHAIN OF CUSTODY FORM				Container Size, Type, Preservative, and Analysis			
Job Code:		FROM: URS (AUSTRALIA) ACN 000 691 690 <i>Insert your office address here</i>		DATE: 12-11-02 TO: A25		Size		Container Identification	
Due Date:		Ph: 87255500 Fax: 89255555		Sampler(s): G Forles		Type		SAIL JAR	
Project No: 50244-004		Project Manager: M. Moyes		Signature(s): <i>[Signature]</i>		Preserv		ORANGE LARZ	
Agreement No:		Released for URS by:		Checked:		Analytes		METALS (Cu, Pb, Zn, Cr, As, Hg, Ni, Cd)	
Custody seal intact? ☐ YES ☐ NO		Received for laboratory by: <i>[Signature]</i>		Date: 12/11/02		Time: 2.15		TPH	
Sample cold? ☐ YES ☐ NO		Date:		Time:		Comments		BTEX	
Lab Identification		Date		Time		Matrix		Sample Identification	
		11-11-02				SAIL		BH 112-0.3	
								BH 112-1.5	
								BH 112-3.0	
								BH 112-4.5	
								BH 112-6.0 (5)	
								BH 112-7.5	
		12-11-02						BH 114-1.5	
								BH 114-3.0	
								BH 114-4.5	
								BH 114-6.0	
						✓		BH 114-7.5 (6)	
Comments:									
Courier Job No:									
Remarks: PLEASE NOTE, WE REQUEST A 3 DAY TURNAROUND FOR THESE RESULTS.		TOTAL		8		2		2	
		NOTE: SAMPLES MAY CONTAIN DANGEROUS AND HAZARDOUS SUBSTANCES							

[illegible]

Sheet 1 of 10

Chain of Custody/May 00

Appendix C Borehole Logs

URS

Non-cored Hole

BOREHOLE BH111

Sheet 1 of 1

URS Australia Pty Ltd
Level 3, 116 Miller Street North Sydney NSW 2060
Phone 02 8925 5500
Fax 02 8925 5555

Project Reference: Site 9 Sydney Olympic Park

Client: Sydney Olympic Park Authority

Drilling Contractor: Terratest

Project No.: 50244-004

Location: Cnr Sarah Durack Ave & Olympic Boulevard

Logged By: GF

Bore Size: 125 mm

Relative Level: mRL

Drill Type: TC Bit Solid Flight Auger

Checked By: MM

Total Depth: 9.30 m

Coordinates: mN

Drill Model: Edson 3000

Date Started: 11-11-02

Casing Size: mm

mE

Drill Fluid: None

Date Finished: 11-11-02

Permit No:

SAMPLE TYPE	RUN (m)	FIELD SHEAR STRENGTH (kPa)	PENETROMETER BLOWS (N)	SAMPLING AND OTHER TESTING	GROUND WATER DATA AND COMMENTS	DEPTH (m)	LEGEND	DESCRIPTION OF STRATA	MOISTURE CONDITION	SOIL CLASS.	DENSITY	GEOLOGICAL DESCRIPTION
						0		ASPHALT (30mm) FILL: A mixture of roadbase and sandstone. Fine to coarse grained with some gravel <20mm dia. FILL: sandy clay/clayey sand, medium plasticity, fine to medium grained, brown with light grey mottling, with some gravel	D	FILL	VD	
				Environmental Grab Sample BH111_1.5m PID = 0.0ppm		1						
						2			D	FILL	S	
				Environmental Grab Sample BH111_3.0m PID = 0.0ppm		3					F	
						4						
				Environmental Grab Sample BH111_4.5m PID=7.0ppm		5		FILL: construction fill consisting of foam, glass, fabric, paper, wood, in a clayey matrix, low plasticity, dark brown. Strong landfill like odour detected.				
					Groundwater observed	6		Groundwater observed @ 5.5m.	M/W	FILL	S	
				Environmental Grab Sample BH111_6.0m PID=2.8ppm		7						
				Environmental Grab Sample BH111_7.5m PID=42.6ppm		8		CLAY: high plasticity, light grey with some orange mottling, some fine to medium sand. Strong landfill like odour detected.		CH	F	
						9		SHALE: medium plasticity, grey, extremely low strength, completely weathered		SHALE		
								TC Bit Refusal End of hole at 9.3m.				

SYDNEY_GEO/TECH SOPAS/19.GPJ URS.GDT 20-11-02

URS**Non-cored Hole****BOREHOLE BH112**

Sheet 1 of 1

URS Australia Pty Ltd
Level 3, 116 Miller Street North Sydney NSW 2060
Phone 02 8925 5500 Fax 02 8925 5555

Project Reference: Site 9 Sydney Olympic Park

Client: Sydney Olympic Park Authority

Drilling Contractor: Terratest

Project No.: 60244-004

Location: Cnr Sarah Durack Ave & Olympic Boulevard

Logged By: GF

Bore Size: 125 mm

Relative Level: mRL

Drill Type: TC Bit Solid Flight Auger

Checked By: MM

Total Depth: 9.45 m

Coordinates: mN

Drill Model: Edson 3000

Date Started: 11-11-02

Casing Size: 50mm mm

Permit No:

Drill Fluid: None

Date Finished: 11-11-02

SAMPLE TYPE	RUN (m)	FIELD SHEAR STRENGTH (kPa)	PENETROMETER BLOWS (N)	SAMPLING AND OTHER TESTING	GROUND WATER DATA AND COMMENTS	DEPTH (m)	LEGEND	DESCRIPTION OF STRATA	MOISTURE CONDITION	SOIL CLASS.	DENSITY	GEOLOGICAL DESCRIPTION
				Environmental Grab Sample BH112_0.3m PID=1.1ppm		0		ASPHALT (30mm) FILL: A mixture of roadbase and sandstone. Fine to coarse grained with some gravel <20mm dia FILL: clay, medium plasticity, light/dark grey with orange mottling.	D	FILL	VD	
			SPT 111 N=2	Environmental Grab Sample & Geotechnical SPT Sample BH112_1.5m PID=1.6ppm		1			D	FILL	H	
			SPT 294 N=13	Environmental Grab Sample & Geotechnical SPT Sample BH112_3.0m PID=2.0ppm		2		FILL: sandy clay, medium plasticity, medium grained with 10mm dia. gravel.	D	FILL	S	
			SPT 5612 N=17	Environmental Grab Sample & Geotechnical SPT Sample BH112_4.5m PID=15ppm		3					S	
			SPT 134 N=7	Environmental Grab Sample & Geotechnical SPT Sample BH112_6.0m PID=21.5ppm		4		FILL: silty clay, low plasticity, white. Rubbery-like odour detected, black colour noted at depth extent.	D	FILL	S	
			SPT 71521 N=36	Environmental Grab Sample & Geotechnical SPT Sample BH112_7.5m PID=0.0ppm		5		FILL: construction materials including: foam, glass, fabric, paper, wood, in a clayey matrix, dark brown/black. Strong landfill like odour detected.	M/W	FILL	S	
			SPT >11 N=11	Geotechnical SPT Sample BH112_9.0m	Groundwater observed	6		Groundwater observed @5.5m.				
						7		CLAY: high plasticity, light grey with some orange mottling, some fine to medium sand. Strong landfill like odour.			H	
						8		Intermittant iron bands and shale noted throughout.		CH	F	
						9		SHALE: medium plasticity, grey, extremely low strength, completely weathered.		SHALE		
								TC Bit Refusal				
								End of hole at 9.45m.				

URS**Non-cored Hole****BOREHOLE BH113**

Sheet 1 of 1

URS Australia Pty Ltd
Level 3, 116 Miller Street North Sydney NSW 2060Phone 02 8525 5500
Fax 02 8525 5555

Project Reference: Site 9 Sydney Olympic Park

Client: Sydney Olympic Park Authority

Drilling Contractor: Terratest

Project No.: 50244-004

Location: Cnr Sarah Durack Ave & Olympic Boulevard

Logged By: GF

Bore Size: 125 mm

Relative Level: mRL

Drill Type: TC Bit Solid Flight Auger

Checked By: MM

Total Depth: 7.80 m

Coordinates: mN

Drill Model: Edson 3000

Date Started: 11-11-02

Casing Size: mm

Permit No:

Drill Fluid: None

Date Finished: 11-11-02

SAMPLE TYPE	RUN (m)	FIELD SHEAR STRENGTH (kPa)	PENETROMETER BLOWS (N)	SAMPLING AND OTHER TESTING	GROUND WATER DATA AND COMMENTS	DEPTH (m)	LEGEND	DESCRIPTION OF STRATA	MOISTURE CONDITION	SOIL CLASS.	DENSITY	GEOLOGICAL DESCRIPTION
						0		ASPHALT (30mm)	D	FILL	VD	
								FILL; A mixture of roadbase and sandstone. Fine to coarse grained with some gravel <20mm dia.				
								FILL; sandy clay, low plasticity, dark brown with some gravel. No odour detected.	M	FILL	S	
						1						
						2		FILL; gravelly sand, coarse to medium grained, light grey and brown, with some gravel <10mm dia.	M	FILL	MD	
						3		FILL; clay, medium plasticity, orange/brown. Landfill like odour detected.		FILL	F	
						4		FILL; construction fill: foam, glass, fabric, paper, wood, in a clayey matrix, black. Strong landfill like odour detected.	M	FILL	S	
						5		CLAY; high plasticity, brown/grey with some orange mottling, some fine to medium sand.				
						6		Becoming hard with depth, some iron staining observed.	CH		H St	
						7		CLAY; as above but becoming less plastic and hard. Band of shale at 6.2m observed.	CH		H	
						8		SHALE; medium plasticity, grey, extremely low strength, completely weathered.		SHALE		
						9		TC Bit Refusal @ 7.8m, Start NMLC Coring. Refer to BH113c.				

SYDNEY - GROUND INVESTIGATION URS GDI 20-11-02

URS**Non-cored Hole****BOREHOLE BH114**

Sheet 1 of 1

URS Australia Pty Ltd
Level 3, 116 Miller Street North Sydney NSW 1580Phone 02 8925 5500
Fax 02 8925 5555

Project Reference: Site 9 Sydney Olympic Park

Client: Sydney Olympic Park Authority

Drilling Contractor: Terratest

Project No.: 50244-004

Location: Cnr Sarah Durack Ave & Olympic Boulevard

Logged By: GF

Bore Size: 125 mm

Relative Level: mRL

Drill Type: TC Bit Solid Flight Auger

Checked By: MM

Total Depth: 7.50 m

Coordinates: mN

Drill Model: Edson 3000

Date Started: 12-11-02

Casing Size: mm

Permit No:

Drill Fluid: None

SAMPLE TYPE	RUN (m)	FIELD SHEAR STRENGTH (kPa)	PENETROMETER BLOWS (N)	SAMPLING AND OTHER TESTING	GROUND WATER DATA AND COMMENTS	DEPTH (m)	LEGEND	DESCRIPTION OF STRATA	MOISTURE CONDITION	SOIL CLASS.	DENSITY	GEOLOGICAL DESCRIPTION
						0		ASPHALT (30mm)	D	FILL	VD	
								FILL: A mixture of roadbase and sandstone. Fine to coarse grained with some gravel <10mm dia.	D	FILL	D	
								FILL: sand, medium grained, red/brown.				
								FILL: sandy clay, low plasticity, fine to medium grained, dark brown/orange, with some gravel.		FILL	F	
						1		FILL: construction fill; geofabric, in a clayey matrix, black. Strong landfill like odour detected.				
				Environmental Grab Sample BH114_1.5m PID=0.1ppm		2		FILL: gravelly sandy clay, medium plasticity, with some gravel <10mm dia.		FILL		
				Environmental Grab Sample BH114_3.0m PID=2.1ppm		3		FILL: clay, high plasticity, dark brown. Landfill like odour detected.		FILL		
				PID=31.6ppm		4		FILL: construction fill: foam, glass, metal, fabric, paper, wood, in a clayey matrix, black. Strong landfill like odour detected.		FILL		
				Environmental Grab Sample BH114_4.5m PID=14.8ppm		5		Clayey SAND; fine grained, orange/brown, with a landfill like odour detected.				
				Environmental Grab Sample BH114_6.0m PID=11.3ppm		6			D	SC	D	
				Environmental Grab Sample BH114_7.5m PID=20.9ppm		7		SHALE; medium plasticity, grey, extremely low strength, completely weathered. Strong landfill like odour detected.		SHALE		
						8		TC Bit Refusal				
								End of hole at 7.5m.				
						9						

URS**Non-cored Hole****BOREHOLE BH115**

Sheet 1 of 1

URS Australia Pty Ltd
Level 3, 116 Miller Street North Sydney NSW 2060
Phone 02 8525 5500
Fax 02 8525 5555Project: Site 9 Sydney
Reference: Olympic Park

Client: Sydney Olympic Park Authority

Drilling Contractor: Terratest

Project No.: 50244-004

Location: Cnr Sarah Durack Ave & Olympic
BoulevardLogged By: GF
Checked By: MM
Date Started: 12-11-02
Date Finished: 12-11-02Bore Size: 125 mm
Total Depth: 5.70 m
Casing Size: mmRelative Level: mRL
Coordinates: mN
mE

Permit No:

Drill Type: TC Bit Solid Flight Auger
Drill Model: Edson 3000
Drill Fluid: None

SAMPLE TYPE	RUN (m)	FIELD SHEAR STRENGTH (kPa)	PENETROMETER BLOWS (N)	SAMPLING AND OTHER TESTING	GROUND WATER DATA AND COMMENTS	DEPTH (m)	LEGEND	DESCRIPTION OF STRATA	MOISTURE CONDITION	SOIL CLASS.	DENSITY	GEOLOGICAL DESCRIPTION
						0		ASPHALT (30mm) FILL; A mixture of roadbase and sandstone. Fine to coarse grained, grey/brown, with some gravel <10mm dia.	D	FILL	VD	
						1		FILL; sandy clay, low plasticity, medium grained, grey, with some gravel.	O	FILL		
								FILL; clay, high plasticity, dark brown.		FILL	F	
						2		FILL; sandy clay, low plasticity, medium grained, orange/grey with brown mottling.		FILL	VD	
								FILL; clay, medium plasticity, dark brown, with some gravel <5mm dia.		FILL	S	
						3		FILL; sandy clay, low plasticity, fine grained, dark brown.		FILL		
								CLAY; high plasticity, orange/dark grey mottled, some fine to medium sand.				
						4		Becoming light grey and harder with depth.		CH	F	
						5		SHALE; medium plasticity, grey, extremely low strength, completely weathered.		SHALE		
						6		TC Bit Refusal End of hole at 5.7m.				
						7						
						8						
						9						

SYDNEY_GEO/UGL SOPAS/19.02/ URS GDT 20-11-02

URS**Non-cored Hole****BOREHOLE BH116**

Sheet 1 of 1

URS Australia Pty Ltd Level 3, 116 Miller Street North Sydney NSW 2060 Phone 02 8925 5500 Fax 02 8925 5555		Project Reference: Site 9 Sydney Olympic Park		Client: Sydney Olympic Park Authority	
Drilling Contractor: Terratest		Project No.: 50244-004		Location: Cnr Sarah Durack Ave & Olympic Boulevard	
Logged By: GF		Bore Size: 125 mm		Relative Level: mRL	
Checked By: MM		Total Depth: 7.80 m		Coordinates: mN	
Date Started: 12-11-02		Casing Size: mm		Drill Type: TC Bit Solid Flight Auger	
Date Finished: 12-11-02		Permit No:		Drill Model: Edson 3000	
				Drill Fluid: None	

SAMPLE TYPE	RUN (m)	FIELD SHEAR STRENGTH (kPa)	PENETROMETER BLOWS (N)	SAMPLING AND OTHER TESTING	GROUND WATER DATA AND COMMENTS	DEPTH (m)	LEGEND	DESCRIPTION OF STRATA	MOISTURE CONDITION	SOIL CLASS	DENSITY	GEOLOGICAL DESCRIPTION
						0		Topsoil/Bark Chips (30mm) FILL; Sand, fine to medium grained, dark brown with some clay and gravel.		FILL		
						1				FILL		
			SPT 7 16 11 N=27	Environmental Grab Sample & Geotechnical SPT Sample BH116_1.5m PID=0.0ppm		2		FILL; sandstone rubble, fine to coarse grained, iron stained with grey speckling.		FILL		H
			SPT 2 2 1 N=3	Environmental Grab Sample & Geotechnical SPT Sample BH116_3.0m PID=0.0ppm		3		FILL; clayey sand/sandy clay, fine to coarse grained, brown, with some gravel.	M	FILL		L
						4		FILL; clay, medium plasticity, dark brown.		FILL		S
			SPT 3 4 5 N=9	Environmental Grab Sample & Geotechnical SPT Sample BH116_4.5m PID=0.0ppm		5		FILL; construction materials including: foam, glass, fabric, paper, wood, in a clayey matrix, black.				
			SPT 25 10/40mm N>10	Environmental Grab Sample & Geotechnical SPT Sample BH116_6.0m PID=10.2ppm		6		Groundwater observed @6.0m.	M/W	FILL		
						7		SHALE; medium plasticity, grey, extremely low strength, completely weathered.		SHALE		
						8		TC Bit Refusal End of hole at 7.8m.				
						9						

Remarks: Groundwater observed at 6.0m

SYDNEY_GEO TECH SOPASIT9 GPJ URS.GDT 20-11-02

URS**Cored Borehole****BOREHOLE BH113c**

Sheet 1 of 1

URS Australia Pty Ltd
Level 3, 116 Miller Street North Sydney NSW 2060Phone 02 8925 5500
Fax 02 8925 5555Project Site 9 Sydney
Reference: Olympic Park

Client: Sydney Olympic Park Authority

Drilling Contractor: Terratec

Project No.: 50244-004

Location: Cnr Sarah Durack Ave & Olympic
Boulevard

Logged By: GF

Bore Size: 125 mm

Relative Level: mRL

Drill Type: Solid stem auger

Checked By: MM

Total Depth: 10.00 m

Coordinates: mN

Drill Model: Edson 3000

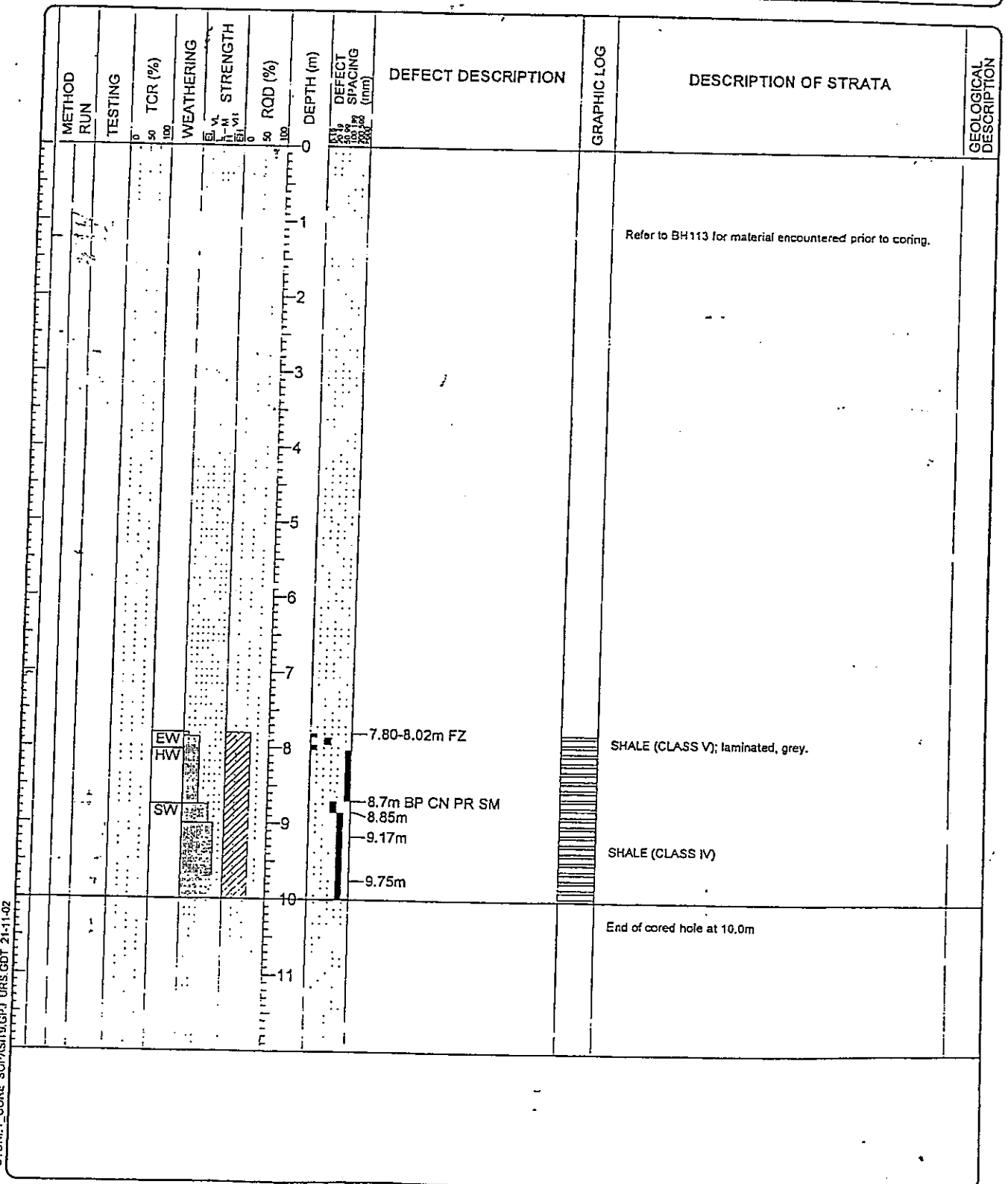
Date Started: 11-11-02

Casing Size: mm
Borehole Inclination and
Bearing: 90° at

Permit No:

Drill Fluid: Water

Date Finished: 11-11-02



URS**Cored Borehole****BOREHOLE BH116c**

Sheet 1 of 1

URS Australia Pty Ltd

Level 3, 116 Miller Street North Sydney NSW 2060

Phone 02 8925 5500

Fax 02 8925 5555

Project Reference: Site 9 Sydney Olympic Park

Client: Sydney Olympic Park Authority

Drilling Contractor: Terratest

Project No.: 50244-004

Location: Cnr Sarah Durack Ave & Olympic Boulevard

Logged By: GF

Bore Size: 125 mm

Relative Level: mRL

Drill Type: Solid stem auger

Checked By: MM

Total Depth: 10.45 m

Coordinates: mN

Drill Model: Edson 3000

Date Started: 12-11-02

Casing Size: mm

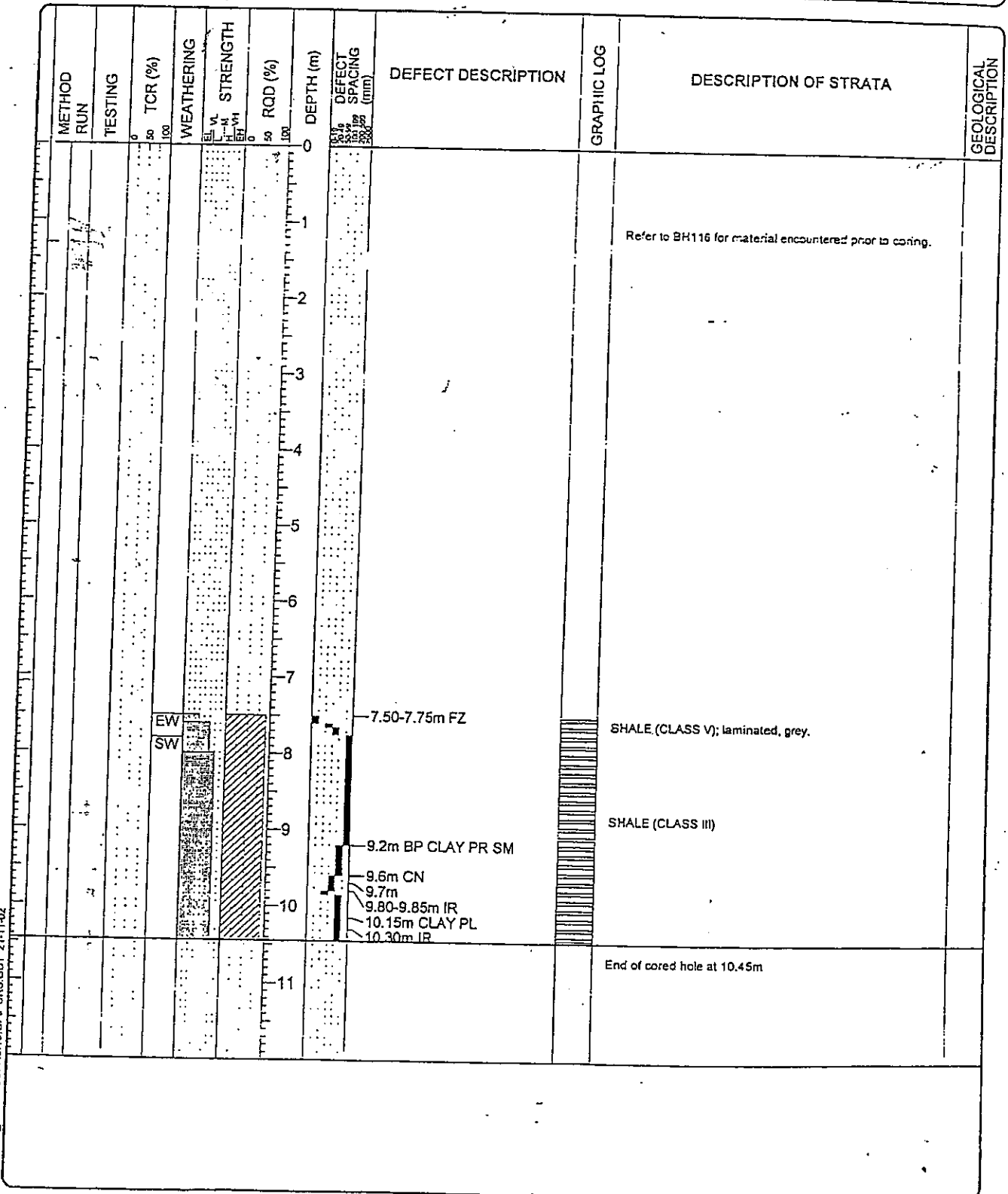
mE

Drill Fluid: Water

Date Finished: 12-11-02

Borehole Inclination and Bearing: 90° at

Permit No:



SYDNEY_CORE SOPASIT9.GPJ URS.GDT 21-11-02

Appendix D

Geotechnical Laboratory Results



AUSTRALIAN SOIL TESTING PTY LTD. A.B.N. 79 003 493 623

19 Bermill Street, Rockdale, NSW, 2216 P.O. Box 2014, Rockdale D.C. NSW 2216

Tel: 9597 5599, 9597 3286 Fax: 9597 3442 Email: austst@bigpond.com

SOIL CLASSIFICATION TEST DATA

CLIENT: URS Australia
Level 3, 116 Miller Street North Sydney NSW 2060
PROJECT: Job No. 50244-004

LAB. NO.	SAMPLE SOURCE	SAMPLE DESCRIPTION	MOISTURE CONTENT (%) 1	PARTICLE DENSITY (t/m ³) 2.53	LIQUID LIMIT 2	PLASTIC INDEX 3	LINEAR SHRINKAGE (%) 4
27408	BH113 7.5m	CLAYEY SILT: grey, medium plasticity. (Siltstone)		2.53			
27409	BH116 1.5m	GRAVELLY SAND: grey, fine to coarse sand, fine gravel, some silt and clay. (Fill)		2.47			
27410	BH116 3.0m	GRAVELLY SANDY CLAY: grey-brown, low plasticity, fine to coarse sand, fine to medium gravel.			30	14	
27411	BH115 3.0m	SILTY CLAY: red-brown, high plasticity, some fine to medium sand.			68	48	
27412	BH113 6.0m	SILTY CLAY: light grey, medium plasticity, some fine to medium sand.			48	26	

NOTES TO TESTING

- 1 Test method: AS 1289 2.1.1-1992
- 2 Test Method: AS 1289 3.1.2
Preparation: dry sieved, wet sieved, natural state with no sieving
Sample History: air dried, oven dried at 50/105 degrees c, natural state as received
- 3 Test Method: AS 1289 3.2.1, 3.3.1
Preparation and sample history as 2.
- 4 Test Method: AS 1289 3.4.1
Sample history and preparation as 2.
Mould size: 125, 127, 250mm
Dry state: crumbling, curling, linear.

