Douglas Partners
Geotechnics / Environment / Groundwater

Integrated Practical Solutions

Report on
Detailed Site Investigation (Contamination)

Proposed Commercial Development
4 Murray Rose Avenue, Sydney Olympic Park

Prepared for
Lend Lease Building Pty Ltd

Project 45153.03
November 2013

Douglas Partners
Geotechnics / Environment / Groundwater

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	Signature	Date
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1. Introduction

This report presents the results of a Detailed Site Investigation (Contamination) undertaken for a proposed commercial development at 4 Murray Rose Avenue, Sydney Olympic Park. The work was commissioned by Lend Lease Building Pty Ltd, development managers and builders.

The project involves the construction of a six-storey commercial office building over a three-level basement. Bulk excavation to approximately RL 2 relative to Australian Height Datum (AHD) is proposed over the majority of the site (RL 102.078 relative to the Sydney Olympic Park Authority datum).

The detailed contamination assessment was undertaken to:

- Assess the general levels of soil contamination resulting from past and present activities on the site;
- Assess the potential for contaminant migration by examining the groundwater quality on the site;
- Assess the suitability of the site for the proposed commercial development;
- Provide recommendations for remediation works, if required; and
- Provide information on waste classification for the materials that are to be removed from the site during bulk earthworks activities.

The overall approach for the Detailed Site Investigation included a review of available historical information, the drilling of boreholes, the installation of groundwater monitoring wells, soil and groundwater sampling, laboratory analysis and interpretation of the results. Details of the site history, field work and laboratory testing programme are given in this report, as well as comments on the issues outlined above.

The scope of the Detailed Site Investigation has been prepared with reference to the newly adopted National Environment Protection Measure (NEPM) guidelines where possible. However, it is noted that the scope of the investigation was largely prepared prior to the formal adoption of the NEPM guidelines and therefore *Contaminated Sites: Guidelines for the NSW Site Auditor Scheme* (NSW DECC, 2006) has also been used where relevant. This is approach is understood to be acceptable to the NSW EPA as both these guidelines remain current and legally acceptable under the *Contaminated Land Management Act 1997.*

A geotechnical investigation was undertaken at the same time as the Detailed Site Investigation and is reported separately.

2. Previous Investigations

Douglas Partners Pty Ltd has previously undertaken detailed contamination assessments on 3 Murray Rose Avenue and 5 Murray Rose Avenue, which are immediately to the north of the current development site. The details of the previous assessments are provided in the reports for Projects 45153.01 and 45153.02. Information from these previous reports has been used in this current investigation where relevant. These previous sites and the current site were historically known as 7 Parkview Drive.

3. Site Description

The site is near-rectangular and approximately 4,000 m^2 in area. It is bounded by Murray Rose Avenue to the north, a recently demolished commercial building to the east, Parkview Drive to the south, and an on-grade carpark associated with a commercial building to the west. The ground surface on the site currently slopes downwards to the south-east with an overall difference in levels of about 2 m. The western portion of the site has been cut to form a level hardstand area; gravity retaining walls supporting the adjacent land are located in the northern and western extents of the hardstand.

The site is primarily on part of Lot 88 in Deposited Plan 870992 in the Parish of Concord, County of Cumberland. A small portion of the site is on the adjacent Lot 70 in DP 818981, Lot 70 in DP 1134933 and Lot 1 in DP 1122970, although it is understood that the lot boundaries will ultimately be altered to reflect the layout of the new development. A site location plan is shown in Figure 1.

Figure 1: Approximate location of site with respect to current lot boundaries

4. Regional Geology and Hydrogeology

Reference to the *Sydney 1:100 000 Geological Series Sheet* indicates that the site is underlain by Ashfield Shale of the Wianamatta Group. Ashfield Shale typically comprises black to dark grey shale and laminite.

The site is located near the top of a spur that has been created by excavation of the adjacent brick pit. Groundwater is likely to have historically flowed to the east and south-east, into the wetlands at the southern end of Homebush Bay. However, the brick pit may also act as a sump drawing groundwater from the site in a northerly direction. Surface water flows would be expected to follow the surface topography of the site.

5. Scope of Works

The scope of the Detailed Site Investigation was as follows:

- Review various historical documents including title deeds, aerial photographs, WorkCover Dangerous Goods Licences, EPA Remediation Notices and groundwater bore licences to determine the nature of previous activities that may have occurred on the site;
- Prepare a Sampling and Analysis Quality Plan (SAQP) for the investigation;
- Drill 12 boreholes (BH1 to BH12) on the site for both contamination and geotechnical investigation purposes;
- Install four groundwater monitoring wells (BH1, BH2, BH5 & BH6) near the four corners of the site to allow assessment of groundwater quality at the up-gradient and down-gradient site boundaries;
- Collect soil and groundwater samples for analysis at a NATA accredited laboratory for a range of potential contaminants;
- Screen soil samples with a calibrated Photoionisation Detector (PID) to assess the presence of volatile organic compounds;
- Provide a Detailed Site Investigation report which comments on the recorded levels of contamination in the soils and groundwater on the site, the suitability of the site for the proposed development, recommended follow up action, and provides provisional waste classification advice; and
- Store remaining soil and groundwater samples not analysed for a period of one month pending the need for further analysis.

6. Site History

6.1 Historical Land Uses

The title deed records indicate that the lots on which the development is proposed were owned by the Metropolitan Meat Industry Board from 1905. This organisation was responsible for operating an abattoir and meat works in the Homebush Bay area. The title deeds do not indicate whether the actual abattoir was on the current development site or elsewhere. The site was then owned by the Olympic Coordination Authority from 1993 and the registered owners as of 2007, the Sydney Olympic Park Authority, from 2002. The site is now owned by GPT under a 99 year lease. A summary of the title deed records for the main lot is provided in Appendix C.

6.2 Aerial Photographs

A review of available aerial photographs from 1949, 1951, 1961, 1965, 1970, 1982, 1991, 1998, 2009 and 2013 was undertaken to evaluate the changes in land-use patterns on the site during this period. The site was occupied by several large commercial-type buildings in the 1949 photograph. The area to the west of the site appears to have been used as holding-pens for livestock in preparation for slaughter. Additional commercial buildings were constructed since 1949 and exist up to at least 1982 as shown in the 1982 photograph. The commercial buildings have a distinctive 'saw-tooth' pattern which was typical of buildings clad with asbestos-cement sheeting.

The buildings had been demolished by 1991 and the site was vacant and grassed at this time. The newer commercial buildings constructed in the mid-1990s appear in the 1998 photograph. The 2009 photograph shows the building then known as 7 Parkview Drive to the north and the hardstand pavement which currently remains. The 2013 photograph shows the site as it was at the time of the current investigation. The now-decommissioned brick pit to the north of the development site is clearly seen in all photographs that were reviewed.

Scanned images of the aerial photographs are provided in Appendix C.

6.3 Contaminated Land Public Register

A search undertaken on 19 November 2013 indicated that the development site is not on the Public Register of Notices issued under the *Contaminated Land Management Act 1997*. There are numerous current and former notices relating to sites in the Sydney Olympic Park precinct although the development site is not the subject of any current notices. The search results for the Auburn Council area are attached in Appendix C as confirmation of this status.

6.4 WorkCover Dangerous Goods Licences

A search of the WorkCover Dangerous Goods Licences database did not return any evidence of licences having been issued for the development site (formerly known as 7 Parkview Drive). A letter from WorkCover is attached in Appendix C.

6.5 Groundwater Bore Licences

A search of licensed groundwater bores within the Sydney Olympic Park area indicated that no licensed groundwater wells are located within the development site. The nearest wells are located within Bicentennial Park approximately 300 m to the east and south-east of the site and are listed as monitoring wells, presumably part of a monitoring programme for the landfill that underlies the park. Production wells were not listed in the database. The search information is attached in Drawing GW1 in Appendix C.

7. Conceptual Site Model

The site forms part of a former warehouse and office building that was constructed in the mid-1990s. Prior to that, it had been used as part of an abattoir with commercial buildings known to have been present on the site. Previous investigations on adjacent sites to the north have encountered elevated levels of heavy metals in filling, and volatile organic compounds and petroleum hydrocarbons within the groundwater. No on-site sources of the groundwater contamination have been identified.

The Conceptual Site Model (CSM) has therefore been developed on the basis of the information currently available. Potential soil contamination may be present as a result of:

- Placement of filling on the site;
- Previously contaminating activities associated with its former use as part of the abattoir and later as a commercial warehouse; and
- Naturally occurring metals in the soils and rock underlying the site.

Potential groundwater contamination may be present as a result of:

- Storage of chemicals on the site in the past; and
- Migration of diffuse sources of contamination onto the site.

Soil vapour intrusion and/or ground gas is currently considered to be a very low risk on the site and will only be considered if significant concentrations of volatile contaminants are encountered during the assessment.

The human receptors to soil and groundwater contamination are likely to be the occupants of and visitors to the proposed commercial building. Construction personnel and nearby workers may also be receptors during the construction phase of the development project.

The ecological receptors are likely to be limited to the flora and fauna that grow/live on areas of the site in which vegetation is proposed. The area is not known to be ecologically significant.

Exposure pathways are expected to be limited to dermal contact with soils and groundwater on the site by humans, ingestion of soils and vegetation by fauna, and phytotoxic exposure to flora.

8. Selected Comparative Guidelines

The *National Environment Protection (Assessment of Site Contamination) Measure, Schedule B1 – Guideline on Investigation Levels for Soil and Groundwater* (NEPC, 2013) provides assessment levels for various soil, groundwater and vapour contaminants. The site is assumed to be a commercial/industrial site for the health-based components of the assessment. The site categories for the ecological-based components were determined during the assessment (i.e. determined from soil types, pH and assumed cation exchange capacities of the soils encountered).

The quantitative site assessment criteria adopted are shown in Table F4 (soils) and Table F6 (groundwater) in Appendix F.

9. Data Quality Objectives

The investigation procedures and data quality objectives have been devised in general accordance with the seven-step data quality objective (DQO) process outlined in Australian Standard AS 4482.1 – 2005 *Guide to the investigation and sampling of sites with potentially contaminated soil – Part 1: Non-volatile and semi-volatile compounds*. The various DQOs and QA/QC procedures adopted for the assessment are outlined in the SAQP which is included in Appendix D. They have not been duplicated within the body of this report.

10. Field Work Procedures

10.1 Soils Assessment

The field work for the Detailed Site Investigation included the drilling of five cored boreholes (BH1 to BH3, BH5 & BH6) and six augered boreholes (BH7 to BH12) at the locations shown on Drawing C1 in Appendix B. Bore BH4 was originally proposed but was not drilled due to access constraints imposed by the Sydney Olympic Park Authority in relation to drilling within the road reserve.

The cored bores were drilled to depths of 15.0 m to 15.2 m using a truck-mounted Scout drilling rig. They were commenced using solid flight augers then continued using rotary wash-boring equipment inside top casing. Standard penetration tests were undertaken within the overburden at regular depth intervals. Soon after rock was encountered, the bores were advanced using NMLC-sized diamond core drilling equipment to obtain 50 mm diameter continuous samples of the rock for identification and strength testing purposes.

The augered bores were drilled to depths of 0.9 m to 3.4 m using an auger mounted on a Bobcat.

Sampling was undertaken from the auger and from the SPTs which were considered appropriate techniques due to the strength of the soils encountered on the site. The mixing of soils from different depth profiles was minimised during sampling by careful drilling and supervision.

Soil sampling for contamination assessment purposes was performed in general accordance with the standard sampling procedures outlined in the *Douglas Partners Field Procedures Manual*. All sampling data were recorded on chain-of-custody information sheets. The sampling generally included:

- Soil sampling using decontaminated and/or disposable equipment;
- Placement of samples into laboratory prepared jars and immediate capping;
- Labelling of sample containers with individual and unique markings including project number, sample location, sample depth and date of sampling; and
- Storage of sample containers in a cooled, insulated container for transport to the laboratory.

The ground surface levels at the bores were measured relative to AHD using an automatic level and benchmark SS 87238 which was listed at RL 11.03 on the Department of Lands survey database. It is noted that the Sydney Olympic Park Authority uses a separate height datum (AHD + 100.078 m), although for the purposes of this report AHD is used.

10.2 Groundwater Assessment

The field work for the groundwater assessment included the installation of four groundwater monitoring wells (BH1, BH2, BH5 and BH6) in the deep boreholes drilled as part of the geotechnical investigation on the site. This involved placing Class 18 uPVC screen and solid casing in each borehole. The screened interval was within the bedrock in all wells to ensure the surface of the groundwater was intercepted by the screen. A gravel pack was placed around the screen and a bentonite plug was placed above the gravel. The remainder of the void was backfilled with drill cuttings and the top of the wells were finished with a steel cover mounted flush with the surface.

Groundwater sampling was performed in general accordance with the standard sampling procedures outlined in the *DP Field Procedures Manual*. All sampling data were recorded on chain-of-custody information sheets. The sampling generally included:

- Development of the wells by pumping the wells practically dry;
- Groundwater sampling using a low-flow pump that had been decontaminated using Decon90 phosphate-free detergent and demineralised water;
- Placement of samples into laboratory prepared and preserved bottles and immediate capping;
- Labelling of sample containers with individual and unique markings including project number, sample location and date of sampling; and
- Storage of sample containers in a cooled, insulated and sealed container for transport to the laboratory.

The field sampling details are provided in Appendix E.

11. Results of Assessment

11.1 Field Work Results

The subsurface conditions encountered in the boreholes are presented in the borehole logs in Appendix E. Notes defining descriptive terms and classification methods are included in Appendix A.

The subsurface conditions encountered on the site can be described as:

- FILLING – concrete, sandy/silty topsoil, clay, silty clay, clayey silt, shaly clay, gravel, shale and roadbase filling with traces of plastic, wood and hessian to depths of 0.2 m to 3.4 m. BH11 refused on a concrete obstruction at 3.4 depth;
- RESIDUAL SOIL – stiff to hard silty clay, clayey silt, gravelly clay and clay with traces of ironstone gravel to depths of 0.6 m to 3.0 m in several boreholes. Residual soil was not encountered in locations where filling was directly underlain by shale bedrock; and
- BEDROCK – shale bedrock below depths of 0.25 m to 3.0 m in the locations in which shale was observed.

Free groundwater was not observed during augering and the use of drilling fluid during coring prevented further observations in the deeper cored bores. The water levels measured in the monitoring wells are provided in Table 1.

Table 1: Groundwater Observations in Monitoring Wells (m, AHD)

Date	BH1	BH2	BH5	BH6
8 Nov 2013	6.6	NM	7.6	5.7

Notes: NM = not measured as monitoring well was inaccessible

11.2 Total Photoionisable Compounds Results

Replicate soil samples collected from the boreholes were stored under ambient conditions in re-sealable bags before screening for Total Photoionisable Compounds (TOPIC) using a calibrated Photoionisation Detector (PID). The results of the screening are shown on the borehole logs in Appendix E. The PID readings were all very low. A calibration certificate for the PID is included in Appendix I.

11.3 Analytical Results for Soil and Groundwater Samples

Envirolab Services Pty Ltd was commissioned to undertake analysis of the majority of the soil samples. Eurofins Environment Testing Australia Pty Ltd was commissioned to undertaken inter-lab QA/QC testing as per the SAQP. Tabulated summaries of the results of the soil and groundwater analysis are provided in Appendix F.

The summaries include Table F1 (Contaminant Concentrations in Soils), Table F2 (Contaminant Concentrations in QA/QC Soil Samples), Table F3 (Statistical Analysis of Soil Contaminant Concentrations), Table F4 (Adopted Comparative Criteria for Soils), Table F5 (Contaminant Concentrations in Groundwater) and Table F6 (Adopted Comparative Criteria for Groundwater).

The detailed analytical results, sample receipts and chain of custody documentation are included in Appendix G.

11.4 Field and Laboratory Quality Control Procedures

The field and laboratory QA/QC procedures adopted for the current assessment are described in Appendix H.

12. Discussion of Results

12.1 Soil Contamination

Twenty-two (22) soil samples (excluding QA/QC samples) were selectively analysed from eleven (11) boreholes on the site. Eleven (11) of these samples were obtained from the filling profile and eleven (11) samples from the natural soils. This testing frequency is considered sufficient for characterising the site. The rationale for selecting the test locations is provided in Section 7 of this report.

All soil samples were within the adopted health-based investigation/screening levels for commercial sites. All soil samples were also within the adopted ecological-based investigation/screening levels. This result differs from the two development sites to the north (3 and 5 Murray Rose Avenue) and is likely to be due to the fact that very little filling was encountered on 4 Murray Rose Avenue when compared to the other sites.

Asbestos was not observed in the auger returns from the boreholes and was not detected in the samples analysed in the laboratory.

12.2 Groundwater Contamination

Groundwater sampling from the monitoring wells was undertaken on 8 November 2013. Well BH2 could not be located and it was thought that this well had been damaged as a result of construction activities on 3 Murray Rose Avenue. Samples were obtained from the other three wells.

The samples contained several volatile organic compounds including chloroform (up to 4 μg/L), o xylene (3 μg/L) and cyclohexane (1 μg/L). The sample from BH6 contained semi-volatile TRH fractions of 63 μg/L and the sample from BH5 contained a phenol concentration of 60 μg/L. It is noted that these concentrations are below the newly adopted NEPM guidelines for the compounds in which figures are provided in NEPM.

The PAH, OCP, OPP and PCB concentrations were all below the laboratory detection limits. All heavy metal concentrations were below the adopted hardness-adjusted levels.

It is likely that the contaminants detected in the groundwater are representative of regional groundwater quality in the Sydney Olympic Park area. Investigations on the adjacent sites encountered much higher concentrations of hydrocarbon-related products, the source of which was not apparent at the time of the previous assessments. It is understood that specific sources of hydrocarbons (e.g. underground storage tanks, buried drums etc.) were not encountered during excavation works on the adjacent site, which also supports the regional groundwater argument that there are diffuse sources of these contaminants located within Sydney Olympic Park.

If specific sources are located on the development site then they are likely to be removed during basement excavation works and therefore the groundwater quality should improve. If the source of the contamination is not on the site, as seems likely to be the case, then the concentrations are obviously indicative of more 'regional' levels.

The presence of various contaminants in groundwater should not affect the proposed commercial land use for the site as groundwater will not be harvested for use. Seepage into the basement would be expected to occur and will probably be handled using a subfloor drainage and collection system in a similar manner to 5 Murray Rose Avenue. The quality of groundwater requiring discharge from the site, either during construction or in the longer term, may need assessing to determine appropriate disposal options. If discharge to stormwater is not permitted by the appropriate regulatory authority then a trade waste agreement with Sydney Water may need to be sought.

13. Conclusions and Recommendations

13.1 Soils

The site history information indicates the site was used for commercial or industrial purposes in the past. No specific contaminating activities were identified although industrial processes undertaken on the site may have included the use of selected chemicals such as hydrocarbons. Several buildings constructed in the mid-20th century have also been demolished on the site which indicates the possibility of asbestos being present.

The 22 soil samples analysed from the 11 test locations exhibited contaminant concentrations within the adopted assessment criteria for the site. This result differs from the two development sites to the north (3 and 5 Murray Rose Avenue) and is likely to be due to the fact that very little filling was encountered on 4 Murray Rose Avenue when compared to the other sites.

Asbestos was not observed in the boreholes nor detected in the laboratory samples analysed, although the possibility of asbestos being present on the site should not be discounted due to previous demolition activities that have been undertaken.

On the basis of the results of this Detailed Site Investigation, the soils that will remain on the site following bulk excavation works are considered suitable for the proposed commercial land-use.

13.2 Removal of Excavated Materials

The analytical programme was undertaken with the aim of providing preliminary waste classification advice as well as an assessment of site contamination. Waste classification is required for materials to be removed from a site in accordance with *Waste Classification Guidelines* (DECCW NSW, 2009). These guidelines outline a six-step process for determining an appropriate waste classification for soil materials.

In accordance with the process outlined in the guidelines, the existing filling requires chemical assessment to confirm a waste classification. The results of this testing are outlined in Appendix F and Appendix G of this report.

On the basis of the total contaminant concentrations in the soil samples analysed, the filling materials analysed could be classified as General Solid Waste (non-putrescible) (i.e. CT1 as per Table 1 of *Waste Classification Guidelines Part 1: Classifying Waste*) and would need to be transported to an appropriately licensed landfill.

The results were also used to determine whether the filling may meet the requirements for excavated natural material (ENM) as outlined in *The excavated natural material exemption 2012* issued under the *Protection of the Environment Operations (Waste) Regulation 2005*. The current assessment indicates that providing the pH, EC and foreign material criteria are met, the filling on the site may be able to be described as ENM upon excavation. Additional sampling and analysis would be required during construction to confirm the ENM status as per the requirements of the exemption.

The natural soils and bedrock underlying the site should be able to be disposed of as virgin excavated natural material (VENM) providing they are not cross-contaminated prior to, during or following excavation. Confirmation of VENM status will be required during excavation.

13.3 Groundwater

Groundwater samples were collected from three monitoring wells on the site and analysed for a range of potential contaminants. The samples contained elevated concentrations of several organic compounds, although a specific on-site source of the contaminants is not apparent. The compounds detected included chloroform (up to 4 μg/L), o xylene (3 μg/L), cyclohexane (1 μg/L), semi-volatile TRH fractions (63 μg/L) and phenol (60 μg/L).

If the source is found to be on the site (e.g. underground storage tanks, buried drums etc.) then it will be removed as part of the basement excavation works. If the source is not on the site then the quality of the groundwater in the wells is likely to be indicative of regional groundwater quality.

On the basis of the results of this Detailed Site Investigation, the quality of the groundwater should not hinder the proposed redevelopment of the site for commercial purposes provided that disposal of seepage water is undertaken in accordance with regulatory requirements.

14. References

Australian Standard AS 4482.1 – 2005 *Guide to the investigation and sampling of sites with potentially contaminated soil – Part 1: Non-volatile and semi-volatile compounds.*

Contaminated Sites: Guidelines for the NSW Site Auditor Scheme (DECC NSW, 2006)

Contaminated Sites: Sampling Design Guidelines (NSW EPA, 1995)

National Environment Protection (Assessment of Site Contamination) Measure, Schedule B1 – Guideline on Investigation Levels for Soil and Groundwater, (NEPC, 2013).

Sydney 1:100 000 Geological Series Sheet 9130, NSW Department of Mineral Resources, 1983.

Waste Classification Guidelines, Department of Environment, Climate Change and Water NSW, 2009.

15. Limitations

Douglas Partners Pty Ltd (DP) has prepared this report for a project at 4 Murray Rose Avenue, Sydney Olympic Park in accordance with DP's proposal dated 28 March 2013 and subsequent acceptance received from Lend Lease Building Pty Ltd. The report is provided for the use of Lend Lease Building Pty Ltd for this project only and for the purpose(s) described in the report. It should not be used for other projects or by a third party.

The results provided in the report are indicative of the sub-surface conditions only at the specific sampling or testing locations, and then only to the depths investigated and at the time the work was carried out. Subsurface conditions can change abruptly due to variable geological processes and also as a result of anthropogenic influences. Such changes may occur after DP's field testing has been completed.

DP's advice is based upon the conditions encountered during this investigation. The accuracy of the advice provided by DP in this report may be limited by undetected variations in ground conditions between sampling locations. In preparing this report DP has necessarily relied upon information provided by the client and/or their agents.

This report must be read in conjunction with all of the attached notes and should be kept in its entirety without separation of individual pages or sections. DP cannot be held responsible for interpretations or conclusions made by others unless they are supported by an expressed statement, interpretation, outcome or conclusion given in this report.

This report, or sections from this report, should not be used as part of a specification for a project, without review and agreement by DP. This is because this report has been written as advice and opinion rather than instructions for construction.

Douglas Partners Pty Ltd

Appendix A

About this Report

About this Report

Douglas Partners

Introduction

These notes have been provided to amplify DP's report in regard to classification methods, field procedures and the comments section. Not all are necessarily relevant to all reports.

DP's reports are based on information gained from limited subsurface excavations 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.

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This report is the property of Douglas Partners Pty Ltd. The report may only be used for the purpose for which it was commissioned and in accordance with the Conditions of Engagement for the commission supplied at the time of proposal. Unauthorised use of this report in any form whatsoever is prohibited.

Borehole and Test Pit Logs

The borehole and test pit logs presented in this report 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 or excavation. 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 and test pits 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 or pits, the frequency of sampling, and the possibility of other than 'straight line' variations between the test locations.

Groundwater

Where groundwater levels are measured in boreholes there are several potential problems, namely:

- In low permeability soils groundwater may enter the hole very slowly or perhaps not at all during the time the hole 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; and
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water measurements 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.

Reports

The report has been prepared by qualified personnel, is based on the information obtained from field and laboratory testing, and has been undertaken to current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal, the information and interpretation may not be relevant if the design proposal is changed. If this happens, DP 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 conditions, discussion of geotechnical and environmental aspects, and recommendations or suggestions for design and construction. However, DP cannot always anticipate or assume responsibility for:

- Unexpected variations in ground conditions. The potential for this will depend partly on borehole or pit spacing and sampling frequency;
- Changes in policy or interpretations of policy by statutory authorities; or
- The actions of contractors responding to commercial pressures.

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

About this Report

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, DP requests that it be immediately notified. Most problems are much more readily resolved when conditions are exposed rather than at some later stage, well after the event.

Information for Contractual Purposes

Where information obtained from this report 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. DP 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 and environmental 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.

Sampling Methods

Douglas Partners

Sampling

Sampling is carried out during drilling or test pitting 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 it to obtain 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.

Test Pits

Test pits are usually excavated with a backhoe or an excavator, allowing close examination of the in-situ soil if it is safe to enter into the pit. The depth of excavation is limited to about 3 m for a backhoe and up to 6 m for a large excavator. A potential disadvantage of this investigation method is the larger area of disturbance to the site.

Large Diameter Augers

Boreholes can be drilled using a rotating plate or short spiral auger, generally 300 mm or larger in diameter commonly mounted on a standard piling rig. The cuttings are returned to the surface at intervals (generally 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 samples.

Continuous Spiral Flight Augers

The borehole 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 sands above the water table. Samples are returned to the surface, or may be collected after withdrawal of the auger flights, but they are disturbed and may be mixed with soils from the sides of the hole. Information from the drilling (as distinct from specific sampling by SPTs or undisturbed samples) is of relatively low reliability, due to the remoulding, possible mixing or softening of samples by groundwater.

Non-core Rotary Drilling

The borehole is advanced using a rotary bit, with water or drilling mud 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 the rate of penetration. Where drilling mud is used this can mask the cuttings and reliable identification is only possible from separate sampling such as SPTs.

Continuous Core Drilling

A continuous core sample can be obtained using a diamond tipped core barrel, usually with a 50 mm internal diameter. Provided full core recovery is achieved (which is not always possible in weak rocks and granular soils), this technique provides a very reliable method of investigation.

Standard Penetration Tests

Standard penetration tests (SPT) are used as a means of estimating the density or strength of soils 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 before the full penetration depth, 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 SPT tests can be related empirically to the engineering properties of the soils.

Dynamic Cone Penetrometer Tests / Perth Sand Penetrometer Tests

Dynamic penetrometer tests (DCP or PSP) are carried out by driving a steel rod into the ground using a standard weight of hammer falling a specified distance. As the rod penetrates the soil the number of blows required to penetrate each successive 150 mm depth are recorded. 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 types of penetrometer are commonly used.

- Perth sand penetrometer - a 16 mm diameter flat ended rod is driven using a 9 kg hammer dropping 600 mm (AS 1289, Test 6.3.3). This test was developed for testing the density of sands and is mainly used in granular soils and filling.
- Cone penetrometer - a 16 mm diameter rod with a 20 mm diameter cone end is driven using a 9 kg hammer dropping 510 mm (AS 1289, Test 6.3.2). This test was developed initially for pavement subgrade investigations, and correlations of the test results with California Bearing Ratio have been published by various road authorities.

Soil Descriptions

Douglas Partners

Description and Classification Methods

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

Soil Types

Soil types are described according to the predominant particle size, qualified by the grading of other particles present:

Type	Particle size (mm)
Boulder	>200
Cobble	63 - 200
Gravel	2.36 - 63
Sand	0.075 - 2.36
Silt	0.002 - 0.075
Clay	<0.002

The sand and gravel sizes can be further subdivided as follows:

Type	Particle size (mm)
Coarse gravel	20 - 63
Medium gravel	6 - 20
Fine gravel	2.36 - 6
Coarse sand	0.6 - 2.36
Medium sand	0.2 - 0.6
Fine sand	0.075 - 0.2

The proportions of secondary constituents of soils are described as:

Term	Proportion	Example
And	Specify	Clay (60%) and Sand (40%)
Adjective	20 - 35%	Sandy Clay
Slightly	12 - 20%	Slightly Sandy Clay
With some	5 - 12%	Clay with some sand
With a trace of	0 - 5%	Clay with a trace of sand

Definitions of grading terms used are:

- Well graded - a good representation of all particle sizes
- Poorly graded - an excess or deficiency of particular sizes within the specified range
- Uniformly graded - an excess of a particular particle size
- Gap graded - a deficiency of a particular particle size with the range

Cohesive Soils

Cohesive soils, such as clays, are classified on the basis of undrained shear strength. The strength may be measured by laboratory testing, or estimated by field tests or engineering examination. The strength terms are defined as follows:

Description	Abbreviation	Undrained shear strength (kPa)
Very soft	vs	<12
Soft	s	12 - 25
Firm	f	25 - 50
Stiff	st	50 - 100
Very stiff	vst	100 - 200
Hard	h	>200

Cohesionless Soils

Cohesionless soils, such as clean sands, are classified on the basis of relative density, generally from the results of standard penetration tests (SPT), cone penetration tests (CPT) or dynamic penetrometers (PSP). The relative density terms are given below:

Relative Density	Abbreviation	SPT N value	CPT qc value (MPa)
Very loose	vl	<4	<2
Loose	l	4 - 10	2 -5
Medium dense	md	10 - 30	5 - 15
Dense	d	30 - 50	15 - 25
Very dense	vd	>50	>25

Soil Descriptions

Soil Origin

It is often difficult to accurately determine the origin of a soil. Soils can generally be classified as:

- Residual soil - derived from in-situ weathering of the underlying rock;
- Transported soils - formed somewhere else and transported by nature to the site; or
- Filling - moved by man.

Transported soils may be further subdivided into:

- Alluvium - river deposits
- Lacustrine - lake deposits
- Aeolian - wind deposits
- Littoral - beach deposits
- Estuarine - tidal river deposits
- Talus - scree or coarse colluvium
- Slopewash or Colluvium - transported downslope by gravity assisted by water. Often includes angular rock fragments and boulders.

Rock Strength

Rock strength is defined by the Point Load Strength Index ($Is_{(50)}$) and refers to the strength of the rock substance and not the strength of the overall rock mass, which may be considerably weaker due to defects. The test procedure is described by Australian Standard 4133.4.1 - 1993. The terms used to describe rock strength are as follows:

Term	Abbreviation	Point Load Index $Is_{(50)}$ MPa	Approx Unconfined Compressive Strength MPa*
Extremely low	EL	<0.03	<0.6
Very low	VL	0.03 - 0.1	0.6 - 2
Low	L	0.1 - 0.3	2 - 6
Medium	M	0.3 - 1.0	6 - 20
High	H	1 - 3	20 - 60
Very high	VH	3 - 10	60 - 200
Extremely high	EH	>10	>200

* Assumes a ratio of 20:1 for UCS to $Is_{(50)}$

Degree of Weathering

The degree of weathering of rock is classified as follows:

Term	Abbreviation	Description
Extremely weathered	EW	Rock substance has soil properties, i.e. it can be remoulded and classified as a soil but the texture of the original rock is still evident.
Highly weathered	HW	Limonite staining or bleaching affects whole of rock substance and other signs of decomposition are evident. Porosity and strength may be altered as a result of iron leaching or deposition. Colour and strength of original fresh rock is not recognisable
Moderately weathered	MW	Staining and discolouration of rock substance has taken place
Slightly weathered	SW	Rock substance is slightly discoloured but shows little or no change of strength from fresh rock
Fresh stained	Fs	Rock substance unaffected by weathering but staining visible along defects
Fresh	Fr	No signs of decomposition or staining

Degree of Fracturing

The following classification applies to the spacing of natural fractures in diamond drill cores. It includes bedding plane partings, joints and other defects, but excludes drilling breaks.

Term	Description
Fragmented	Fragments of <20 mm
Highly Fractured	Core lengths of 20-40 mm with some fragments
Fractured	Core lengths of 40-200 mm with some shorter and longer sections
Slightly Fractured	Core lengths of 200-1000 mm with some shorter and loner sections
Unbroken	Core lengths mostly > 1000 mm

Rock Descriptions

Rock Quality Designation

The quality of the cored rock can be measured using the Rock Quality Designation (RQD) index, defined as:

$$\text{RQD \%} = \frac{\text{cumulative length of 'sound' core sections} \geq \text{100 mm long}}{\text{total drilled length of section being assessed}}$$

where 'sound' rock is assessed to be rock of low strength or better. The RQD applies only to natural fractures. If the core is broken by drilling or handling (i.e. drilling breaks) then the broken pieces are fitted back together and are not included in the calculation of RQD.

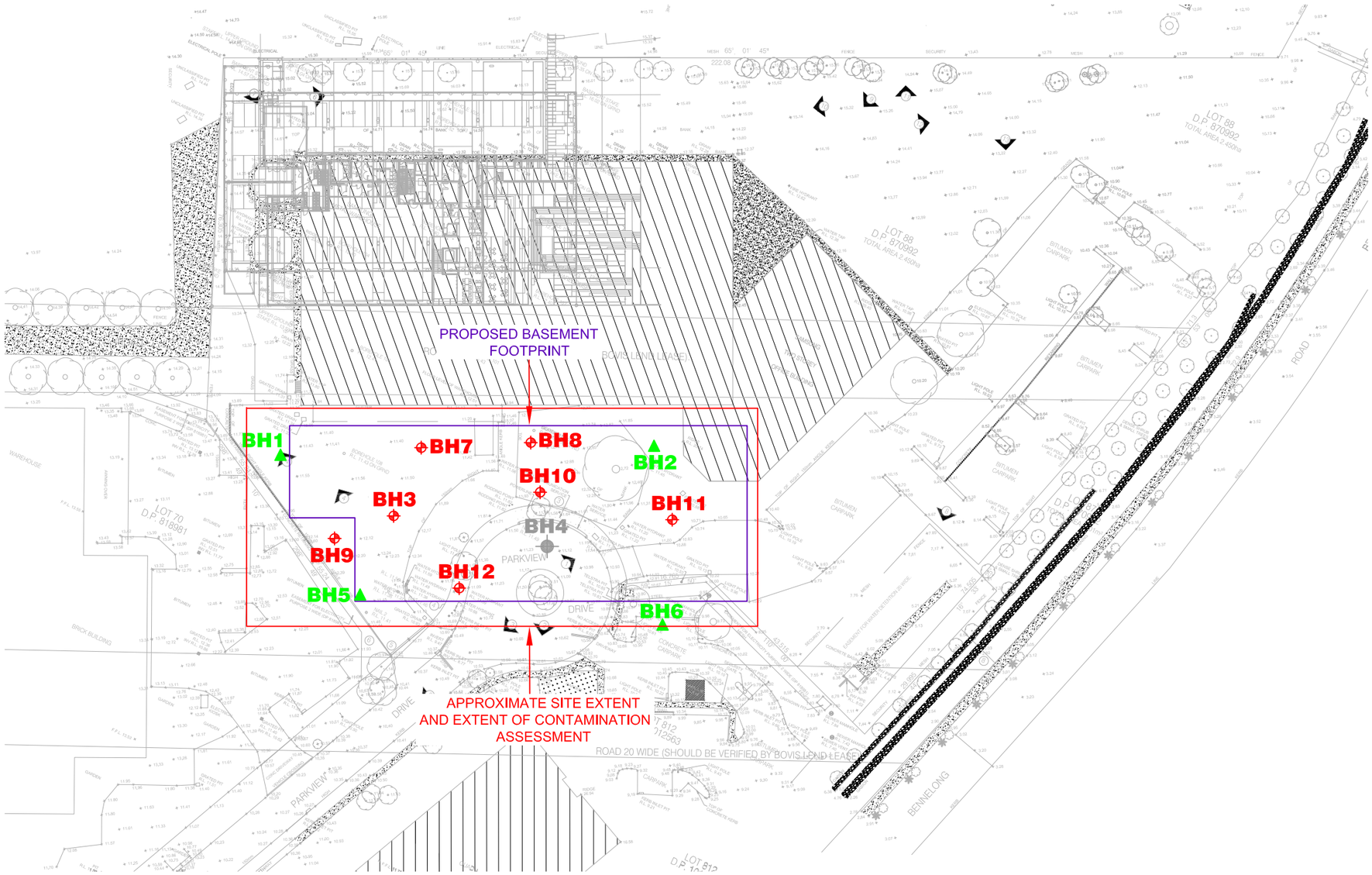
Stratification Spacing

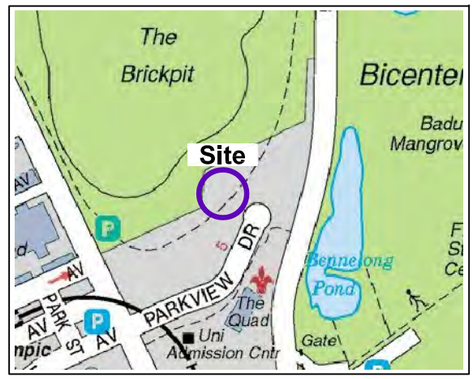
For sedimentary rocks the following terms may be used to describe the spacing of bedding partings:

Term	Separation of Stratification Planes
Thinly laminated	< 6 mm
Laminated	6 mm to 20 mm
Very thinly bedded	20 mm to 60 mm
Thinly bedded	60 mm to 0.2 m
Medium bedded	0.2 m to 0.6 m
Thickly bedded	0.6 m to 2 m
Very thickly bedded	> 2 m

Appendix B

Drawing





Locality Plan

LEGEND

- ▲ Borehole and groundwater well location
- ⌖ Borehole location
- ✦ Proposed borehole (not drilled due to access restrictions placed upon drilling by the Sydney Olympic Park Authority. Bore should be drilled once access becomes available).

NOTE: Base drawing from Turner Pty Ltd
(Proj. 12022,Drawing EA020 Rev.A, dated 20.8.2013)

0 10 20 30 40 50 75 100m

1:1000 @ A3

Douglas Partners
Geotechnics / Environment / Groundwater

CLIENT: Lend Lease Building Pty Ltd		TITLE: **Locations of Boreholes**	PROJECT No: 45153.03
OFFICE: Sydney	DRAWN BY: PSCH	**Proposed Commercial Development**	DRAWING No: C1
SCALE: As shown	DATE: 6.11.2013	**4 Murray Rose Avenue, SYDNEY OLYMPIC PARK**	REVISION: 1

Appendix C

Historical Information

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: 7 Parkview Drive, Homebush Bay

Description: - Lot 88 D.P. 870992

26.10.1905	Metroplotian Meat Industry Board *(Then Metroplotian Meat Industry Commissioner)* *(Then Metroplotian Meat Industry Board)* *(Now Homebush Abattoir Corporation)*	72/818981 & 102/849975
22.09.1993	Olympic Co-Ordination Authority	88/870992
25.01.2002	# Sydney Olympic Park Authority	88/870992

 # Current Registered Proprietor

email: grolly1@bigpond.net.au

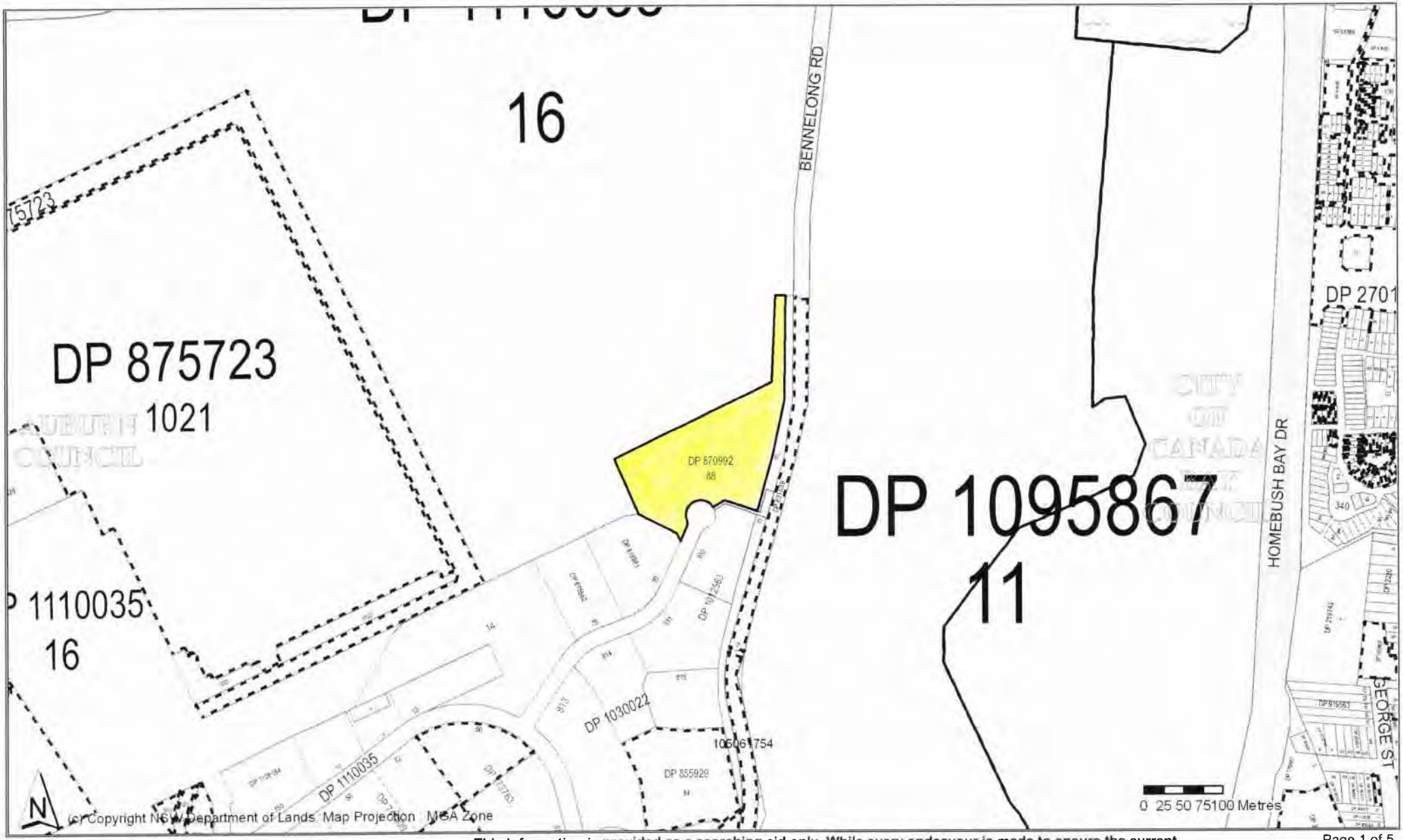
20/11/2007

Department of Lands

Cadastral Records Enquiry Report

Requested Parcel : Lot 88 DP 870992 **Identified Parcel** : Lot 88 DP 870992

Locality : HOMEBUSH BAY **LGA** : AUBURN **Parish** : CONCORD **County** : CUMBERLAND



Report Generated 9:14:08 AM 16 November 2007

This information is provided as a searching aid only. While every endeavour is made to ensure the current cadastral pattern is accurately reflected, the Registrar General cannot guarantee the information provided. For all ACTIVITY PRIOR to SEPT 2002 you must refer to the RGs Charting and Reference Maps.