Particle Density: AS 1289 3.5.1

Sampled by: Client
Job Number: 119-050
Date Tested: 15.11.02

Form C01 excel issue 4 Jan 1997 CWS



NATA Accredited Laboratory Number: 1459
NATA endorsed test report. This document
shall not be reproduced, except in full

Signed: *Jon Goldschmidt*
Title: *LS*

Name: *Jon Goldschmidt*
Date: *19/11/02*



AUSTRALIAN SOIL TESTING PTY LTD

49 Bermill Street, Rockdale, NSW, 2216 P.O. Box 2014, Rockdale D.C. NSW 2216

Tel: 9597 5599, 9597 3286 Fax: 9597 3442 Email: austst@bigpond.com

POINT LOAD STRENGTH INDEX TEST REPORT

CLIENT: URS Australia

Level 3, 116 Miller Street North Sydney NSW 2060

PROJECT: Job No. 50244-004

LAB. NO.	SAMPLE SOURCE	LITHOLOGY	PLATTEN SEPARATION		MOISTURE CONTENT (%)	DRY DENSITY (t/m^3)	TEST ORIENTATION	POINT LOAD STRENGTH I_s (Mpa)	POINT LOAD STRENGTH I_s 50 (Mpa)
			DIAM (mm)	HEIGHT (mm)					
27413	BH 113 9.75-10.0m	Siltstone/Laminate	52	54			Diametral Axial	0.87 1.73	0.90 1.83
27414	BH 116 9.42-9.61m	Siltstone/Laminate	52	50			Diametral Axial	0.70 1.20	0.72 1.20
27415	BH 116 8.03-8.35m	Siltstone/Laminate	52	58			Diametral - Axial	0.16 0.54	0.16 0.58

NOTES TO TESTING

Testing Device: ELE Point Load Tester

Sample History: Unsoaked

Sampled by: Client

Job Number: 119-050

Date Tested: 13.11.02

Test method: AS 4133.4.1

Form R04 excel issue 4 September 2001 CWS



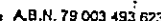
NATA Accredited Laboratory Number: 1459
NATA endorsed test report. This document
shall not be reproduced, except in full.

Signed: *[Signature]*

Title: *[Signature]*

Name: *Jan Goethardt*

Date: *19/11/02*



Tel: 9597 5599, 9597 3286 Fax: 9597 3442 Email: austst@biapond.com

Date: 22/11/04



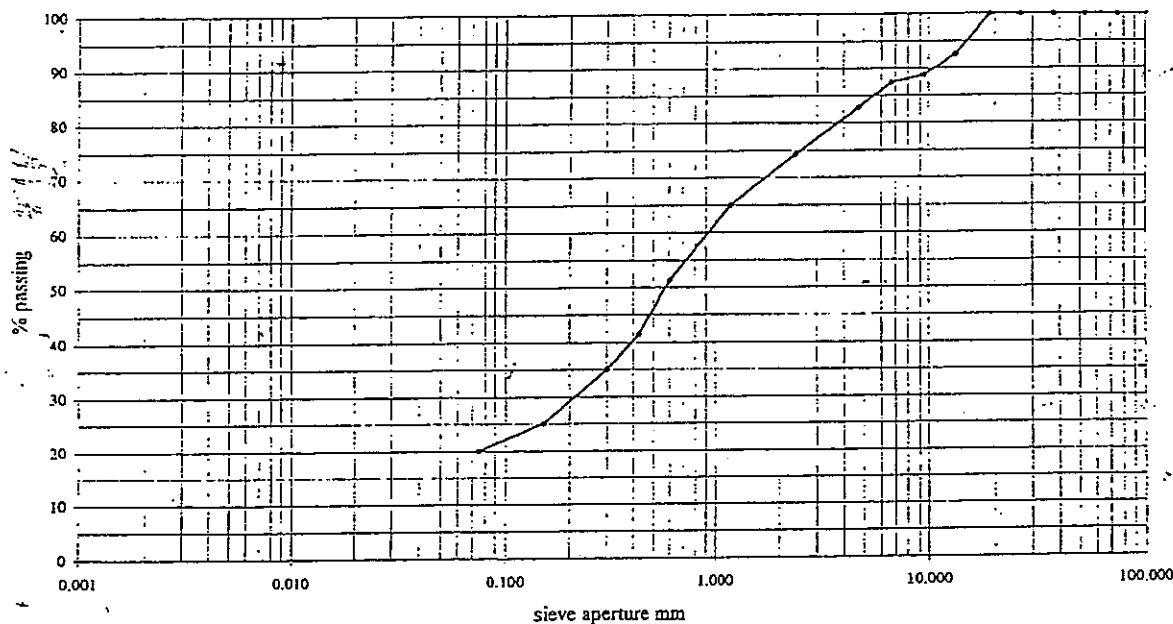
AUSTRALIAN SOIL TESTING PTY LTD. A.B.N. 79 003 493 623

19 Bermill Street, Rockdale, NSW, 2216 P.O. Box 2014, Rockdale D.C. NSW 2216

Tel: 9597 5599, 9597 3286 Fax: 9597 3442 Email: austst@bigpond.com

PARTICLE SIZE DISTRIBUTION TEST REPORT

Client: URS Australia
Address: Level 3: 116 Miller St, North Sydney 2060
Project: Job No. 50244-004
Test Method: AS1289.3.6.1
Job Number: 119-050
Sample: BH 116 1.5m
Sampled by: Client
Lab No: 27409
Date Tested: 21.11.02
Tested by: MR



Appendix E

Data Validation

Project Name: SOPA Site 9 Project/Task Number: 50244-004
 Analytical Laboratory: ALS - Sydney Batch/Ref. Number(s): ES34656

Sample Type	No. of Original Samples	No. Duplicate Samples	Analytes
Soil	7	1	Inorganics, TPH, BTEX, PAHs
Groundwater	1	1	Inorganics, TPH, BTEX, PAHs

Sample Handling and Holding Times

- COC completed adequately
- Samples received by laboratory intact and cold.
- Samples analysed within appropriate holding times per analytical methods.

Blanks

- No trip blank was analysed as part of this batch.
- No rinse blank taken. New nitrile gloves used for every sample, all other equipment decontaminated after every sample.

Matrix Spike / Matrix Spike Duplicates (MS / MSD) Samples

- Soil MS analysis for inorganics, and PAHs.
- %R = 83 - 110% for inorganics (acceptable).
- %R = 60 - 135% for TPH (acceptable)
- %R = 97 - 101% for BTEX (acceptable)
- %R = 52 - 87% for PAHs (acceptable).
- Groundwater MS analysis for TPH, and PAHs.
- %R = 50 - 130% for TPH (acceptable)
- %R = 88 - 115% for BTEX (acceptable)
- %R = 36 - 85% for PAHs (acceptable)

Laboratory Control Spikes / Duplicates (LCS / LCD)

- Soil LCS analysis for inorganics.
- %R = 91 - 115% for inorganics (acceptable).
- RPD = 0 - 35% for PAHs (acceptable).
- Groundwater LCS analysis for inorganics.
- %R = 97 - 108% for inorganics (acceptable).

Laboratory Duplicates

- Groundwater laboratory duplicate analysis for inorganics.
- Results all below the limit of reporting (LOR) (acceptable).
- Soil laboratory duplicate analysis for inorganics, and PAHs.
- RPD = 1 - 50% for inorganics for results above the limit of reporting (LOR) (acceptable).
- RPD = 0 - 15% for PAHs for results above the limit of reporting (LOR) (acceptable).

Field Duplicate

- Soil field duplicate analysis for inorganics, for sample: BH111_4.5 (QC01).
- RPD = 1 - 44% for inorganics (acceptable).
- RPD 17 to 61% for TPH (acceptable).
- All samples analysed for BTEX were below the LOR (acceptable)
- Most samples analysed for PAH were below the LOR (acceptable)
- Groundwater field duplicate analysis for inorganics, for sample: BH112 (QC02).
- RPD = 10 - 29% for inorganics (acceptable).
- RPD 7 to 69% for TPH (acceptable).
- RPD 11 to 18% for BTEX (acceptable).
- Most samples analysed for PAH were below the LOR (acceptable)

Surrogate Monitoring Compound Analyses

- %R = 2-14% for TPH/BTEX (acceptable).
- %R = 2-14% for PAHs (acceptable).

Overall Assessment

- Analytical results and associated quality assurance/quality control evaluation measures were considered acceptable for use in environmental assessments. Significant RPDs for field duplicate results may be attributed to sample heterogeneity.
- Completeness = 100%.

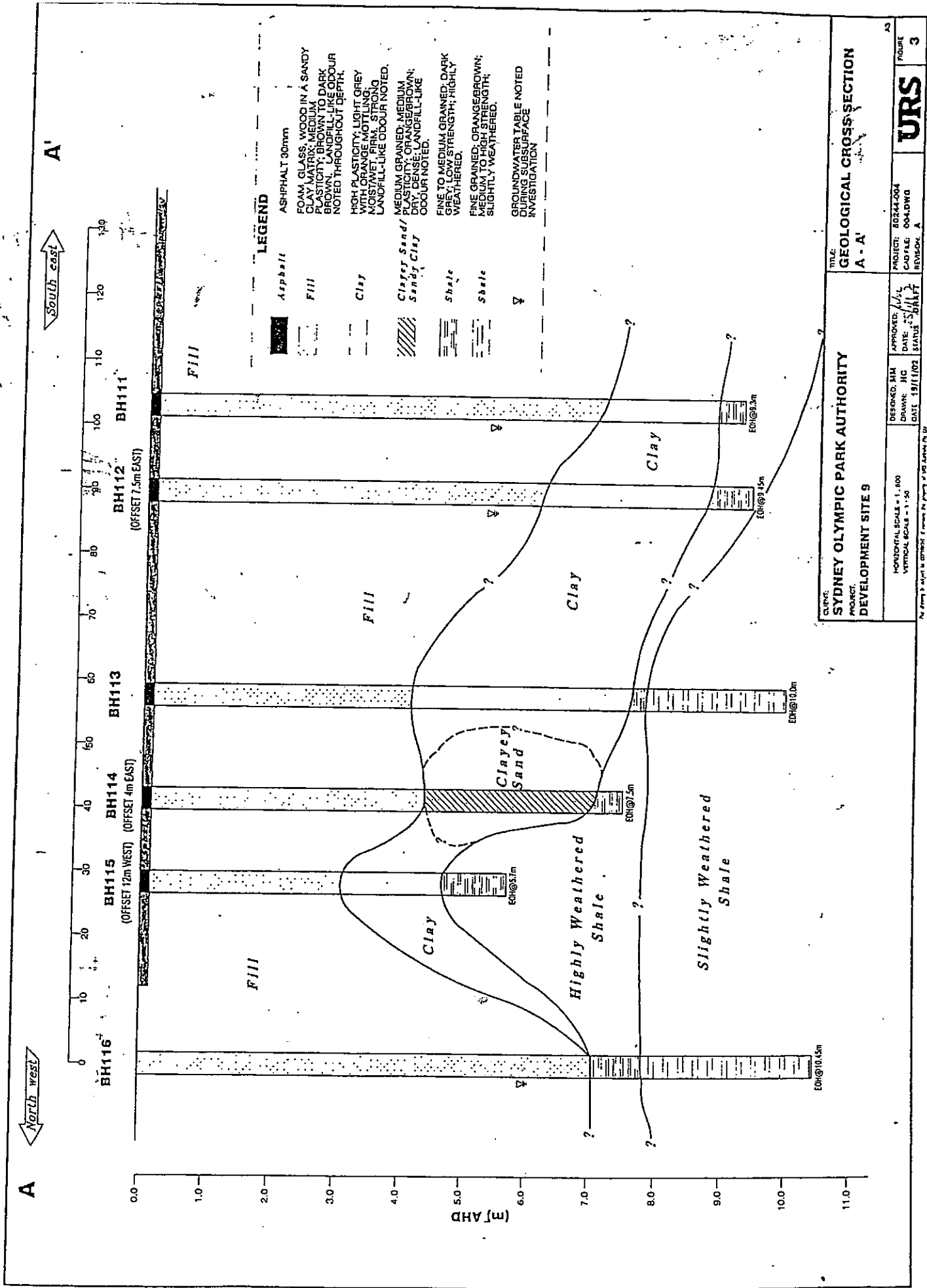
Notes: Refer to attached summary of validation procedures for further detail regarding methodology.

%R = Percent Recovery, RPD = Relative Percent Difference, AD = Absolute Difference, RL = Reporting Limit

Validation Performed By: Melina Moyes

Linda Isidori

3/12/2002

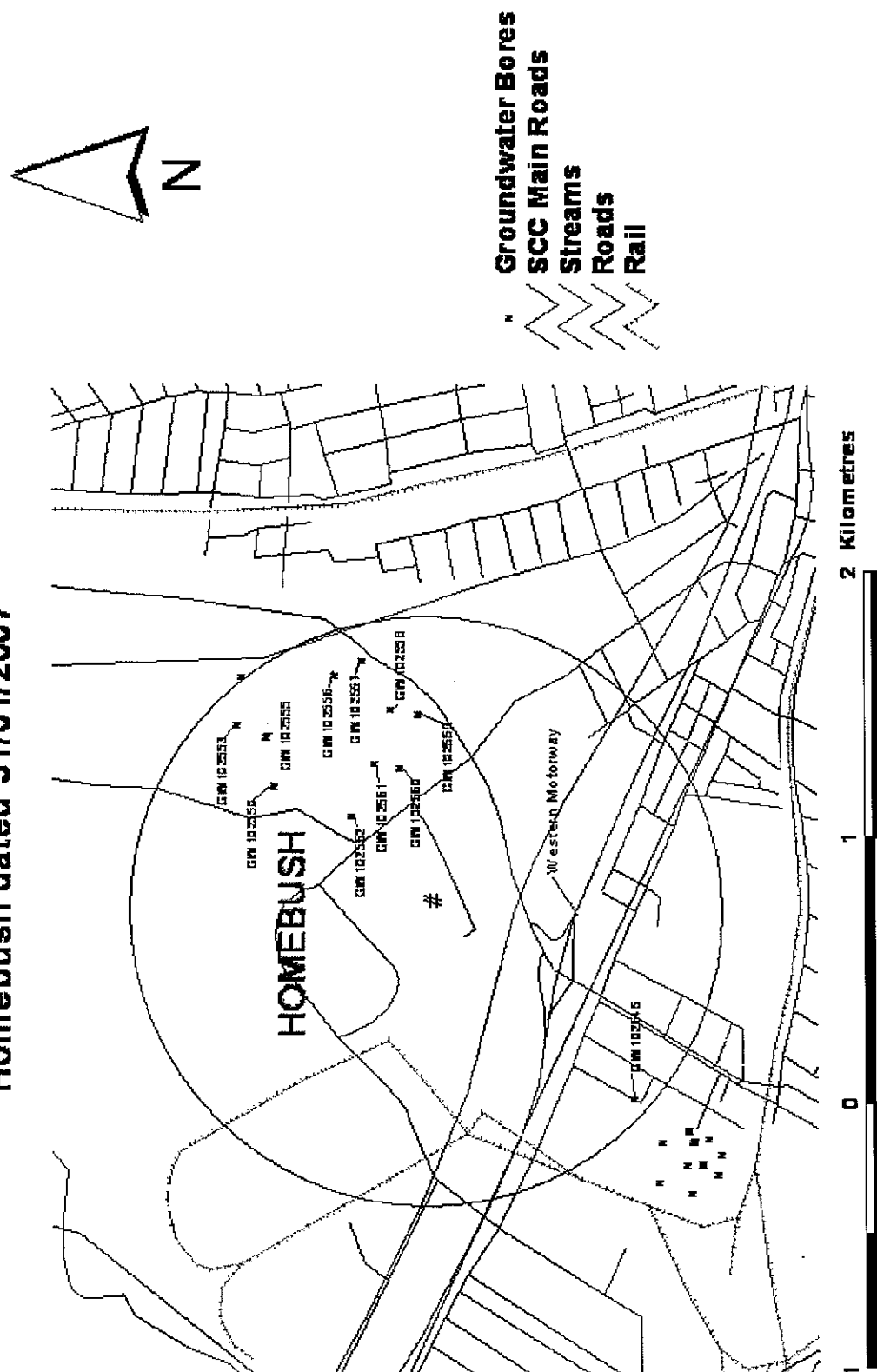


CLIENT: SYDNEY OLYMPIC PARK AUTHORITY PROJECT: DEVELOPMENT SITE 9		TITLE: GEOLOGICAL CROSS-SECTION A - A'	PROJECT: 50244-004 CAD FILE: 004.DWG REVISION: A	APPROVED: [Signature] DATE: 25/11/02 STATUS: DRAFT	DESIGNED: HMC DRAWN: HMC DATE: 19/11/02	HORIZONTAL SCALE: 1:500 VERTICAL SCALE: 1:50	FIGURE: 3

This drawing is subject to correction. It remains the property of URS Australia Pty Ltd.

APPENDIX D
Results of DNR Search

Groundwater Bores at a 1km radius near Western Motorway **Homebush dated 31/01/2007**



Date/Time :31-Jan-2007 12:35 PM
User :STANNER
Report :RMGW001D.QRP
Executable :S:\G5\PROD32\Ground.exe
Exe Date :30-Aug-2006
System :Groundwater
Database :Edbp



NSW Government

DEPARTMENT OF NATURAL RESOURCES

DEPARTMENT OF NATURAL RESOURCES Work Summary

GW102550

Licence :10BL157703	Licence Status :Activ	Intended Purpose(s)
Work Type :Bore	Authorised Purpose(s)	MONITORING BORE
Work Status :(Unknown)	MONITORING BORE	
Construct. Method :		
Owner Type :		
Commenced Date :	Final Depth : 4.00 m	
Completion Date :01-Jan-1996	Drilled Depth :	
Contractor Name :MACQUARIE DRILLING		
Driller :		
Assistant Driller's Name :		
Property : - N/A	Standing Water Level :	1.80 m
GWMA : -	Salinity :	
GW Zone : -	Yield :	

Site Details

Site Chosen By	County	Parish	Portion/Lot DP
	Form A :		
	Licensed :CUMBERLAND	CONCORD	LOTS 2,6&7 DP740600
Region :10 - SYDNEY SOUTH COAST		CMA Map :	
River Basin :		Grid Zone :	Scale :
Area / District :			
Elevation :	Northing :6252919	Latitude (S) :33° 50' 56"	
Elevation Source :	Easting :321890.886	Longitude (E) :151° 4' 31"	
GS Map :	AMG Zone :56	Coordinate Source :	

Construction

Negative depths indicate Above Ground Level;

H	P	Component Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	0.00	4.00				
1	1	Casing P.V.C.	0.00	0.00		50		

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
(No Water Bearing Zone Details Found)									

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
(No Drillers Log Details Found)					

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
(No Pumping Test Summary Details Found)										

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
(No Pumping Test Reading Details Found)										

Chemical Treatment

Treatment	Method	Quantity (L)	Name
(No Chemical Treatment Details Found)			

Development

Method	Time Taken	Other Development Method
(No Development Details Found)		

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

DEPARTMENT OF NATURAL RESOURCES
Work Summary

GW102550

Remarks

Form A Remarks:
DATA FROM AG APPLICATION ONLY

*** End of GW102550 ***

DEPARTMENT OF NATURAL RESOURCES

Work Summary

GW102553

Licence :10BL157703 Work Type :Bore Work Status :(Unknown) Construct. Method : Owner Type : Commenced Date : Completion Date :01-Jan-1996 Contractor Name : Driller : Assistant Driller's Name : Property : - N/A GWMA : - GW Zone : -	Licence Status Activ Authorised Purpose(s) MONITORING BORE Intended Purpose(s) MONITORING BORE Final Depth : 4.00 m Drilled Depth : Standing Water Level : 1.83 m Salinity : Yield :

Site Details

Site Chosen By Region :10 - SYDNEY SOUTH COAST River Basin : Area / District : Elevation : Elevation Source : GS Map :	County Form A : Licensed :CUMBERLAND CMA Map : Grid Zone : Northing :6253076 Easting :322067.952 AMG Zone :56 Coordinate Source :	Parish CONCORD Portion/Lot DP LOTS 2,6&7 DP740600 Scale : Latitude (S) :33° 50' 51" Longitude (E) :151° 4' 38"

Construction

Negative depths indicate Above Ground Level;

H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity;PL-Placement of Gravel Pack;PC-Pressure Cemented;S-Sump;CE-Centralisers																														
<table border="0" style="width: 100%;"> <tr> <th>H</th> <th>P</th> <th>Component</th> <th>Type</th> <th>From (m)</th> <th>To (m)</th> <th>OD (mm)</th> <th>ID (mm)</th> <th>Interval</th> <th>Details</th> </tr> <tr> <td>1</td> <td></td> <td>Hole</td> <td>Hole</td> <td>0.00</td> <td>4.00</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>1</td> <td>1</td> <td>Casing</td> <td>P.V.C.</td> <td>0.00</td> <td>0.00</td> <td></td> <td></td> <td>50</td> <td></td> </tr> </table>	H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details	1		Hole	Hole	0.00	4.00					1	1	Casing	P.V.C.	0.00	0.00			50	
H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details																					
1		Hole	Hole	0.00	4.00																									
1	1	Casing	P.V.C.	0.00	0.00			50																						

Water Bearing Zones

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

(No Water Bearing Zone Details Found)

Drillers Log

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

(No Drillers Log Details Found)

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Summary Details Found)

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Quantity (L)	Name

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

Form A Remarks:
DATA FROM AG APPLICATION ONLY

*** End of GW102553 ***

DEPARTMENT OF NATURAL RESOURCES

Work Summary

GW102555

Licence :10BL157703		Licence Status :Active	Intended Purpose(s)
Work Type :Bore		Authorised Purpose(s)	MONITORING BORE
Work Status :(Unknown)		MONITORING BORE	
Construct. Method :			
Owner Type :			
Commenced Date :	Final Depth :	4.00 m	
Completion Date :01-Jan-1996	Drilled Depth :		
Contractor Name :MACQUARIE DRILLING			
Driller :			
Assistant Driller's Name :			
Property : - N/A		Standing Water Level :	1.83 m
GWMA : -		Salinity :	
GW Zone : -		Yield :	

Site Details

Site Chosen By	County	Parish	Portion/Lot DP
	Form A :		
	Licensed :CUMBERLAND	CONCORD	LOTS 2,6&7 DP740600
Region :10 - SYDNEY SOUTH COAST		CMA Map :	
River Basin :		Grid Zone :	Scale :
Area / District :			
Elevation :		Northing :6252953	Latitude (S) :33° 50' 55"
Elevation Source :		Easting :322044.559	Longitude (E) :151° 4' 37"
GS Map :		AMG Zone :56	Coordinate Source :

Construction

Negative depths indicate Above Ground Level;

H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity;PL-Placement of Gravel Pack;PC-Pressure Cemented;S-Sump;CE-Centralisers

H	P	Component Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	0.00	4.00				
1	1	Casing P.V.C.	0.00	0.00	50			

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
(No Water Bearing Zone Details Found)									

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
(No Drillers Log Details Found)					

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
(No Pumping Test Summary Details Found)										

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
(No Pumping Test Reading Details Found)										

Chemical Treatment

Treatment	Method	Quantity (L)	Name
(No Chemical Treatment Details Found)			

Development

Method	Time Taken	Other Development Method
(No Development Details Found)		