PLAN FORM 2

Plan Drawing only to appear in this space

OFFICE USE ONLY

SIGNATURE AND SEALS ONLY

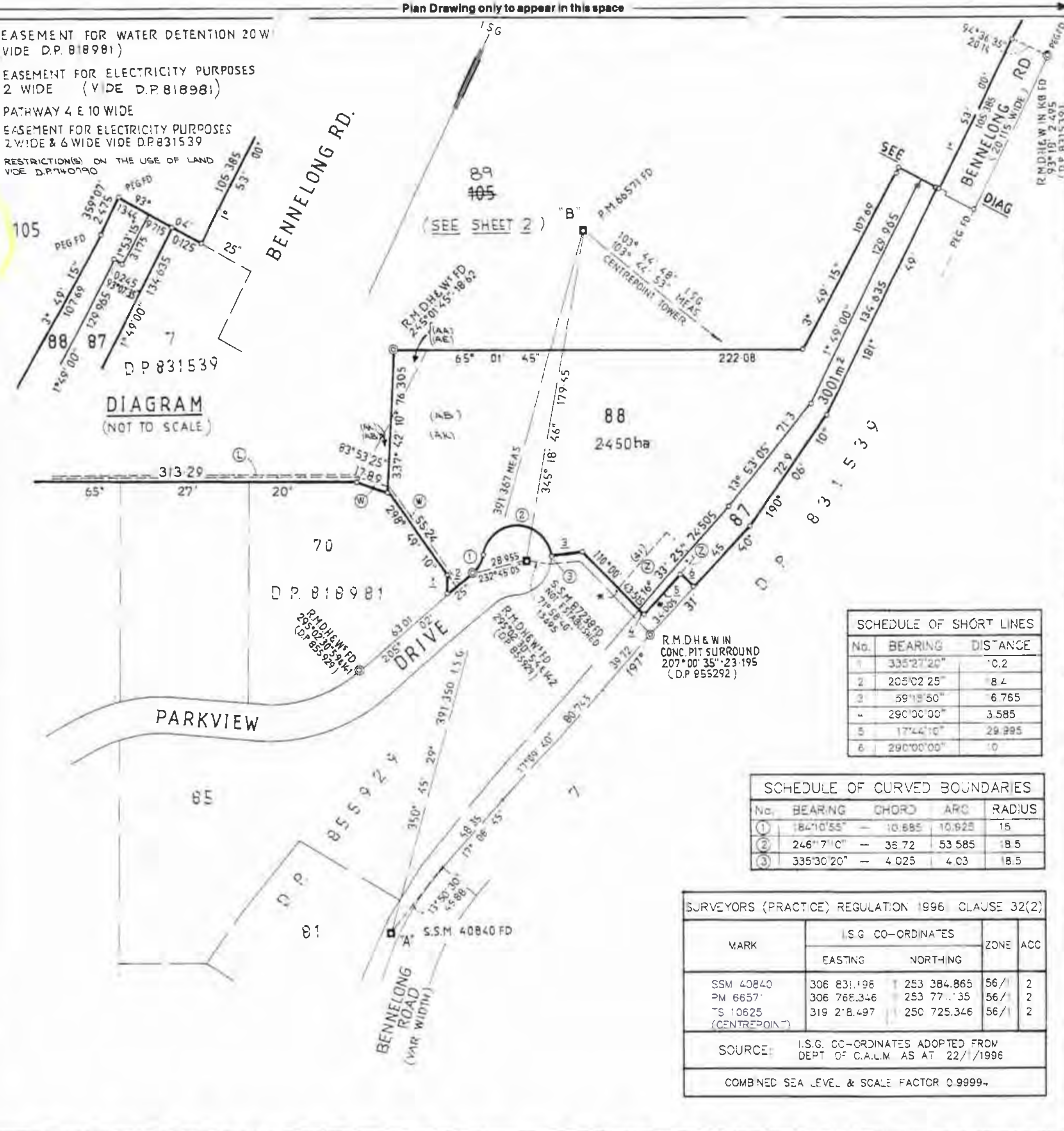
② EASEMENT FOR WATER DETENTION 20 W (VIDE D.P. 818981)

Ⓦ EASEMENT FOR ELECTRICITY PURPOSES 2 WIDE (VIDE D.P. 818981)

* PATHWAY 4 & 10 WIDE

Ⓛ EASEMENT FOR ELECTRICITY PURPOSES 2 WIDE & 6 WIDE VIDE D.P. 831539

(AK) RESTRICTION(S) ON THE USE OF LAND VIDE D.P. 740790



SCHEDULE OF SHORT LINES		
No.	BEARING	DISTANCE
1	335°27'20"	10.2
2	205°02'25"	8.4
3	59°15'50"	6.765
4	290°00'00"	3.585
5	17°44'10"	29.995
6	290°00'00"	10

SCHEDULE OF CURVED BOUNDARIES				
No.	BEARING	CHORD	ARC	RADIUS
①	184°10'55" —	10.885	10.925	15
②	246°17'10" —	36.72	53.585	18.5
③	335°30'20" —	4.025	4.03	18.5

SURVEYORS (PRACTICE) REGULATION 1996 CLAUSE 32(2)

MARK	I.S.G. CO-ORDINATES EASTING	I.S.G. CO-ORDINATES NORTHING	ZONE	ACC
SSM 40840	306 831.196	1 253 384.865	56/1	2
PM 6657	306 768.346	1 253 77..35	56/1	2
TS 10625 (CENTREPOINT)	319 2'8.497	1 250 725.346	56/1	2
SOURCE:	I.S.G. CO-ORDINATES ADOPTED FROM DEPT OF C.A.L.M. AS AT 22/1/1996			
COMBINED SEA LEVEL & SCALE FACTOR 0.9999				

DP 870992

Registered: [redacted] 25-08-1997

C.A No. 40/97 OF 7/8/1997

Title System TORRENS

Purpose SUBDIVISION

Ref Map U0052·93*

Last Plan D.P. 818981, D.P. 849975

PLAN OF SUBDIVISION OF LOT 72 D.P. 818981 & LOT 102 D.P. 849975

Lengths are in metres. Reduction Ratio 1:500

LGA: AUBURN

Suburb/Locality: HOMEBUSH

Parish: CONCORD

County: CUMBERLAND

This is sheet 1 of my plan in 3 sheets (Delete if inapplicable)

GEOFFREY H. LITTLE of HILL & BLUME P/L (ACN 000721004) 102 CROWN ST, WOOLLOOMOOLOO a surveyor registered under the Surveyors Act 1929, hereby certify that the survey represented in this plan is accurate, has been made in accordance with the Surveyors (Practice) Regulation 1996 and was completed on 16.7.97

The survey relates to: LOTS 87 & 88 LOT 89 COMPILED

(here specify the land actually surveyed, or specify any land shown in the plan that is not the subject of the survey)

Signature: [signature] Surveyor registered under the Surveyors Act 1929

Datum Line: "A"–"B"

Zone: Suburban/Country

Plans used in preparation of survey/compilation: D.P. 818981, D.P. 831539, D.P. 835722, D.P. 849975, D.P. 855929

PANEL FOR USE ONLY for statements of intention to dedicate public roads, to create public reserves, drainage reserves, easements, restrictions on the use of land or positive covenants.

Crown Lands Office Approval

PLAN APPROVED .... Authorised Officer

Land District ....

Paper No. ....

Field Book .... pages

Council's Certificate

I hereby certify that –

(a) the requirements of the Local Government Act, 1919 (other than the requirements for the registration of plans); and

*(b) the requirements of † Part 3 Division 2 of the Water Board Act 1987, ~~or † Part 5 Division 7 of the Hunter Water Board (Corporatisation) Act 1991,~~

have been complied with by the applicant in relation to the proposed Subdivision (insert "new road", "subdivision" or "consolidated lot" set out herein)

Subdivision No. 40/97

Date 7/8/97

Signature [signature] ~~General Manager~~/Authorised Person

Council File No. 290/L72

* This part of certificate to be deleted where the application is only for consolidated lot or the opening of a new road or where the land to be subdivided is wholly outside the areas of operations of the Water Board and the Hunter Water Corporation Ltd.

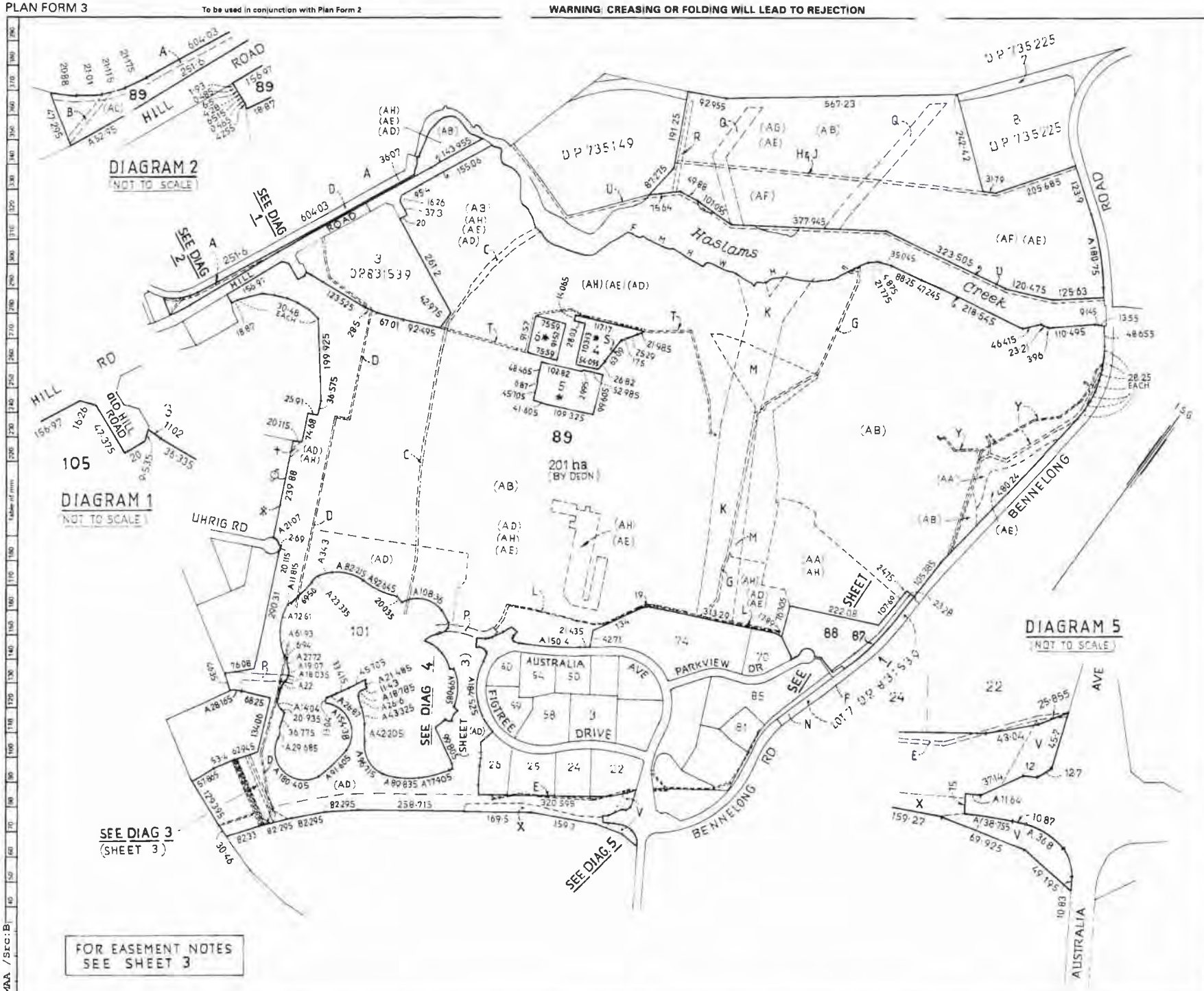
† Delete if inapplicable

SURVEYOR'S REFERENCE 34316(13)

WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION

Req:R539372 /Doc:DP 0870992 P /Rev:01-Sep-1997 /Sts:OK OK /Prt:17-Nov-2007 19:58 /Pgs:ALL /Seq:1 of 3
Ref:OITMAA /Src:B

PLAN FORM 3 | To be used in conjunction with Plan Form 2 | WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION | * OFFICE USE ONLY



DP 870992

Registered 29 08 1997

This sheet 2 of the plan 3 sheets

Surveyor's signature under Surveyors Act 1923

This sheet 2 of the plan of 3 sheets is covered by my Certificate No. 40/97 of 7/8/97

General Manager/Authorised Person

For use where scale is 1cm/50cm or any panel on Plan Form 2

Reduction Ratio 1 6000

Plan Drawing only to appear in this space

SURVEYOR'S REFERENCE 3436(13)

DP 870992

Req:R539372 /Doc:DP 0870992 P /Rev:01-Sep-1997 /Sts:OK.OK /Prt:17-Nov-2007 19:58 /Pgs:ALL /Seq:2 of 3
Ref:OITMAA /Src:B

PLAN FORM 3 — To be used in conjunction with Plan Form 2 — WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION — * OFFICE USE ONLY

A EASEMENT FOR ACCESS VARIABLE WIDTH VIDE DP 219096 DEALING No J795907
B DRAINAGE EASEMENT 4.57 WIDE VIDE DP 219096 DEALING No J795907
C EASEMENT FOR DRAINAGE 5,6.15 & VARIABLE WIDTH VIDE DP 79168
D EASEMENT FOR UNDERGROUND CABLES 3.66 WIDE VIDE DP 45576 DEALING Q 778767
E EASEMENT TO DRAIN WATER 7 & 3 WIDE VIDE DP 774130
F RIGHT OF FOOTWAY 4 WIDE & VARIABLE VIDE DP 816981
G EASEMENT TO DRAIN WATER 5 WIDE & VARIABLE VIDE DP 816981
H EASEMENT FOR WATERMAIN VIDE DP 229640 DEALING K654256
J EASEMENT TO DRAIN WATER DEALING K868355
K EASEMENT FOR TRANSMISSION LINES VARIABLE WIDTH VIDE DP 620943 DEALING No Y 29791
L EASEMENT FOR ELECTRICITY PURPOSES 2 WIDE & 6 WIDE VIDE DP 831539
M EASEMENT FOR TRANSMISSION LINES VARIABLE WIDTH VIDE DP 831539
N RIGHT OF CARRIAGEWAY VARIABLE WIDTH VIDE DP 109129 DEALING No J886626 & K554665
RIGHT OF WAY VARIABLE WIDTH VIDE DP 109129 DEALING No C512626
P EASEMENT FOR SERVICES 17 WIDE & VARIABLE VIDE DP 831539
Q EASEMENT FOR TRANSMISSION LINE 30 WIDE VIDE DP 831539
R PROPOSED EASEMENT TO DRAIN WATER 10 WIDE VIDE DP 831539
S EASEMENT FOR THE PASSAGE & CONVEYANCE OF CARCASSES 3.35 WIDE VIDE DP 106356 (S15034')
T EASEMENT FOR SEWERAGE PURPOSES 4 WIDE VIDE DP 831539 EXCLUDING THE PARTS WITHIN LOTS 3,4 & 6
U RIGHT OF CARRIAGEWAY 6.1 WIDE VIDE DP 229640
V EASEMENT FOR TRANSMISSION LINES VARIABLE WIDTH VIDE DP 831539
X RIGHT OF CARRIAGEWAY VARIABLE WIDTH VIDE DP 831539
Y RIGHT OF CARRIAGEWAY VARIABLE WIDTH VIDE DP 109129 DEALING No J886626 & K 554665

(AH) RESERVATIONS & CONDITIONS IN CROWN GRANT
(AJ) BENEFITED BY RIGHT OF WAY — J827059
(AE) BENEFITED BY RIGHT OF CARRIAGEWAY — J886626
(AF) BENEFITED BY RIGHT OF CARRIAGEWAY — K554665
(AG) BENEFITED BY EASEMENT TO DRAIN WATER — K868355
(AA) LAND EXCLUDES MINERALS — S.141 PUBLIC WORKS ACT, 1912 J886627
(AB) LAND EXCLUDES MINERALS — S.134 PUBLIC WORKS ACT, 1900
(AC) LAND EXCLUDES MINERALS — S.141 PUBLIC WORKS ACT, 1912 LAND EXCLUDES MINERALS — S.134 PUBLIC WORKS ACT, 1900

RIGHT OF CARRIAGEWAY VIDE DP 225360
RIGHT OF CARRIAGEWAY VIDE DP 225360 DEALING K818375
EASEMENT FOR RAILWAY PURPOSES VARIABLE WIDTH VIDE DEALING M385085
PIPELINE EASEMENT 3 WIDE, 12 WIDE & VAR VIDE DP 499007 (SHEET 10) DEALING R297864, R297865, R342216
PIPELINE EASEMENT 3, 12 & VARIABLE WIDTH VIDE DP 499008 (SHEET 7) DEALING No S816045, S816046, S816047
EASEMENT FOR ELECTRICITY PURPOSES 2.44 WIDE VIDE DP 223082 DEALING No J937238
EASEMENT FOR ELECTRICITY MAINS 3.05 WIDE VIDE DP 430149 DEALING No D40474
EASEMENT FOR ELECTRICITY PURPOSES 3.05 WIDE VIDE DP 106717 DEALING No D928745
EASEMENT FOR GAS 3.05 WIDE DEALING G483307
EASEMENT FOR ELECTRICITY PURPOSES 2.44 WIDE VIDE DP 831539
EASEMENT FOR ELECTRICITY MAINS 3.05 WIDE VIDE DP 831539
EASEMENT FOR ELECTRICITY PURPOSES 3.05 WIDE VIDE DP 831539
EASEMENT FOR GAS 3.05 WIDE VIDE DP 831539
EASEMENT FOR TRANSMISSION LINE 30.48 WIDE DEALING No.J930060
EASEMENT FOR TRANSMISSION LINE 30.48 WIDE VIDE DP 831539

DIAGRAM 4
(NOT TO SCALE)

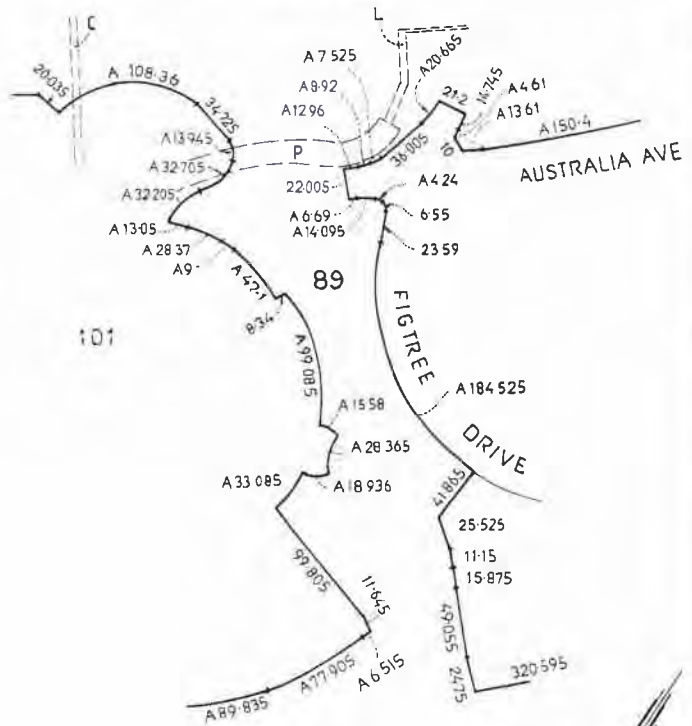
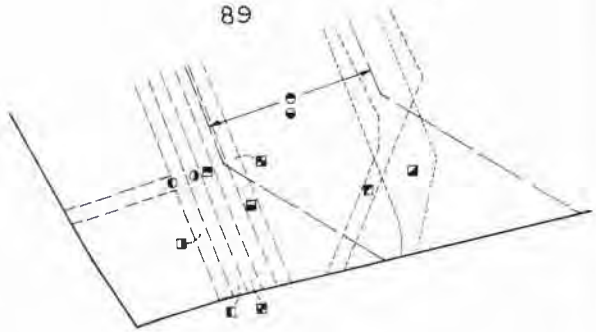


DIAGRAM 3
(NOT TO SCALE)



DP 870992

Registered: 29 08 1997

This is sheet 3 of my plan in 3 sheets dated

Surveyor registered under Surveyors Act 1929

This is sheet 3 of the plan of 3 sheets covered by my Certificate No. 40/97 of 7/8/97

General Manager/Authorised Person

For use where space is insufficient in any panel on Plan Form 2.

Reduction Ratio 1:

SURVEYORS REFERENCE 3431G(13)

Plan Drawing only to appear in the space

DP 870992

Req:R539372 /Doc:DP 0870992 P /Rev:01-Sep-1997 /Sts:OK OK /Prt:17-Nov-2007 19:58 /Pgs:ALL /Seq:3 of 3
Ref:OITMAA /Src:E

PLAN FORM 3 To be used in conjuction to with Plan Form 2

WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION

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DP 831539

Registered 29/9/1995

This is sheet 12 of my plan in 13 sheets dated 1st APRIL 1993

George Jarrett

Surveyor registered under Surveyors Act 1929

This is sheet of the plan of sheets covered by my Certificate No. of

Council Clerk

For use where space is insufficient in any panel on sheet Form 2

PLAN AMENDED IN ALTD WIDE RDWY AS SHOWN

Reduction Ratio 1:2000
Lengths are in metres

Plan Drawing only to appear in this space

SURVEYOR'S REFERENCE: SB 51710

DIAGRAM P
NOT TO SCALE

DIAGRAM Q
NOT TO SCALE

DIAGRAM K
NOT TO SCALE

DETAILS OF EASEMENT L

No	BEARING	DIST
1	1° 07' 40"	29 17
2	334° 31' 40"	35 145
3	339° 48' 40"	2 43
4	65° 20' 40"	52 07
5	66° 20' 00"	96 73
6	71° 06' 40"	22 18
7	63° 22' 40"	27 285
8	68° 05' 40"	17 42
9	51° 33' 40"	31 625
10	28° 14' 00"	85 36
11	30° 33' 40"	11 855
12	34° 50' 40"	8 39
13	43° 23' 40"	9 035
14	56° 53' 40"	9 423
15	58° 02' 40"	12 765
16	65° 27' 30"	302 39

F RIGHT OF FOOTWAY & W.IDE & VARIABLE VIDE DP 818981
G EASEMENT TO DRAIN WATER 5 WIDE & VARIABLE VIDE DP 818981
K EASEMENT FOR TRANSMISSION LINES VARIABLE WIDTH VIDE DP 620943 DEALING Y 2979
L EASEMENT FOR ELECTRICITY PURPOSES 2 WIDE & 6 W.IDE VIDE DP 593090
M PROPOSED EASEMENT FOR TRANSMISSION LINES VARIABLE WIDTH VIDE DP 620943
N RIGHT OF CARRIAGEWAY VARIABLE WIDTH VIDE DP 109129
DEALING No J886626 & K554665
RIGHT OF WAY VARIABLE WIDTH VIDE DP 109129
DEALING No C512626
RIGHT OF CARRIAGEWAY VARIABLE WIDTH VIDE DP 109129
DEALING No J886626 & K 554665

Req:R539376 /Doc:DP 0831539 P /Rev:07-Dec-1994 /Sts:OK.OK /Prt:17-Nov-2007 19:58 /Pgs:ALL /Seq:13 of 13
Ref:OITMAA /Src:B

PLAN FORM 3 To be used in conjuction to with Plan Form 2

WARNING CREASING OR FOLDING WILL LEAD TO REJECTION

* OFFICE USE ONLY

DP 831539

Registered 29/9/1993

This is sheet 2 of my plan in 13 sheets dated 1st APRIL 1993

George Wimsett

Surveyor registered under Surveyors Act 1928

This is sheet of the plan of sheets covered by my Certificate No. of

Council Clerk

For use where space is insufficient in any panel on plan Form 2.

PURSUANT TO SEC. 888 OF THE CONVEYANCING ACT

IT IS INTENDED TO CREATE

1. EASEMENT FOR ELECTRICITY PURPOSES - (L)
2. EASEMENT FOR TRANSMISSION LINES VARIABLE WIDTH - (M)
3. EASEMENT FOR SERVICES 17 WIDE & VARIABLE - (P)
4. EASEMENT FOR TRANSMISSION LINES 30 WIDE - (Q)
5. EASEMENT FOR SEWERAGE PURPOSES 4 WIDE - (T)
6. EASEMENT FOR TRANSMISSION LINES VARIABLE WIDTH - (V)
7. RIGHT OF CARRIAGEWAY VARIABLE WIDTH - (X)
8. EASEMENT FOR TRANSMISSION LINES 30.48 WIDE - (●)
9. EASEMENT FOR ELECTRICITY PURPOSES 2.44 WIDE - (■)
10. EASEMENT FOR ELECTRICITY MAINS 3.05 WIDE - (■)
11. EASEMENT FOR ELECTRICITY PURPOSES 3.05 WIDE - (◑)
12. EASEMENT FOR GAS 3.05 WIDE - (◐)

Reduction Ratio 1:8000

Lengths are in metres

A EASEMENT FOR ACCESS VARIABLE WIDTH VIDE DP 219096 DEALING No J795907
B DRAINAGE EASEMENT 4.57 WIDE VIDE DP 219096 DEALING No J795907
C EASEMENT FOR DRAINAGE 5.6.15 & VARIABLE WIDTH VIDE DP 791168
D EASEMENT FOR UNDERGROUND CABLES 9.66 WIDE VIDE DP 451576 DEALING Q 778767
E EASEMENT TO DRAIN WATER 1 & 3 WIDE VIDE DP 774130
F RIGHT OF FOOTWAY 4 WIDE & VARIABLE VIDE DP 818981
G EASEMENT TO DRAIN WATER 5 WIDE & VARIABLE VIDE DP 818981
H EASEMENT FOR WATERMAIN VIDE DP 229640 DEALING K 654256
J EASEMENT TO DRAIN WATER DEALING K 883355
K EASEMENT FOR TRANSMISSION LINES VARIABLE WIDTH VIDE DP 620943 DEALING No Y 2979
L EASEMENT FOR ELECTRICITY PURPOSES 2 WIDE & 6 WIDE VIDE DP 590090
M EASEMENT FOR TRANSMISSION LINES VARIABLE WIDTH VIDE DP 620943
N RIGHT OF CARRIAGEWAY VARIABLE WIDTH VIDE DP 109129
DEALING No 886626 & K554665
P EASEMENT FOR SERVICES 17 WIDE & VARIABLE
Q EASEMENT FOR TRANSMISSION LINE 30 WIDE
R PROPOSED EASEMENT TO DRAIN WATER 10 WIDE
S EASEMENT FOR THE PASSAGE & CONVEYANCE OF CARCASSES 3.35 WIDE VIDE DP 106356
T EASEMENT FOR SEWERAGE PURPOSES 4 WIDE (VIDE DP 643434) EXCLUDING THE PARTS WITHIN LOTS 3, 4 & 5
U RIGHT OF CARRIAGEWAY 6.1 WIDE VIDE DP 229640
V EASEMENT FOR TRANSMISSION LINES VARIABLE WIDTH
X RIGHT OF CARRIAGEWAY VARIABLE WIDTH
Y RIGHT OF CARRIAGEWAY VARIABLE WIDTH VIDE DP 109129
DEALING No 886626 & K 554665

NOTE
THE POSITION OF EASEMENTS L & M HAVE BEEN DERIVED FROM DP 590090 & DP 620943 RESPECTIVELY AND EASEMENT T FROM DP 643434 AND LEASE PLAN BY MR SURVEYOR ROBERT WILLIAM YOUNG DATED 9TH MARCH 1992.
NO SURVEYS HAVE BEEN MADE BY ME AND THE POSITION OF SERVICES WITHIN EASEMENTS L, M & T HAVE NOT BEEN VERIFIED.

(AA) LAND EXCLUDES MINERALS - S.141 PUBLIC WORKS ACT, 1912
(AB) LAND EXCLUDES MINERALS - S.134 PUBLIC WORKS ACT, 1900
(AC) LAND EXCLUDES MINERALS - S.134 & 141 PUBLIC WORKS ACT 1900 & 1912 RESP.

- PIPELINE EASEMENT 3 WIDE, 12 WIDE & VAR VIDE DP 499007 (SHEET 10) DEALING R297864, R297865, R342216
- PIPELINE EASEMENT 3, 12 & VARIABLE WIDTH VIDE DP 499008 (SHEET 7) DEALING No SR16045, SR16046, SR16047
- EASEMENT FOR ELECTRICITY PURPOSES 2.44 WIDE VIDE DP 223082 DEALING No J937238
- EASEMENT FOR ELECTRICITY MAINS 3.05 WIDE VIDE DP 430149 DEALING No 040474
- EASEMENT FOR ELECTRICITY PURPOSES 3.05 WIDE VIDE DP 406717 DEALING No 0978745
- EASEMENT FOR GAS 3.05 WIDE DEALING 0483807
- EASEMENT FOR ELECTRICITY PURPOSES 2.44 WIDE
- EASEMENT FOR ELECTRICITY MAINS 3.05 WIDE
- EASEMENT FOR ELECTRICITY PURPOSES 3.05 WIDE
- EASEMENT FOR GAS 3.05 WIDE
- EASEMENT FOR TRANSMISSION LINE 30.48 WIDE DEALING No J930069
- EASEMENT FOR TRANSMISSION LINE 30.48 WIDE

Plan Drawing only to appear in this space

SURVEYOR'S REFERENCE: SB 51710

Req:R539376 /Doc:DP 0831539 P /Rev:07-Dec-1994 /Sts:OK.OK /Prt:17-Nov-2007 19:58 /Pgs:ALL /Seq:2 of 13
Ref:OITMAA /Src:B

PLAN FORM 2

Plan Drawing only to appear in this space

• OFFICE USE ONLY

DP 831539

SIGNATURES, SEALS AND STATEMENTS of intention to dedicate public roads or to create public reserves, drainage reserves, easements, restrictions on the use of land or positive covenants

HOMEBUSH BAY DEV. CORPN.

Signed by ...

Crown Lands Office Approval

PLAN APPROVED ..... Authorised Officer ...

Land District .....

Paper No .....

Field Book ..... pages

Council Clerk's Certificate

I hereby certify that-

(a) the requirements of the Local Government Act 1919 (other than the requirements for the registration of plans), and

*(b) the requirements of Part 3 Division 2 of the Water Boards Act 1987 and Water Supply Authorities Act 1987

have been complied with by the applicant in relation to the proposed ..... [insert 'new road', 'subdivision' or 'consolidation' as set out herein]

Subdivision No .....

Date .....

Signature ..... Council Clerk

Council File No .....

* This part of certificate to be omitted where the application is only for a consolidation (all or the opening of a new road) or where the land to be subdivided is wholly outside the areas of operations of the Metropolitan Water Sewerage and Drainage Board and the Hunter District Water Board

† Delete if inapplicable

SURVEYOR'S REFERENCE: SB 51710 REPORT

CO-ORD NATE SCHEDULE

MARK	NAME	EAST ING	NORTH ING	ACCURACY
SSM 67075		305818.722	1252782.903	3
SSM 67078		306112.214	1253114.878	3
PM 1258†		305865.629	1252595.376	1
*SS 10625	CENTREPOINT	317268.497	1253703.346	1

SCALE FACTOR = 0.99934
ZONE 56/1

SOURCE: SCIMS JAN 1993

AREAS		
LOT 1	214 m² 8dm²	TOTAL AREA
LOT 2	4011 m²	
LOT 3	5.038 Ha	
LOT 4	1.803 Ha	
LOT 5	1.498 Ha	
LOT 6	8972 m²	
LOT 7	8204 m²	

PARISH OF ST JOHN

3.178 Ha Part Area

CREEK

HASLAMS ROAD

SHT 4

SHEET 11 & SHEET 12

1.804Ha Part Area (Offset Area) -1884 m² 133.8 m

SHT 5

SHT 3

SHT 6

PARISH OF ST JOHN

PARISH OF CONCORD

SHEET 13

SHT 7

1607 Ha Part Area (Offset Area) -6.6'5 Ha +14.38 m²

SSM 67078

SSM 67075

22.13 Ha Part Area

PM 1258†

SHEETS 8, 9 & 10

CARTER STREET

AVENUE

BOULEVARD

15.0 NORTH

Crown Lands Office Approval

PLAN APPROVED ..... Authorised Officer ...

Land District .....

Paper No .....

Field Book ..... pages

Council Clerk's Certificate

I hereby certify that-

(a) the requirements of the Local Government Act 1919 (other than the requirements for the registration of plans), and

*(b) the requirements of Part 3 Division 2 of the Water Boards Act 1987 and Water Supply Authorities Act 1987

have been complied with by the applicant in relation to the proposed ..... [insert 'new road', 'subdivision' or 'consolidation' as set out herein]

Subdivision No .....

Date .....

Signature ..... Council Clerk

Council File No .....

* This part of certificate to be omitted where the application is only for a consolidation (all or the opening of a new road) or where the land to be subdivided is wholly outside the areas of operations of the Metropolitan Water Sewerage and Drainage Board and the Hunter District Water Board

† Delete if inapplicable

SURVEYOR'S REFERENCE: SB 51710 REPORT

Registered: 29/9/1993

DA: .....

Title System: TORRENS

Purpose: SUBDIVISION

Ref Map: U0045-22*, U0052-82,84,91,93*

Last Plan: DP219674, DP234683, DP221477, DP540955, DP793595, DP710562, DP774130, DP816436, DP977076

PLAN OF SUBDIVISION OF
LOT 1 DP 219674, LOT 2 DP 234683
LOTS 6, 7, 8, 9, & 11 DP 221477
LOT 1 DP 540955, LOT 27 DP 793595
LOTS 540,541 & 542 DP710562
LOTS 12 & 3 DP 774130
LOTS 12,3 & 4 DP 816436
PT LAND IN DP977076 (PT CT VOL 8129 FOL 216)
Lengths are in metres. Reduction Ratio 1:8000

Mun/Shire: AUBURN
City

Locality: HOMEBUSH

Parish: CONCORD & ST JOHN

County: CUMBERLAND

This sheet 1 of my plan in 13 sheets
(Delete if inapplicable)

I, GEORGE ALEXANDER WINNALL of PUBLIC WORKS DEPT SYDNEY

a surveyor registered under the Surveyors Act, 1929, as amended hereby certify that the survey represented in this plan OF SURVEY is accurate and has been made in accordance with the Survey Practice Regulations, 1990 and was completed on

* 1st APRIL 1993

Signature ..... Surveyor registered under Surveyors Act, 1929, as amended

Datum line of Azimuth: A - B

* Insert date of survey

Plans used in preparation of survey/compilation

DP 88256 DP136717 DP197883 DP198729 DP215096
DP221477 DP223082 DP233259 DP234801 DP235358
DP259351 DP259458 DP259849 DP534663 DP539149
DP540854 DP699007 DP699008 DP530824 DP540955
DP541078 DP551508 DP610763 DP629963 DP637506
DP642856 DP643434 DP710562 DP714931 DP735164
DP735215 DP740598 DP740599 DP746798 DP774130
DP776411 DP786256 DP787402 DP789328 DP791168
DP793595 DP816436 DP818898

PANEL FOR USE ONLY for statements of intention to dedicate public roads or to create public reserves drainage reserves, easements, restrictions on the use of land or positive covenants

SEE SHEET 2 FOR DETAILS OF INTENTION TO CREATE EASEMENTS

WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION

MSB APPROVAL W93/00116 PB 54/2-4,348/1-2 & R P477 24/8/1993

Y|0|0|7|A|1|3|A

Req:R539376 /Doc:DP 0831539 P /Rev:07-Dec-1994 /Sts:OK.OK /Prt:17-Nov-2007 19:58 /Pgs:ALL /Seq:1 of 13
Ref:OITMAA /Src:B

PLAN FORM 3 To be used in conjuction to with Plan Form 2

WARNING CREASING OR FOLDING WILL LEAD TO REJECTION

• OFFICE USE ONLY

DP 831539

Registered 29/9/1997

This is sheet 3 of my plan in 13 sheets dated 1st APRIL 1993

Surveyor registered under Surveyors Act 1928.

This is sheet of the plan of sheets covered by my Certificate No of

Council Clerk

For use where space is insufficient in any panel on plan Form 2

C EASEMENT FOR DRAINAGE 5, 6, 15 & VARIABLE WIDTH VIDE DP 791168
T EASEMENT FOR SEWERAGE PURPOSES 4 WIDE (VIDE DP 643434) EXCLUDING THE PARTS WITHIN LOTS 3 4 & 6
S EASEMENT FOR THE PASSAGE AND CONVEYANCE OF CARCASSES 3.35 WIDE VIDE DP 106356

HASLAMS CREEK

1

4
1.075 Ha

5
1.498 Ha

6
6912 m²

SEE DIAGRAM J

SEE DIAGRAM A

SEE DIAGRAM R

SEE DIAGRAM B

DIAGRAM J
NOT TO SCALE

DIAGRAM A
NOT TO SCALE

DIAGRAM B
NOT TO SCALE

DIAGRAM R
NOT TO SCALE

RM OH&W FD
64° 55' - 2.055
(DP 610760)

RM OH&W FD
239° 47' - 6.045
(DP 500824)
239° 47' - 6.015
(BY ME)

RM OH&W FD
334° 19' 40"
2.745

RM GONE
RM DIP
247° 19' 40"
1.03

SSM 58749 FD
APPEARS TO
BE DISTURBED

GI NAIL & Ws
IN BIT FD

RM OH&W IN CONC
DISH DRAIN FD
(DP 789029)
19° 30' - 2.97

GI NAIL & Ws
IN BIT FD

RM OH&W IN CONC
DISH DRAIN FD
(DP 789029)
349° 25' - 3.00

RM OH&W FD
178° 31' - 0.655
(VIDE DP 610760
& DP 643434)

PEG FD

STEEL POST
AT CORNER

Reduction Ratio 1:1000
Lengths are in metres

Plan Drawing only to appear in this space

SURVEYOR'S REFERENCE: SB 51710

Req:R539376 /Doc:DP 0831539 P /Rev:07-Dec-1994 /Sts:OK.OK /Prt:17-Nov-2007 19:58 /Pgs:ALL /Seq:3 of 13
Ref:GITMAA /Src:B

PLAN FORM 3 To be used in conjuction to with Plan Form 2

WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION

* OFFICE USE ONLY *

DP 831539

Registered: 8/9/1993

This is sheet 4 of my plan in 13 sheets dated 1st APRIL 1993

George Bennett

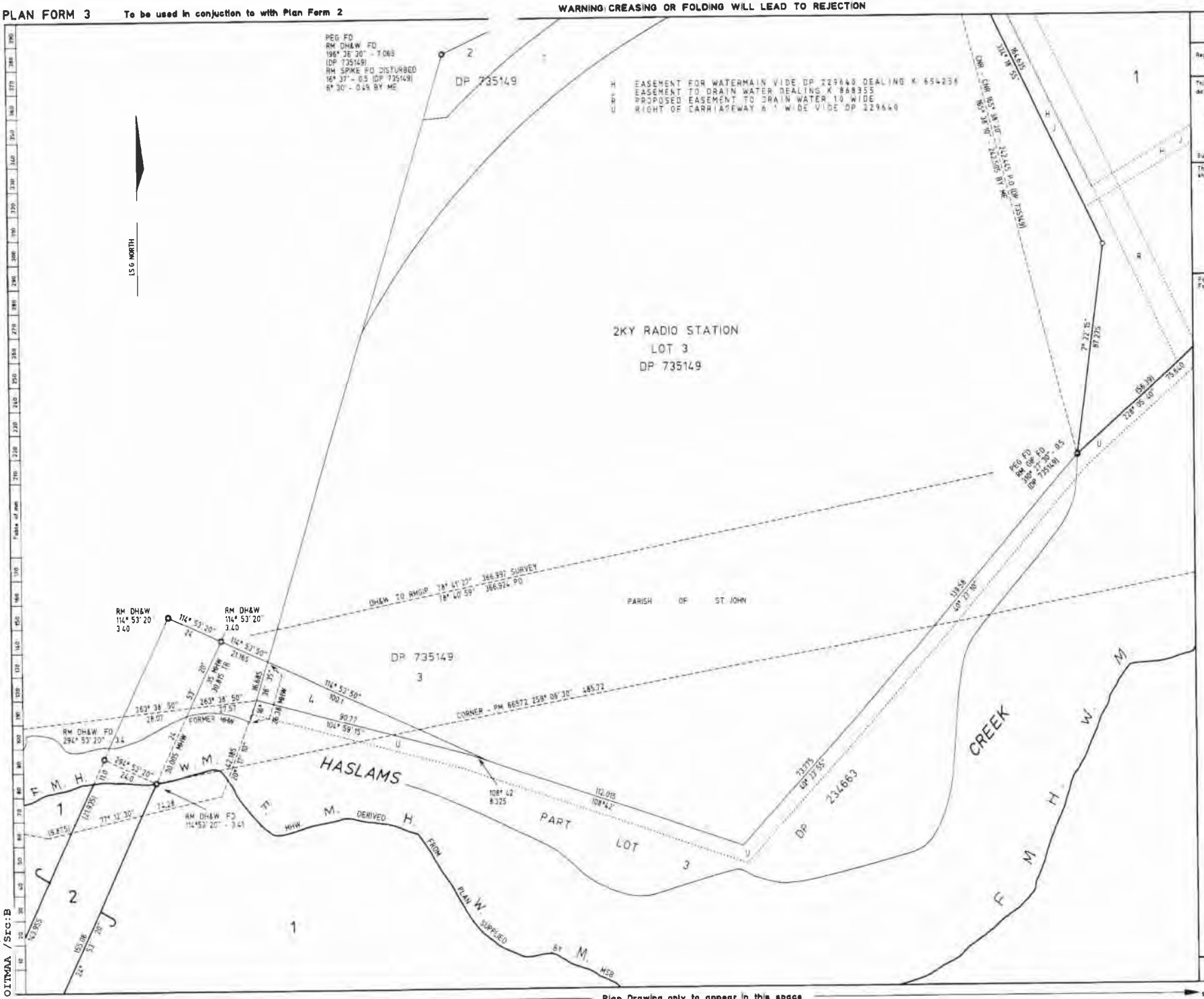
Surveyor registered under Surveyors Act 1926.