Remarks

Form A Remarks:
DATA FROM AG APPLICATION ONLY

*** End of GW102555 ***

DEPARTMENT OF NATURAL RESOURCES

Work Summary

GW102556

Licence :10BL157703		Licence Status :Activ	
Work Type :Bore		Authorised Purpose(s)	Intended Purpose(s)
Work Status :(Unknown)		MONITORING BORE	MONITORING BORE
Construct. Method :			
Owner Type :			
Commenced Date :	Final Depth :	4.00 m	
Completion Date :01-Jan-1996	Drilled Depth :		
Contractor Name :MACQUARIE DRILLING			
Driller :			
Assistant Driller's Name :			
Property : - N/A		Standing Water Level :	1.83 m
GWMA : -		Salinity :	
GW Zone : -		Yield :	

Site Details

Site Chosen By	County	Parish	Portion/Lot DP
	Form A :		
	Licensed :CUMBERLAND	CONCORD	LOTS 2,6&7 DP740600
Region :10 - SYDNEY SOUTH COAST		CMA Map :	
River Basin :		Grid Zone :	Scale :
Area / District :			
Elevation :		Northing :6252710	Latitude (S) :33° 51' 3"
Elevation Source :		Easting :322229.146	Longitude (E) :151° 4' 44"
GS Map :		AMG Zone :56	Coordinate Source :

Construction

Negative depths indicate Above Ground Level;									
H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity;PL-Placement of Gravel Pack;PC-Pressure Cemented;S-Sump;CE-Centralisers									
H P Component Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details			
1 Hole	0.00	4.00							
1 1 Casing P.V.C.	0.00	0.00	50						

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
(No Water Bearing Zone Details Found)									

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
(No Drillers Log Details Found)					

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
(No Pumping Test Summary Details Found)										

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
(No Pumping Test Reading Details Found)										

Chemical Treatment

Treatment	Method	Quantity (L)	Name
(No Chemical Treatment Details Found)			

Development

Method	Time Taken	Other Development Method
(No Development Details Found)		

Remarks

Form A Remarks:
DATA FROM AG APPLICATION ONLY

*** End of GW102556 ***

DEPARTMENT OF NATURAL RESOURCES

Work Summary

GW102557

Licence :10BL157703 Work Type :Bore Work Status :(Unknown) Construct. Method : Owner Type : Commenced Date : Completion Date :01-Jan-1996 Contractor Name :MACQUARIE DRILLING Driller : Assistant Driller's Name : Property : - N/A GWMA : - GW Zone : -	Licence Status Activ Authorised Purpose(s) MONITORING BORE Intended Purpose(s) MONITORING BORE Standing Water Level : Salinity : Yield : Final Depth : 4.00 m Drilled Depth : Northing :6252587 Easting :322282.875 Coordinate Source :

Site Details

Site Chosen By Region :10 - SYDNEY SOUTH COAST River Basin : Area / District : Elevation : Elevation Source : GS Map :	County Form A : Licensed :CUMBERLAND CMA Map : Grid Zone : AMG Zone :56 Coordinate Source :	Parish CONCORD Scale : Latitude (S) :33° 51' 7" Longitude (E) :151° 4' 46"

Construction

Negative depths indicate Above Ground Level;

H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity;PL-Placement of Gravel Pack;PC-Pressure Cemented;S-Sump;CE-Centralisers										
H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details	
1		Hole	Hole	0.00	4.00					
1	1	Casing	P.V.C.	0.00	0.00	50				

Water Bearing Zones

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

(No Water Bearing Zone Details Found)

Drillers Log

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

(No Drillers Log Details Found)

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Summary Details Found)

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Quantity (L)	Name

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

Form A Remarks:
DATA FROM AG APPLICATION ONLY

*** End of GW102557 ***

DEPARTMENT OF NATURAL RESOURCES

Work Summary

GW102558

Licence :10BL157703 Work Type :Bore Work Status :(Unknown) Construct. Method : Owner Type : Commenced Date : Completion Date :01-Jan-1996 Contractor Name :MACQUARIE DRILLING Driller : Assistant Driller's Name : Property : - N/A GWMA : - GW Zone : -	Licence Status Activ Authorised Purpose(s) MONITORING BORE Intended Purpose(s) MONITORING BORE Standing Water Level : 1.83 m Salinity : Yield :

Site Details

Site Chosen By Region :10 - SYDNEY SOUTH COAST River Basin : Area / District : Elevation : Elevation Source : GS Map :	County Form A : Licensed :CUMBERLAND AMG Zone :56	Parish CONCORD CMA Map : Grid Zone : Northing :6252492 Easting :322130.365 Coordinate Source :
Portion/Lot DP LOTS 2,6&7 DP740600 Scale : Latitude (S) :33° 51' 10" Longitude (E) :151° 4' 40"		

Construction Negative depths indicate Above Ground Level;

H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity;PL-Placement of Gravel Pack;PC-Pressure Cemented;S-Sump;CE-Centralisers									
H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole		0.00	4.00				
1	1	Casing	P.V.C.	0.00	0.00	50			

Water Bearing Zones

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

(No Water Bearing Zone Details Found)

Drillers Log

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

(No Drillers Log Details Found)

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Summary Details Found)

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Quantity (L)	Name

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

Form A Remarks:
DATA FROM AG APPLICATION ONLY

*** End of GW102558 ***

DEPARTMENT OF NATURAL RESOURCES

Work Summary

GW102559

Licence :10BL157703		Licence Status :Active	
Work Type :Bore		Authorised Purpose(s)	Intended Purpose(s)
Work Status : (Unknown)		MONITORING BORE	MONITORING BORE
Construct. Method :			
Owner Type :			
Commenced Date :	Final Depth :	4.00 m	
Completion Date :01-Jan-1996	Drilled Depth :		
Contractor Name :MACQUARIE DRILLING			
Driller :			
Assistant Driller's Name :			
Property : - N/A		Standing Water Level :	1.83 m
GWMA : -		Salinity :	
GW Zone : -		Yield :	

Site Details

Site Chosen By	County	Parish	Portion/Lot DP
	Form A :		
	Licensed :CUMBERLAND	CONCORD	LOTS 2,6&7 DP740600
Region :10 - SYDNEY SOUTH COAST		CMA Map :	
River Basin :		Grid Zone :	Scale :
Area / District :			
Elevation :		Northing :6252369	Latitude (S) :33° 51' 14"
Elevation Source :		Easting :322132.68	Longitude (E) :151° 4' 40"
GS Map :	AMG Zone :56	Coordinate Source :	

Construction

Negative depths indicate Above Ground Level;									
H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity;PL-Placement of Gravel Pack;PC-Pressure Cemented;S-Sump;CE-Centralisers									
H	P	Component Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details	
1		Hole	0.00	4.00					
1	1	Casing	0.00	0.00	50				

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
(No Water Bearing Zone Details Found)									

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
(No Drillers Log Details Found)					

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
(No Pumping Test Summary Details Found)										

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
(No Pumping Test Reading Details Found)										

Chemical Treatment

Treatment	Method	Quantity (L)	Name
(No Chemical Treatment Details Found)			

Development

Method	Time Taken	Other Development Method
(No Development Details Found)		

Remarks

Form A Remarks:
DATA FROM AG APPLICATION ONLY

*** End of GW102559 ***

DEPARTMENT OF NATURAL RESOURCES

Work Summary

GW102560

Licence :10BL157703 Work Type :Bore Work Status :(Unknown) Construct. Method : Owner Type : Commenced Date : Completion Date :01-Jan-1996 Contractor Name :MACQUARIE DRILLING Driller : Assistant Driller's Name : Property : - N/A GWMA : - GW Zone : -	Licence Status Activ Authorised Purpose(s) MONITORING BORE Intended Purpose(s) MONITORING BORE Standing Water Level : 1.83 m Salinity : Yield :

Site Details

Site Chosen By Region :10 - SYDNEY SOUTH COAST River Basin : Area / District : Elevation : Elevation Source : GS Map :	County Form A : Licensed :CUMBERLAND CMA Map : Grid Zone : Northing :6251441 Easting :321970.113 AMG Zone :56 Coordinate Source :	Parish CONCORD Scale : Latitude (S) :33° 51' 44" Longitude (E) :151° 4' 33"

Construction

Negative depths indicate Above Ground Level;

H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity;PL-Placement of Gravel Pack;PC-Pressure Cemented;S-Sump;CE-Centralisers									
H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	Hole	0.00	4.00				
1	1	Casing	P.V.C.	0.00	0.00	50			

Water Bearing Zones

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

(No Water Bearing Zone Details Found)

Drillers Log

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

(No Drillers Log Details Found)

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	B.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Summary Details Found)

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	B.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Quantity (L)	Name

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

Form A Remarks:
DATA FROM AG APPLICATION ONLY

*** End of GW102560 ***

DEPARTMENT OF NATURAL RESOURCES

Work Summary

GW102561

Licence :10BL157703		Licence Status :Active	
Work Type :Bore		Authorised Purpose(s)	Intended Purpose(s)
Work Status :(Unknown)		MONITORING BORE	MONITORING BORE
Construct. Method :			
Owner Type :			
Commenced Date :	Final Depth :	4.00 m	
Completion Date :01-Jan-1996	Drilled Depth :		
Contractor Name :MACQUARIE DRILLING			
Driller :			
Assistant Driller's Name :			
Property : - N/A		Standing Water Level :	1.83 m
GWMA : -		Salinity :	
GW Zone : -		Yield :	

Site Details

Site Chosen By	County	Parish	Portion/Lot DP
	Form A :		
	Licensed :CUMBERLAND	CONCORD	LOTS 2,6&7 DP740600
Region :10 - SYDNEY SOUTH COAST		CMA Map :	
River Basin :		Grid Zone :	Scale :
Area / District :			
Elevation :		Northing :6252551	Latitude (S) :33° 51' 8"
Elevation Source :		Easting :321974.963	Longitude (E) :151° 4' 34"
GS Map :		AMG Zone :56	Coordinate Source :

Construction Negative depths indicate Above Ground Level;

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	Hole	0.00	4.00				
1	1	Casing	P.V.C.	0.00	0.00	50			

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
(No Water Bearing Zone Details Found)									

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
(No Drillers Log Details Found)					

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
(No Pumping Test Summary Details Found)										

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
(No Pumping Test Reading Details Found)										

Chemical Treatment

Treatment	Method	Quantity (L)	Name
(No Chemical Treatment Details Found)			

Development

Method	Time Taken	Other Development Method
(No Development Details Found)		

Remarks

Form A Remarks:
DATA FROM AG APPLICATION ONLY

*** End of GW102561 ***

DEPARTMENT OF NATURAL RESOURCES

Work Summary

GW102562

Licence :10BL157703 Work Type :Bore Work Status :(Unknown) Construct. Method : Owner Type : Commenced Date : Completion Date :01-Jan-1996 Contractor Name :MACQUARIE DRILLING Driller : Assistant Driller's Name : Property : - N/A GWMA : - GW Zone : -	Licence Status Activ Authorised Purpose(s) MONITORING BORE Intended Purpose(s) MONITORING BORE Final Depth : 4.00 m Drilled Depth : Standing Water Level : 1.83 m Salinity : Yield :

Site Details

Site Chosen By Region :10 - SYDNEY SOUTH COAST River Basin : Area / District : Elevation : Elevation Source : GS Map :	County Form A : Licensed :CUMBERLAND CMA Map : Grid Zone : Northing :6252640 Easting :321793.27 AMG Zone :56 Coordinate Source :	Parish CONCORD Scale : Latitude (S) :33° 51' 5" Longitude (E) :151° 4' 27"

Construction Negative depths indicate Above Ground Level;

H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity;PL-Placement of Gravel Pack;PC-Pressure Cemented;S-Sump;CE-Centralisers					
H	P	Component Type	From (m)	To (m)	OD (mm) ID (mm) Interval Details
1		Hole	0.00	4.00	
1	I	Casing P.V.C.	0.00	0.00	50

Water Bearing Zones

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

(No Water Bearing Zone Details Found)

Drillers Log

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

(No Drillers Log Details Found)

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Summary Details Found)

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Quantity (L)	Name

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

Form A Remarks:
DATA FROM AG APPLICATION ONLY

*** End of GW102562 ***

DEPARTMENT OF NATURAL RESOURCES

Work Summary

GW102645

Licence :10BL150044		Licence Status :Activ	Intended Purpose(s)
Work Type :Bore		Authorised Purpose(s)	MONITORING BORE
Work Status :(Unknown)			
Construct. Method :			
Owner Type :			
Commenced Date :	Final Depth :	10.00 m	
Completion Date :21-May-1992	Drilled Depth :	10.00 m	
Contractor Name :D.J. DOUGLAS			
Driller :			
Assistant Driller's Name :			
Property : - N/A		Standing Water Level :	
GWMA : -		Salinity :	13,300.00 mg/L
GW Zone : -		Yield :	

Site Details

Site Chosen By	County	Parish	Portion/Lot DP
	Form A :		
	Licensed :CUMBERLAND	LIBERTY PLAINS	121 11427
Region :10 - SYDNEY SOUTH COAST		CMA Map :	
River Basin :		Grid Zone :	Scale :
Area / District :			
Elevation :		Northing :6251545	Latitude (S) :33° 51' 40"
Elevation Source :		Easting :320939.598	Longitude (E) :151° 3' 53"
GS Map :	AMG Zone :56	Coordinate Source :GIS - Geographic Information System	

Construction Negative depths indicate Above Ground Level;

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1	1	Casing	PVC Class 18	0.00	9.50	65			C: 5-6.5m; Screwed; Seated on Bottom; Cap
1	1	Opening	Slots - Vertical	6.50	9.50	65			PVC Class 18; Sawn; SL: 3mm; A: 1mm
1		Annulus	Waterworn/Rounded	6.50	10.00				Graded

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
0.00		0.00			7.30				

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	5.00	5.00	SHALE WEATHERED	Shale	
5.00	10.00	5.00	SHALE	Shale	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
(No Pumping Test Summary Details Found)										

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
(No Pumping Test Reading Details Found)										

Chemical Treatment

Treatment	Method	Quantity (L)	Name
(No Chemical Treatment Details Found)			

Development

Method	Time Taken	Other Development Method
(No Development Details Found)		

Remarks

*** End of GW102645 ***

*** End of Report ***

APPENDIX E
Test Pit / Bore Report Results

GRAPHIC SYMBOLS FOR SOIL & ROCK

SOIL

	BITUMINOUS CONCRETE
	CONCRETE
	TOPSOIL
	FILLING
	PEAT
	CLAY
	SILTY CLAY
	SANDY CLAY
	GRAVELLY CLAY
	SHALY CLAY
	SILT
	CLAYEY SILT
	SANDY SILT
	SAND
	CLAYEY SAND
	SILTY SAND
	GRAVEL
	SANDY GRAVEL
	COBBLES/BOULDERS
	TALUS

SEAMS

	SEAM >10mm
	SEAM <10mm

SEDIMENTARY ROCK

	BOULDER CONGLOMERATE
	CONGLOMERATE
	CONGLOMERATIC SANDSTONE
	SANDSTONE FINE GRAINED
	SANDSTONE COARSE GRAINED
	SILTSTONE
	LAMINITE
	MUDSTONE, CLAYSTONE, SHALE
	COAL
	LIMESTONE

METAMORPHIC ROCK

	SLATE, PHYLLITE, SCHIST
	GNEISS
	QUARTZITE

IGNEOUS ROCK

	GRANITE
	DOLERITE, BASALT
	TUFF
	PORPHYRY



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TEST PIT LOG

CLIENT: AV Jennings Ltd
PROJECT: Proposed Office Development - Site 13
LOCATION: Cnr Sarah Durack Ave & Olympic Boulevard, Homebush

SURFACE LEVEL: 114.6 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/-

PIT No: TP1
PROJECT No: 44559A
DATE: 04 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
114	0.2	FILLING - poorly compacted, brown silty sand topsoil filling with organic matter, rootlets, gravel and woodchip, wet		D	0.0		PID=30ppm CH ₄ = 0					
	0.4	FILLING - moderately compacted, yellow brown crushed sandstone filling (presents as gravelly sandy clay), damp		D	0.2		PID=16ppm CH ₄ = 0					
				D	0.4		PID=3ppm CH ₄ = 0					
		FILLING - moderately compacted, brown sandy clay filling, with some red brown silty clay and gravel, damp		D	0.6							
113	1.2	ROADBASE - well compacted, grey crushed dolerite roadbase		D	1.2		PID=24ppm CH ₄ = 0					
	1.4	FILLING - well compacted, grey mottled red and orange shaly clay filling (possibly natural), moist		D	1.4		PID=12ppm CH ₄ = 0					
					1.7							
	2.2	SILTY CLAY - red mottled orange and grey silty clay, with ironstone banding, moist		D	2.2		PID=23ppm CH ₄ = 0					
112					2.4							
	2.8	SHALE - very low strength, light and dark grey/brown shale, with ironstone gravel and bands		D	2.8		PID=5ppm CH ₄ = 0					
	3.2	Pit discontinued at 3.2m - refusal on low strength shale			3.2							
111												
110												

RIG: Backhoe

LOGGED: KP

WATER OBSERVATIONS: No free groundwater observed

REMARKS: CH₄ = Methane %

- ☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep
		≡	Water level

CHECKED
Initials: <i>KP</i>
Date: 12/12/07



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TEST PIT LOG

CLIENT: AV Jennings Ltd
PROJECT: Proposed Office Development - Site 13
LOCATION: Cnr Sarah Durack Ave & Olympic Boulevard, Homebush

SURFACE LEVEL: 114.1 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/-

PIT No: TP2
PROJECT No: 44559A
DATE: 04 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing			Water	Dynamic Penetrometer Test (blows per mm)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
				Type	Depth	Sample		Results & Comments	5	10	15	20																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
114	0.2	FILLING - poorly compacted, brown silty sand topsoil filling, with organic matter, rootlets, gravel and woodchip, wet		D	0.0																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										

RIG: Backhoe

LOGGED: KP

WATER OBSERVATIONS: No free groundwater observed

REMARKS: *Denotes field replicate sample BD2 040107 collected
CH₄ = Methane %

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	D	Water seep
		W	Water level

CHECKED
Initials: <i>KP</i>
Date: 12/2/07



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TEST PIT LOG

CLIENT: AV Jennings Ltd
PROJECT: Proposed Office Development - Site 13
LOCATION: Cnr Sarah Durack Ave & Olympic Boulevard, Homebush

SURFACE LEVEL: 113.5 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/-

PIT No: TP3
PROJECT No: 44559A
DATE: 04 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing			Water	Dynamic Penetrometer Test (blows per mm)				
				Type	Depth	Sample		Results & Comments	5	10	15	20
113	0.2	FILLING - poorly compacted, brown silty sand topsoil filling with organic matter, rootlets, gravel and woodchip, saturated		D	0.0		PID=13ppm CH ₄ = 0					
				0.2		PID=7ppm CH ₄ = 0						
1	1.0	FILLING - poorly compacted, yellow brown crushed sandstone filling (presents as gravelly sandy clay, saturated)		D				1				
112		FILLING - stiff to firm, red brown silty clay filling, with shale and sandstone gravel, moist		D	1.0		PID=7ppm CH ₄ = 0					
2				D	1.5		PID=9ppm CH ₄ = 0					
111	2.6			D	2.0			2				
2.8		SHALE - very low strength, light grey mottled brown shale, with some ironstone bands		D	2.6		PID=28ppm CH ₄ = 0					
3		Pit discontinued at 2.8m - refusal on low strength shale			2.8			3				
110								4				
4												
109												

RIG: Backhoe

LOGGED: KP

WATER OBSERVATIONS: No free groundwater observed

REMARKS: CH₄ = Methane %

- ☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep
		⊕	Water level

CHECKED	
Initials:	KP
Date:	12/2/07



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TEST PIT LOG

CLIENT: AV Jennings Ltd
PROJECT: Proposed Office Development - Site 13
LOCATION: Cnr Sarah Durack Ave & Olympic Boulevard, Homebush

SURFACE LEVEL: 113.8 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: TP4
PROJECT No: 44559A
DATE: 04 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
113	0.2	FILLING - poorly compacted, brown gravelly sand topsoil filling, with rootlets, organic matter and woodchip, wet		D	0.0		PID=13ppm CH ₄ = 0	1				
		FILLING - moderately compacted, red mottled grey silty clay filling, with bitumen and roadbase, moist		D	0.2		PID=8ppm CH ₄ = 0					
	0.6				0.5							
	0.65	ASPHALTIC CONCRETE			0.65		PID=8ppm CH ₄ = 0					
		ROADBASE - well compacted, grey crushed dolerite roadbase, moist		D								
	0.95				0.95		PID=23ppm CH ₄ = 0					
112	1.3	FILLING - moderately compacted, orange mottled yellow crushed sandstone filling (presents as gravelly sandy clay), damp		D				2				
		SILTY CLAY - firm to stiff, red brown mottled grey silty clay with some ironstone gravel (possibly filling), damp		D	1.3		PID=24ppm CH ₄ = 0					
	1.8	SHALE - very low strength, light to dark grey shale with ironstone banding		D	1.8		PID=21ppm CH ₄ = 0					
109	2.1	Pit discontinued at 2.1m - refusal on low strength shale			2.1							
111	3							3				
110	4							4				

RIG: Backhoe

LOGGED: KP

WATER OBSERVATIONS: No free groundwater observed

REMARKS: CH₄ = Methane %

- ☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	Δ	Water seep
		≡	Water level

CHECKED	
Initials:	KP
Date:	12/2/07



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TEST PIT LOG

CLIENT: AV Jennings Ltd
PROJECT: Proposed Office Development - Site 13
LOCATION: Cnr Sarah Durack Ave & Olympic Boulevard,
Homebush

SURFACE LEVEL: 112.5 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

PIT No: TP5
PROJECT No: 44559A
DATE: 04 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
112	0.02	GRASS		D	0.02		PID=4ppm CH ₄ = 0					
	0.15	FILLING - poorly compacted, brown silty sand topsoil filling, with rootlets and organic matter, saturated		D*	0.15		PID=10ppm CH ₄ = 0					
	0.6	FILLING - moderately compacted, mottled light grey and red silty clay filling, with some shale and ironstone gravel, damp		D	0.6		PID=4ppm CH ₄ = 0					
	1.4	FILLING - well compacted, red mottled orange and grey silty clay filling, with shale and ironstone gravel, damp		D	1.4		PID=6ppm CH ₄ = 0					
	2.5			D	2.5							
	2.6			D	2.6		PID=17ppm CH ₄ = 0					
	3.0			D	3.0							
	3.2	FILLING - well compacted, dark grey shaly clay filling, with some orange silty clay, wet		D	3.2		PID=26ppm CH ₄ = 0					
	4.0	Pit discontinued at 4.0m - target depth reached			4.0							

RIG: Backhoe

LOGGED: KP

WATER OBSERVATIONS: Free groundwater observed at 2.6m

REMARKS: *Denotes field replicate sample BD1 040107 collected
CH₄ = Methane %

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	Δ	Water seep
		ζ	Water level

CHECKED
Initials: <i>W</i>
Date: 12/2/07



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BOREHOLE LOG

CLIENT: AV Jennings Ltd
PROJECT: Proposed Office Development - Site 13
LOCATION: Cnr Sarah Durack Ave & Olympic Boulevard,
Homebush

SURFACE LEVEL: 112.5 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/-

BORE No: 6
PROJECT No: 44559
DATE: 11 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Well Construction Details	
				Type	Depth	Sample	Results & Comments			
112.5	0.03	ASPHALTIC CONCRETE							Roadbox Cap	
112.0	0.3	ROADBASE - well compacted, grey roadbase gravel, moist		A	0.3					
111.5	0.6	FILLING - moderately compacted, mottled light grey and red silty clay filling, with some ironstone gravel, damp								
111.0		FILLING - well compacted, mottled orange and grey silty clay filling, with some ironstone gravel							Bentonite	
110.5	1.4	FILLING - well compacted, mottled orange grey silty clay with some ironstone gravel and plant roots filling, damp		S	1.5		4,5,6 N = 11		Backfilled with gravel	
110.0					1.95					
109.5										
109.0	3.2	FILLING - well compacted, dark grey shaly clay filling, with some gravel and plant roots, damp (possibly natural)		S	3.0		3,4,6 N = 10			
108.5					3.45					
108.0	4.2	SHALE - extremely low strength, extremely to moderately weathered, light grey shale with medium strength ironstone bands			4.4					
107.5				C					Machine slotted PVC screen	
107.0	5.41	SHALE - low to medium strength, moderately weathered, slightly fractured, grey brown shale. Some extremely low strength bands along bedding			5.7		PL(A) = 0.3MPa			
106.5					5.85					
106.0	6.24	SHALE - medium strength, moderately weathered, slightly fractured, grey brown shale			6.45		PL(A) = 0.5MPa			
105.5				C						
105.0		- slightly weathered, grey from 7.42m			7.35		PL(A) = 0.8MPa			
104.5					7.7		PL(A) = 0.5MPa			
104.0	8.0	Bore discontinued at 8.0m			8.0				End cap	
103.5										
103.0										

RIG: Multi-Access Rig

DRILLER: Tracess

LOGGED: SI

CASING: HW to 4.4m

TYPE OF BORING: Solid flight auger to 4.4m; NMLC-Coring to 8.0m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS: Groundwater measured at 2.6m on 18/1/07; 2.7m on 16/1/07; 3.5m on 30/1/07

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	Δ	Water seep
		≡	Water level

CHECKED
Initials: GLB
Date: 12/2/07



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BOREHOLE LOG

CLIENT: AV Jennings Ltd
PROJECT: Proposed Office Development - Site 13
LOCATION: Cnr Sarah Durack Ave & Olympic Boulevard,
Homebush