This is sheet of the plan of sheets covered by my Certificate No. of

Council Clerk

For use where space is insufficient in any panel on plan Form 2

Reduction Ratio 1/1000
Lengths are in metres



Plan Drawing only to appear in this space

SURVEYOR'S REFERENCE: SB 51710

Req:R539376 /Doc:DP 0831539 P /Rev:07-Dec-1994 /Sts:OK.OK /Prt:17-Nov-2007 19:58 /Pgs:ALL /Seq:4 of 13
Ref:OTMAA /Src:B

PLAN FORM 3 To be used in conjuction to with Plan Form 2

WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION

* OFFICE USE ONLY

DP 831539 *

Registered: 29/9/1995

This is sheet 5 of my plan in 13 sheets dated 16th APRIL 1993

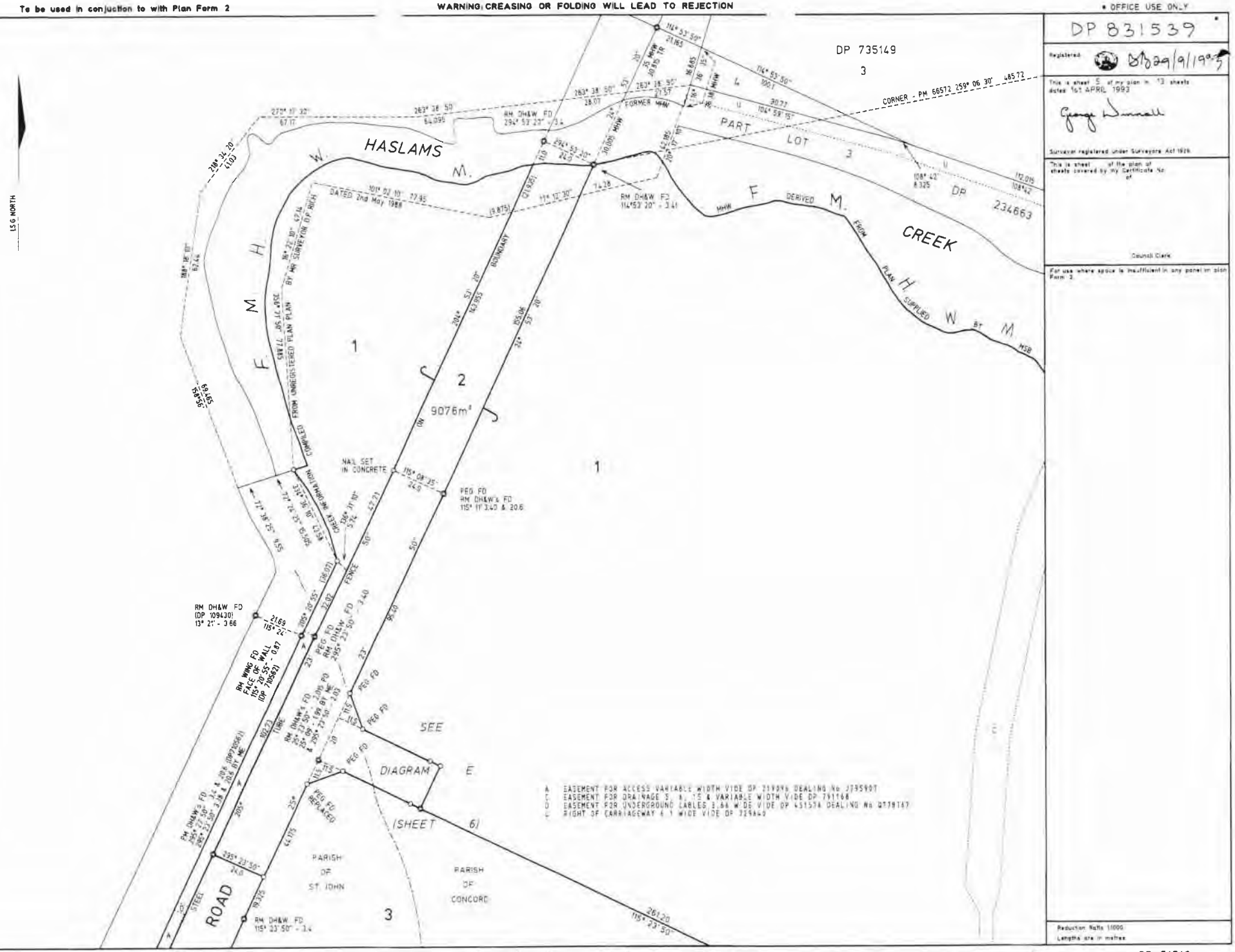
George Linnell

Surveyor registered under Surveyors Act 1939

This is sheet of the plan of sheets covered by my Certificate No. of

Council Clerk

For use where space is insufficient in any panel in plan Form 2



Reduction Ratio 1:1000
Lengths are in metres

Plan Drawing only to appear in this space

SURVEYOR'S REFERENCE. SB 51710

Req:R539376 /Doc:DP 0831539 P /Rev:07-Dec-1994 /Sts:OK.OK /Prt:17-Nov-2007 19:58 /Pgs:ALL /Seq:5 of 13
Ref:OITMAA /Src:E

PLAN FORM 3 To be used in conjuction to with Plan Form 2

WARNING CREASING OR FOLDING WILL LEAD TO REJECTION

* OFFICE USE ONLY

DP831539

Registered 29/9/1993

This is sheet 6 of my plan in 13 sheets dated 1st APRIL 1993

Surveyor registered under Surveyors Act 1929

This is sheet of the plan of sheets covered by my Certificate No of

Council Clerk

For use where space is insufficient in any panel on plan Form 2.

Reduction Ratio 1:1000

Lengths are in metres

Plan Drawing only to appear in this space

SURVEYOR'S REFERENCE SB 51710

A EASEMENT FOR ACCESS VAR ABLE WIDTH VIDE DP 219096 DEAL NG No 795507
E EASEMENT FOR DRAINAGE 5,6,15 & VARIABLE WIDTH VIDE DP 791368
J EASEMENT FOR UNDERGROUND CABLES 3.66 WIDE VIDE DP 451576 DEALING No Q778767
T EASEMENT FOR SEWERAGE PURPOSES 4 WIDE (VIDE DP 643434) EXCLUDING THE PARTS WITHIN LOTS 3, 4 & 5

Req:R539376 /Doc:DP 0831539 P /Rev:07-Dec-1994 /Sts:OK OK /Prt:17-Nov-2007 19:58 /Pgs:ALL /Seq:6 of 13
Ref:OITMAA /Src:B

PLAN FORM 3 To be used in conjuction to with Plan Form 2

WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION

* OFFICE USE ONLY

DP 831539

Registered: 28/9/1994

This is sheet 7 of my plan in 13 sheets dated 1st APRIL 1993

Surveyor registered under Surveyors Act 1929

This is sheet of the plan of sheets covered by my Certificate No. of

Council Clerk

For use where space is insufficient in any panel on plan Form 2

A EASEMENT FOR ACCESS VARIABLE WIDTH VIDE DP 219096 DEALING No J795907
B DRAINAGE EASEMENT 4 57 WIDE VIDE DP 219096 DEALING No J795907
D EASEMENT FOR UNDERGROUND CABLES 3 66 WIDE VIDE DP451576 DEALING Q 778767

PARISH OF ST JOHN

PARISH OF CONCORD

ROAD

HILL

SEE DIAGRAM D (SHEET 6)

DIAGRAM C

DIAGRAM C NOT TO SCALE

Plan Drawing only to appear in this space

SURVEYOR'S REFERENCE SB 51710

Reduction Ratio 1:1000
Lengths are in metres

Req:R539376 /Doc:DP 0831539 P /Rev:07-Dec-1994 /Sts:OK.OK /Prt:17-Nov-2007 19:58 /Pgs:ALL /Seq:7 of 13
Ref:OITMAA /Src:B

PLAN FORM 3 To be used in conjuction to with Plan Form 2

WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION

* OFFICE USE ONLY

DP 831539

Registered: 29/9/1994

This is sheet 8 of my plan in 13 sheets dated 1st APRIL 1993

Surveyor registered under Surveyors Act 1929

This is sheet of the plan of sheets covered by my Certificate No of

Council Clerk

For use where space is insufficient in any panel on plan Form 2

Requisition Ref No 53008

Lengths are in metres

PIPELINE EASEMENT 3 WIDE, 12 WIDE & VAR VIDE DP 499007 (S ... 10) DEALING R297866, R297865, R342216

PIPELINE EASEMENT 3, 12 & VARIABLE WIDTH VIDE DP 499008 (SHEET7) DEALING No S816045, S816046, S816047

EASEMENT FOR ELECTRICITY PURPOSES 2 44 WIDE VIDE DP 223082 DEALING No J937238

EASEMENT FOR ELECTRICITY MAINS 3 05 WIDE VIDE DP 430149 DEALING No D40474

EASEMENT FOR ELECTRICITY PURPOSES 3 05 WIDE VIDE DP 106717 DEALING No D928745

EASEMENT FOR GAS 3 05 WIDE DEALING G483397

EASEMENT FOR ELECTRICITY PURPOSES 2 44 WIDE

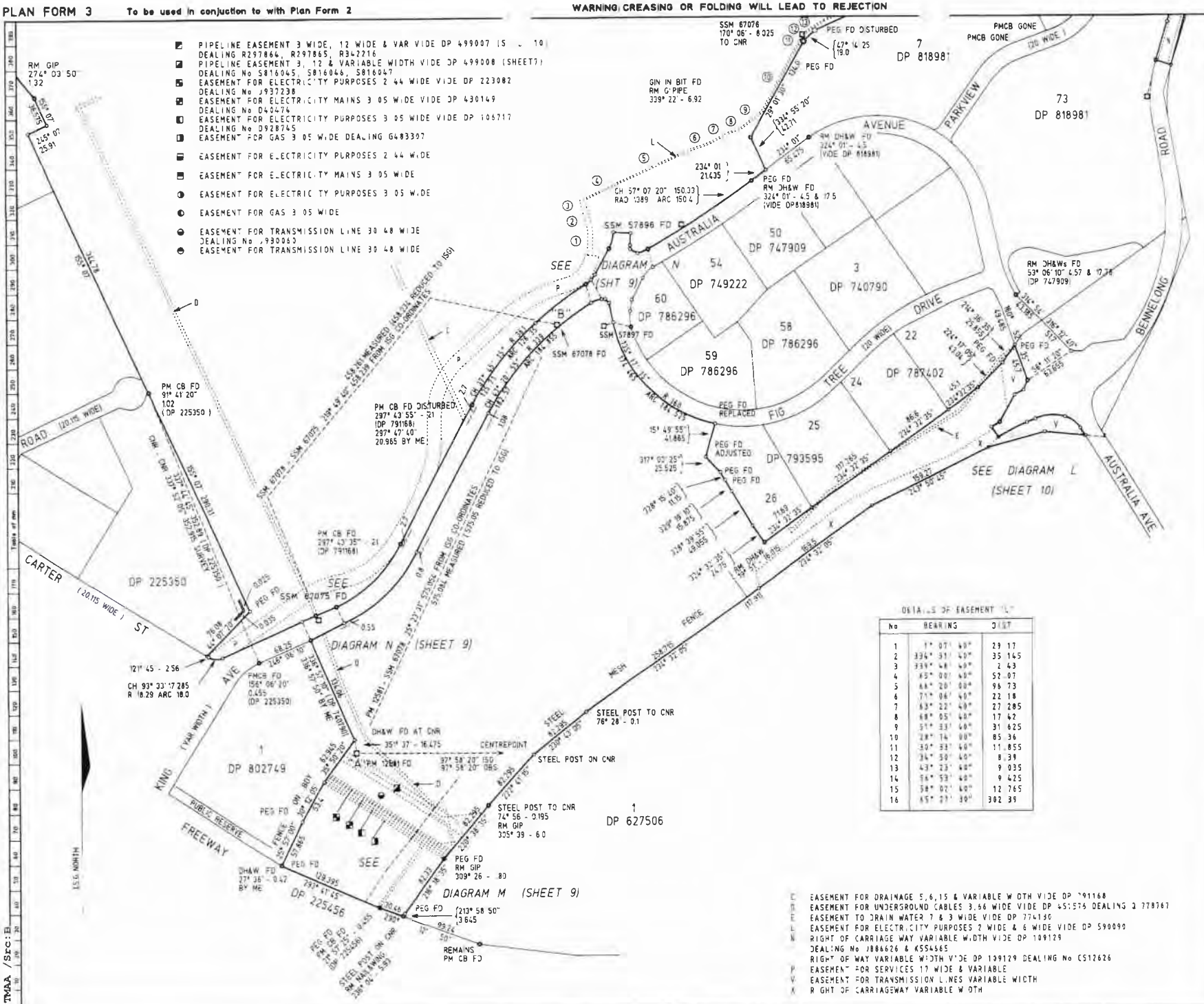
EASEMENT FOR ELECTRICITY MAINS 3 05 WIDE

EASEMENT FOR ELECTRICITY PURPOSES 3 05 WIDE

EASEMENT FOR GAS 3 05 WIDE

EASEMENT FOR TRANSMISSION LINE 30 48 WIDE DEALING No J930063

EASEMENT FOR TRANSMISSION LINE 30 48 WIDE



DETAILS OF EASEMENT "L"

No	BEARING	DIST
1	1° 07' 40"	29 17
2	334° 31' 40"	35 145
3	339° 48' 40"	2 43
4	65° 00' 40"	52 07
5	66° 20' 00"	96 73
6	71° 06' 40"	22 18
7	63° 22' 40"	27 285
8	68° 05' 40"	17 42
9	51° 33' 40"	31 625
10	28° 14' 00"	85 36
11	30° 53' 40"	11 855
12	34° 30' 40"	8 39
13	43° 23' 40"	9 035
14	56° 53' 40"	9 425
15	58° 02' 40"	12 765
16	65° 21' 30"	302 39

C EASEMENT FOR DRAINAGE 5,6,15 & VARIABLE W IDTH VIDE DP 791168
D EASEMENT FOR UNDERGROUND CABLES 3,66 WIDE VIDE DP 451576 DEALING J 778767
E EASEMENT TO DRAIN WATER 7 & 3 WIDE VIDE DP 774190
L EASEMENT FOR ELECTRICITY PURPOSES 2 WIDE & 6 WIDE VIDE DP 590099
N RIGHT OF CARRIAGE WAY VARIABLE WIDTH VIDE DP 109129 DEALING No J886626 & K554565
RIGHT OF WAY VARIABLE WIDTH VIDE DP 109129 DEALING No CS12626
P EASEMENT FOR SERVICES 17 WIDE & VARIABLE
V EASEMENT FOR TRANSMISSION LINES VARIABLE WIDTH
X RIGHT OF CARRIAGEWAY VARIABLE WIDTH

Plan Drawing only to appear in this space

SURVEYOR'S REFERENCE: SB 51710

Req:R539376 /Doc:DP 0831539 P /Rev:07-Dec-1994 /Sts:OK OK /Prt:17-Nov-2007 19:58 /Pgs:ALL /Seq:8 of 13
Ref:OITMAA /Src:FI

PLAN FORM 3 **To be used in conjuction to with Plan Form 2**

WARNING CREASING OR FOLDING WILL LEAD TO REJECTION

* OFFICE USE ONLY

DP 831539

Registered 29/9/1993

This is sheet 9 of my plan in 13 sheets dated 1st APRIL 1993

George Dunnell

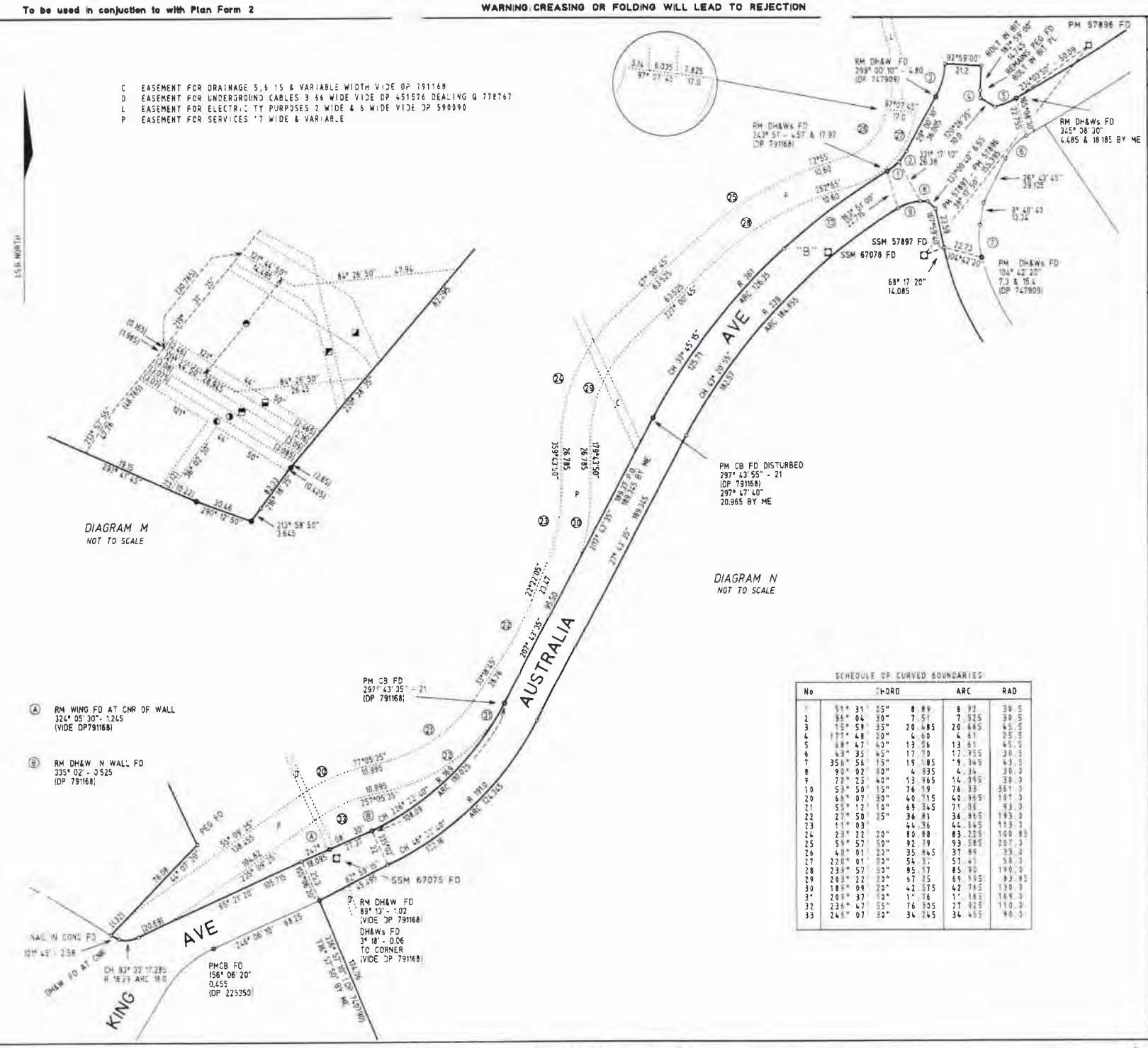
Surveyor registered under Surveyors Act 1928

This is sheet of the plan of sheets covered by my Certificate No of

Council Clerk

For use where space is insufficient in any panel on plan Form 2

C EASEMENT FOR DRAINAGE 5.6 15 & VARIABLE WIDTH VIDE DP 791168
D EASEMENT FOR UNDERGROUND CABLES 3 66 WIDE VIDE DP 451576 DEALING Q 778767
L EASEMENT FOR ELECTRICITY PURPOSES 2 WIDE & 6 WIDE VIDE DP 590090
P EASEMENT FOR SERVICES 17 WIDE & VARIABLE



SCHEDULE OF CURVED BOUNDARIES

No	CHORD		ARC		RAD
1	51° 31' 25"	8.89	8.92		39.5
2	94° 04' 30"	7.51	7.525		38.5
3	15° 59' 35"	20.485	20.665		45.5
4	177° 48' 20"	4.60	4.61		25.5
5	88° 47' 40"	13.56	13.61		45.5
6	43° 35' 45"	17.70	17.955		38.5
7	356° 56' 15"	19.085	19.345		43.5
8	90° 02' 00"	4.935	4.94		30.0
9	72° 23' 40"	13.965	14.095		39.0
10	53° 50' 15"	76.19	76.33		361.0
20	64° 07' 30"	40.715	40.965		107.0
21	55° 12' 10"	69.345	71.08		93.0
22	27° 50' 25"	36.81	36.965		193.0
23	11° 03'	44.36	44.365		153.0
24	23° 22' 20"	80.88	83.225		160.85
25	59° 57' 50"	92.79	93.585		257.0
26	40° 01' 20"	35.845	37.89		33.0
27	220° 01' 30"	54.31	57.41		58.0
28	239° 57' 30"	95.17	85.90		190.0
29	203° 22' 20"	57.25	69.195		93.85
30	188° 09' 20"	42.375	42.765		130.0
31	209° 37' 10"	17.36	17.385		169.0
32	236° 47' 55"	76.335	77.925		110.0
33	246° 07' 30"	34.245	34.455		90.0

Reduction Ratio 1:
Lengths are in metres

Plan Drawing only to appear in this space

SURVEYOR'S REFERENCE SB 51710

Req:R539376 /Doc:DP 0831539 P /Rev:07-Dec-1994 /Sts:OK.OK /Prt:17-Nov-2007 19:58 /Pgs:ALL /Seq:9 of 13
Ref:OITMAA /Src:B