SURFACE LEVEL: 113.1 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/-

BORE No: 7
PROJECT No: 44559
DATE: 11 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Degree of Weathering				Graphic Log	Rock Strength					Water	Fracture Spacing (m)	Discontinuities		Sampling & In Situ Testing				
			EW	HW	MW	SW		FS	FR	Ex Low	Very Low	Low			Medium	High	Very High	Ex High	B - Bedding S - Shear	J - Joint D - Drill Break	Type
113	0.22	CONCRETE																			
	0.5	ROADBASE - well compacted, grey gravel (coarsely graded) roadbase																A			
		FILLING - variably compacted, orange brown gravelly clay filling, moist																A			
112	1.2	SILTY CLAY - firm to stiff, orange brown mottled light grey silty clay, with some ironstone gravel, moist to wet (possibly filling)																S			3.3,5 N = 8
	2.2	SHALE - extremely low to very low strength, extremely to highly weathered, light grey shale. Some ironstone bands																A			
111																					
110	3.2	SHALE - medium strength, extremely weathered to moderately weathered, grey brown shale with extremely low strength bands																C	100	54	PL(A) = 0.3MPa
	4.1	SHALE - medium strength, moderately to slightly weathered, slightly fractured, grey brown shale. Some sandstone laminations																			PL(A) = 0.5MPa
	5																	C	100	92	PL(A) = 0.9MPa
	5.8	Bore discontinued at 5.8m																			
107																					
	7																				
	8																				
	9																				
104																					

RIG: Multi-Access Rig

DRILLER: Tracess

LOGGED: Boyd/SI

CASING: HW to 2.9m

TYPE OF BORING: Diatube to 0.22m; Solid flight auger to 2.9m; NMLC-Coring to 5.75m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS:

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
V	Water sample	V	Shear Vane (kPa)
C	Core drilling	b	Water seep
		W	Water level

CHECKED	
Initials:	GRB
Date:	12/2/07



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BOREHOLE LOG

CLIENT: AV Jennings Ltd
PROJECT: Proposed Office Development - Site 13
LOCATION: Cnr Sarah Durack Ave & Olympic Boulevard, Homebush

SURFACE LEVEL: 113.3 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/-

BORE No: 8
PROJECT No: 44559
DATE: 11 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Degree of Weathering				Graphic Log	Rock Strength					Water	Fracture Spacing (m)				Discontinuities		Sampling & In Situ Testing						
			EW	HW	MW	SW		FS	FR	Ex Low	Very Low	Low		Medium	High	Very High	Ex High	0.01	0.05	0.10	0.50	1.00	B - Bedding S - Shear	J - Joint D - Drill Break	Type	Core Rec. %
113	0.26	CONCRETE																								
	0.5	ROADBASE - well compacted, grey roadbase gravel (coarsely graded)																					A			
	1.1	FILLING - poorly compacted, orange brown silty clay filling, with trace ironstone gravel																					A			
	1.1	SILTY CLAY - stiff, red brown to orange brown silty clay, with shaly clay and ironstone (possibly filling)																					S			3.4,5 N = 9
	2.5	SHALE - extremely low to very low strength, extremely to moderately weathered, fractured to slightly fractured, light grey brown shale with medium strength ironstone bands																					A			
	3.88	SHALE - medium strength, extremely to moderately weathered, fractured to slightly fractured, light grey and brown shale. Some very low strength bands																					C	100	33	PL(A) = 1.2MPa
	4.65	SHALE - medium strength, moderately to slightly weathered, fractured to slightly fractured, grey brown shale with some sandstone laminae																					C	100	75	PL(A) = 0.8MPa
	5.7	SHALE - high strength, moderately to slightly weathered, slightly fractured, grey to grey brown shale																					C	100	100	PL(A) = 0.9MPa PL(A) = 1.3MPa
	6.5	Bore discontinued at 6.5m																								
	7																									
	8																									
	9																									
	10																									
	11																									
	12																									
	13																									

RIG: Multi-Access Rig

DRILLER: Tracess

LOGGED: SI

CASING: HW to 3.0m

TYPE OF BORING: Diatube to 0.26m; Solid flight auger to 2.97m; NMLC-Coring to 6.5m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS:

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U	Tube sample (x mm dia.)	PL	Point load strength ls(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep
		≡	Water level

CHECKED	
Initials:	GRB
Date:	12/2/07



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BOREHOLE LOG

CLIENT: AV Jennings Ltd
PROJECT: Proposed Office Development - Site 13
LOCATION: Cnr Sarah Durack Ave & Olympic Boulevard,
Homebush

SURFACE LEVEL: 112.9 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/-

BORE No: 9
PROJECT No: 44559
DATE: 11 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Degree of Weathering					Graphic Log	Rock Strength					Water	Fracture Spacing (m)	Discontinuities		Sampling & In Situ Testing			
			EW	HW	MW	SW	FS		FR	Ex Low	Very Low	Low	Medium			High	Very High	Ex High	B - Bedding S - Shear	J - Joint D - Drill Break	Type
112	0.2	CONCRETE																A			4,5,8 N = 13
	0.5	ROADBASE - well compacted, light grey roadbase gravel																A			
1		FILLING - poorly compacted, orange brown silty clay with sandstone gravel filling, damp to moist																A			
1.1	1.2	SILTY CLAY - stiff, orange red brown silty clay, with some shaly clay and ironstone gravel (possibly filling)																S			
2	2.5	SHALE - extremely low to very low strength, extremely to moderately weathered, light grey brown shale with medium strength ironstone bands 2.89-3.0m: low strength																			PL(A) = 0.3MPa PL(A) = 0.6MPa PL(A) = 0.5MPa PL(A) = 1.1MPa
3	3.9	SHALE - low to medium then medium strength, moderately weathered, fractured to slightly fractured, light grey brown shale. Some sandstone laminae																C	100	20	
4																		C	100	58	
5	5.5	SHALE - high strength, slightly weathered, slightly fractured, unbroken, grey shale Bore discontinued at 5.7m																C	100	93	
6	5.7																				
7																					
8																					
9																					
10																					
103																					

RIG: Multi-Access Rig

DRILLER: Tracess

LOGGED: SI

CASING: HW to 2.9m

TYPE OF BORING: Diatube to 0.2m; Solid flight auger to 2.89m; NMLC-Coring to 5.7m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS:

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	>	Water seep
		≡	Water level

CHECKED	
Initials:	GRB
Date:	12/2/07



Douglas Partners
Geotechnics · Environment · Groundwater

BOREHOLE LOG

CLIENT: AV Jennings Ltd
PROJECT: Proposed Office Development - Site 13
LOCATION: Cnr Sarah Durack Ave & Olympic Boulevard, Homebush

SURFACE LEVEL: 114.4 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/-

BORE No: 10
PROJECT No: 44559
DATE: 12 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Degree of Weathering				Graphic Log	Rock Strength					Fracture Spacing (m)	Discontinuities		Sampling & In Situ Testing			
			EW	HW	MW	SW		Ex Low	Low	Medium	High	Very High		B - Bedding S - Shear	J - Joint D - Drill Break	Type	Core Rec. %	RQD %	Test Results & Comments
114	0.03	ASPHALTIC CONCRETE																	
	0.5	ROADBASE - well compacted, grey roadbase gravel, moist														A			
	1.0	FILLING - moderately compacted, light brown medium grained sand filling, with some concrete gravel, moist														A			
	2.3	FILLING - well compacted, light grey silty clay filling with concrete gravel, damp														A			
	3.2	SILTY CLAY - very stiff, mottled orange grey silty clay with trace of ironstone, damp to moist														S			4,8,20 N = 28
	4.55	SHALE - extremely low strength, light grey brown shale with ironstone bands																	
	5.55	SHALE - very low strength, extremely to moderately weathered, fractured to slightly fractured, light grey brown shale with medium strength ironstone bands														C	100	33	
	6.7	SHALE - medium strength, moderately to slightly weathered, fractured to slightly fractured, light grey brown shale with extremely low strength bands														C	100	57	PL(A) = 0.3MPa PL(A) = 0.5MPa
	7.13	SHALE - very low strength, highly to moderately weathered, grey brown shale																	
	8.3	SHALE - medium strength, slightly weathered, fractured to slightly fractured, grey brown shale														C	100	90	PL(A) = 0.4MPa
	8.3	Bore discontinued at 8.3m																	PL(A) = 0.6MPa

RIG: Multi-Access Rig

DRILLER: Tracess

LOGGED: Boyd/SI

CASING: HW to 4.5m

TYPE OF BORING: Solid flight auger to 4.5m; NMLC-Coring to 8.3m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS:

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U	Tube sample (x mm dia.)	PL	Point load strength ls(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	Δ	Water seep
		≡	Water level

CHECKED	
Initials:	GRB
Date:	12/2/07



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BOREHOLE LOG

CLIENT: AV Jennings Ltd
PROJECT: Proposed Office Development - Site 13
LOCATION: Cnr Sarah Durack Ave & Olympic Boulevard,
Homebush

SURFACE LEVEL: 114.4 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/-

BORE No: 11
PROJECT No: 44559
DATE: 12 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Degree of Weathering				Graphic Log	Rock Strength						Water	Fracture Spacing (m)	Discontinuities		Sampling & In Situ Testing			
			EW	HW	SW	FS		FR	Ex Low	Very Low	Low	Medium	High			Very High	Ex High	B - Bedding S - Shear	J - Joint D - Drill Break	Type	Core Rec. %
114	0.5	FILLING - poorly compacted, light grey brown fine to medium grained, sand with concrete gravel filling, moist																A			
113	1	FILLING - poorly to moderately compacted, dark grey and orange brown fine to medium grained sand and silt with concrete gravel filling, humid																A			
112	1.3	SHALY CLAY - light grey mottled red shaly clay with ironstone band																A			
112	2.0	SHALE - extremely low to very low strength, light grey and brown shale with ironstone																A			
111	2.75	SHALE - extremely low to very low strength, extremely to moderately weathered, fragmented to slightly fractured, light grey brown shale with medium strength ironstone bands																C	100	71	PL(A) = 0.4MPa
110	4																				PL(A) = 0.3MPa
109	4.9	SHALE - medium strength, moderately to slightly weathered, slightly fractured, grey brown to grey shale																C	100	80	PL(A) = 0.6MPa
108	6.4	SHALE - high strength, fresh stained, slightly fractured, grey shale with <20% sandstone laminae																C	100	92	PL(A) = 1.3MPa PL(A) = 1.2MPa
107	7.0	Bore discontinued at 7.0m																			
106	8																				
105	9																				

RIG: Multi-Access Rig

DRILLER: Tracess

LOGGED: SI

CASING: HW to 2.75m

TYPE OF BORING: Solid flight auger to 2.75m; NMLC-Coring to 7.0m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS:

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	BP	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	Δ	Water seep
		☼	Water level

CHECKED	
Initials:	GRB
Date:	12/2/07



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BOREHOLE LOG

CLIENT: AV Jennings Ltd
PROJECT: Proposed Office Development - Site 13
LOCATION: Cnr Sarah Durack Ave & Olympic Boulevard,
 Homebush

SURFACE LEVEL: 112.8 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/-

BORE No: 12
PROJECT No: 44559
DATE: 12 Jan 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Degree of Weathering					Graphic Log	Rock Strength					Water	Fracture Spacing (m)	Discontinuities		Sampling & In Situ Testing				
			EW	HW	MW	SW	FS		FR	Ex Low	Very Low	Low	Medium			High	Very High	Ex High	B - Bedding S - Shear	J - Joint D - Drill Break	Type	Core Rec. %
112	0.2	CONCRETE																				
	0.7	ROADBASE - well compacted, grey roadbase gravel (coarsely graded), moist																A				
111	1.5	FILLING - well compacted, mottled red grey silty clay filling with some ironstone gravel																A				
110	3.1	FILLING - light grey shaly clay filling, with some orange red silty clay and ironstone gravel																S				
109	4.5	SHALE - extremely low to very low strength, light grey and brown shale with ironstone bands																A				
108	5.55	SHALE - extremely low to very low strength, extremely to moderately weathered, fractured to slightly fractured, light grey and brown shale with medium strength bands																				
107	6.83	SHALE - medium strength, moderately to slightly weathered, fractured to slightly fractured, grey brown shale 5.9-6.15m: very low strength bands																				
106	8.0	SHALE - high strength, fresh, unbroken, grey shale with approximately 20% sandstone laminae																				
105																						
104																						
103																						

RIG: Multi-Access Rig

DRILLER: Traccess

LOGGED: Boyd/SI

CASING: HW to 4.5m

TYPE OF BORING: Diatube to 0.2m; Solid flight auger to 4.5m; NMLC-Coring to 8.0m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS:

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	Δ	Water seep
		▽	Water level

CHECKED	
Initials:	GRB
Date:	12/2/07



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APPENDIX F
Laboratory Reports and Chain of Custody Documentation



Envirolab Services Pty Ltd

ABN 37 112 535 645

54 Frenchs Rd Willoughby NSW 2068

ph 02 9958 5801 fax 02 9958 5803

email: tnotaras@envirolabservices.com.au

CERTIFICATE OF ANALYSIS 8881

Client:

Douglas Partners

96 Hermitage Rd

West Ryde

NSW 2114

Attention: Kurt Plambeck

Sample log in details:

Your Reference:

44559A, Homebush Office Development

No. of samples:

12 Soils

Date samples received:

05/01/07

Date completed instructions received:

12/01/07

Analysis Details:

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

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

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

Please refer to the last page of this report for any comments relating to the results.

Report Details:

Date results requested by:

19/01/07

Date of Preliminary Report:

Not Issued

Issue Date:

18/01/07

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This document is issued in accordance with NATA's accreditation requirements.

Accredited for compliance with ISO/IEC 17025.

Tests not covered by NATA are denoted with *.

Results Approved By:

Tania Notaras
Manager

Jacinta Hurst
Operations Manager
Giovanni Agosti
Senior Inorganic Chemist

Envirolab Reference: 8881

Revision No: R 00



vTPH & BTEX in Soil	UNITS	8881-1	8881-2	8881-3	8881-4	8881-5
Our Reference:	-----	TP1	TP1	TP2	TP2	TP3
Your Reference	-----	0.2-0.4	0.4-0.6	0-0.2	0.5-0.7	1-1.5
Depth		Soil	Soil	Soil	Soil	Soil
Type of sample						
Date extracted	--	15/01/2007	15/01/2007	15/01/2007	15/01/2007	15/01/2007
Date analysed	--	15/01/2007	15/01/2007	15/01/2007	15/01/2007	15/01/2007
vTPH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Toluene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Ethylbenzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
m + p-Xylene	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0
o-Xylene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Surrogate aaa-Trifluorotoluene	%	98	95	87	90	90

vTPH & BTEX in Soil	UNITS	8881-7	8881-8	8881-9	8881-10	8881-11
Our Reference:	-----	TP3	TP4	TP4	TP5	TP5
Your Reference	-----	0.2-0.5	0.2-0.5	0.65-0.95	0.15-0.6	1.4-2.5
Depth		Soil	Soil	Soil	Soil	Soil
Type of sample						
Date extracted	--	15/01/2007	15/01/2007	15/01/2007	15/01/2007	15/01/2007
Date analysed	--	15/01/2007	15/01/2007	15/01/2007	15/01/2007	15/01/2007
vTPH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Toluene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Ethylbenzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
m + p-Xylene	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0
o-Xylene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Surrogate aaa-Trifluorotoluene	%	97	97	103	98	96

vTPH & BTEX in Soil	UNITS	8881-12
Our Reference:	-----	BD3 040107
Your Reference	-----	-
Depth		Soil
Type of sample		
Date extracted	--	15/01/2007
Date analysed	--	15/01/2007
vTPH C ₆ - C ₉	mg/kg	<25
Benzene	mg/kg	<1.0
Toluene	mg/kg	<1.0
Ethylbenzene	mg/kg	<1.0
m + p-Xylene	mg/kg	<2.0
o-Xylene	mg/kg	<1.0
Surrogate aaa-Trifluorotoluene	%	96

sTPH in Soil (C10-C36)	UNITS	8881-1	8881-2	8881-3	8881-4	8881-5
Our Reference:	-----	TP1	TP1	TP2	TP2	TP3
Your Reference	-----	0.2-0.4	0.4-0.6	0-0.2	0.5-0.7	1-1.5
Depth		Soil	Soil	Soil	Soil	Soil
Type of sample						
Date extracted	--	15/01/2007	15/01/2007	15/01/2007	15/01/2007	15/01/2007
Date analysed	--	15/01/2007	15/01/2007	15/01/2007	15/01/2007	15/01/2007
TPH C10 - C14	mg/kg	<50	<50	<50	<50	<50
TPH C15 - C28	mg/kg	<100	<100	<100	<100	<100
TPH C29 - C36	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	84	81	82	81	82

sTPH in Soil (C10-C36)	UNITS	8881-7	8881-8	8881-9	8881-10	8881-11
Our Reference:	-----	TP3	TP4	TP4	TP5	TP5
Your Reference	-----	0.2-0.5	0.2-0.5	0.65-0.95	0.15-0.6	1.4-2.5
Depth		Soil	Soil	Soil	Soil	Soil
Type of sample						
Date extracted	--	15/01/2007	15/01/2007	15/01/2007	15/01/2007	15/01/2007
Date analysed	--	15/01/2007	15/01/2007	15/01/2007	15/01/2007	15/01/2007
TPH C10 - C14	mg/kg	<50	<50	<50	<50	<50
TPH C15 - C28	mg/kg	<100	<100	<100	<100	<100
TPH C29 - C36	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	82	80	82	81	81

sTPH in Soil (C10-C36)	UNITS	8881-12
Our Reference:	-----	BD3 040107
Your Reference	-----	-
Depth		Soil
Type of sample		
Date extracted	--	15/01/2007
Date analysed	--	15/01/2007
TPH C10 - C14	mg/kg	<50
TPH C15 - C28	mg/kg	<100
TPH C29 - C36	mg/kg	<100
Surrogate o-Terphenyl	%	80

PAHs in Soil Our Reference: Your Reference Depth Type of sample	UNITS ----- -----	8881-1 TP1 0.2-0.4 Soil	8881-2 TP1 0.4-0.6 Soil	8881-3 TP2 0-0.2 Soil	8881-4 TP2 0.5-0.7 Soil	8881-5 TP3 1-1.5 Soil
Date extracted	--	15/01/2007	15/01/2007	15/01/2007	15/01/2007	15/01/2007
Date analysed	--	15/01/2007	15/01/2007	15/01/2007	15/01/2007	15/01/2007
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	0.1	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate p-Terphenyl-d14	%	114	102	113	106	110

PAHs in Soil Our Reference: Your Reference Depth Type of sample	UNITS ----- -----	8881-7 TP3 0.2-0.5 Soil	8881-8 TP4 0.2-0.5 Soil	8881-9 TP4 0.65-0.95 Soil	8881-10 TP5 0.15-0.6 Soil	8881-11 TP5 1.4-2.5 Soil
Date extracted	--	15/01/2007	15/01/2007	15/01/2007	15/01/2007	15/01/2007
Date analysed	--	15/01/2007	15/01/2007	15/01/2007	15/01/2007	15/01/2007
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	0.2	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	0.08	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate p-Terphenyl-d ₁₄	%	110	110	108	108	107

PAHs in Soil Our Reference: Your Reference Depth Type of sample	UNITS ----- -----	8881-12 BD3 040107 - Soil
Date extracted	--	15/01/2007
Date analysed	--	15/01/2007
Naphthalene	mg/kg	<0.1
Acenaphthylene	mg/kg	<0.1
Acenaphthene	mg/kg	<0.1
Fluorene	mg/kg	<0.1
Phenanthrene	mg/kg	<0.1
Anthracene	mg/kg	<0.1
Fluoranthene	mg/kg	<0.1
Pyrene	mg/kg	<0.1
Benzo(a)anthracene	mg/kg	<0.1
Chrysene	mg/kg	<0.1
Benzo(b,k)fluoranthene	mg/kg	<0.2
Benzo(a)pyrene	mg/kg	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1
Surrogate p-Terphenyl-d14	%	102

Organochlorine Pesticides in soil						
Our Reference:	UNITS	8881-1	8881-2	8881-3	8881-4	8881-5
Your Reference	-----	TP1	TP1	TP2	TP2	TP3
Depth	-----	0.2-0.4	0.4-0.6	0-0.2	0.5-0.7	1-1.5
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	--	15/01/2007	15/01/2007	15/01/2007	15/01/2007	15/01/2007
Date analysed	--	15/01/2007	15/01/2007	15/01/2007	15/01/2007	15/01/2007
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	121	87	97	123	131

Organochlorine Pesticides in soil		8881-7	8881-8	8881-9	8881-10	8881-11
Our Reference:	UNITS	TP3	TP4	TP4	TP5	TP5
Your Reference	-----	0.2-0.5	0.2-0.5	0.65-0.95	0.15-0.6	1.4-2.5
Depth	-----	Soil	Soil	Soil	Soil	Soil
Type of sample						
Date extracted	--	15/01/2007	15/01/2007	15/01/2007	15/01/2007	15/01/2007
Date analysed	--	15/01/2007	15/01/2007	15/01/2007	15/01/2007	15/01/2007
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	119	142	140	123	129

PCBs in Soil Our Reference: Your Reference Depth Type of sample	UNITS ----- -----	8881-1 TP1 0.2-0.4 Soil	8881-2 TP1 0.4-0.6 Soil	8881-3 TP2 0-0.2 Soil	8881-4 TP2 0.5-0.7 Soil	8881-5 TP3 1-1.5 Soil
Date extracted	--	15/01/2007	15/01/2007	15/01/2007	15/01/2007	15/01/2007
Date analysed	--	15/01/2007	15/01/2007	15/01/2007	15/01/2007	15/01/2007
Arochlor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	121	87	97	123	131

PCBs in Soil Our Reference: Your Reference Depth Type of sample	UNITS ----- -----	8881-7 TP3 0.2-0.5 Soil	8881-8 TP4 0.2-0.5 Soil	8881-9 TP4 0.65-0.95 Soil	8881-10 TP5 0.15-0.6 Soil	8881-11 TP5 1.4-2.5 Soil
Date extracted	--	15/01/2007	15/01/2007	15/01/2007	15/01/2007	15/01/2007
Date analysed	--	15/01/2007	15/01/2007	15/01/2007	15/01/2007	15/01/2007
Arochlor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	119	142	140	123	129

Acid Extractable metals in soil	UNITS	8881-1	8881-2	8881-3	8881-4	8881-5
Our Reference:	-----	TP1	TP1	TP2	TP2	TP3
Your Reference	-----	0.2-0.4	0.4-0.6	0-0.2	0.5-0.7	1-1.5
Depth	-----	Soil	Soil	Soil	Soil	Soil
Type of sample						
Arsenic	mg/kg	<4.0	<4.0	<4.0	<4.0	12
Cadmium	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Chromium	mg/kg	3.7	15	5.8	40	15
Copper	mg/kg	1.5	32	7.6	48	13
Lead	mg/kg	6.3	12	9.9	7.7	24
Mercury	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Nickel	mg/kg	<1.0	28	4.3	140	1.8
Zinc	mg/kg	3.3	42	25	55	6.7

Acid Extractable metals in soil	UNITS	8881-7	8881-8	8881-9	8881-10	8881-11
Our Reference:	-----	TP3	TP4	TP4	TP5	TP5
Your Reference	-----	0.2-0.5	0.2-0.5	0.65-0.95	0.15-0.6	1.4-2.5
Depth	-----	Soil	Soil	Soil	Soil	Soil
Type of sample						
Arsenic	mg/kg	<4.0	<4.0	<4.0	10	6.1
Cadmium	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Chromium	mg/kg	3.4	17	110	8.0	4.8
Copper	mg/kg	2.1	42	30	17	20
Lead	mg/kg	6.7	17	7.5	13	14
Mercury	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Nickel	mg/kg	<1.0	47	89	1.7	3.1
Zinc	mg/kg	3.8	92	44	11	19

Acid Extractable metals in soil	UNITS	8881-12
Our Reference:	-----	BD3 040107
Your Reference	-----	-
Depth	-----	-
Type of sample		Soil
Arsenic	mg/kg	<4.0
Cadmium	mg/kg	<1.0
Chromium	mg/kg	3.4
Copper	mg/kg	2.5
Lead	mg/kg	17
Mercury	mg/kg	<0.10
Nickel	mg/kg	<1.0
Zinc	mg/kg	13

Acid Extractable metals in soil	UNITS	8881-1	8881-2	8881-3	8881-4	8881-5
Our Reference:	-----	TP1	TP1	TP2	TP2	TP3
Your Reference	-----	0.2-0.4	0.4-0.6	0-0.2	0.5-0.7	1-1.5
Depth		Soil	Soil	Soil	Soil	Soil
Type of sample						
Arsenic	mg/kg	<4.0	<4.0	<4.0	<4.0	12
Cadmium	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Chromium	mg/kg	3.7	15	5.8	40	15
Copper	mg/kg	1.5	32	7.6	48	13
Lead	mg/kg	6.3	12	9.9	7.7	24
Mercury	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Nickel	mg/kg	<1.0	28	4.3	140	1.8
Zinc	mg/kg	3.3	42	25	55	6.7

Acid Extractable metals in soil	UNITS	8881-7	8881-8	8881-9	8881-10	8881-11
Our Reference:	-----	TP3	TP4	TP4	TP5	TP5
Your Reference	-----	0.2-0.5	0.2-0.5	0.65-0.95	0.15-0.6	1.4-2.5
Depth		Soil	Soil	Soil	Soil	Soil
Type of sample						
Arsenic	mg/kg	<4.0	<4.0	<4.0	10	6.1
Cadmium	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Chromium	mg/kg	3.4	17	110	8.0	4.8
Copper	mg/kg	2.1	42	30	17	20
Lead	mg/kg	6.7	17	7.5	13	14
Mercury	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Nickel	mg/kg	<1.0	47	89	1.7	3.1
Zinc	mg/kg	3.8	92	44	11	19

Acid Extractable metals in soil	UNITS	8881-12
Our Reference:	-----	BD3 040107
Your Reference	-----	-
Depth		Soil
Type of sample		
Arsenic	mg/kg	<4.0
Cadmium	mg/kg	<1.0
Chromium	mg/kg	3.4
Copper	mg/kg	2.5
Lead	mg/kg	17
Mercury	mg/kg	<0.10
Nickel	mg/kg	<1.0
Zinc	mg/kg	13

Moisture	UNITS	8881-1	8881-2	8881-3	8881-4	8881-5
Our Reference:	-----	TP1	TP1	TP2	TP2	TP3
Your Reference	-----	0.2-0.4	0.4-0.6	0-0.2	0.5-0.7	1-1.5
Depth		Soil	Soil	Soil	Soil	Soil
Type of sample						
Moisture	%	9.9	16	17	14	16

Moisture	UNITS	8881-7	8881-8	8881-9	8881-10	8881-11
Our Reference:	-----	TP3	TP4	TP4	TP5	TP5
Your Reference	-----	0.2-0.5	0.2-0.5	0.65-0.95	0.15-0.6	1.4-2.5
Depth		Soil	Soil	Soil	Soil	Soil
Type of sample						
Moisture	%	9.9	11	7.6	16	11

Moisture	UNITS	8881-12
Our Reference:	-----	BD3 040107
Your Reference	-----	-
Depth		Soil
Type of sample		
Moisture	%	8.9

Asbestos ID - soils Our Reference: Your Reference Depth Type of sample	UNITS ----- -----	8881-1 TP1 0.2-0.4 Soil	8881-4 TP2 0.5-0.7 Soil	8881-7 TP3 0.2-0.5 Soil	8881-9 TP4 0.65-0.95 Soil	8881-10 TP5 0.15-0.6 Soil
Sample Description	-	40g Sand, Stone	50g Clay, Rocks	40g Sand, Stone	50g Rocks, Gravel	40g Soil, Rocks
Asbestos ID in soil	--	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Trace Analysis	--	Respirable fibres not detected	Respirable fibres not detected	Respirable fibres not detected	Respirable fibres not detected	Respirable fibres not detected

Method ID	Methodology Summary
GC.16	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS.
GC.14	Soil samples extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
GC.3	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID.
GC.12	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS.
GC-5	Soil samples are extracted with hexane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
GC-6	Soil samples are extracted with hexane/acetone and waters with dichloromethane and analysed by GC-ECD.
Metals.20	Determination of various metals by ICP-AES.
Metals.21	Determination of Mercury by Cold Vapour AAS.
LAB.8	Moisture content determined by heating at 105 deg C for a minimum of 4 hours.
AS4964-2004	Qualitative identification of asbestos type fibres in bulk using Polarised Light Microscopy and Dispersion Staining Techniques.
ASB.1	Qualitative identification of asbestos type fibres in bulk using Polarised Light Microscopy and Dispersion Staining Techniques.

QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
vTPH & BTEX in Soil						Base II Duplicate II %RPD		
Date extracted	--			[NT]	8881-1	15/01/2007 15/01/2007	[NR]	[NR]
Date analysed	--			[NT]	8881-1	15/01/2007 15/01/2007	[NR]	[NR]
vTPH C6 - C9	mg/kg	25	GC.16	<25	8881-1	<25 <25	8881-2	82%
Benzene	mg/kg	1	GC.14	<1.0	8881-1	<1.0 <1.0	8881-2	76%
Toluene	mg/kg	1	GC.14	<1.0	8881-1	<1.0 <1.0	8881-2	93%
Ethylbenzene	mg/kg	1	GC.14	<1.0	8881-1	<1.0 <1.0	8881-2	96%
m + p-Xylene	mg/kg	2	GC.14	<2.0	8881-1	<2.0 <2.0	8881-2	105%
o-Xylene	mg/kg	1	GC.14	<1.0	8881-1	<1.0 <1.0	8881-2	99%
Surrogate aaa-Trifluorotoluene	%		GC.14	[NT]	8881-1	98 102 RPD: 4	8881-2	102%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
sTPH in Soil (C10-C36)						Base II Duplicate II %RPD		
Date extracted	--			[NT]	8881-1	15/01/2007 15/01/2007	[NR]	[NR]
Date analysed	--			[NT]	8881-1	15/01/2007 15/01/2007	[NR]	[NR]
TPH C10 - C14	mg/kg	50	GC.3	<50	8881-1	<50 <50	8881-2	98%
TPH C15 - C28	mg/kg	100	GC.3	<100	8881-1	<100 <100	8881-2	73%
TPH C29 - C36	mg/kg	100	GC.3	<100	8881-1	<100 <100	8881-2	82%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Soil						Base II Duplicate II %RPD		
Date extracted	--			[NT]	8881-1	15/01/2007 15/01/2007	[NR]	[NR]
Date analysed	--			[NT]	8881-1	15/01/2007 15/01/2007	[NR]	[NR]
Naphthalene	mg/kg	0.1	GC.12	<0.1	8881-1	<0.1 <0.1	8881-2	105%
Acenaphthylene	mg/kg	0.1	GC.12	<0.1	8881-1	<0.1 <0.1	[NR]	[NR]
Acenaphthene	mg/kg	0.1	GC.12	<0.1	8881-1	<0.1 <0.1	[NR]	[NR]
Fluorene	mg/kg	0.1	GC.12	<0.1	8881-1	<0.1 <0.1	8881-2	102%
Phenanthrene	mg/kg	0.1	GC.12	<0.1	8881-1	<0.1 <0.1	8881-2	94%
Anthracene	mg/kg	0.1	GC.12	<0.1	8881-1	<0.1 <0.1	[NR]	[NR]
Fluoranthene	mg/kg	0.1	GC.12	<0.1	8881-1	<0.1 <0.1	8881-2	96%
Pyrene	mg/kg	0.1	GC.12	<0.1	8881-1	<0.1 <0.1	8881-2	93%
Benzo(a)anthracene	mg/kg	0.1	GC.12	<0.1	8881-1	<0.1 <0.1	[NR]	[NR]
Chrysene	mg/kg	0.1	GC.12	<0.1	8881-1	<0.1 <0.1	8881-2	101%
Benzo(b,k)fluoranthene	mg/kg	0.2	GC.12	<0.2	8881-1	<0.2 <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	0.05	GC.12	<0.05	8881-1	<0.05 <0.05	8881-2	113%
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	GC.12	<0.1	8881-1	<0.1 <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	0.1	GC.12	<0.1	8881-1	<0.1 <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	GC.12	<0.1	8881-1	<0.1 <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		GC.12	[NT]	8881-1	114 110 RPD: 4	8881-2	111%

QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Organochlorine Pesticides in soil						Base II Duplicate II %RPD		
Date extracted	--			[NT]	8881-1	15/01/2007 15/01/2007	[NR]	[NR]
Date analysed	--			[NT]	8881-1	15/01/2007 15/01/2007	[NR]	[NR]
HCB	mg/kg	0.1	GC-5	<0.1	8881-1	<0.1 <0.1	[NR]	[NR]
alpha-BHC	mg/kg	0.1	GC-5	<0.1	8881-1	<0.1 <0.1	8881-2	71%
gamma-BHC	mg/kg	0.1	GC-5	<0.1	8881-1	<0.1 <0.1	[NR]	[NR]
beta-BHC	mg/kg	0.1	GC-5	<0.1	8881-1	<0.1 <0.1	8881-2	71%
Heptachlor	mg/kg	0.1	GC-5	<0.1	8881-1	<0.1 <0.1	8881-2	64%
delta-BHC	mg/kg	0.1	GC-5	<0.1	8881-1	<0.1 <0.1	[NR]	[NR]
Aldrin	mg/kg	0.1	GC-5	<0.1	8881-1	<0.1 <0.1	8881-2	108%
Heptachlor Epoxide	mg/kg	0.1	GC-5	<0.1	8881-1	<0.1 <0.1	8881-2	72%
gamma-Chlordane	mg/kg	0.1	GC-5	<0.1	8881-1	<0.1 <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	0.1	GC-5	<0.1	8881-1	<0.1 <0.1	[NR]	[NR]
Endosulfan I	mg/kg	0.1	GC-5	<0.1	8881-1	<0.1 <0.1	[NR]	[NR]
pp-DDE	mg/kg	0.1	GC-5	<0.1	8881-1	<0.1 <0.1	8881-2	72%
Dieldrin	mg/kg	0.1	GC-5	<0.1	8881-1	<0.1 <0.1	8881-2	85%
Endrin	mg/kg	0.1	GC-5	<0.1	8881-1	<0.1 <0.1	8881-2	77%
pp-DDD	mg/kg	0.1	GC-5	<0.1	8881-1	<0.1 <0.1	8881-2	92%
Endosulfan II	mg/kg	0.1	GC-5	<0.1	8881-1	<0.1 <0.1	8881-2	93%
pp-DDT	mg/kg	0.1	GC-5	<0.1	8881-1	<0.1 <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	0.1	GC-5	<0.1	8881-1	<0.1 <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	0.1	GC-5	<0.1	8881-1	<0.1 <0.1	[NR]	[NR]
Methoxychlor	mg/kg	0.1	GC-5	<0.1	8881-1	<0.1 <0.1	[NR]	[NR]
Surrogate TCLMX	%		GC-5	[NT]	8881-1	121 121 RPD: 0	8881-2	84%

QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PCBs in Soil						Base II Duplicate II %RPD		
Date extracted	--			[NT]	8881-1	15/01/2007 15/01/2007	[NR]	[NR]
Date analysed	--			[NT]	8881-1	15/01/2007 15/01/2007	[NR]	[NR]
Arochlor 1016	mg/kg	0.1	GC-6	<0.1	8881-1	<0.1 <0.1	[NR]	[NR]
Arochlor 1232	mg/kg	0.1	GC-6	<0.1	8881-1	<0.1 <0.1	[NR]	[NR]
Arochlor 1242	mg/kg	0.1	GC-6	<0.1	8881-1	<0.1 <0.1	[NR]	[NR]
Arochlor 1248	mg/kg	0.1	GC-6	<0.1	8881-1	<0.1 <0.1	[NR]	[NR]
Arochlor 1254	mg/kg	0.1	GC-6	<0.1	8881-1	<0.1 <0.1	8881-2	127%
Arochlor 1260	mg/kg	0.1	GC-6	<0.1	8881-1	<0.1 <0.1	[NR]	[NR]
Surrogate TCLMX	%		GC-6	[NT]	8881-1	121 121 RPD: 0	8881-2	83%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Acid Extractable metals in soil						Base II Duplicate II %RPD		
Arsenic	mg/kg	4	Metals.20	<4.0	8881-1	<4.0 <4.0	8881-2	106%
Cadmium	mg/kg	1	Metals.20	<1.0	8881-1	<1.0 <1.0	8881-2	102%
Chromium	mg/kg	1	Metals.20	<1.0	8881-1	3.7 3.7 RPD: 0	8881-2	105%
Copper	mg/kg	1	Metals.20	<1.0	8881-1	1.5 1.9 RPD: 24	8881-2	100%
Lead	mg/kg	1	Metals.20	<1.0	8881-1	6.3 8.4 RPD: 29	8881-2	101%
Mercury	mg/kg	0.1	Metals.21	<0.10	8881-1	<0.10 <0.10	8881-2	100%
Nickel	mg/kg	1	Metals.20	<1.0	8881-1	<1.0 <1.0	8881-2	101%
Zinc	mg/kg	1	Metals.20	<1.0	8881-1	3.3 4.6 RPD: 33	8881-2	108%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results		
Moisture						Base II Duplicate II %RPD		
Moisture	%	0.1	LAB.8	<0.10	8881-1	9.9 9.9 RPD: 0		
QUALITY CONTROL	UNITS	Dup. Sm#		Duplicate		Spike Sm#	Spike % Recovery	
vTPH & BTEX in Soil				Base + Duplicate + %RPD				
Date extracted	--	8881-11		15/01/2007 15/01/2007		[NR]	[NR]	
Date analysed	--	8881-11		15/01/2007 15/01/2007		[NR]	[NR]	
vTPH Cs - Cs	mg/kg	8881-11		<25 <25		LCS	97%	
Benzene	mg/kg	8881-11		<1.0 <1.0		LCS	92%	
Toluene	mg/kg	8881-11		<1.0 <1.0		LCS	93%	
Ethylbenzene	mg/kg	8881-11		<1.0 <1.0		LCS	96%	
m + p-Xylene	mg/kg	8881-11		<2.0 <2.0		LCS	105%	
o-Xylene	mg/kg	8881-11		<1.0 <1.0		LCS	99%	
Surrogate aaa-Trifluorotoluene	%	8881-11		96 109 RPD: 13		LCS	102%	

QUALITY CONTROL sTPH in Soil (C10-C36)	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	--	8881-11	15/01/2007 15/01/2007	[NR]	[NR]
Date analysed	--	8881-11	15/01/2007 15/01/2007	[NR]	[NR]
TPH C10 - C14	mg/kg	8881-11	<50 <50	LCS	101%
TPH C15 - C28	mg/kg	8881-11	<100 <100	LCS	75%
TPH C29 - C36	mg/kg	8881-11	<100 <100	LCS	86%
QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	--	8881-11	15/01/2007 15/01/2007	[NR]	[NR]
Date analysed	--	8881-11	15/01/2007 15/01/2007	[NR]	[NR]
Naphthalene	mg/kg	8881-11	<0.1 <0.1	LCS	107%
Acenaphthylene	mg/kg	8881-11	<0.1 <0.1	[NR]	[NR]
Acenaphthene	mg/kg	8881-11	<0.1 <0.1	[NR]	[NR]
Fluorene	mg/kg	8881-11	<0.1 <0.1	LCS	104%
Phenanthrene	mg/kg	8881-11	<0.1 <0.1	LCS	92%
Anthracene	mg/kg	8881-11	<0.1 <0.1	[NR]	[NR]
Fluoranthene	mg/kg	8881-11	<0.1 <0.1	LCS	98%
Pyrene	mg/kg	8881-11	<0.1 <0.1	LCS	93%
Benzo(a)anthracene	mg/kg	8881-11	<0.1 <0.1	[NR]	[NR]
Chrysene	mg/kg	8881-11	<0.1 <0.1	LCS	102%
Benzo(b,k)fluoranthene	mg/kg	8881-11	<0.2 <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	8881-11	<0.05 <0.05	LCS	113%
Indeno(1,2,3-c,d)pyrene	mg/kg	8881-11	<0.1 <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	8881-11	<0.1 <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	8881-11	<0.1 <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%	8881-11	107 110 RPD: 3	LCS	108%

QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	--	8881-11	15/01/2007 15/01/2007	[NR]	[NR]
Date analysed	--	8881-11	15/01/2007 15/01/2007	[NR]	[NR]
HCB	mg/kg	8881-11	<0.1 <0.1	[NR]	[NR]
alpha-BHC	mg/kg	8881-11	<0.1 <0.1	LCS	89%
gamma-BHC	mg/kg	8881-11	<0.1 <0.1	[NR]	[NR]
beta-BHC	mg/kg	8881-11	<0.1 <0.1	LCS	89%
Heptachlor	mg/kg	8881-11	<0.1 <0.1	LCS	87%
delta-BHC	mg/kg	8881-11	<0.1 <0.1	[NR]	[NR]
Aldrin	mg/kg	8881-11	<0.1 <0.1	LCS	115%
Heptachlor Epoxide	mg/kg	8881-11	<0.1 <0.1	LCS	91%
gamma-Chlordane	mg/kg	8881-11	<0.1 <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	8881-11	<0.1 <0.1	[NR]	[NR]
Endosulfan I	mg/kg	8881-11	<0.1 <0.1	[NR]	[NR]
pp-DDE	mg/kg	8881-11	<0.1 <0.1	LCS	88%
Dieldrin	mg/kg	8881-11	<0.1 <0.1	LCS	104%
Endrin	mg/kg	8881-11	<0.1 <0.1	LCS	93%
pp-DDD	mg/kg	8881-11	<0.1 <0.1	LCS	114%
Endosulfan II	mg/kg	8881-11	<0.1 <0.1	LCS	115%
pp-DDT	mg/kg	8881-11	<0.1 <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	8881-11	<0.1 <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	8881-11	<0.1 <0.1	[NR]	[NR]
Methoxychlor	mg/kg	8881-11	<0.1 <0.1	[NR]	[NR]
Surrogate TCLMX	%	8881-11	129 79 RPD: 48	LCS	107%

QUALITY CONTROL PCBs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	--	8881-11	15/01/2007 15/01/2007	[NR]	[NR]
Date analysed	--	8881-11	15/01/2007 15/01/2007	[NR]	[NR]
Arochlor 1016	mg/kg	8881-11	<0.1 <0.1	[NR]	[NR]
Arochlor 1232	mg/kg	8881-11	<0.1 <0.1	[NR]	[NR]
Arochlor 1242	mg/kg	8881-11	<0.1 <0.1	[NR]	[NR]
Arochlor 1248	mg/kg	8881-11	<0.1 <0.1	[NR]	[NR]
Arochlor 1254	mg/kg	8881-11	<0.1 <0.1	LCS	75%
Arochlor 1260	mg/kg	8881-11	<0.1 <0.1	[NR]	[NR]
Surrogate TCLMX	%	8881-11	129 79 RPD: 48	LCS	80%
QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Arsenic	mg/kg	8881-11	6.1 8.1 RPD: 28	LCS	103%
Cadmium	mg/kg	8881-11	<1.0 <1.0	LCS	96%
Chromium	mg/kg	8881-11	4.8 5.6 RPD: 15	LCS	99%
Copper	mg/kg	8881-11	20 14 RPD: 35	LCS	99%
Lead	mg/kg	8881-11	14 13 RPD: 7	LCS	98%
Mercury	mg/kg	8881-11	<0.10 <0.10	LCS	95%
Nickel	mg/kg	8881-11	3.1 1.9 RPD: 48	LCS	103%
Zinc	mg/kg	8881-11	19 11 RPD: 53	LCS	93%
QUALITY CONTROL Moisture	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD		
Moisture	%	8881-11	11 11 RPD: 0		

Report Comments:

Asbestos analysed by: Tania Notaras

INS: Insufficient sample for this test

RPD: Relative Percent Difference

NR: Not requested

NT: Not tested

NA: Test not required

<: Less than

PQL: Practical Quantitation Limit

LCS: Laboratory Control Sample

>: Greater than

Quality Control Definitions

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

Matrix Spike: A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

LCS (Laboratory Control Sample): This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Surrogate Spike: Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria:

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

Matrix Spikes and LCS: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable. Surrogates: Generally 60-140% is acceptable.



Envirolab Services Pty Ltd

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email: tnotaras@envirolabservices.com.au

CERTIFICATE OF ANALYSIS 8881-A

Client:

Douglas Partners

96 Hermitage Rd

West Ryde

NSW 2114

Attention: Kurt Plambeck

Sample log in details:

Your Reference:

44559A, Homebush Office Development

No. of samples:

Additional Testing on 2 Soils

Date samples received:

05/01/07

Date completed instructions received:

17/01/07

Analysis Details:

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

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

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

Please refer to the last page of this report for any comments relating to the results.

Report Details:

Date results requested by:

24/01/07

Date of Preliminary Report:

Not Issued

Issue Date:

22/01/07

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Results Approved By:



Jacinta Hurst
Operations Manager

Envirolab Reference: 8881-A

Revision No: R 00



Page 1 of 5

PAHs in TCLP (USEPA 1311)	UNITS	8881-A-2	8881-A-8
Our Reference:	-----	TP1	TP4
Your Reference	-----	0.4-0.6	0.2-0.5
Depth		Soil	Soil
Type of sample			
pH of soil for fluid# determ.	pH units	6.20	8.50
pH of soil for fluid # determ. (acid)	pH units	1.70	1.70
Extraction fluid used	-	1	1
pH of final Leachate	pH units	5.30	5.20
Date extracted	--	19/1/07	19/1/07
Date analysed	--	20/1/07	20/1/07
Naphthalene	mg/L	<0.001	<0.001
Acenaphthylene	mg/L	<0.001	<0.001
Acenaphthene	mg/L	<0.001	<0.001
Fluorene	mg/L	<0.001	<0.001
Phenanthrene	mg/L	<0.001	0.002
Anthracene	mg/L	<0.001	<0.001
Fluoranthene	mg/L	<0.001	<0.001
Pyrene	mg/L	<0.001	<0.001
Benzo(a)anthracene	mg/L	<0.001	<0.001
Chrysene	mg/L	<0.001	<0.001
Benzo(b,k)fluoranthene	mg/L	<0.002	<0.002
Benzo(a)pyrene	mg/L	<0.001	<0.001
Indeno(1,2,3-c,d)pyrene	mg/L	<0.001	<0.001
Dibenzo(a,h)anthracene	mg/L	<0.001	<0.001
Benzo(g,h,i)perylene	mg/L	<0.001	<0.001
Surrogate p-Terphenyl-d14	%	117	127

Method ID	Methodology Summary
EXTRACT.7	Toxicity Characteristic Leaching Procedure (TCLP).
GC.12	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS.

QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in TCLP (USEPA 1311)						Base Duplicate %RPD		
Date extracted	--			[NT]	[NT]	[NT]	[NR]	[NR]
Date analysed	--			[NT]	[NT]	[NT]	[NR]	[NR]
Naphthalene	mg/L	0.001	GC.12	<0.001	[NT]	[NT]	LCS	113%
Acenaphthylene	mg/L	0.001	GC.12	<0.001	[NT]	[NT]	[NR]	[NR]
Acenaphthene	mg/L	0.001	GC.12	<0.001	[NT]	[NT]	[NR]	[NR]
Fluorene	mg/L	0.001	GC.12	<0.001	[NT]	[NT]	LCS	109%
Phenanthrene	mg/L	0.001	GC.12	<0.001	[NT]	[NT]	LCS	121%
Anthracene	mg/L	0.001	GC.12	<0.001	[NT]	[NT]	[NR]	[NR]
Fluoranthene	mg/L	0.001	GC.12	<0.001	[NT]	[NT]	LCS	108%
Pyrene	mg/L	0.001	GC.12	<0.001	[NT]	[NT]	LCS	112%
Benzo(a)anthracene	mg/L	0.001	GC.12	<0.001	[NT]	[NT]	[NR]	[NR]
Chrysene	mg/L	0.001	GC.12	<0.001	[NT]	[NT]	LCS	117%
Benzo(b,k)fluoranthene	mg/L	0.002	GC.12	<0.002	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	mg/L	0.001	GC.12	<0.001	[NT]	[NT]	LCS	114%
Indeno(1,2,3-c,d)pyrene	mg/L	0.001	GC.12	<0.001	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/L	0.001	GC.12	<0.001	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	mg/L	0.001	GC.12	<0.001	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		GC.12	[NT]	[NT]	[NT]	LCS	117%

Report Comments:

Asbestos analysed by: Not applicable for this job

INS: Insufficient sample for this test

RPD: Relative Percent Difference

NR: Not requested

NT: Not tested

NA: Test not required

<: Less than

PQL: Practical Quantitation Limit

LCS: Laboratory Control Sample

>: Greater than

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email: tnotaras@envirolabservices.com.au

CERTIFICATE OF ANALYSIS 8881-B

Client:

Douglas Partners
96 Hermitage Rd
West Ryde
NSW 2114

Attention: Kurt Plambeck

Sample log in details:

Your Reference:

44559A, Homebush Office Development

No. of samples:

Additional Testing on 2 Soils

Date samples received:

05/01/07

Date completed instructions received:

18/01/07

Analysis Details:

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

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

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

Please refer to the last page of this report for any comments relating to the results.

Report Details:

Date results requested by:

25/01/07

Date of Preliminary Report:

Not Issued

Issue Date:

24/01/07

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Results Approved By:


Jacinta Hurst
Operations Manager

Envirolab Reference: 8881-B
Revision No: R 00



Metals in TCLP Our Reference: Your Reference Depth Type of sample	UNITS ----- -----	8881-B-5 TP3 1-1.5 Soil	8881-B-9 TP4 0.65-0.95 Soil
pH of soil for fluid# determ.	pH units	8.50	9.00
pH of soil for fluid # determ. (acid)	pH units	1.60	1.70
Extraction fluid used	-	1	1
pH of final Leachate	pH units	4.90	5.80
Arsenic in TCLP	mg/L	<0.05	[NA]
Chromium in TCLP	mg/L	<0.01	<0.01
Lead in TCLP	mg/L	<0.03	[NA]
Nickel in TCLP	mg/L	[NA]	0.06

Method ID	Methodology Summary
EXTRACT.7	Toxicity Characteristic Leaching Procedure (TCLP).
Metals.20	Determination of various metals by ICP-AES.

QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Metals in TCLP						Base II Duplicate II %RPD		
Arsenic in TCLP	mg/L	0.05	Metals.20	<0.05	[NT]	[NT]	LCS	103%
Chromium in TCLP	mg/L	0.01	Metals.20	<0.01	[NT]	[NT]	LCS	96%
Lead in TCLP	mg/L	0.03	Metals.20	<0.03	[NT]	[NT]	LCS	94%
Nickel in TCLP	mg/L	0.02	Metals.20	<0.02	[NT]	[NT]	LCS	96%

Report Comments:

Asbestos analysed by: Not applicable for this job

INS: Insufficient sample for this test
RPD: Relative Percent Difference
NR: Not requested

NT: Not tested
NA: Test not required
<: Less than

PQL: Practical Quantitation Limit
LCS: Laboratory Control Sample
>: Greater than

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Matrix Spikes and LCS: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable. Surrogates: Generally 60-140% is acceptable.



Envirolab Services Pty Ltd

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email: tnotaras@envirolabservices.com.au

CERTIFICATE OF ANALYSIS 8976

Client:

Douglas Partners

96 Hermitage Rd

West Ryde

NSW 2114

Attention: Kurt Plambeck

Sample log in details:

Your Reference:

44559A, Homebush Office Development

No. of samples:

5 Soils

Date samples received:

12/01/07

Date completed instructions received:

12/01/07

Analysis Details:

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

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

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

Please refer to the last page of this report for any comments relating to the results.