PLAN FORM 3 To be used in conjuction to with Plan Form 2

WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION

* OFFICE USE ONLY

DP 831539

Registered: 29/9/1993

This is sheet 10 of my plan in 12 sheets dated 1st APRIL 1993

George Dunnall

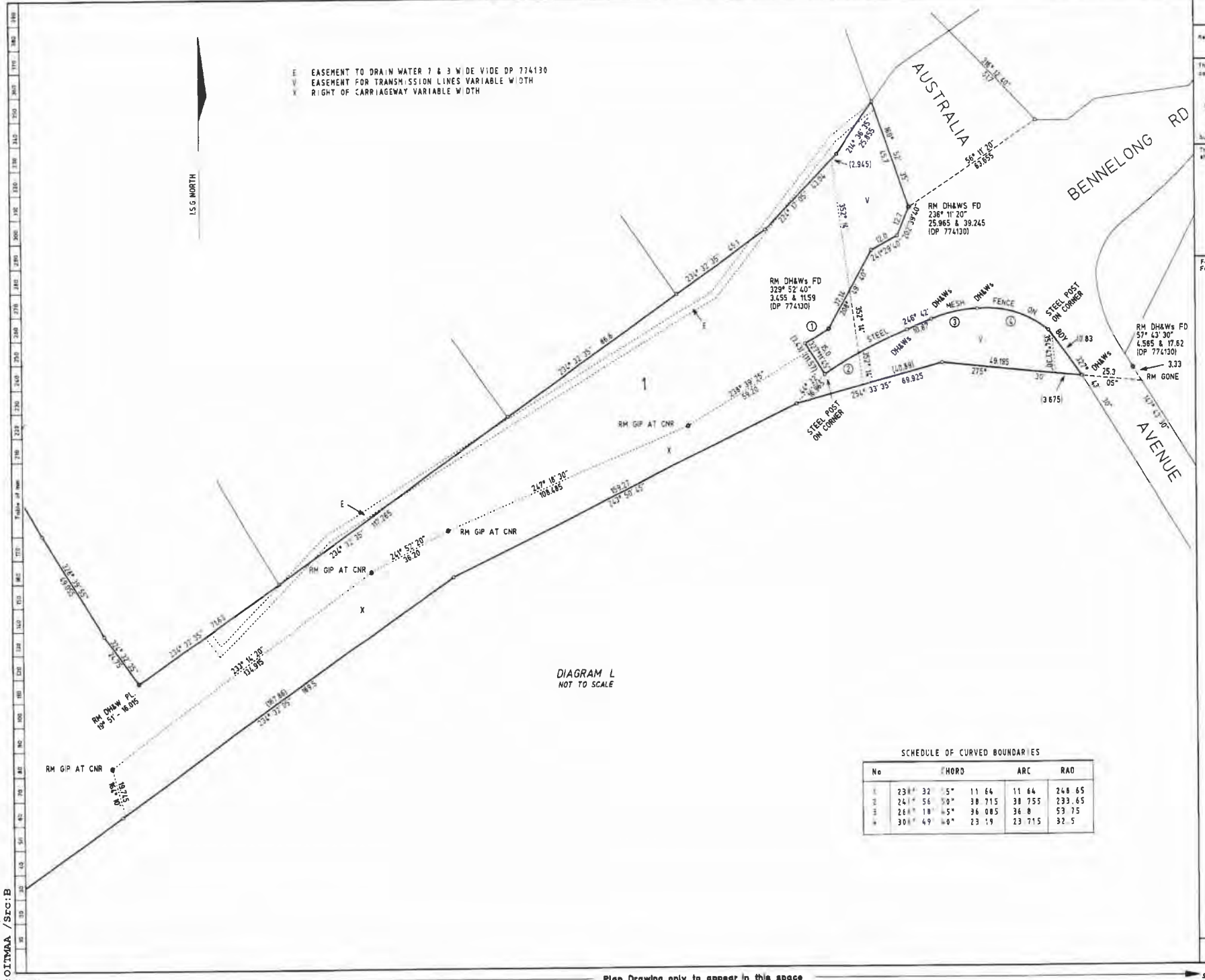
Surveyor registered under Surveyors Act 1929.

This is sheet ... of the plan of sheets covered by my Certificate No ... of

Council Clerk

For use where space is insufficient in any panel on plan Form 2

E EASEMENT TO DRAIN WATER 7 & 3 WIDE VIDE DP 774130
V EASEMENT FOR TRANSMISSION LINES VARIABLE WIDTH
X RIGHT OF CARRIAGEWAY VARIABLE WIDTH



SCHEDULE OF CURVED BOUNDARIES

No	CHORD	ARC	RAD
1	238° 32' 15" 11.64	11.64	248.65
2	241° 56' 50" 38.715	38.755	233.65
3	264° 18' 45" 36.085	36.8	53.75
4	308° 49' 40" 23.19	23.715	32.5

Reduction Ratio 1:
Lengths are in metres

Plan Drawing only to appear in this space

SURVEYOR'S REFERENCE: SB 51710

Req:R539376 /Doc:DP 0831539 P /Rev:07-Dec-1994 /Sts:OK.OK /Prt:17-Nov-2007 19:58 /Pgs:ALL /Seq:10 of 13
Ref:OITMAA /Src:B

PLAN FORM 3 To be used in conjuction to with Plan Form 2

WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION

* OFFICE USE ONLY

DP 831539

Registered 29/9/1993

This is sheet 11 of my plan in 13 sheets dated 1st APRIL 1993

George Dunnett

Surveyor registered under Surveyors Act 1929

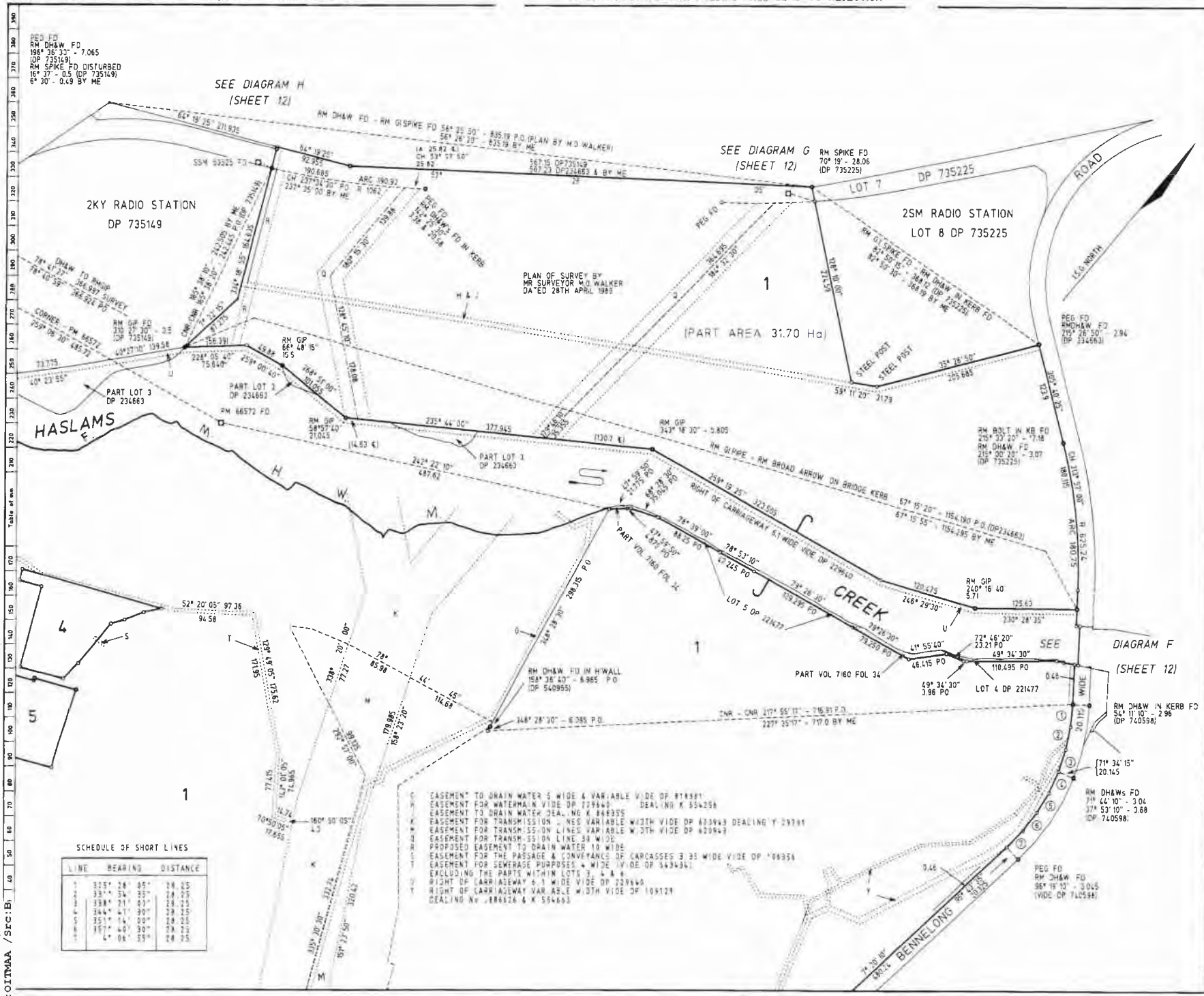
This is sheet of the plan of sheets covered by my Certificate No of

Council Clerk

For use where space is insufficient in any panel on plan Form 2

Reduction Ratio 1:3000

Lengths are in metres



Plan Drawing only to appear in this space

SURVEYOR'S REFERENCE: SB 51710

Req:R539376 /Doc:DP 0831539 P /Rev:07-Dec-1994 /Sts:OK OK /Prt:17-Nov-2007 19:58 /Pgs:ALL /Seq:11 of 13
Ref:OITMAA /Src:B

PLAN FORM 3 To be used in conjuction to with Plan Form 2

WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION

* OFFICE USE ONLY

DP 831539

Registered: 29/9/1993

This is sheet 12 of my plan in 13 sheets dated 1st APRIL 1993

George Jarratt

Surveyor registered under Surveyors Act 1908

This is sheet of the plan of sheets covered by my Certificate No of

Council Clerk

For use where space is insufficient in any panel on plan Form 2.

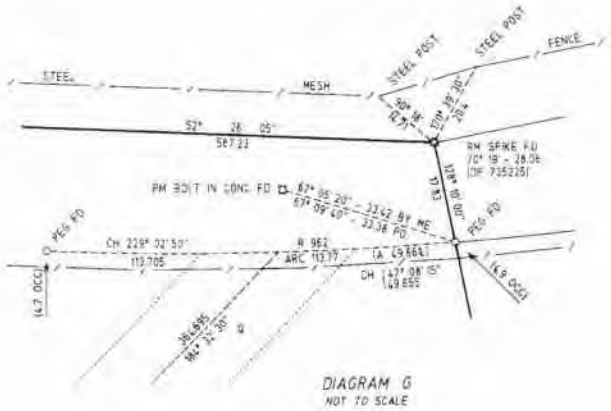


DIAGRAM G
NOT TO SCALE

H EASEMENT FOR WATERMAIN VIDE DP 229640 DEALING K 654256
J EASEMENT TO DRAIN WATER DEALING K 868355
Q EASEMENT FOR TRANSMISSION LINE 30 WIDE
R PROPOSED EASEMENT TO DRAIN WATER 10 WIDE
U RIGHT OF CARRIAGEWAY 6.1 WIDE VIDE DP 229640

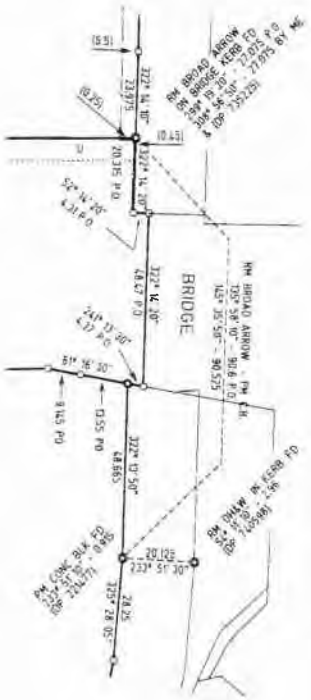


DIAGRAM F
NOT TO SCALE

DIAGRAM H
NOT TO SCALE

Reduction Ratio 1:
Lengths are in metres

Plan Drawing only to appear in this space

SURVEYOR'S REFERENCE SB 51710

Req:R539376 /Doc:DP 0831539 P /Rev:07-Dec-1994 /Sts:OK.OK /Prt:17-Nov-2007 19:58 /Pgs:ALL /Seq:12 of 13
Ref:OITMAA /Src:B

PLAN FORM 2

Plan Drawing only to appear in this space

*OFFICE USE ONLY

DP 835722

SIGNATURE AND SEALS ONLY

Crown Lands Office Approval

PLAN APPROVED ..... Authorised Officer

Land District .....

Paper No. .....

Field Book ..... pages .....

Council Clerk's Certificate

I hereby certify that —

(a) the requirements of the Local Government Act, 1919 (other than the requirements for the registration of plans), and

*(b) the requirements of section 348 of the † Metropolitan Water, Sewerage and Drainage Act, 1924, as amended, † Hunter District Water, Sewerage, and Drainage Act, 1936, as amended

have been complied with by the applicant in relation to the proposed ..... (Insert "new road", "subdivision" or "consolidated lot") set out herein

Subdivision No. .....

Date .....

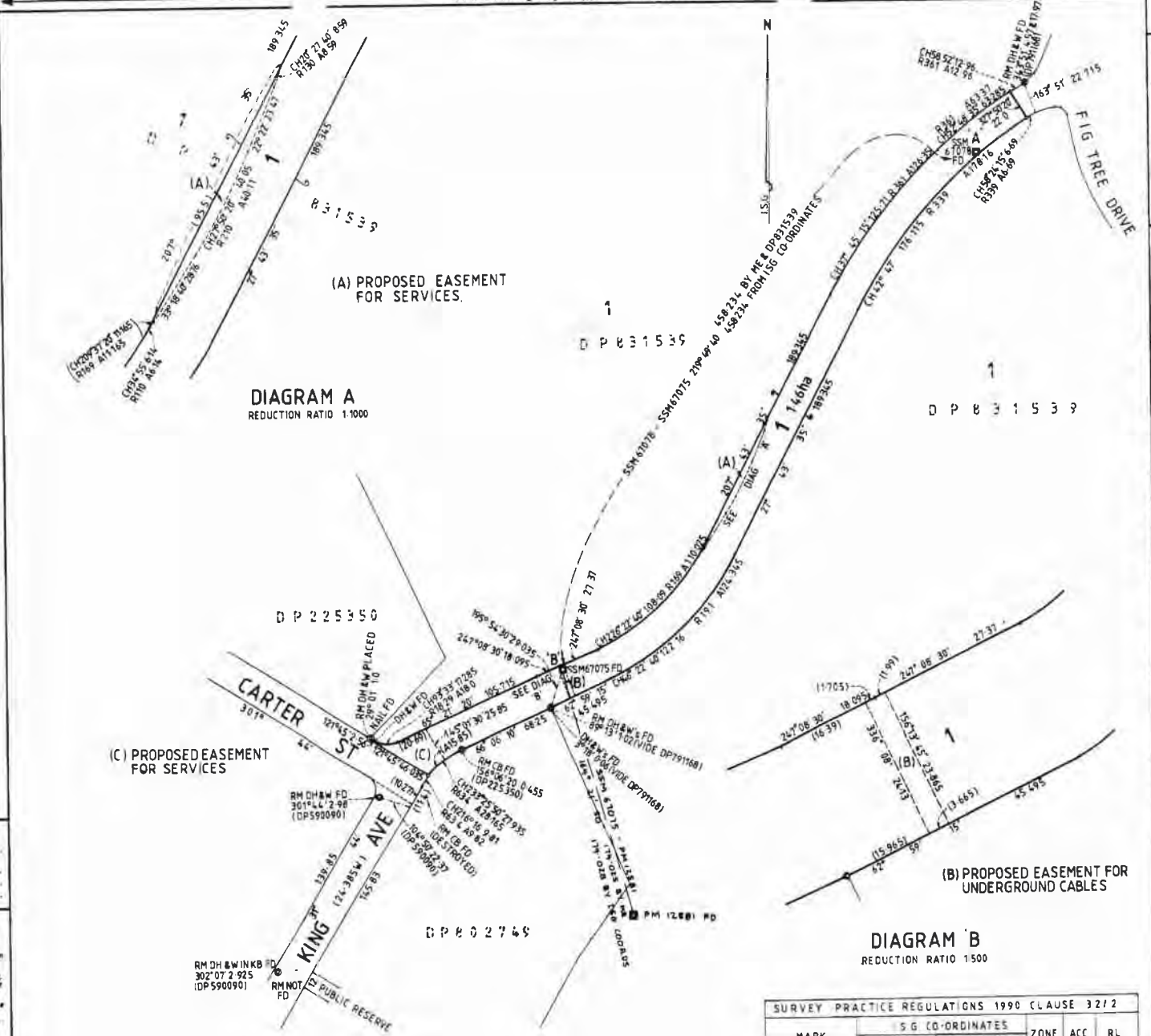
(Signature) ..... Council Clerk

Council File No. .....

*This part of certificate to be deleted where the application is only for a consolidated lot or the opening of a new road or where the land to be subdivided is wholly outside the areas of operations of the Metropolitan Water Sewerage and Drainage Board and the Hunter District Water Board.

† Delete if inapplicable.

SURVEYOR'S REFERENCE: 7952



SURVEY PRACTICE REGULATIONS 1990 CLAUSE 32/2					
MARK	SG CO-ORDINATES		ZONE	ACC	RL
	EASTING	NORTHING			
SSM 67075	305 818 722	1252762 903	56/1	3	
SSM 67078	306 112 216	1253114 818	56/1	3	
PM 12681	305 865 629	1252596 316	56/1	1	
SOURCE	SCIMS JAN 1993				

Registered: 17-1-1997

C.A.

Title System: TORRENS

Purpose: ACQUISITION

Ref. Map: U 0052 - 84*, 93*

Last Plan:

PLAN OF AQUISITION OF PARTS OF AUSTRALIA AVE AND KING AVE

Lengths are in metres. Reduction Ratio 1: 2000

Mun./Shire/City: AUBURN

Locality: HOMEBUSH

Parish: CONCORD

County: CUMBERLAND

This is sheet 1 of my plan in ... sheets. (Delete if inapplicable)

I, JOHN CHARLES HUGHES

of HARD AND FORESTER 52 FREDERICK ST ROCKDALE 2216

a surveyor registered under the Surveyors Act, 1929, as amended, hereby certify that the survey represented in this plan is accurate and has been made in accordance with the Survey Practice Regulation 1990 and was completed on

3 - 12 - 93

Signature ... Surveyor registered under Surveyors Act, 1929, as amended

Datum Line of Azimuth 'A'-'B'

Plans used in preparation of survey/compilation.

DP 831539, DP 791168, DP 740790, DP 802749, DP 590090, DP 589764, DP 589764, DP 225350, DP 225351.

PANEL FOR USE ONLY for statements of intention to dedicate public roads, to create public reserves, drainage reserves, easements, restrictions on the use of land or positive covenants.

LOT 1: ROAD TO BE CLOSED

S.B. 51797

WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION

Req:R539377 /Doc:DP 0835722 P /Rev:18-Jan-1994 /Sts:OK OK /Prt:17-Nov-2007 19:58 /Pgs:ALL /Seq:1 of 1
Ref:OIMAA /Src:B

Req:R539375 /Doc:DP 0225350 P /Rev:16-Feb-1998 /Sts:OK OK /Prt:17-Nov-2007 19:58 /Pgs:ALL /Seq:1 of 7
Ref:OITMAA /Src:B

WARNING. Plan Drawing only to appear in this space.

DIAGRAM 'B'
50 feet to an inch

DIAGRAM 'A'
60 feet to an inch

DIAGRAM 'C'
40 feet to an inch

DIAGRAM 'D'
Not to Scale

REFERENCE MARKS

No	Bearing	Distance	From
a	9° 34'	3 4/4"	P.M.C.B.
b	154° 59' 40"	16"	P.M.C.B.
c	138° 18' 30"	16 6/4"	P.M.C.B.
d	121° 37' 20"	16"	P.M.C.B.
e	92° 34'	3/4 1/4"	S.W.B. in top of Retaining Wall P.M.
f	155° 59' 50"	16"	P.M.C.B.
g	121° 37' 20"	16"	P.M.C.B.
h	2° 37' 20"	16"	P.M.C.B.
j	211° 57'	11 9"	R.M.D.H. & W. fd. (982)
k	211° 57'	11 9"	R.M.D.H. & W. fd.
m	25° 50' 45"	11 8 3/4"	R.M.D.H. & W. fd.
n	211° 37' 20"	16"	P.M.C.B.

OP225350 (E)

Registered: 22-1-65

C.A.: 3165 of 19-1-65

Title System: Torrens

Purpose: Subdn.

Ref. Map: Lidcombe Sheet 4 (old)

Last Plan: do

PLAN OF PART OF LAND IN C.T. VOL. 6129 FOL. 216 being part of por. 238

Scale: 200 feet to an inch

Mun. ~~Shire~~

~~City~~ AUBURN

Locality: LIDCOMBE

Parish: CONCORD

County: CUMBERLAND

I, Timothy Alfred Rolles
Hardy, Bury & Tyson
of 82 Pitt St. Sydney

a surveyor registered under the Surveyors Act, 1929, as amended, hereby certify that the survey represented in this plan is accurate and has been made * (1) by me ~~(2) under my immediate supervision~~ in accordance with the Survey Practice Regulations, 1933, and was completed on † 18th January, 1965

Signature: T.A. Rolles

Surveyor registered under Surveyors Act, 1929, as amended.
Datum Line of Azimuth: "A-B"

Statements of Dedications, Easements.
(Signatures and Seals to appear in panel provided.)

It is intended to Dedicate Carter Street, Uhrig Road and King Avenue to the Public for Road purposes X see below

ϕ It is intended to create, pursuant to Section 88B of the Conveyancing Act, 1919-1964:-

1. Easement to drain water 10 feet wide and 30 feet wide appurtenant to Carter Street and Hill Road.
2. Easement to drain water 10 feet wide appurtenant to Lots 19, 20, 23 and 24.
3. Right of carriageway 66 feet wide in favour of The Commissioner for Railways

ϕ Instrument filed as K55793

X Subject to Easements in D40474, D928745, F708337, J651303, J930060 and J937238

* Strike out either (1) or (2) † Insert date of survey.