Report Details:

Date results requested by:

19/01/07

Date of Preliminary Report:

Not Issued

Issue Date:

18/01/07

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Results Approved By:

Tania Notaras
Manager

Jacinta Hurst
Operations Manager

Envirolab Reference: 8976
Revision No: R 00



vTPH & BTEX in Soil						
Our Reference:	UNITS	8976-1	8976-2	8976-3	8976-4	8976-5
Your Reference	-----	TB7	TB9	TB8	TB8	TB6
Depth	-----	0.35-0.6	1.5-1.95	0.5-0.6	1-1.1	3-3.45
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	--	15/01/2007	15/01/2007	15/01/2007	15/01/2007	15/01/2007
Date analysed	--	16/01/2007	16/01/2007	16/01/2007	16/01/2007	16/01/2007
vTPH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Toluene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Ethylbenzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
m + p-Xylene	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0
o-Xylene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Surrogate aaa-Trifluorotoluene	%	101	102	99	93	95

sTPH in Soil (C10-C36)						
Our Reference:	UNITS	8976-1	8976-2	8976-3	8976-4	8976-5
Your Reference	-----	TB7	TB9	TB8	TB8	TB6
Depth	-----	0.35-0.6	1.5-1.95	0.5-0.6	1-1.1	3-3.45
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	--	15/01/2007	15/01/2007	15/01/2007	15/01/2007	15/01/2007
Date analysed	--	16/01/2007	16/01/2007	16/01/2007	16/01/2007	16/01/2007
TPH C10 - C14	mg/kg	<50	<50	<50	<50	<50
TPH C15 - C28	mg/kg	<100	<100	<100	<100	<100
TPH C29 - C36	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	84	84	83	83	84

PAHs in Soil Our Reference: Your Reference Depth Type of sample	UNITS ----- -----	8976-1 TB7 0.35-0.6 Soil	8976-2 TB9 1.5-1.95 Soil	8976-3 TB8 0.5-0.6 Soil	8976-4 TB8 1-1.1 Soil	8976-5 TB6 3-3.45 Soil
Date extracted	--	15/01/2007	15/01/2007	15/01/2007	15/01/2007	15/01/2007
Date analysed	--	16/01/2007	16/01/2007	16/01/2007	16/01/2007	16/01/2007
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate p-Terphenyl-d14	%	100	99	99	102	103

Organochlorine Pesticides in soil						
Our Reference:	UNITS	8976-1	8976-2	8976-3	8976-4	8976-5
Your Reference	-----	TB7	TB9	TB8	TB8	TB6
Depth	-----	0.35-0.6	1.5-1.95	0.5-0.6	1-1.1	3-3.45
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	--	15/01/2007	15/01/2007	15/01/2007	15/01/2007	15/01/2007
Date analysed	--	16/01/2007	16/01/2007	16/01/2007	16/01/2007	16/01/2007
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	113	100	108	109	116

PCBs in Soil Our Reference: Your Reference Depth Type of sample	UNITS ----- -----	8976-1 TB7 0.35-0.6 Soil	8976-2 TB9 1.5-1.95 Soil	8976-3 TB8 0.5-0.6 Soil	8976-4 TB8 1-1.1 Soil	8976-5 TB6 3-3.45 Soil
Date extracted	--	15/01/2007	15/01/2007	15/01/2007	15/01/2007	15/01/2007
Date analysed	--	16/01/2007	16/01/2007	16/01/2007	16/01/2007	16/01/2007
Arochlor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	113	100	108	109	116

Acid Extractable metals in soil		UNITS	8976-1	8976-2	8976-3	8976-4	8976-5
Our Reference:		-----	TB7	TB9	TB8	TB8	TB6
Your Reference		-----	0.35-0.6	1.5-1.95	0.5-0.6	1-1.1	3-3.45
Depth			Soil	Soil	Soil	Soil	Soil
Type of sample							
Arsenic	10	mg/kg	10	7.8	6.9	12	7.9
Cadmium	2	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Chromium	10	mg/kg	23	15	10	27	13
Copper	—	mg/kg	20	20	14	17	20
Lead	10	mg/kg	19	18	15	25	23
Mercury	0.4	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Nickel	4	mg/kg	11	4.9	3.5	5.7	3.7
Zinc	—	mg/kg	20	17	12	17	21

TB8 / 1-1.1

Ar
Ch
Pb
Ni

TB7 / 0.35-0.6

Ch
Pb
Ni

TP4 / 0.65-0.95

Ch, Ni

TP3 / 1-1.5

Ar
Ch
PbTP4 / 1-1.5
Ch

Acid Extractable metals in soil	UNITS	8976-1	8976-2	8976-3	8976-4	8976-5
Our Reference:	-----	TB7	TB9	TB8	TB8	TB6
Your Reference	-----	0.35-0.6	1.5-1.95	0.5-0.6	1-1.1	3-3.45
Depth		Soil	Soil	Soil	Soil	Soil
Type of sample						
Arsenic	mg/kg	10	7.8	6.9	12	7.9
Cadmium	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Chromium	mg/kg	23	15	10	27	13
Copper	mg/kg	20	20	14	17	20
Lead	mg/kg	19	18	15	25	23
Mercury	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Nickel	mg/kg	11	4.9	3.5	5.7	3.7
Zinc	mg/kg	20	17	12	17	21

Moisture	UNITS	8976-1	8976-2	8976-3	8976-4	8976-5
Our Reference:						
Your Reference	-----	TB7	TB9	TB8	TB8	TB6
Depth	-----	0.35-0.6	1.5-1.95	0.5-0.6	1-1.1	3-3.45
Type of sample		Soil	Soil	Soil	Soil	Soil
Moisture	%	14	14	11	15	14

Asbestos ID - soils		
Our Reference:	UNITS	8976-1
Your Reference	-----	TB7
Depth	-----	0.35-0.6
Type of sample		Soil
Sample Description	-	clay
Asbestos ID in soil	--	No asbestos detected
Trace Analysis	--	Respirable fibres not detected

Method ID	Methodology Summary
GC.16	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS.
GC.14	Soil samples extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
GC.3	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID.
GC.12	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS.
GC-5	Soil samples are extracted with hexane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
GC-6	Soil samples are extracted with hexane/acetone and waters with dichloromethane and analysed by GC-ECD.
Metals.20	Determination of various metals by ICP-AES.
Metals.21	Determination of Mercury by Cold Vapour AAS.
LAB.8	Moisture content determined by heating at 105 deg C for a minimum of 4 hours.
AS4964-2004	Qualitative identification of asbestos type fibres in bulk using Polarised Light Microscopy and Dispersion Staining Techniques.
ASB.1	Qualitative identification of asbestos type fibres in bulk using Polarised Light Microscopy and Dispersion Staining Techniques.

QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
vTPH & BTEX in Soil						Base II Duplicate II %RPD		
Date extracted	--			[NT]	8976-5	15/01/2007 15/01/2007	[NR]	[NR]
Date analysed	--			[NT]	8976-5	16/01/2007 16/01/2007	[NR]	[NR]
vTPH C6 - C9	mg/kg	25	GC.16	<25	8976-5	<25 <25	LCS	104%
Benzene	mg/kg	1	GC.14	<1.0	8976-5	<1.0 <1.0	LCS	100%
Toluene	mg/kg	1	GC.14	<1.0	8976-5	<1.0 <1.0	LCS	103%
Ethylbenzene	mg/kg	1	GC.14	<1.0	8976-5	<1.0 <1.0	LCS	103%
m + p-Xylene	mg/kg	2	GC.14	<2.0	8976-5	<2.0 <2.0	LCS	103%
o-Xylene	mg/kg	1	GC.14	<1.0	8976-5	<1.0 <1.0	LCS	108%
Surrogate aaa-Trifluorotoluene	%		GC.14	[NT]	8976-5	95 92 RPD: 3	LCS	103%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
sTPH in Soil (C10-C36)						Base II Duplicate II %RPD		
Date extracted	--			[NT]	8976-5	15/01/2007 15/01/2007	[NR]	[NR]
Date analysed	--			[NT]	8976-5	16/01/2007 16/01/2007	[NR]	[NR]
TPH C10 - C14	mg/kg	50	GC.3	<50	8976-5	<50 <50	LCS	109%
TPH C15 - C28	mg/kg	100	GC.3	<100	8976-5	<100 <100	LCS	80%
TPH C29 - C36	mg/kg	100	GC.3	<100	8976-5	<100 <100	LCS	92%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Soil						Base II Duplicate II %RPD		
Date extracted	--			[NT]	8976-5	15/01/2007 15/01/2007	[NR]	[NR]
Date analysed	--			[NT]	8976-5	16/01/2007 16/01/2007	[NR]	[NR]
Naphthalene	mg/kg	0.1	GC.12	<0.1	8976-5	<0.1 <0.1	LCS	112%
Acenaphthylene	mg/kg	0.1	GC.12	<0.1	8976-5	<0.1 <0.1	[NR]	[NR]
Acenaphthene	mg/kg	0.1	GC.12	<0.1	8976-5	<0.1 <0.1	[NR]	[NR]
Fluorene	mg/kg	0.1	GC.12	<0.1	8976-5	<0.1 <0.1	LCS	107%
Phenanthrene	mg/kg	0.1	GC.12	<0.1	8976-5	<0.1 <0.1	LCS	103%
Anthracene	mg/kg	0.1	GC.12	<0.1	8976-5	<0.1 <0.1	[NR]	[NR]
Fluoranthene	mg/kg	0.1	GC.12	<0.1	8976-5	<0.1 <0.1	LCS	102%
Pyrene	mg/kg	0.1	GC.12	<0.1	8976-5	<0.1 <0.1	LCS	100%
Benzo(a)anthracene	mg/kg	0.1	GC.12	<0.1	8976-5	<0.1 <0.1	[NR]	[NR]
Chrysene	mg/kg	0.1	GC.12	<0.1	8976-5	<0.1 <0.1	LCS	110%
Benzo(b,k)fluoranthene	mg/kg	0.2	GC.12	<0.2	8976-5	<0.2 <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	0.05	GC.12	<0.05	8976-5	<0.05 <0.05	LCS	127%
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	GC.12	<0.1	8976-5	<0.1 <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	0.1	GC.12	<0.1	8976-5	<0.1 <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	GC.12	<0.1	8976-5	<0.1 <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		GC.12	[NT]	8976-5	103 102 RPD: 1	LCS	98%

QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Organochlorine Pesticides in soil						Base II Duplicate II %RPD		
Date extracted	--			[NT]	8976-5	15/01/2007 15/01/2007	[NR]	[NR]
Date analysed	--			[NT]	8976-5	16/01/2007 16/01/2007	[NR]	[NR]
HCB	mg/kg	0.1	GC-5	<0.1	8976-5	<0.1 <0.1	[NR]	[NR]
alpha-BHC	mg/kg	0.1	GC-5	<0.1	8976-5	<0.1 <0.1	LCS	99%
gamma-BHC	mg/kg	0.1	GC-5	<0.1	8976-5	<0.1 <0.1	[NR]	[NR]
beta-BHC	mg/kg	0.1	GC-5	<0.1	8976-5	<0.1 <0.1	LCS	99%
Heptachlor	mg/kg	0.1	GC-5	<0.1	8976-5	<0.1 <0.1	LCS	87%
delta-BHC	mg/kg	0.1	GC-5	<0.1	8976-5	<0.1 <0.1	[NR]	[NR]
Aldrin	mg/kg	0.1	GC-5	<0.1	8976-5	<0.1 <0.1	LCS	97%
Heptachlor Epoxide	mg/kg	0.1	GC-5	<0.1	8976-5	<0.1 <0.1	LCS	101%
gamma-Chlordane	mg/kg	0.1	GC-5	<0.1	8976-5	<0.1 <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	0.1	GC-5	<0.1	8976-5	<0.1 <0.1	[NR]	[NR]
Endosulfan I	mg/kg	0.1	GC-5	<0.1	8976-5	<0.1 <0.1	[NR]	[NR]
pp-DDE	mg/kg	0.1	GC-5	<0.1	8976-5	<0.1 <0.1	LCS	98%
Dieldrin	mg/kg	0.1	GC-5	<0.1	8976-5	<0.1 <0.1	LCS	113%
Endrin	mg/kg	0.1	GC-5	<0.1	8976-5	<0.1 <0.1	LCS	103%
pp-DDD	mg/kg	0.1	GC-5	<0.1	8976-5	<0.1 <0.1	LCS	123%
Endosulfan II	mg/kg	0.1	GC-5	<0.1	8976-5	<0.1 <0.1	LCS	124%
pp-DDT	mg/kg	0.1	GC-5	<0.1	8976-5	<0.1 <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	0.1	GC-5	<0.1	8976-5	<0.1 <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	0.1	GC-5	<0.1	8976-5	<0.1 <0.1	[NR]	[NR]
Methoxychlor	mg/kg	0.1	GC-5	<0.1	8976-5	<0.1 <0.1	[NR]	[NR]
Surrogate TCLMX	%		GC-5	[NT]	8976-5	116 118 RPD: 2	LCS	113%

QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PCBs in Soil						Base II Duplicate II %RPD		
Date extracted	--			[NT]	8976-5	15/01/2007 15/01/2007	[NR]	[NR]
Date analysed	--			[NT]	8976-5	16/01/2007 16/01/2007	[NR]	[NR]
Arochlor 1016	mg/kg	0.1	GC-6	<0.1	8976-5	<0.1 <0.1	[NR]	[NR]
Arochlor 1232	mg/kg	0.1	GC-6	<0.1	8976-5	<0.1 <0.1	[NR]	[NR]
Arochlor 1242	mg/kg	0.1	GC-6	<0.1	8976-5	<0.1 <0.1	[NR]	[NR]
Arochlor 1248	mg/kg	0.1	GC-6	<0.1	8976-5	<0.1 <0.1	[NR]	[NR]
Arochlor 1254	mg/kg	0.1	GC-6	<0.1	8976-5	<0.1 <0.1	LCS	113%
Arochlor 1260	mg/kg	0.1	GC-6	<0.1	8976-5	<0.1 <0.1	[NR]	[NR]
Surrogate TCLMX	%		GC-6	[NT]	8976-5	116 118 RPD: 2	LCS	117%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Acid Extractable metals in soil						Base II Duplicate II %RPD		
Arsenic	mg/kg	4	Metals.20	<4.0	8976-5	7.9 9.4 RPD: 17	LCS	103%
Cadmium	mg/kg	1	Metals.20	<1.0	8976-5	<1.0 <1.0	LCS	96%
Chromium	mg/kg	1	Metals.20	<1.0	8976-5	13 12 RPD: 8	LCS	99%
Copper	mg/kg	1	Metals.20	<1.0	8976-5	20 20 RPD: 0	LCS	99%
Lead	mg/kg	1	Metals.20	<1.0	8976-5	23 20 RPD: 14	LCS	98%
Mercury	mg/kg	0.1	Metals.21	<0.10	8976-5	<0.10 <0.10	LCS	95%
Nickel	mg/kg	1	Metals.20	<1.0	8976-5	3.7 3.7 RPD: 0	LCS	103%
Zinc	mg/kg	1	Metals.20	<1.0	8976-5	21 24 RPD: 13	LCS	93%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results		
Moisture						Base II Duplicate II %RPD		
Moisture	%	0.1	LAB.8	<0.10	8976-5	14 14 RPD: 0		

Report Comments:

Asbestos analysed by: Tania Notaras

INS: Insufficient sample for this test

RPD: Relative Percent Difference

NR: Not requested

NT: Not tested

NA: Test not required

<: Less than

PQL: Practical Quantitation Limit

LCS: Laboratory Control Sample

>: Greater than

Quality Control Definitions

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

Matrix Spike: A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

LCS (Laboratory Control Sample): This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Surrogate Spike: Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria:

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

Matrix Spikes and LCS: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable. Surrogates: Generally 60-140% is acceptable.



Envirolab Services Pty Ltd

ABN 37 112 535 645

54 Frenchs Rd Willoughby NSW 2068

ph 02 9958 5801 fax 02 9958 5803

email: tnotaras@envirolabservices.com.au

CERTIFICATE OF ANALYSIS 8976-A

Client:

Douglas Partners
96 Hermitage Rd
West Ryde
NSW 2114

Attention: Kurt Plambeck

Sample log in details:

Your Reference:
No. of samples:
Date samples received:
Date completed instructions received:

44559A, Homebush Office Development
Additional Testing on 2 Soils
12/01/07
18/01/07

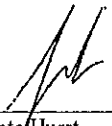
Analysis Details:

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

Report Details:

Date results requested by: 25/01/07
Date of Preliminary Report: Not Issued
Issue Date: 24/01/07
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Accredited for compliance with ISO/IEC 17025.
Tests not covered by NATA are denoted with *.

Results Approved By:



Jacinta Hurst
Operations Manager

Envirolab Reference: 8976-A
Revision No: R 00



Metals in TCLP Our Reference: Your Reference Depth Type of sample	UNITS ----- -----	8976-A-1 TB7 0.35-0.6 Soil	8976-A-4 TB8 1-1.1 Soil
pH of soil for fluid# determ.	pH units	6.90	7.60
pH of soil for fluid # determ. (acid)	pH units	1.70	1.70
Extraction fluid used	-	1	1
pH of final Leachate	pH units	5.00	4.90
Arsenic in TCLP	mg/L	[NA]	0.05
Chromium in TCLP	mg/L	0.01	0.01
Lead in TCLP	mg/L	0.03	0.03
Nickel in TCLP	mg/L	0.02	0.02

Method ID	Methodology Summary
EXTRACT.7	Toxicity Characteristic Leaching Procedure (TCLP).
Metals.20	Determination of various metals by ICP-AES.

QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Metals in TCLP						Base II Duplicate II %RPD		
Arsenic in TCLP	mg/L	0.05	Metals.20	<0.05	[NT]	[NT]	LCS	103%
Chromium in TCLP	mg/L	0.01	Metals.20	<0.01	[NT]	[NT]	LCS	96%
Lead in TCLP	mg/L	0.03	Metals.20	<0.03	[NT]	[NT]	LCS	94%
Nickel in TCLP	mg/L	0.02	Metals.20	<0.02	[NT]	[NT]	LCS	96%

Report Comments:

Asbestos analysed by: Not applicable for this job

INS: Insufficient sample for this test

NT: Not tested

PQL: Practical Quantitation Limit

RPD: Relative Percent Difference

NA: Test not required

LCS: Laboratory Control Sample

NR: Not requested

<: Less than

>: Greater than

Quality Control Definitions

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

Matrix Spike: A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

LCS (Laboratory Control Sample): This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

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Laboratory Acceptance Criteria:

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

Matrix Spikes and LCS: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable. Surrogates: Generally 60-140% is acceptable.



EnviroLab Services Pty Ltd

ABN 37 112 535 645

54 Frenchs Rd Willoughby NSW 2068

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email: tnotaras@envirolabservices.com.au

CERTIFICATE OF ANALYSIS 9027

Client:

Douglas Partners

96 Hermitage Rd

West Ryde

NSW 2114

Attention: Kurt Plambeck

Sample log in details:

Your Reference:

44559A

No. of samples:

1 Water

Date samples received:

15/01/07

Date completed instructions received:

15/01/07

Analysis Details:

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

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

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

Please refer to the last page of this report for any comments relating to the results.

Report Details:

Date results requested by:

22/01/07

Date of Preliminary Report:

Not Issued

Issue Date:

23/01/07

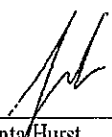
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Accredited for compliance with ISO/IEC 17025.

Tests not covered by NATA are denoted with *.

Results Approved By:


Jacinta Hurst
Operations Manager

EnviroLab Reference: 9027

Revision No: R 00



Page 1 of 14

vTPH & BTEX in Water		
Our Reference:	UNITS	9027-1
Your Reference	-----	TB106-GW
Date Sampled	-----	15/01/07
Type of sample		Water
Date extracted	--	16/01/2007
Date analysed	--	16/01/2007
TPH C6 - C9	µg/L	<10
Benzene	µg/L	<1.0
Toluene	µg/L	<1.0
Ethylbenzene	µg/L	<1.0
m+p-xylene	µg/L	<2.0
o-xylene	µg/L	<1.0
Surrogate Dibromofluoromethane	%	77
Surrogate toluene-d8	%	96
Surrogate 1-bromo-4-fluorotoluene	%	104

sTPH in Water (C10-C36)		
Our Reference:	UNITS	9027-1
Your Reference	-----	TB106-GW
Date Sampled	-----	15/01/07
Type of sample		Water
Date extracted	--	17/01/2007
Date analysed	--	17/01/2007
TPH C10 - C14	µg/L	<50
TPH C15 - C28	µg/L	<100
TPH C29 - C36	µg/L	<100
Surrogate o-Terphenyl	%	97

PAHs in Water		
Our Reference:	UNITS	9027-1
Your Reference	-----	TB106-GW
Date Sampled	-----	15/01/07
Type of sample		Water
Date extracted	--	17/01/2007
Date analysed	--	17/01/2007
Naphthalene	µg/L	<1
Acenaphthylene	µg/L	<1
Acenaphthene	µg/L	<1
Fluorene	µg/L	<1
Phenanthrene	µg/L	<1
Anthracene	µg/L	<1
Fluoranthene	µg/L	<1
Pyrene	µg/L	<1
Benzo(a)anthracene	µg/L	<1
Chrysene	µg/L	<1
Benzo(b,k)fluoranthene	µg/L	<2
Benzo(a)pyrene	µg/L	<1
Indeno(1,2,3-c,d)pyrene	µg/L	<1
Dibenzo(a,h)anthracene	µg/L	<1
Benzo(g,h,i)perylene	µg/L	<1
Surrogate <i>p</i> -Terphenyl-d ₁₄	%	96

Organochlorine Pesticides in water	UNITS	9027-1
Our Reference:	-----	TB106-GW
Your Reference	-----	15/01/07
Date Sampled		Water
Type of sample		
Date extracted	--	17/01/2007
Date analysed	--	18/01/2007
HCB	µg/L	<0.2
alpha-BHC	µg/L	<0.2
gamma-BHC	µg/L	<0.2
beta-BHC	µg/L	<0.2
Heptachlor	µg/L	<0.2
delta-BHC	µg/L	<0.2
Aldrin	µg/L	<0.2
Heptachlor Epoxide	µg/L	<0.2
gamma-Chlordane	µg/L	<0.2
alpha-Chlordane	µg/L	<0.2
Endosulfan I	µg/L	<0.2
pp-DDE	µg/L	<0.2
Dieldrin	µg/L	<0.2
Endrin	µg/L	<0.2
pp-DDD	µg/L	<0.2
Endosulfan II	µg/L	<0.2
DDT	µg/L	<0.2
Endrin Aldehyde	µg/L	<0.2
Endosulfan Sulphate	µg/L	<0.2
Methoxychlor	µg/L	<0.2
Surrogate TCLMX	%	104

PCBs in Water	UNITS	9027-1
Our Reference:	-----	TB106-GW
Your Reference	-----	15/01/07
Date Sampled		Water
Type of sample		
Date extracted	--	17/01/2007
Date analysed	--	18/01/2007
Arochlor 1016	µg/L	<2
Arochlor 1232	µg/L	<2
Arochlor 1242	µg/L	<2
Arochlor 1248	µg/L	<2
Arochlor 1254	µg/L	<2
Arochlor 1260	µg/L	<2
Surrogate TCLMX	%	104

Total Phenolics in Water	UNITS	9027-1
Our Reference:	-----	TB106-GW
Your Reference	-----	15/01/07
Date Sampled		Water
Type of sample		
Total Phenolics (as Phenol)	mg/L	<0.050

Metals in water - low level		
Our Reference:	UNITS	9027-1
Your Reference	-----	TB106-GW
Date Sampled	-----	15/01/07
Type of sample		Water
Arsenic-filtered	µg/L	<1
Cadmium-filtered	µg/L	0.2
Chromium-filtered	µg/L	<5
Copper-filtered	µg/L	<5
Lead-filtered	µg/L	1.5
Mercury-filtered	µg/L	<0.1
Nickel-filtered	µg/L	11
Zinc-filtered	µg/L	63
Iron-filtered	µg/L	2,700

Miscellaneous Inorganics	UNITS	9027-1
Our Reference:	-----	TB106-GW
Your Reference	-----	15/01/07
Date Sampled		Water
Type of sample		
Iron - total	mg/L	88
Ferrous Iron	mg/L	3.8
pH	pH Units	5.0
Oil & Grease	mg/L	<5
Chloride (titration) - water	mg/L	380
Sulphate, SO ₄	mg/L	130
Total Suspended Solids @ 103-105°C	mg/L	2,870

Method ID	Methodology Summary
GC.16	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS.
GC.13	Water samples are analysed directly by purge and trap GC-MS.
GC.3	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID.
GC.12	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS.
GC-5	Soil samples are extracted with hexane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
GC-6	Soil samples are extracted with hexane/acetone and waters with dichloromethane and analysed by GC-ECD.
LAB.30	Total Phenolics - determined colorimetrically following distillation.
Ext-020	Analysis subcontracted to Australian Government - National Measurement Institute. NATA Accreditation No: 198
Metals.20	Determination of various metals by ICP-AES.
LAB.1	pH - Measured using pH meter and electrode in accordance with APHA 20th ED, 4500-H+.
LAB.3	Oil & Grease - determine gravimetrically following extraction with Hexane/tert-Methyl Butyl Ether, in accordance with APHA 20th ED, 5220-B.
LAB.11	Chloride determined by argentometric titration.
LAB.9	Sulphate determined turbidimetrically.
LAB.19	Suspended Solids - determined gravimetrically by filtration of the sample, in accordance with APHA 20th ED, 2540-D.

QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
vTPH & BTEX in Water						Base II Duplicate II %RPD		
Date extracted	--			[NT]	[NT]	[NT]	[NR]	[NR]
Date analysed	--			[NT]	[NT]	[NT]	[NR]	[NR]
TPH C6 - C9	µg/L	10	GC.16	<10	[NT]	[NT]	LCS	103%
Benzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	LCS	82%
Toluene	µg/L	1	GC.13	<1.0	[NT]	[NT]	LCS	104%
Ethylbenzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	LCS	108%
m+p-xylene	µg/L	2	GC.13	<2.0	[NT]	[NT]	LCS	111%
o-xylene	µg/L	1	GC.13	<1.0	[NT]	[NT]	LCS	108%
Surrogate	%		GC.13	[NT]	[NT]	[NT]	LCS	77%
Dibromofluoromethane								
Surrogate toluene-d8	%		GC.13	[NT]	[NT]	[NT]	LCS	96%
Surrogate 1-bromo-4-fluorotoluene	%		GC.13	[NT]	[NT]	[NT]	LCS	103%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
sTPH in Water (C10-C36)						Base II Duplicate II %RPD		
Date extracted	--			[NT]	[NT]	[NT]	[NR]	[NR]
Date analysed	--			[NT]	[NT]	[NT]	[NR]	[NR]
TPH C10 - C14	µg/L	50	GC.3	<50	[NT]	[NT]	LCS	121%
TPH C15 - C28	µg/L	100	GC.3	<100	[NT]	[NT]	LCS	102%
TPH C29 - C36	µg/L	100	GC.3	<100	[NT]	[NT]	LCS	111%
Surrogate o-Terphenyl	%		GC.3	[NT]	[NT]	[NT]	LCS	100%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Water						Base II Duplicate II %RPD		
Date extracted	--			[NT]	[NT]	[NT]	[NR]	[NR]
Date analysed	--			[NT]	[NT]	[NT]	[NR]	[NR]
Naphthalene	µg/L	1	GC.12	<1	[NT]	[NT]	LCS	134%
Acenaphthylene	µg/L	1	GC.12	<1	[NT]	[NT]	[NR]	[NR]
Acenaphthene	µg/L	1	GC.12	<1	[NT]	[NT]	[NR]	[NR]
Fluorene	µg/L	1	GC.12	<1	[NT]	[NT]	LCS	128%
Phenanthrene	µg/L	1	GC.12	<1	[NT]	[NT]	LCS	140%
Anthracene	µg/L	1	GC.12	<1	[NT]	[NT]	[NR]	[NR]
Fluoranthene	µg/L	1	GC.12	<1	[NT]	[NT]	LCS	132%
Pyrene	µg/L	1	GC.12	<1	[NT]	[NT]	LCS	135%
Benzo(a)anthracene	µg/L	1	GC.12	<1	[NT]	[NT]	[NR]	[NR]
Chrysene	µg/L	1	GC.12	<1	[NT]	[NT]	LCS	135%
Benzo(b,k)fluoranthene	µg/L	2	GC.12	<2	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	µg/L	1	GC.12	<1	[NT]	[NT]	LCS	130%
Indeno(1,2,3-c,d)pyrene	µg/L	1	GC.12	<1	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	µg/L	1	GC.12	<1	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	µg/L	1	GC.12	<1	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		GC.12	[NT]	[NT]	[NT]	LCS	120%

QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Organochlorine Pesticides in water						Base II Duplicate II %RPD		
HCB	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
alpha-BHC	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS	91%
gamma-BHC	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
beta-BHC	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS	109%
Heptachlor	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS	80%
delta-BHC	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
Aldrin	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS	127%
Heptachlor Epoxide	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS	93%
gamma-Chlordane	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
alpha-Chlordane	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
Endosulfan I	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
pp-DDE	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS	109%
Dieldrin	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS	107%
Endrin	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS	97%
pp-DDD	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS	136%
Endosulfan II	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS	121%
DDT	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
Endrin Aldehyde	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
Endosulfan Sulphate	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
Methoxychlor	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
Surrogate TCLMX	%		GC-5	[NT]	[NT]	[NT]	LCS	110%

QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PCBs in Water						Base II Duplicate II %RPD		
Date extracted	--			[NT]	[NT]	[NT]	[NR]	[NR]
Date analysed	--			[NT]	[NT]	[NT]	[NR]	[NR]
Arochlor 1016	µg/L	2	GC-6	<2	[NT]	[NT]	[NR]	[NR]
Arochlor 1232	µg/L	2	GC-6	<2	[NT]	[NT]	[NR]	[NR]
Arochlor 1242	µg/L	2	GC-6	<2	[NT]	[NT]	[NR]	[NR]
Arochlor 1248	µg/L	2	GC-6	<2	[NT]	[NT]	[NR]	[NR]
Arochlor 1254	µg/L	2	GC-6	<2	[NT]	[NT]	LCS	107%
Arochlor 1260	µg/L	2	GC-6	<2	[NT]	[NT]	[NR]	[NR]
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Total Phenolics in Water						Base II Duplicate II %RPD		
Total Phenolics (as Phenol)	mg/L	0.05	LAB.30	<0.050	9027-1	<0.050 <0.050	LCS	87%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Metals in water - low level						Base II Duplicate II %RPD		
Arsenic-filtered	µg/L	1	Ext-020	<1	[NT]	[NT]	[NR]	[NR]
Cadmium-filtered	µg/L	0.1	Ext-020	<0.1	[NT]	[NT]	[NR]	[NR]
Chromium-filtered	µg/L	1	Ext-020	<1	[NT]	[NT]	[NR]	[NR]
Copper-filtered	µg/L	1	Ext-020	<1	[NT]	[NT]	[NR]	[NR]
Lead-filtered	µg/L	1	Ext-020	<1	[NT]	[NT]	[NR]	[NR]
Mercury-filtered	µg/L	0.1	Ext-020	<0.1	[NT]	[NT]	[NR]	[NR]
Nickel-filtered	µg/L	1	Ext-020	<1	[NT]	[NT]	[NR]	[NR]
Zinc-filtered	µg/L	1	Ext-020	<1	[NT]	[NT]	[NR]	[NR]
Iron-filtered	µg/L	1	Ext-020	<1	[NT]	[NT]	[NR]	[NR]
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Miscellaneous Inorganics						Base II Duplicate II %RPD		
Iron - total	mg/L	0.02	Metals.20	<0.02	9027-1	88 [N/T]	[NR]	[NR]
Ferrous Iron	mg/L	0.05	Ext-020	<0.050	9027-1	3.8 3.8 RPD: 0	LCS	99%
Oil & Grease	mg/L	5	LAB.3	<5	9027-1	<5 [N/T]	LCS	70%
Chloride (titration) - water	mg/L	20	LAB.11	<20	9027-1	380 370 RPD: 3	LCS	107%
Sulphate, SO ₄	mg/L	5	LAB.9	<5.0	9027-1	130 [N/T]	LCS	97%
Total Suspended Solids @ 103-105°C	mg/L	5	LAB.19	<5	9027-1	2870 [N/T]	LCS	78%
QUALITY CONTROL	UNITS	Dup. Sm#		Duplicate		Spike Sm#	Spike % Recovery	
Total Phenolics in Water				Base + Duplicate + %RPD				
Total Phenolics (as Phenol)	mg/L	[NT]		[NT]		9027-1	88%	

Report Comments:

Metals in Water/ Ferrous Iron analysed by NMI; Report No. RN594445

Asbestos analysed by: Not applicable for this job

INS: Insufficient sample for this test

NT: Not tested

PQL: Practical Quantitation Limit

RPD: Relative Percent Difference

NA: Test not required

LCS: Laboratory Control Sample

NR: Not requested

<: Less than

>: Greater than

Quality Control Definitions

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

Matrix Spike: A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

LCS (Laboratory Control Sample): This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Surrogate Spike: Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria:

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

Matrix Spikes and LCS: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable. Surrogates: Generally 60-140% is acceptable.



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CERTIFICATE OF ANALYSIS 9132

Client:

Douglas Partners
96 Hermitage Rd
West Ryde
NSW 2114

Attention: Kurt Plambeck

Sample log in details:

Your Reference:	<u>44559A, Proposed Office Development</u>
No. of samples:	1 Soil
Date samples received:	19/01/07
Date completed instructions received:	19/01/07

Analysis Details:

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

Report Details:

Date results requested by:	29/01/07
Date of Preliminary Report:	Not Issued
Issue Date:	30/01/07

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Accredited for compliance with ISO/IEC 17025.

Tests not covered by NATA are denoted with *.

Results Approved By:

David Springer
Business Development & Quality Manager

Envirolab Reference: 9132
Revision No: R 00



sPOCAS Our Reference: Your Reference	UNITS ----- -----	9132-1 6/3-3.5
pH _{KCl}	pH units	3.5
TAA pH 6.5	moles H ⁺ /tonne	62
s-TAA pH 6.5	%w/w S	0.10
pH _{ox}	pH units	4.4
TPA pH 6.5	moles H ⁺ /tonne	82
s-TPA pH 6.5	%w/w S	0.13
TSA pH 6.5	moles H ⁺ /tonne	20
s-TSA pH 6.5	%w/w S	0.032
ANCE	% CaCO ₃	<0.05
a-ANCE	moles H ⁺ /tonne	<5
s-ANCE	%w/w S	<0.05
SKCl	%w/w	0.011
SP	%w/w	0.020
SPOS	%w/w	0.009
a-SPOS	moles H ⁺ /tonne	5.4
CaKCl	%w/w	0.010
CaP	%w/w	0.016
CaA	%w/w	0.006
MgKCl	%w/w	0.037
MgP	%w/w	0.045
MgA	%w/w	0.009
SRAS	%w/w	<0.005
SHCl	%w/w	0.019
SNAS	%w/w	0.008
a-SNAS	moles H ⁺ /tonne	<5
a-SNAS	%w/w S	<0.01
a-Net Acidity	moles H ⁺ /tonne	72
Liming rate	kg CaCO ₃ /tonne	5.4

Most likely naturally
acidic soil but with
a sulphidic element

Spos below action
criteria

∴ not acid sulphate
soil.

— no residual
acidity

sPOCAS Our Reference: Your Reference	UNITS ----- -----	9132-1 6/3-3.5
pH _{kel}	pH units	3.5
TAA pH 6.5	moles H ⁺ / tonne	62
s-TAA pH 6.5	%w/w S	0.10
pH _{ox}	pH units	4.4
TPA pH 6.5	moles H ⁺ / tonne	82
s-TPA pH 6.5	%w/w S	0.13
TSA pH 6.5	moles H ⁺ / tonne	20
s-TSA pH 6.5	%w/w S	0.032
ANC _e	% CaCO ₃	<0.05
a-ANC _e	moles H ⁺ / tonne	<5
s-ANC _e	%w/w S	<0.05
SKCl	%w/w	0.011
SP	%w/w	0.020
SPOS	%w/w	0.009
a-SPOS	moles H ⁺ / tonne	5.4
CaKCl	%w/w	0.010
CaP	%w/w	0.016
CaA	%w/w	0.006
MgKCl	%w/w	0.037
MgP	%w/w	0.045
MgA	%w/w	0.009
SRAS	%w/w	<0.005
SHCl	%w/w	0.019
SNAS	%w/w	0.008
a-SNAS	moles H ⁺ / tonne	<5
a-SNAS	%w/w S	<0.01
a-Net Acidity	moles H ⁺ / tonne	72
Liming rate	kg CaCO ₃ /to nne	5.4

Method ID	Methodology Summary
LAB.64	sPOCAS determined using titrimetric and ICP-AES techniques. Based on Acid Sulfate Soils Laboratory Methods Guidelines, Version 2.1 - June 2004.

QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
sPOCAS						Base II Duplicate II %RPD		
pH _{KCl}	pH units		LAB.64	[NT]	[NT]	[NT]	LCS	94%
TAA pH 6.5	moles H ⁺ /tonne	5	LAB.64	<5	[NT]	[NT]	LCS	106%
s-TAA pH 6.5	%w/w S	0.01	LAB.64	<0.01	[NT]	[NT]	[NR]	[NR]
pH _{ox}	pH units		LAB.64	[NT]	[NT]	[NT]	LCS	100%
TPA pH 6.5	moles H ⁺ /tonne	5	LAB.64	<5.0	[NT]	[NT]	LCS	80%
s-TPA pH 6.5	%w/w S	0.01	LAB.64	<0.01	[NT]	[NT]	[NR]	[NR]
TSA pH 6.5	moles H ⁺ /tonne	5	LAB.64	<5.0	[NT]	[NT]	[NR]	[NR]
s-TSA pH 6.5	%w/w S	0.01	LAB.64	<0.01	[NT]	[NT]	[NR]	[NR]
ANCE	% CaCO ₃	0.05	LAB.64	<0.05	[NT]	[NT]	[NR]	[NR]
a-ANCE	moles H ⁺ /tonne	5	LAB.64	<5	[NT]	[NT]	[NR]	[NR]
s-ANCE	%w/w S	0.05	LAB.64	<0.05	[NT]	[NT]	[NR]	[NR]
SKCl	%w/w	0.005	LAB.64	<0.005	[NT]	[NT]	LCS	123%
SP	%w/w	0.005	LAB.64	<0.005	[NT]	[NT]	[NR]	[NR]
SPOS	%w/w	0.005	LAB.64	<0.005	[NT]	[NT]	[NR]	[NR]
a-SPOS	moles H ⁺ /tonne	5	LAB.64	<5.0	[NT]	[NT]	[NR]	[NR]
CaKCl	%w/w	0.005	LAB.64	<0.005	[NT]	[NT]	LCS	56%
CaP	%w/w	0.005	LAB.64	<0.005	[NT]	[NT]	[NR]	[NR]
CaA	%w/w	0.005	LAB.64	<0.005	[NT]	[NT]	[NR]	[NR]
MgKCl	%w/w	0.005	LAB.64	<0.005	[NT]	[NT]	LCS	107%
MgP	%w/w	0.005	LAB.64	<0.005	[NT]	[NT]	[NR]	[NR]
MgA	%w/w	0.005	LAB.64	<0.005	[NT]	[NT]	[NR]	[NR]
SRAS	%w/w	0.005	LAB.64	<0.005	[NT]	[NT]	LCS	81%
SHCl	%w/w	0.005	LAB.64	<0.005	[NT]	[NT]	LCS	88%
SNAS	%w/w	0.005	LAB.64	<0.005	[NT]	[NT]	[NR]	[NR]
a-SNAS	moles H ⁺ /tonne	5	LAB.64	<5	[NT]	[NT]	[NR]	[NR]
a-SNAS	%w/w S	0.01	LAB.64	<0.01	[NT]	[NT]	[NR]	[NR]
a-Net Acidity	moles H ⁺ /tonne	10	LAB.64	<10	[NT]	[NT]	[NR]	[NR]

QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
sPOCAS						Base II Duplicate II %RPD		
Liming rate	kg CaCO ₃ /tonne	0.1	LAB.64	<0.1	[NT]	[NT]	[NR]	[NR]

Report Comments:

Asbestos analysed by: Not applicable for this job

INS: Insufficient sample for this test

RPD: Relative Percent Difference

NR: Not requested

NT: Not tested

NA: Test not required

<: Less than

PQL: Practical Quantitation Limit

LCS: Laboratory Control Sample

>: Greater than

Quality Control Definitions

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

Matrix Spike: A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

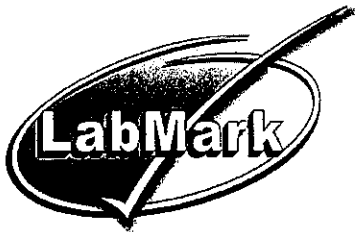
LCS (Laboratory Control Sample): This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Surrogate Spike: Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria:

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

Matrix Spikes and LCS: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable. Surrogates: Generally 60-140% is acceptable.



CUSTOMER CENTRIC - ANALYTICAL CHEMISTS



Accredited for compliance with ISO/IEC 17025. The results of tests, calibrations and/or measurements included in this document are traceable to Australian/national standards. NATA is a signatory to the APLAC mutual recognition arrangement for the mutual recognition of the equivalence of testing, calibration and inspection reports.



No. 13542.

AQIS
AUSTRALIAN QUARANTINE
AND INSPECTION SERVICE
SYDNEY Licence No. N0356.

Quarantine Approved Premises criteria 5.1 for quarantine containment level 1 (QCL) facilities. Class five criteria cover premises utilised for research, analysis and testing of biological material, soil, animal, plant and human products.

FINAL CERTIFICATE OF ANALYSIS - ENVIRONMENTAL DIVISION

Laboratory Report No: E029975
Client Name: Douglas Partners
Client Reference: 44559A
Contact Name: Kurt Plambeck
Chain of Custody No: na
Sample Matrix: SOIL

Cover Page 1 of 3
plus Sample Results

Date Received: 15/01/2007
Date Reported: 23/01/2007

This Final Certificate of Analysis consists of sample results, DQI's, method descriptions, laboratory definitions, and internationally recognised NATA accreditation and endorsement. The DQO compliance relates specifically to QA/QC results as performed as part of the sample analysis, and may provide an indication of sample result quality. Transfer of report ownership from Labmark to the client shall only occur once full & final payment has been settled and verified. All report copies may be retracted where full payment has not occurred within the agreed settlement period.

QUALITY ASSURANCE CRITERIA

Accuracy: matrix spike: 1 in first 5-20, then 1 every 20 samples
lcs, crm, method: 1 per analytical batch
surrogate spike: addition per target organic method

Precision: laboratory duplicate: 1 in first 5-10, then 1 every 10 samples
laboratory triplicate: re-extracted & reported when duplicate RPD values exceed acceptance criteria

Holding Times: soils, waters: Refer to LabMark Preservation & THT table
VOC's 14 days water / soil
VAC's 7 days water or 14 days acidified
VAC's 14 days soil
SVOC's 7 days water, 14 days soil
Pesticides 7 days water, 14 days soil
Metals 6 months general elements
Mercury 28 days

Confirmation: target organic analysis: GC/MS, or confirmatory column

Sensitivity: EQL: Typically 2-5 x Method Detection Limit (MDL)

QUALITY CONTROL

GLOBAL ACCEPTANCE CRITERIA (GAC)

Accuracy: spike, lcs, crm general analytes 70% - 130% recovery
surrogate: phenol analytes 50% - 130% recovery
organophosphorous pesticide analytes 60% - 130% recovery
phenoxo acid herbicides 50% - 130% recovery

Precision: anion/cation bal: +/- 10% (0-3 meq/l),
+/- 5% (>3 meq/l)
method blank: not detected >95% of the reported EQL
duplicate lab 0-30% (>10xEQL), 0-75% (5-10xEQL)
RPD (metals): 0-100% (<5xEQL)
duplicate lab 0-50% (>10xEQL), 0-75% (5-10xEQL)
RPD: 0-100% (<5xEQL)

QUALITY CONTROL

ANALYTE SPECIFIC ACCEPTANCE CRITERIA (ASAC)

Accuracy: spike, lcs, crm analyte specific recovery data
surrogate: <3xsd of historical mean

Uncertainty: spike, lcs: measurement calculated from historical analyte specific control charts

RESULT ANNOTATION

Data Quality Objective	s: matrix spike recovery	p: pending	bcs: batch specific lcs
Data Quality Indicator	d: laboratory duplicate	lcs: laboratory control sample	bmb: batch specific mb
Estimated Quantitation Limit	t: laboratory triplicate	crm: certified reference material	
not applicable	r: RPD relative % difference	mb: method blank	

Geoff Weir
Quality Control (Report signatory)
geoff.weir@labmark.com.au

Ivan Povolny
Authorising Chemist (NATA signatory)
ivan.povolny@labmark.com.au

Simon Mills
Authorising Chemist (NATA signatory)
simon.mills@labmark.com.au

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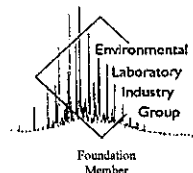
* SYDNEY: Unit 1, 8 Leighton Place Asquith NSW 2077
* Telephone: (02) 9476 6533 * Fax: (02) 9476 8219

* MELBOURNE: 116 Moray Street, South Melbourne VIC 3205
* Telephone: (03) 9686 8344 * Fax: (03) 9686 7344

Form Q50144, Rev. 0 : Date Issued 10/03/05



CUSTOMER CENTRIC - ANALYTICAL CHEMISTS



Laboratory Report: E029975

Cover Page 2 of 3

NEPC GUIDELINE COMPLIANCE - DQO

1. GENERAL

- A. Results relate specifically to samples as received. Sample results are not corrected for matrix spike, lcs, or surrogate recovery data.
- B. EQL's are matrix dependant and may be increased due to sample dilution or matrix interference.
- C. Laboratory QA/QC samples are specific to this project.
- D. Inter-laboratory proficiency results are available upon request. NATA accreditation details available at www.nata.asn.au.
- E. VOC spikes & surrogates added to samples during extraction, SVOC spikes & surrogates added prior to extraction.
- F. Recovery data outside GAC limits shall be investigated and compared to ASAC (historical mean +/- 3sd). If recovery data <20%, then the relevant results for that compound are considered not reliable.
- G. Recovery data (ms, surrogate, crm, lcs) outside ASAC limits shall initiate an investigative action. Anomalous QC data is examined in conjunction with other QC samples and a final decision whether to accept or reject results is provided by the professional judgement of the senior analyst. The USEPA-CLP National Functional Guidelines are referred to for specific recommendations.
- H. Extraction (preparation) date refers to the date that sample preparation was initiated. Note that certain methods not requiring sample preparation (eg. VOCs in water, etc) may report a common extraction and analysis date.
- I. LabMark shall maintain an official copy of this Certificate of Analysis for all traceable reference purposes.

2. CHAIN OF CUSTODY (COC) & SAMPLE RECEIPT NOTICE (SRN) REQUIREMENTS

- A. SRN issued to client upon sample receipt & login verification.
- B. Preservation & sampling date details specified on COC and SRN, unless noted.
- C. Sample Integrity & Validated Time of Sample Receipt (VTSR) Holding Times verified (preservation may extend holding time, refer to preservation chart).

3. NATA ACCREDITED METHODS

- A. NATA accreditation held for each in-house method and sample matrix type reported, unless noted below (Refer to subcontracted test reports for NATA accreditation status).
- B. NATA accredited in-house laboratory methods are referenced from NEPC, ASTM, modified USEPA / APHA documents. Corporate Accreditation No. 13542.
- C. Subcontracted analyses: Refer to Sample Receipt Notice and additional DQO comments.

This document is issued in accordance with NATA's accreditation requirements.

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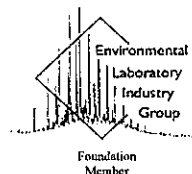
* SYDNEY: Unit 1, 8 Leighton Place Asquith NSW 2077
* Telephone: (02) 9476 6533 * Fax: (02) 9476 8219

* MELBOURNE: 116 Moray Street, South Melbourne VIC 3205
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Form Q80144, Rev. 0 : Date Issued 10/03/05



CUSTOMER CENTRIC - ANALYTICAL CHEMISTS



Laboratory Report: E029975

Cover Page 3 of 3

4. QA/QC FREQUENCY COMPLIANCE TABLE SPECIFIC TO THIS REPORT

Matrix: SOIL

Page:	Method:	Totals:	#d	%d-ratio	#t	#s	%s-ratio
1	BTEX by P&T	1	0	0%	0	0	0%
1	Volatile TPH by P&T (vTPH)	1	0	0%	0	0	0%
2	Petroleum Hydrocarbons (TPH)	1	0	0%	0	0	0%
3	Polyaromatic Hydrocarbons (PAH)	1	0	0%	0	0	0%
4	Acid extractable metals (M7)	1	0	0%	0	0	0%
5	Acid extractable mercury	1	0	0%	0	0	0%
6	Moisture	1	--	--	--	--	--

GLOSSARY:

- #d number of discrete duplicate extractions/analyses performed.
%d-ratio NEPC guideline for laboratory duplicates is 1 in 10 samples (min 10%).
#t number of triplicate extractions/analyses performed.
#s number of spiked samples analysed.
%s-ratio USEPA guideline for laboratory matrix spikes is 1 in 20 samples (min 5%).

5. ADDITIONAL COMMENTS SPECIFIC TO THIS REPORT

A. All tests were conducted by LabMark Environmental Sydney, NATA accreditation No. 13542, Corporate Site No. 13535., unless indicated below.

Laboratory QA/QC data shall relate specifically to this report, and may provide an indication of site specific sample result quality. LabMark DOES NOT report NON-RELEVANT BATCH QA/QC data. Acceptance of this self assessment certificate does not preclude any requirement for a QA/QC review by a accredited contaminated site EPA auditor, when and wherever necessary. Laboratory QA/QC self assessment references available upon request.

This document is issued in accordance with NATA's accreditation requirements.

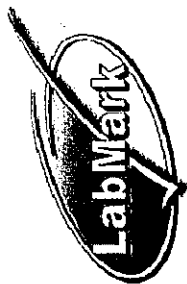
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* SYDNEY: Unit 1, 8 Leighton Place Asquith NSW 2077
* Telephone: (02) 9476 6533 * Fax: (02) 9476 8219

* MELBOURNE: 116 Moray Street, South Melbourne VIC 3205
* Telephone: (03) 9686 8344 * Fax: (03) 9686 7344

Form QS0144, Rev. 0 : Date Issued 10/03/05



Laboratory Report No: E029975
Client Name: Douglas Partners
Contact Name: Kurt Plambeck
Client Reference: 44559A

Page: 1 of 6
plus cover page
Date: 23/01/07

Final Certificate
of Analysis

This report supersedes reports issued on: N/A

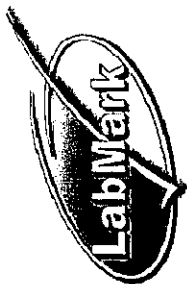
Laboratory Identification		63978	lcs	mb					
Sample Identification		BD1	QC	QC					
Depth (m)		--	--	--					
Sampling Date recorded on COC		4/1/07	--	--					
Laboratory Extraction (Preparation) Date		18/1/07	18/1/07	18/1/07					
Laboratory Analysis Date		22/1/07	19/1/07	19/1/07					
Method : E002.2 BTEX by P&T									
Benzene Toluene Ethylbenzene meta- and para-Xylene ortho-Xylene Total Xylene <i>CDFB (Surr @ 10mg/kg)</i>	EQL								
	0.2	<0.2	99%	<0.2					
	0.5	<0.5	101%	<0.5					
	0.5	<0.5	99%	<0.5					
	1	<1	104%	<1					
	0.5	<0.5	105%	<0.5					
		--	--	--					
		94%	104%	115%					
Method : E003.2 Volatile TPH by P&T (VTPH) C6 - C9 Fraction									
		EQL							
		10	106%	<10					

Results expressed in mg/kg dry weight unless otherwise specified

Comments:

E002.2: 8-10g soil extracted with 20ml methanol. Analysis by P&T/GC/PID/MSD.