REF 10327

OFFICE USE ONLY

Form 3 — **TO BE USED WHERE DEDICATIONS, DRAINAGE RESERVES AND PUBLIC GARDEN AND RECREATION SPACES ARE PROVIDED.**

REFERENCE MARKS

No	Bearing	Distance	From
a	91° 34"	3'4¾"	P.M.C.B.
b	154° 59' 40"	1'6"	P.M.C.B.
c	138° 18' 30"	1'6¾"	P.M.C.B.
d	121° 37' 20"	1'6"	P.M.C.B.
e	92° 34"	3'4¼"	D.H.&W. in top of Retaining Wall P.M.
f	155° 59' 50"	1'6"	P.M.C.B.
g	121° 37' 20"	1'6"	P.M.C.B.
h	121° 37' 20"	1'6"	P.M.C.B.
j	211° 57'	11'9"	R.M.D.H.&W. fd. (1962)
k	211° 57'	11'9"	R.M.D.H.&W. fd.
m	25° 50' 45"	11'8¾"	R.M.D.H.&W. fd.
n	211° 37' 20"	1'6"	P.M.C.B.

DIAGRAM "A"
60 feet to an inch

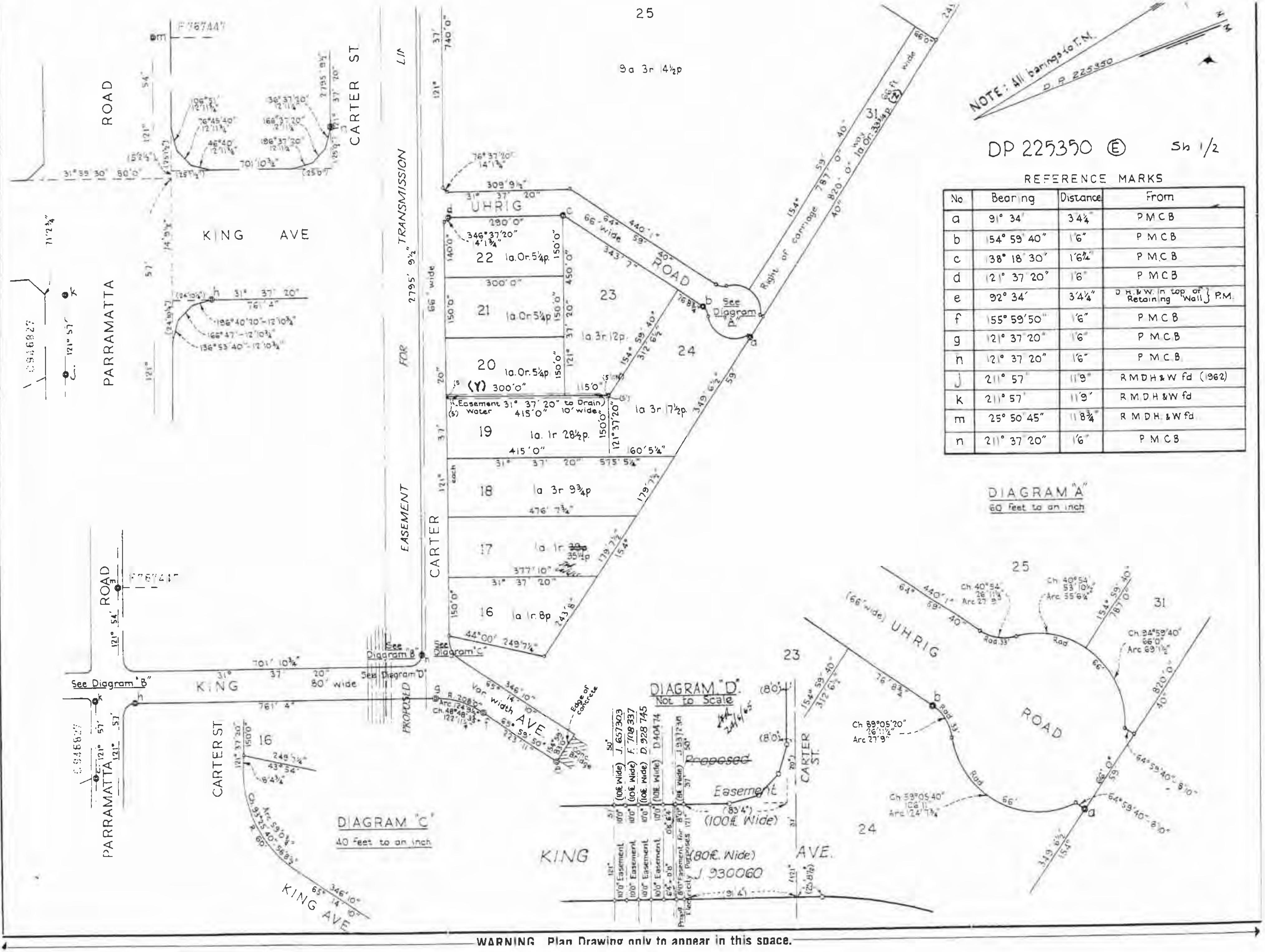
DIAGRAM "D"
Not to Scale

WARNING: Plan Drawing only to appear in this space.

Req:R539375 /Doc:DP 0225350 P /Rev:16-Feb-1998 /Sts:OK.OK /Prt:17-Nov-2007 19:58 /Pgs:ALL /Seq:2 of 7
Ref:OITMAA /Src:B

DP 225350 Ⓔ Sh 1/2

NOTE: All bearings to T.M. D.P. 225350



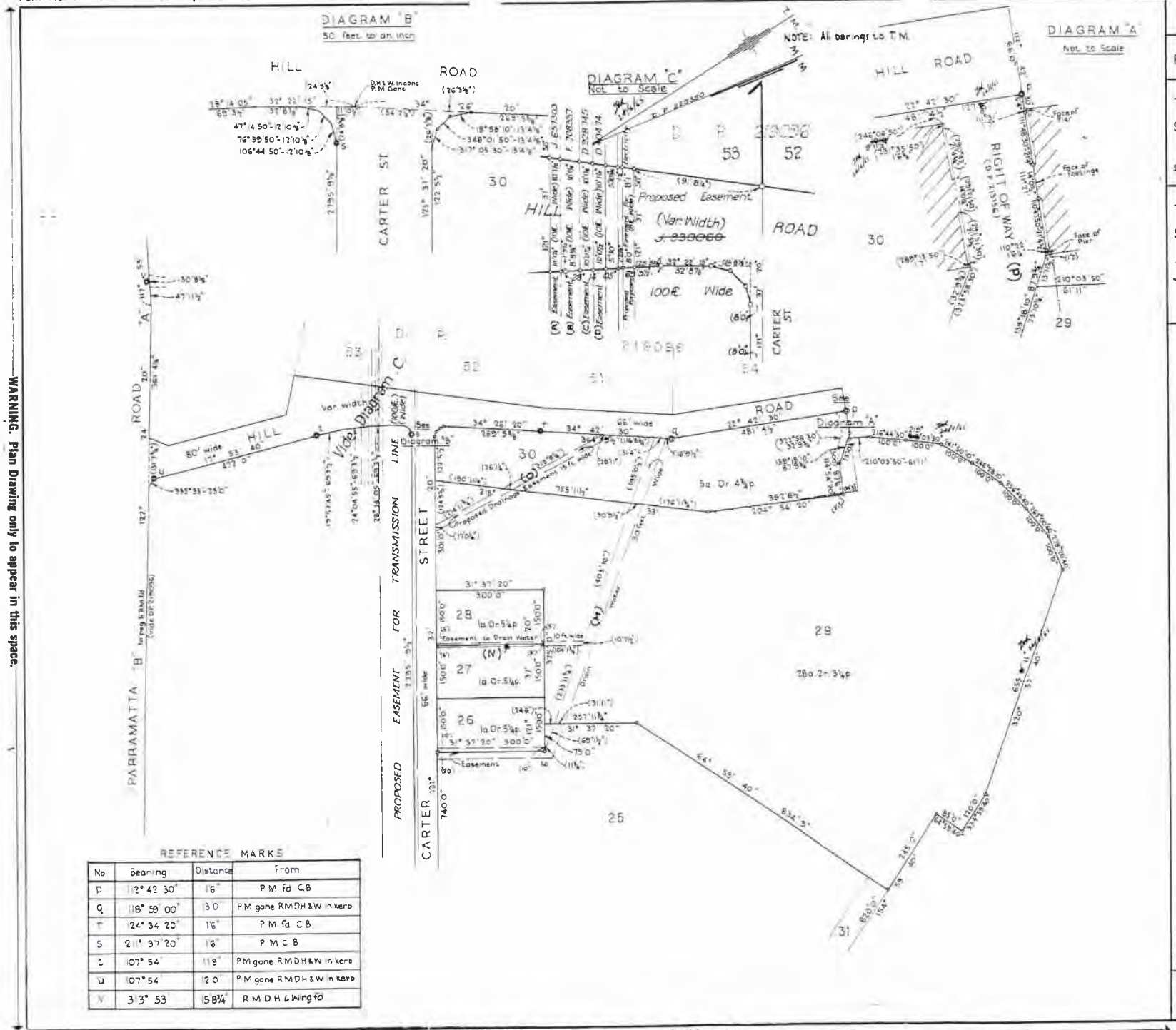
REFERENCE MARKS

No	Bearing	Distance	From
a	91° 34'	3'4¼"	P M C B
b	154° 59' 40"	1'6"	P M C B
c	138° 18' 30"	1'6¾"	P M C B
d	121° 37' 20"	1'6"	P M C B
e	92° 34'	3'4¼"	D H & W in top of Retaining Wall } P.M.
f	155° 59' 50"	1'6"	P M C B
g	121° 37' 20"	1'6"	P M C B
h	121° 37' 20"	1'6"	P M C B
j	211° 57'	11'9"	R M D H & W fd (1962)
k	211° 57'	11'9"	R M D H & W fd
m	25° 50' 45"	11'8¾"	R M D H & W fd
n	211° 37' 20"	1'6"	P M C B

WARNING. Plan Drawing only to appear in this space.

WARNING. Plan Drawing only to appear in this space.

Form No. 4 — To be used in conjunction with Forms 2 or 3. WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION.



WARNING. Plan Drawing only to appear in this space.

DP225350 (E)

Registered: 22.7.65

This is Sheet 2 of my plan in 2 Sheets dated 18th January, 1965

J.H. Rolles

Surveyor registered under Surveyors Act, 1929, as amended.

This is Sheet 2 of the plan of 2 Sheets covered by my Certificate No. 3 of 1965

Gordon J. Lane

Council Clerk

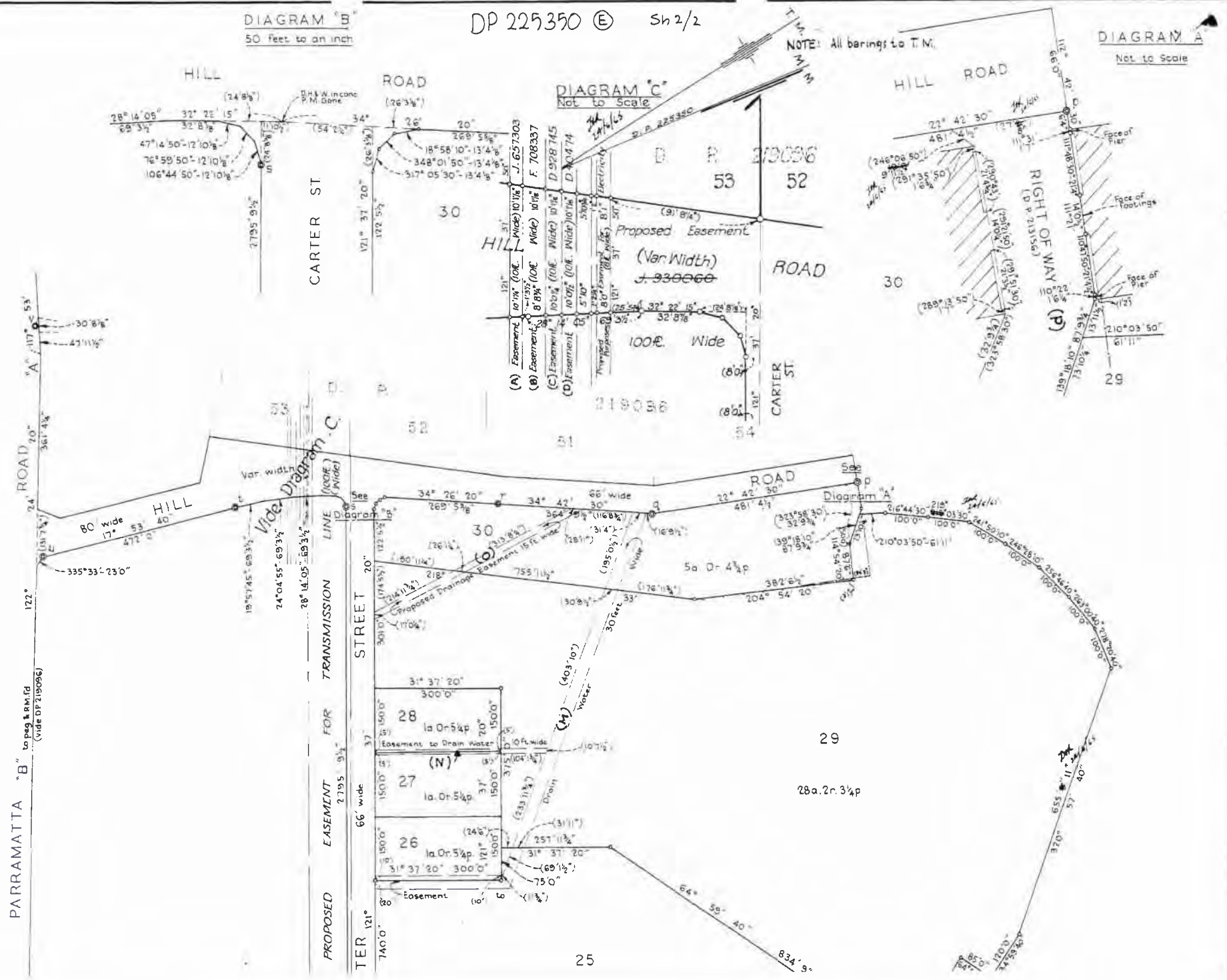
Scale: 200 feet to an inch

WARNING. Plan Drawing only to appear in this space.

Req:R539375 /Doc:DP 0225350 P /Rev:16-Feb-1998 /Sts:OK OK /Prt:17-Nov-2007 19:58 /Pgs:ALL /Seq:4 of 7
Ref:OITMAA /Src:B

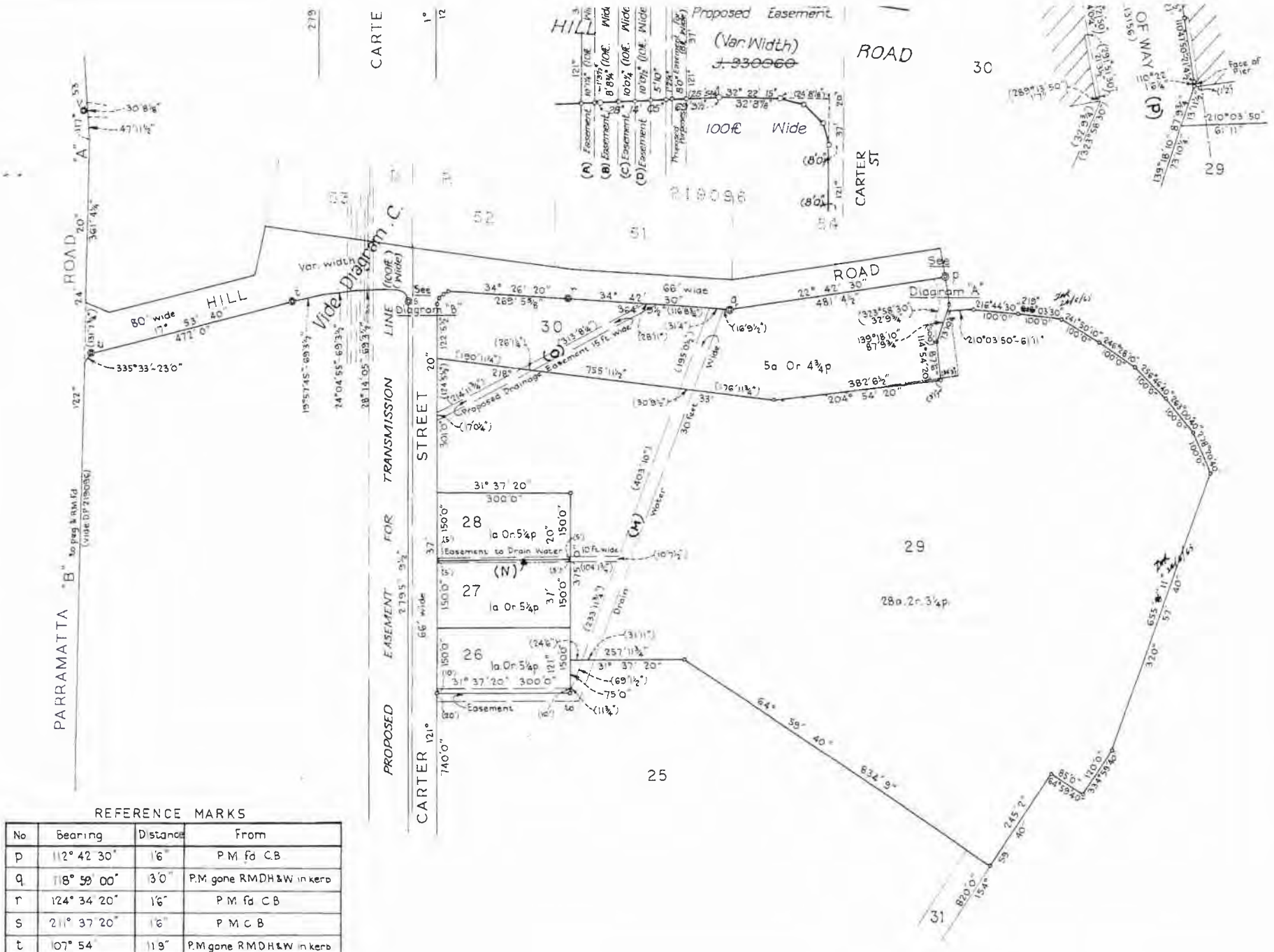
Form No. 4 — **To be used in conjunction with Forms 2 or 3.** **ARNING: CREASING OR FOLDING WILL LEAD TO REJEC**

DP 225350 (E) Sh 2/2



Req:R539375 /Doc:DP 0225350 P /Rev:16-Feb-1998 /Sts:OK.OK /Prt:17-Nov-2007 19:58 /Pgs:ALL /Seq:5 of 7
Ref:OITMAA /Src:B

WARNING. Plan Drawing only to appear in this space.



REFERENCE MARKS

No	Bearing	Distance	From
p	112° 42' 30"	1'6"	P.M. fd. C.B.
q	118° 59' 00"	3'0"	P.M. gone R.M.D.H.&W. in kerb
r	124° 34' 20"	1'6"	P.M. fd. C.B.
s	211° 37' 20"	1'6"	P.M. C.B.
t	107° 54'	1'9"	P.M. gone R.M.D.H.&W. in kerb
u	107° 54'	12'0"	P.M. gone R.M.D.H.&W. in kerb
v	313° 53'	15.83¾"	R.M.D.H. & Wing fd.

DP 225350 E Sh 2/2

WARNING. Plan Drawing only to appear in this space.
Req:R539375 /Doc:DP 0225350 P /Rev:16-Feb-1998 /Sts:OK OK /Prt:17-Nov-2007 19:58 /Pgs:ALL /Seq:6 of 7
Ref:OITMAA /Src:B

Req:R539375 /Doc:DP 0225350 P /Rev:16-Feb-1998 /Sts:OK.OK /Prt:17-Nov-2007 19:58 /Pgs:ALL /Seq:7 of 7
Ref:OITMAA /Src:B

DP225350 (E)

OFFICE USE ONLY

Registered: [illegible]

C.A.: 3165 of 29-11-65

Title System: Torrens

Purpose: Subdn.

Ref. Map: Lidcombe (Sht 1 Repl (old))

Last Plan: do

PLAN OF PART OF LAND IN C.T. VOL 6129 FOL 216 being part of por. 138

Scale: 200 feet to an inch

Mun. ~~Shire~~ / ~~City~~ AUBURN

Locality: LIDCOMBE

Parish: CONCORD

County: CUMBERLAND

I, Timothy Alfred Rolles
Hardy, Busby & Tyson
of 92 Pitt St., Sydney

a surveyor registered under the Surveyors Act, 1929, as amended, hereby certify that the survey represented in this plan is accurate and has been made * (1) by me ~~or under my supervision~~ in accordance with the Survey Practice Regulations, 1933, and was completed on

18th January, 1965

Signature: T.A. Rolles

Surveyor registered under Surveyors Act, 1929, as amended.

Datum Line of Azimuth: 'A-B'

Statements of Dedications, Easements.
(Signatures and Seals to appear in panel provided.)

It is intended to Dedicate Carter Street, Unnig Road and King Avenue to the Public for Road purposes. ~~& see below~~

It is intended to create, pursuant to Section 88 B of the Conveyancing Act, 1919-1964 -

1. Easement to drain water 10 feet wide and 30 feet wide appurtenant to Carter Street and Hill Road.
2. Easement to drain water 10 feet wide appurtenant to Lots 19 to 23 and 22
3. Right of carriageway 66 feet wide in favour of The Commissioner for Railways

Instrument filed as K55393

Subject to Easements in D40474, D828745, F708337, J653303, J950080 and J937238

* Strike out either (1) or (2). † Insert date of survey.