E003.2: 8-10g soil extracted with 20ml methanol. Analysis by P&T/GC/FID.



Laboratory Report No: E029975
Client Name: Douglas Partners
Contact Name: Kurt Plambeck
Client Reference: 44559A

Page: 2 of 6
plus cover page
Date: 23/01/07

Final
Certificate
of Analysis

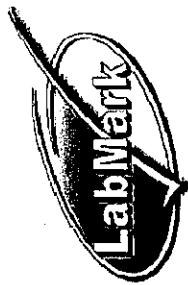
This report supercedes reports issued on: N/A

Laboratory Identification		63978	lcs	mb					
Sample Identification		BD1	QC	QC					
Depth (m)		--	--	--					
Sampling Date recorded on COC		4/1/07	--	--					
Laboratory Extraction (Preparation) Date		18/1/07	18/1/07	18/1/07					
Laboratory Analysis Date		22/1/07	19/1/07	19/1/07					
Method : E006.2									
Petroleum Hydrocarbons (TPH)		EQL							
C10 - C14 Fraction		50	--	<50					
C15 - C28 Fraction		100	89%	<100					
C29 - C36 Fraction		100	--	<100					
Sum of TPH C10 - C36		--	--	--					

Results expressed in mg/kg dry weight unless otherwise specified

Comments:

E006.2: 8-10g soil extracted with 20ml DCM/Acetone (8:2). Analysis by GC/FID.



Laboratory Report No: E029975
Client Name: Douglas Partners
Contact Name: Kurt Plambeck
Client Reference: 44559A

Page: 3 of 6
plus cover page
Date: 23/01/07
This report supercedes reports issued on: N/A

Final
Certificate
of Analysis

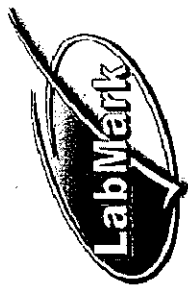


Laboratory Identification		63978	lcs	mb					
Sample Identification		BD1	QC	QC					
Depth (m)		--	--	--					
Sampling Date recorded on COC		4/1/07	--	--					
Laboratory Extraction (Preparation) Date		18/1/07	18/1/07	18/1/07					
Laboratory Analysis Date		22/1/07	19/1/07	19/1/07					
Method : E007.2									
Polyaromatic Hydrocarbons (PAH)		EQL							
Naphthalene		0.5		<0.5	95%				
Acenaphthylene		0.5		<0.5	92%				
Acenaphthene		0.5		<0.5	93%				
Fluorene		0.5		<0.5	92%				
Phenanthrene		0.5		<0.5	96%				
Anthracene		0.5		<0.5	100%				
Fluoranthene		0.5		<0.5	97%				
Pyrene		0.5		<0.5	96%				
Benz(a)anthracene		0.5		<0.5	96%				
Chrysene		0.5		<0.5	106%				
Benzo(b)&(k)fluoranthene		1		<1	104%				
Benzo(a) pyrene		0.5		<0.5	99%				
Indeno(1,2,3-c,d)pyrene		0.5		<0.5	100%				
Dibenz(a,h)anthracene		0.5		<0.5	99%				
Benzo(g,h,i)perylene		0.5		<0.5	100%				
Sum of reported PAHs		--		--	--				
2-FBP (Surr @ 5mg/kg)		--		89%	110%				
TP-dl4 (Surr @ 5mg/kg)		--		96%	72%				

Results expressed in mg/kg dry weight unless otherwise specified

Comments:

E007.2: 8-10g soil extracted with 20ml DCM/acetone (8:2). Analysis by GC/MS.



Laboratory Report No: E029975
Client Name: Douglas Partners
Contact Name: Kurt Plambeck
Client Reference: 44559A

Page: 4 of 6
plus cover page
Date: 23/01/07

Final
Certificate
of Analysis

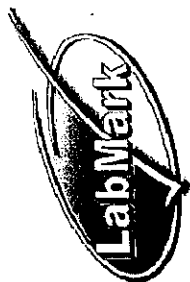
This report supersedes reports issued on: N/A

Laboratory Identification		63978	crm	lcs	mb			
Sample Identification		BDI	QC	QC	QC			
Depth (m)		--	--	--	--			
Sampling Date recorded on COC		4/1/07	--	--	--			
Laboratory Extraction (Preparation) Date		19/1/07	19/1/07	19/1/07	19/1/07			
Laboratory Analysis Date		22/1/07	19/1/07	19/1/07	19/1/07			
Method : E022.2								
Acid extractable metals (M7)		EQL						
Arsenic		1	115%	106%	<1			
Cadmium		0.1	86%	96%	<0.1			
Chromium		1	99%	107%	<1			
Copper		2	103%	105%	<2			
Nickel		1	86%	102%	<1			
Lead		2	92%	96%	<2			
Zinc		5	96%	108%	<5			

Results expressed in mg/kg dry weight unless otherwise specified

Comments:

E022.2: 0.5g digested in nitric/hydrochloric acid. Analysis by ICP-MS.



Laboratory Report No: E029975
Client Name: Douglas Partners
Contact Name: Kurt Plambeck
Client Reference: 44559A

Page: 5 of 6
plus cover page
Date: 23/01/07
This report supercedes reports issued on: N/A

Final
Certificate
of Analysis

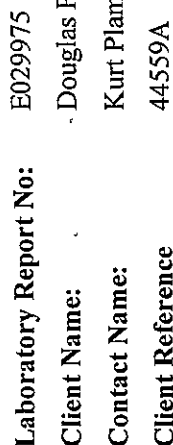


Laboratory Identification		63978	crm	lcs	mb				
Sample Identification		BD1	QC	QC	QC				
Depth (m)		--	--	--	--				
Sampling Date recorded on COC		4/1/07	--	--	--				
Laboratory Extraction (Preparation) Date		19/1/07	19/1/07	19/1/07	19/1/07				
Laboratory Analysis Date		22/1/07	19/1/07	19/1/07	19/1/07				
Method : E026.2 Acid extractable mercury		EQL 0.05							
Mercury		<0.05	124%	97%	<0.05				

Results expressed in mg/kg dry weight unless otherwise specified

Comments:

E026.2: 0.5g digested with nitric/hydrochloric acid. Analysis by CV-ICP-MS or FIMS.



Page: 6 of 6

plus cover page

Date: 23/01/07

This report supercedes reports issued on: N/A

Final

Certificate of Analysis

[illegible]

Results expressed in % w/w unless otherwise specified

Comments:

E005.2: Moisture by gravimetric analysis. Results are in % w/w.



Quality, Service, Support

Report Date : 16/01/2007
Report Time : 10:03:12AM

Sample Receipt Notice (SRN) for E029975



Client Details		Laboratory Reference Information	
Client Name: Douglas Partners Client Phone: 02 9809 0666 Client Fax: 02 98094095 Contact Name: Kurt Plambeck Contact Email: plambeckk@douglaspartners.com.au Client Address: 96 Hermitage Road West Ryde NSW 2114 Project Name: 44559A Project Number: - Not provided - CoC Number: - Not provided - Purchase Order: - Not provided - Surcharge: No surcharge applied (results by 6:30pm on due date) Sample Matrix: SOIL		Please have this information ready when contacting Labmark. Laboratory Report: E029975 Quotation Number: - Not provided, standard prices apply Laboratory Address: Unit 1, 8 Leighton Pl. Asquith NSW 2077 Phone: 61 2 9476 6533 Fax: 61 2 9476 8219 Sample Receipt Contact: Jakleen El Galada Email: jakleen.galada@labmark.com.au Reporting Contact: Jyothi Lal Email: jyothi.lal@labmark.com.au	
Date Sampled (earliest date):	04/01/2007	NATA Accreditation:	13542
Date Samples Received:	15/01/2007	TGA GMP License:	185-336 (Sydney)
Date Sample Receipt Notice issued:	16/01/2007	APVMA License:	6105 (Sydney)
Date Preliminary Report Due:	23/01/2007	AQIS Approval:	NO356 (Sydney)
		AQIS Entry Permit:	200409998 (Sydney)

Sample Condition:

COC received with samples. Report number and lab ID's defined on COC.

Samples received in good order .

Samples received with cooling media: Ice bricks .

Samples received warm.

Security seals not used .

Sample container & sample integrity suitable .

Comments:**Holding Times:**

Date received allows for sufficient time to meet Technical Holding Times.

Preservation:

Chemical preservation of samples satisfactory for requested analytes.

Important Notes:

Sample disposal of environmental samples shall be 31 days (water) and 3 months (soil, HN03 preserved samples) after laboratory receipt, unless otherwise requested in writing by the client. Samples requested to be held in non-refrigerated storage shall incur \$5.00/ sample/ 3 months. Additional refrigerated storage shall incur \$20/ sample/ 3 months. Combination prices apply only if requested. Transfer of report ownership from LabMark to the client shall occur once full and final payment has been settled and verified. All report copies may be retracted where full payment does not occur within the agreed settlement period.

Analysis comments:**Subcontracted Analyses:**

Thank you for choosing Labmark to analyse your project samples.

Additional information on www.labmark.com.au



Quality, Service, Support

Report Date : 16/01/2007
Report Time : 10:03:12AM

Sample Receipt Notice (SRN) for E029975



The table below represents LabMark's understanding and interpretation of the customer supplied sample COC request. Please confirm that your COC request has been entered correctly. Due to THT and TAT requirements, testing shall commence immediately as per this table, unless the customer intervenes with a correction prior to testing.

GRID REVIEW TABLE				Requested Analysis															
No.	Date	Depth	Client Sample ID	BTEX by P&T	Acid extractable mercury	Acid extractable metals (M7)	Moisture	Polyaromatic Hydrocarbons (PAH)	PREP Not Reported	Petroleum Hydrocarbons (TPH)	Volatile TPH by P&T (vTPH)								
63978	04/01		BD1	●	●	●	●	●	●	●	●								
Totals:				1	1	1	1	1	1	1	1								

Thank you for choosing Labmark to analyse your project samples.
Additional information on www.labmark.com.au



Quality, Service, Support

Report Date : 16/01/2007
Report Time : 10:03:12AM

Sample
Receipt
Notice (SRN) for E029975



				Requested Analysis															
No.	Date	Depth	Client Sample ID	M8 - M7-T_S															
63978	04/01		BD1	●															
Totals:				1															

Thank you for choosing Labmark to analyse your project samples.
Additional information on www.labmark.com.au

to Labmark



Client: Douglas Partners
Contact: 916 Heritage Rd

Client: Douglas Partners

Contact: 96 Heritage Rd

Address:

West Lyde

Email: Cuf Plambeck.
Phone:

Fax:

Client Project Name:

4459A

Client Project No.:

Envirolab Services Quote No. :

Results Required By:**Envirolab Services**

54 Frenchs Rd, Willoughby, NSW, 2068

Phone: 02 9958 5801

Fax: 02 9958 5803

E-mail: tnotaras@envirolabservices.com.au

Contact : Tania Notaras

Sample Type eg: (Soil,
Clay, Groundwater,
Surface Water,
Wastewater)

Sample Type eg: (Soil, Clay, Groundwater,	Sample Details eg: (Depth, Odour, Time)

Date Samples Collected

Client Sample ID

EnviroLab Services

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Comments

Lab Report
#E029975

Refiniquished by: FAVIOLAB

Print Name: Alcen

Date & Time: 15/11/07

Signature: A7ki

Received by:

Print Name: _____

Date & Time:

Signature: _____

~~John D. Smith~~ - 12/1/1977

201402

15/107 40hr.

12/1

Samples Received: Cool or Ambient (circle one)

Temperature Received at:

Page No:



EnviroLab Services Pty Ltd

ABN 37 112 535 645

54 Frenchs Rd Willoughby NSW 2068

ph 02 9958 5801 fax 02 9958 5803

email: tnotaras@envirolabservices.com.au

SAMPLE RECEIPT ADVICE

Client:

Douglas Partners
96 Hermitage Rd
West Ryde NSW 2114

ph: 02 9809 0666

Fax: 02 9809 4095

Attention: Kurt Plambeck

Sample log in details:

Your reference:

44559A

EnviroLab Reference:

9027

Date received:

15/01/07

Date results expected to be reported:

22/01/07

Samples received in appropriate condition for analysis:

YES

Turnaround time requested:

Standard

Temperature on receipt:

Cool

Cooling Method:

Ice Pack

Completed documentation received:

YES

Comments:

Samples will be held for 1 month for water samples and 2 months for soil samples from date of receipt of samples.

Contact details:

Please direct any queries to Aileen Hie or Jacinta Hurst

ph: 02 9958 5801 fax: 02 9958 5803

email: ahie@envirolabservices.com.au or jhurst@envirolabservices.com.au

Project Name: Homebush office Development
Project No: 445594 Sampler: KP
Project Mgr: RT Mob. Phone:
Email:
Date Required: Standard Lab Quote No.

To: Envirolab Services
54 Frenchs Rd, Willoughby NSW 2068
Attn: Tania Notaras
Phone: 02 9958 5801 Fax: 02 9958 5803
Email: tnotaras@envirolabservices.com.au

Sample ID	Sample Depth	Lab ID	Sampling Date	Sample Type S - soil W - water	Container type	Analytes								Notes	
						Heavy metals	TPH/BTEX	PAH	OC/PCB	PCB	Phenols	Asbestos	COMBO		
TP1/0.2-0.4		-1				✓	I	I	I	I		✓	ba	Sg	
TP1/0.4-0.6		-2				✓	I	I	I	I			ba	S	
TP2/0-0.2		-3				✓	I	I	I	I			ba	S	
TP2/0.2-0.7		-4				✓	I	I	I	I		✓	ba	Sg	
TP3/1-1.5		-5				✓	I	I	I	I					
TP3/2.4-2.8		-6													
TP3/0.2-0.5		-7				✓	I	I	I	I		✓	ba	Sg	
TP4/0.7-0.5		-8				✓	I	I	I	I			ba	S	
TP4/0.5-0.9		-9				✓	I	I	I	I		✓	ba	Sg	
TP5/0.5-0.6		-10				✓	I	I	I	I		✓	ba	Sg	
TP5/1.4-2.3		-11				✓	I	I	I	I			ba	S	
TPD 1 0.4 0.107						✓	✓	I	I	interlab			3		

Lab Report No.
Send Results to: Douglas Partners Address: 96 Hermitage Road, West Ryde 2114
Relinquished by: KP Signed: KP Date & Time: 12/1/07 12pm Received By: BH Date & Time: 12/1/07
Relinquished by: Signed: Date & Time: Received By: Date & Time:

8881



CHAIN OF CUSTODY

To: **Envirolab Services**
54 Frenchs Rd, Willoughby NSW 2068
Attn: **Tania Notaras**
Phone: 02 9958 5801 Fax: 02 9958 5803
Email: tnotaras@envirolabservices.com.au

[illegible]



Envirolab Services Pty Ltd

ABN 37 112 535 645

54 Frenchs Rd Willoughby NSW 2068

ph 02 9958 5801 fax 02 9958 5803

email: tnotaras@envirolabservices.com.au

SAMPLE RECEIPT ADVICE

Client:

Douglas Partners
96 Hermitage Rd
West Ryde NSW 2114

ph: 02 9809 0666

Fax: 02 9809 4095

Attention: Kurt Plambeck

Sample log in details:

Your reference:

44559A, Homebush Office Development

Envirolab Reference:

8881

Date received:

05/01/07

Date results expected to be reported:

19/01/07

Samples received in appropriate condition for analysis:

YES

Turnaround time requested:

Standard

Temperature on receipt

Cool

Cooling Method:

Ice Pack

Completed documentation received:

YES

Comments:

Samples will be held for 1 month for water samples and 2 months for soil samples from date of receipt of samples.

Contact details:

Please direct any queries to Aileen Hie or Jacinta Hurst

ph: 02 9958 5801 fax: 02 9958 5803

email: ahie@envirolabservices.com.au or jhurst@envirolabservices.com.au



CHAIN OF CUSTODY

Project Name: Homebush Office Development
Project No: 44-SS9A Sampler: KP
Project Mgr: R.T. Mob. Phone:
Email:
Date Required: Standard Lab Quote No.

To: Envirolab Services
54 Frenchs Rd, Willoughby NSW 2068
Attn: Tania Notaras
Phone: 02 9958 5801 Fax: 02 9958 5803
Email: tnotaras@envirolabservices.com.au

[illegible]



Envirolab Services Pty Ltd

ABN 37 112 535 645

54 Frenchs Rd Willoughby NSW 2068

ph 02 9958 5801 fax 02 9958 5803

email: tnotaras@envirolabservices.com.au

SAMPLE RECEIPT ADVICE

Client:

Douglas Partners
96 Hermitage Rd
West Ryde NSW 2114

ph: 02 9809 0666

Fax: 02 9809 4095

Attention: Kurt Plambeck

Sample log in details:

Your reference:

44559A, Homebush Office Development

Envirolab Reference:

8976

Date received:

12/01/07

Date results expected to be reported:

19/01/07

Samples received in appropriate condition for analysis:

YES

Turnaround time requested:

Standard

Temperature on receipt

Cool

Cooling Method:

Ice Pack

Completed documentation received:

YES

Comments:

Samples will be held for 1 month for water samples and 2 months for soil samples from date of receipt of samples.

Contact details:

Please direct any queries to Aileen Hie or Jacinta Hurst

ph: 02 9958 5801 fax: 02 9958 5803

email: ahie@envirolabservices.com.au or jhurst@envirolabservices.com.au



CHAIN OF CUSTODY

Homeshush Office Development

4459A

Sampler: 44559A 120

4450A
Sampler: KP

✓

RF.....Mob. Phone:

Q1 Mob. Phone:

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1000

Standard.....
Lab Quote No.

To: Envirolab Services

54 Frenchs Rd, Willoughby NSW 2068

Attn: Tania Notaras

Phone: 02 9958 5801 Fax: 02 9958 5803

Email: tnotaras@envirolabservices.com.au

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Send Results to: Douglas Partners Address: 96 Hermitage Road, West Ryde 2114

Fax: (02) 9809 4095

Relinquished by: LE

Signed:

Date & Time: 21/07/2024

Received By:

Date & Time: 12/1/07

Relinquished by:

Signed:

Date & Time:

Received By:

Date & Time:

Sample ID	Sample Depth	Lab ID	Sampling Date	Sample Type	Container type	Heavy metals	TPH/BTEX	PAH	OC/PCB	PBB	Dioxins	Astrosols	COMBO	Notes
603 041107						✓	✓			- Intralab			✓	
TB7/0.35-0		6-1				✓	✓						6A	
TB9/1.5-1		6-2				✓	✓						6B	
TB8/0.5-0		6-3				✓	✓						6C	
TB8/1.1-1		6-4				✓	✓						6D	
TB6/3-3.45		6-5				✓	✓						6E	

EnviroLab Services
54 Frenchs Rd
Willoughby NSW 2068
Ph: 9958-5807

Job No: 8976

Date received: 12/11

Received by: JH

Time: 12 noon

Temp: Cool/Ambient

Security: Intact/Broken/None

Lab Report No.

Send Results to: Douglas Partners Address: 96 Hermitage Road, West Ryde 2114

Relinquished by: [Signature] Signed: [Signature] Date & Time: 10/12/2007

Relinquished by: Date & Time: Received By: Date & Time: Phone: (02) 9809 0666 Fax: (02) 9809 4095

APPENDIX G
Quality Assurance/Quality Control Procedures and Results

QA/QC PROCEDURES AND RESULTS

FIELD QUALITY ASSURANCE AND QUALITY CONTROL

The field QC procedures for sampling as prescribed in Douglas Partners *Field Procedures Manual* were followed at all times during the contamination assessment. Field sampling comprised replicate sampling, at a rate of approximately one replicate sample for every ten original samples, one trip blank and one trip spike.

Rinsate Sample

Rinsate (Field Blank) samples are used to provide an indication of any cross contamination which may occur between samples. Disposable sampling equipment was used during this assessment, eliminating the chance of cross contamination, and therefore no need for rinsate samples.

Replicate Samples

The field QC comprised the collection of replicate samples during the course of sampling. Replicate sample BD3 040107 and its original samples were submitted for analysis along with other selected soil samples. The soil replicates was analysed for heavy metals (As, Cd, Cr, Cu, Pb, Hg, Ni and Zn), TPH, BTEX and PAH. Comparative results of analysis are included in Table G1 and G2. Relative Percentage Differences (RPD) was calculated as an assessment of the result consistency.

RELATIVE PERCENTAGE DIFFERENCE

A measure of the consistency of results for field samples is derived by the calculation of relative percentage differences (RPDs) for replicate samples. A RPD of $\pm 30\%$ is generally considered acceptable for inorganic analytes by EPA, although in general a wider RPD range may be acceptable for organic and inorganic analytes.

$$\%RPD = \frac{|C_{original} - C_{duplicate}|}{Average(C_{original}, C_{duplicate})} \times 100 \quad (1)$$

The comparative results of analysis between original and replicates are summarised in the table below.

Table G1 - RPD Results for Heavy Metals and PAH

Sample ID	As	Cd	Cr III	Cu	Pb	Hg	Ni	Zn	B(aP)	PAH
1/0.2-0.4	<4	<1	3.7	1.5	6.3	<0.1	<1	3.3	<0.1	0
BD3/040107	<4	<1	3.4	2.5	17	<0.1	<1	13	<0.1	0
%RPD	0	0	8	50	92	0	0	119	0	0

Table G2 - RPD Results for TPH and BTEX

Sample ID	C ₆ -C ₉	C ₁₀ -C ₁₄	C ₁₅ -C ₂₈	C ₂₉ -C ₃₆	Benzene	Toluene	Ethyl Benzene	Total xylene
1/0.2-0.4	<25	<50	<100	<100	<1	<1	<1	<3
BD3/040107	<25	<50	<100	<100	<1	<1	<1	<3
%RPD	0	0	0	0	0	0	0	0

The calculated RPD values for the sample and its replicate was generally within the acceptable range of $\pm 30\%$ with the exception of those indicated by shading.

It is therefore considered that the results indicate an acceptable consistency between the samples and their replicates and indicate that suitable field sampling methodology was adopted and laboratory precision was achieved.

LABORATORY QA/QC PROCEDURES

The analytical laboratory certified by the (NATA) and is required to conduct in-house QA/QC procedures. These are normally incorporated into every analytical run and include reagent blanks, spike recovery, surrogate recovery and duplicate samples. These results are included in the laboratory reports in **Appendix F**.

Intra-laboratory Procedures

The following QA/QC procedures were conducted by the laboratory.

Reagent Blank

This sample is prepared and analysed at the beginning of every analytical run, following calibration of the analytical apparatus. The laboratory results for reagent blanks for soil

analyses indicated concentrations of all analytes to be below laboratory detection limits. These results are included in the laboratory report in **Appendix F**.

Spike Recovery

This is a sample replicate prepared by adding a known amount of analyte prior to analysis, and then treated exactly the same as all other samples. The recovery result indicates the proportion of the known concentration of the analyte that is detected during analysis. These results are included in the laboratory report in **Appendix F**.

The recovery for individual contaminants ranged between 64% and 127% and are within the adopted acceptable range of 70% to 130% for inorganics and 60% to 140% for organics. The spike results are within the adopted acceptable range is not considered to affect the outcomes and conclusions of this assessment.

Surrogate Recovery

This sample is prepared by adding a known amount of surrogate, which behaves similarly to the analyte, prior to analysis to each sample. The recovery result indicates the proportion of the known concentration of the surrogate that is detected during analysis.

The recovery for individual contaminants was within the adopted acceptable range of 60% to 140% for surrogate recoveries. The results are within the adopted acceptable range is not considered to affect the outcomes and conclusions of this assessment.

Duplicates

These are additional portions of a sample which are analysed in exactly the same manner as all other samples. The duplicate sample results are included in the laboratory results in **Appendix F**.

In overall terms, therefore, the data quality objectives have been attained and the quality of the investigation data is considered acceptable.

Inter-laboratory Analysis

In addition to internal laboratory QA/QC procedures, a triplicate sample BD1/081206 was collected on-site and forwarded to a second laboratory, Labmark Pty Ltd, Sydney for inter-laboratory analysis.

The comparative results of analysis between the two laboratories are summarised in the Table G3 and G4 below.

Table G3 - Inter-laboratory Comparison for Heavy Metals and PAH

Sample ID	As	Cd	Cr III	Cu	Pb	Hg	Ni	Zn	B(aP)	PAH
5/0.15-0.6	10	<1	8	17	13	<0.1	1.7	11	<0.05	0
BD1 040107	7	<0.1	9	15	13	<0.05	2	9	<0.5	0
%RPD	35	164	12	13	0	67	16	20	164	0

Table G4 - Inter-laboratory Comparison RPD Results for TPH and BTEX

Sample ID	C ₆ -C ₉	C ₁₀ -C ₁₄	C ₁₅ -C ₂₈	C ₂₉ -C ₃₆	Benzene	Toluene	Ethyl Benzene	Total xylene
5/0.15-0.6	<25	<50	<100	<100	<1	<1	<1	<3
BD1 040107	<10	<50	<100	<100	<0.2	<0.5	<0.5	<1.5
%RPD	86	0	0	0	133	67	67	67

The calculated RPDs exceeding the acceptability range are not considered to be of significant concern as the laboratory's detection limits between the two labs were different. Furthermore, the concentrations of contaminants reported by both laboratories were well within the adopted site assessment criteria. Given the low levels of concentrations of analytes recorded, it is therefore considered that the results indicate an acceptable consistency between the samples and their replicates and indicate that suitable field sampling methodology was adopted and laboratory precision was achieved.

QA/QC Conclusions

The accuracy and precision of the soil testing procedures, as inferred by the QA/QC data, is considered by DP to be of sufficient standard to enable the data, as reported by Envirolab and labmark to be used by DP for interpretation of site contamination conditions.