REF 10327

WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION.

SIGNATURES AND SEALS ONLY.

[signature]

Gordon J Lane

I hereby certify that the requirements of the Local Government Act, 1919 (other than the requirements for registration of plans); have been complied with by the applicant in relation to the proposed subdivision and new road(s) set out herein.

Subdivision No. 3165 Date 29/11/65

Council Clerk: Gordon J Lane

Approved by Council

The Common Seal of the Council of the

was hereunto affixed on 29/11/65 pursuant to a resolution

of Council dated the 17th

Council Clerk: Gordon J Lane

Mayor/President: [signature]

CONVERSION TABLE ADDED IN REGISTRAR GENERAL'S DEPARTMENT

DP 225350 SH 1/2

FEET	INCHES	METRES
-	8	0.203
-	11 3/4	0.298
1	6	0.457
1	6 3/4	0.476
3	4 1/4	1.022
5	-	1.524
5	2 1/2	1.588
5	11 1/4	1.810
5	11 3/4	1.822
6	4	1.930
8	-	2.438
8	4 3/4	2.559
8	10	2.692
10	-	3.048
11	8 3/4	3.575
11	9	3.581
12	10 3/4	3.931
12	11 1/4	3.943
12	11 3/4	3.956
14	1 3/4	4.312
20	-	6.096
24	6	7.468
24	10 1/4	7.576
25	-	7.620
25	1 1/2	7.658
25	8 1/2	7.836
26	11 1/4	8.211
27	9	8.458
30	-	9.144
31	11	9.728
33	-	10.058
53	10 1/2	16.421
55	6 1/4	16.923
56	8 1/2	17.285
59	0 3/4	18.002
60	-	18.288
66	-	20.117
69	1 1/2	21.069
74	9 1/2	22.797
75	-	22.860
76	8 3/4	23.387
80	-	24.384
83	-	25.298
83	4	25.400
91	4	27.838
100	-	30.480
106	11	32.588
115	-	35.052
122	11 1/4	37.471
124	7 3/4	37.992
124	9 1/2	38.037
140	-	42.672
150	-	45.720
160	5 1/4	48.901
179	7 1/2	54.750
208	-	63.398
223	11	68.250
243	6	74.270
245	2	74.727
249	7 1/4	76.079
257	11 3/4	78.632
290	-	88.392
300	-	91.440
309	9 1/2	94.425
312	6 1/2	95.263
345	7	104.724
346	10	105.715
349	6 1/2	106.540
377	10	115.164
415	-	126.492
440	1	134.137
450	-	137.160
476	7 3/4	145.282
575	5 1/4	175.393
701	10 3/4	213.938
740	-	225.552
761	4	232.054

CONVERSION TABLE ADDED IN REGISTRAR GENERAL'S DEPARTMENT

DP 225350 SH 1/2 CONTD

FEET	INCHES	METRES
768	9	234.315
787	-	239.878
820	-	249.936
2795	9 1/2	852.197

AC	RD	P	SQ M
1	-	5 1/4	4180
1	1	8	5261
1	1	28 1/2	5779
1	1	35 1/2	5956
1	3	9 3/4	7329
1	3	12	7386
1	3	17 1/2	7525

AC	RD	P	HA
19	3	14 1/2	8.029

CONVERSION TABLE ADDED IN REGISTRAR GENERAL'S DEPARTMENT

DP 225350 SH 2/2

FEET	INCHES	METRES
-	11 3/4	0.298
1	2	0.356
1	2 1/4	0.362
1	3 1/2	0.394
1	6	0.457
1	6 1/4	0.464
1	6 3/4	0.476
1	7	0.483
3	1	0.940
5	-	1.524
5	10	1.778
5	10 3/4	1.797
6	-	1.829
6	4	1.930
8	-	2.438
8	1	2.464
8	8 3/4	2.661
9	11 1/2	3.035
10	-	3.048
10	0 1/4	3.054
10	0 1/2	3.061
10	1 1/8	3.077
10	1 1/4	3.080
10	7 1/2	3.239
11	9	3.581
11	10 1/2	3.620
12	-	3.658
12	10 1/8	3.915
13	-	3.962
13	4 1/8	4.067
13	11 1/2	4.255
14	0 1/4	4.274
14	0 1/2	4.280
15	-	4.572
15	8 3/4	4.794
16	9 1/2	5.118
17	0 1/4	5.188
20	-	6.096
21	3 1/2	6.490
21	4	6.502
21	4 1/2	6.515
21	4 3/4	6.521
23	-	7.010
24	6	7.468
24	8 1/8	7.522
25	0 3/4	7.766
26	1 1/4	7.957
26	3 1/8	8.004
27	8	8.433
28	11	8.814
30	-	9.144
30	8 1/8	9.350
30	9 1/2	9.385
31	4	9.550
31	11	9.728
32	8 7/8	9.979
32	9 3/4	10.001
34	3	10.439
47	11 1/2	14.618
50	-	15.240
54	2 1/4	16.516
61	11	18.672
66	-	20.117
69	1 1/2	21.069
69	3 1/2	21.120
73	10 1/4	22.511
75	-	22.860
80	-	24.384
85	-	25.908
87	6	26.670
87	9 3/4	26.765
91	8 1/4	27.946
100	-	30.480
104	1 3/4	31.744
116	8 3/4	35.579
120	-	36.576
122	5 1/2	37.325

CONVERSION TABLE ADDED IN REGISTRAR GENERAL'S DEPARTMENT

DP 225350 SH 2/2 CONTD

FEET	INCHES	METRES
124	5 1/2	37.935
131	7 3/4	40.126
150	-	45.720
176	11 3/4	53.943
190	11 1/4	58.198
195	0 1/2	59.449
214	11 3/4	65.526
233	11 3/4	71.317
245	2	74.727
257	11 3/4	78.632
269	5 5/8	82.134
300	-	91.440
301	-	91.795
313	8 1/4	95.612
361	4 1/4	110.141
364	9 1/2	111.189
382	6 1/2	116.599
403	10	123.088
472	-	143.866
481	4 1/2	146.723
655	11	199.923
740	-	225.552
755	11 1/2	230.416
820	-	249.936
834	9	254.432
2795	9 1/2	852.157

AC	RD	P	SQ M
1	-	5 1/4	4180

AC	RD	P	HA
5	-	4 3/4	2.035
28	2	3 1/4	11.54

PLAN FORM 2 — Plan Drawing only to appear in this space — OFFICE USE ONLY

DP 818981

SIGNATURE AND SEALS ONLY

Director

The Common Seal of Homebush Export Meat Co. Pty Ltd A.C.N 000977024 was hereto affixed in the presence of

Secretary

SIGNED SEALED AND DELIVERED by the COMMERCIAL DEVELOPMENT MANAGER as delegate of the MINISTER FOR PUBLIC WORKS in the presence of:

EDWARD K. HARVEY
(print name)

(print name)

Crown Lands Office Approval

Council Clerk's Certificate

SUBDIVISION INCLUDING NEW ROAD

17/92

17-7-92

Council File No: 20/305 Pt

SURVEYORS REFERENCE 34316 (10)

- (W) EASEMENT FOR ELECTRICITY PURPOSES 2 WIDE
- (Ø) EASEMENT TO DRAIN WATER 5 WIDE & VARIABLE
- PROPOSED EASEMENT FOR TRANSMISSION LINES VAR WIDTH VIDE D.P 620943
- (X) EASEMENT TO DRAIN WATER 7 & 3 WIDE VIDE D.P 774130
- RIGHT OF CARRIAGEWAY VAR WIDTH VIDE J 886626, K 644565, K 872955
- RIGHT OF WAY VAR WIDTH VIDE CS12626
- (Y) RIGHT OF FOOTWAY 4 WIDE & VARIABLE WIDTH
- * DENOTES STEEL FENCE POST AT CORNER
- EASEMENT FOR ELECTRICITY PURPOSES 3 WIDE VIDE D.P 590090
- (Z) EASEMENT FOR WATER DETENTION 20 WIDE

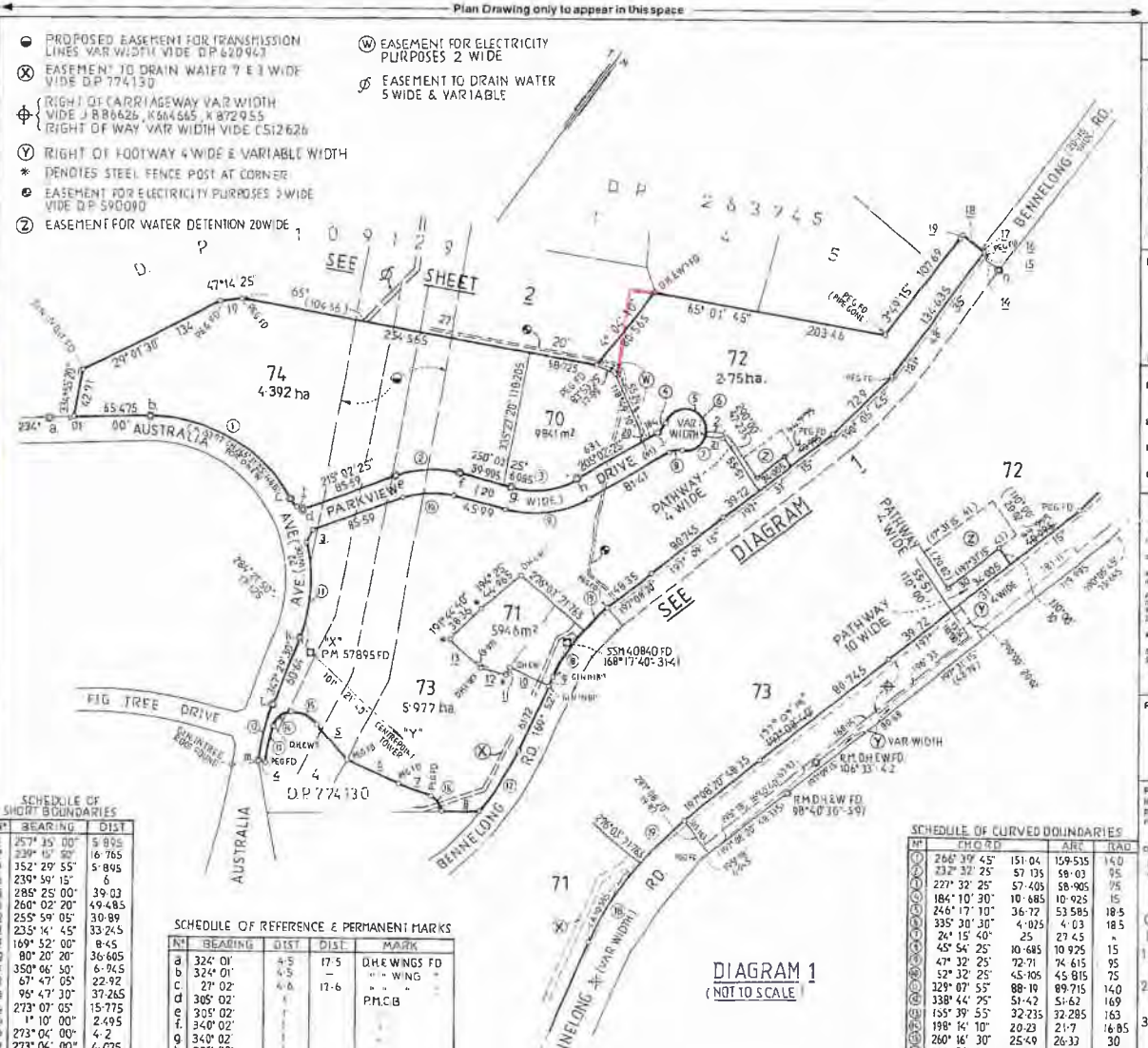


DIAGRAM 1
(NOT TO SCALE)

SCHEDULE OF SHORT BOUNDARIES

N°	BEARING	DIST
1	257° 35' 00"	5·995
2	239° 15' 20"	16·765
3	352° 29' 55"	5·845
4	239° 59' 15"	6
5	285° 25' 00"	39·03
6	260° 02' 20"	49·485
7	255° 59' 05"	30·89
8	235° 14' 45"	33·245
9	169° 52' 00"	8·45
10	80° 20' 20"	36·605
11	350° 06' 50"	6·945
12	67° 47' 05"	22·92
13	96° 47' 30"	37·265
14	273° 07' 05"	15·775
15	1° 10' 00"	2·495
16	273° 04' 00"	4·2
17	273° 04' 00"	4·075
18	93° 04' 00"	23·155
19	359° 07' 00"	2·475
20	155° 27' 20"	10·2
21	59° 15' 50"	15·305

SCHEDULE OF REFERENCE & PERMANENT MARKS

N°	BEARING	DIST	DIST	MARK
a	324° 01'	4·5	17·5	D.H.E WINGS FD
b	324° 01'	4·5	—	" " WING "
c	27° 02'	4·6	17·6	" " " "
d	305° 02'			P.M.C.B
e	305° 02'			"
f	340° 02'			"
g	340° 02'			"
h	295° 02'			"
j	295° 02'			"
k	77° 29' 30"	4·5	17·8	D.H.E WINGS FD
l	77° 29' 30"	4·5	17·5	D.H.E WINGS FD
m	53° 06' 30"	4·57	17·78	" " " "
n	93° 07'	4·835	—	D.H.E WING FD

SCHEDULE OF CURVED BOUNDARIES

N°	CHORD	ARC	RAD
①	266° 39' 45"	151·04	159·535	140
②	232° 32' 25"	57·135	58·03	95
③	227° 32' 25"	57·405	58·905	95
④	184° 10' 30"	10·685	10·925	15
⑤	246° 17' 10"	36·72	53·585	185
⑥	335° 30' 30"	4·025	4·03	185
⑦	24° 15' 40"	25	27·45	"
⑧	45° 54' 25"	10·685	10·925	15
⑨	232° 32' 25"	72·71	74·615	95
⑩	52° 32' 25"	45·105	45·815	75
⑪	329° 07' 55"	88·19	89·715	140
⑫	338° 44' 25"	51·42	51·62	169
⑬	155° 39' 55"	32·235	32·285	163
⑭	198° 14' 10"	20·23	21·7	16·85
⑮	260° 16' 30"	25·49	26·33	30
⑯	290° 36' 55"	16·31	17·345	14·35
⑰	177° 27' 55"	63·465	63·65	240
⑱	178° 29' 35"	47·995	48·175	160
⑲	192° 07' 45"	27·965	27·98	"

Registered 31 T 1992
CA N° 17/92 OF 17 T 1992
Title System TORRENS
Purpose SUBDIVISION
Ref Map U0052-93
Last Plan DP 774130

PLAN OF SUBDIVISION OF LOT 5 IN D.P 774130 & EASEMENT TO DRAIN WATER OVER LOT 1 D.P 540955 & LAND IN D.P 109129
Lengths are in metres. Reduction Ratio 1: 2500

Mun./Shire/City: AUBURN
Locality: HOMEBUSH
Parish: CONCORD
County: CUMBERLAND

This is sheet 1 of my plan in 2 Sheets. (Delete if inapplicable)

GEOFFREY HAYWARD LITTLE of HILLS, BLUME P/L 192 CROWN ST WOOLLOOMOOLOO

a surveyor registered under the Surveyors Act, 1929, as amended, hereby certify that the survey represented in this plan

is accurate and has been made in accordance with the Survey Practice Regulations, 1933 and any special requirements of the Department of Lands, and was completed on

1-6-92

Signature: [illegible]
Surveyor registered under the Surveyors Act, 1929, as amended
Datum Line of Azimuth: [illegible]
Known side of survey: [illegible]

Plans used in preparation of survey/compilation
DP 774130, DP 219674, DP 221477, DP 540955

PANEL FOR USE ONLY (for statements of intention to dedicate public roads or to create public reserves, drainage reserves, easements or restrictions as to use)

IT IS INTENDED TO DEDICATE PARKVIEW DRIVE 20 WIDE & VAR WIDTH & THE PATHWAY 10 & 4 WIDE TO THE PUBLIC *

PURSUANT TO SEC 88B OF THE CONVEYANCING ACT 1919-1964 IT IS INTENDED TO CREATE:
1) RIGHT OF FOOTWAY 4 WIDE & VARIABLE WIDTH
2) EASEMENT FOR ELECTRICITY PURPOSES 2 WIDE
3) EASEMENT FOR WATER DETENTION 20 WIDE
4) EASEMENT TO DRAIN WATER 5 WIDE & VARIABLE

* SUBJECT TO EASEMENT FOR ELECTRICITY PURPOSES 2 WIDE CREATED BY D.P 590090 ACCEPTED BY COUNCIL CLERK

WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION

This negative is a photograph made as a permanent record of a document in the custody of the Registrar General this day. 4th August 1992

10 20 30 40 50 60 70 Table of mm 110 120 130 140

Req:R539373 /Doc:DP 0818981 P /Rev:13-Jan-1993 /Sts:OK OK /Prt:17-Nov-2007 19:58 /Pgs:ALL /Seq:2 of 2
Ref:OITMAA /Src:B

PLAN FORM 3

To be used in conjunction with Plan Form 2

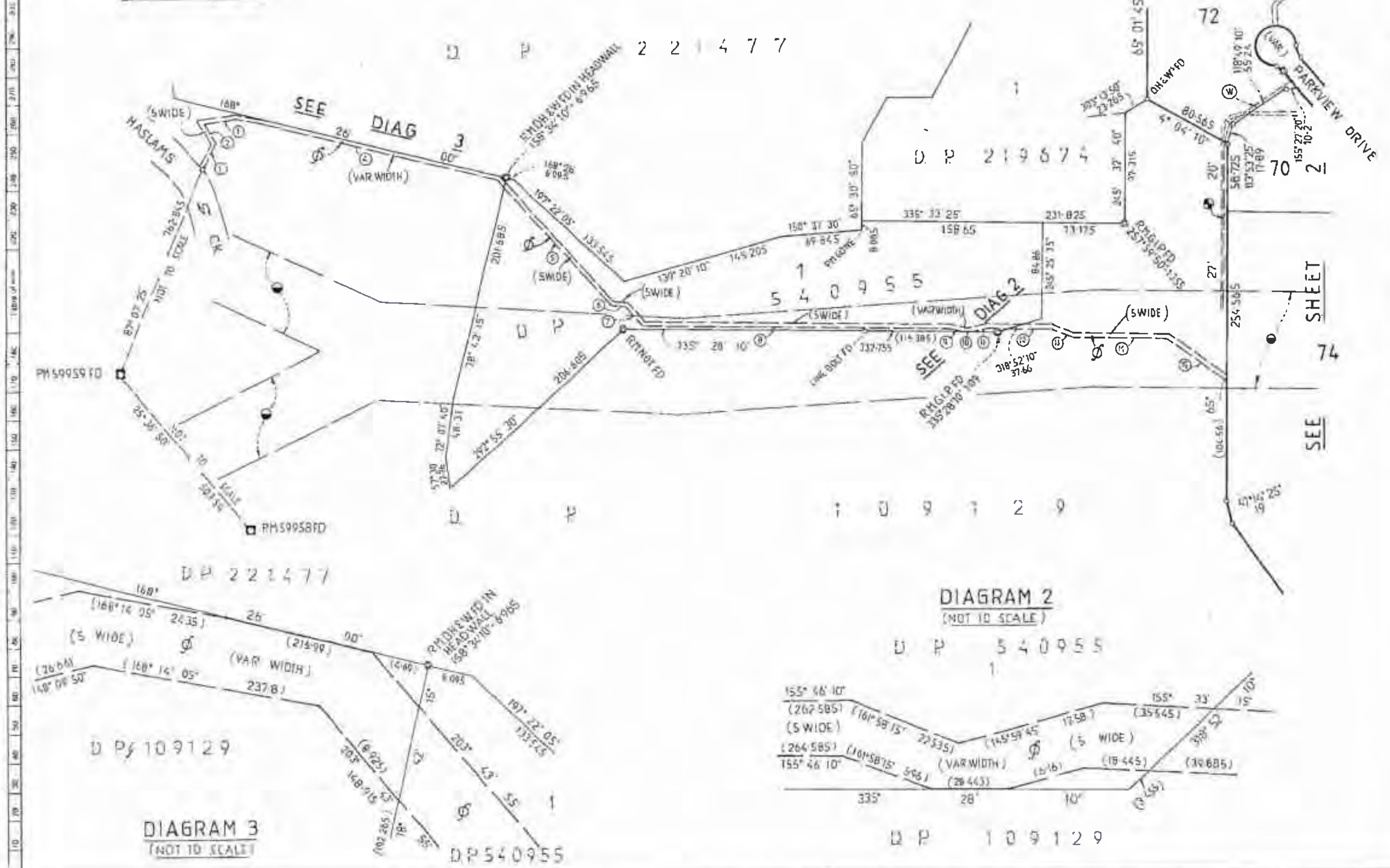
WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION

OFFICE USE ONLY

SCHEDULE OF EASEMENT BOUNDARIES

Nº	BEARING	DIST.
①	89° 40' 45"	28·01
②	27° 43' 45"	18·505
③	148° 09' 50"	26·66
④	168° 14' 05"	237·8
⑤	203° 43' 55"	148·915
⑥	157° 11' 20"	11·995
⑦	204° 37' 40"	21·2
⑧	155° 46' 10"	264·585
⑨	161° 58' 15"	5·96
⑩	155° 28' 10"	28·445
⑪	145° 59' 45"	6·16
⑫	155° 33' 15"	58·33
⑬	176° 21' 40"	21·345
⑭	154° 56' 55"	81·52
⑮	188° 41' 40"	65·925

Ⓦ EASEMENT FOR ELECTRICITY PURPOSES 2 WIDE
Ⓔ EASEMENT FOR ELECTRICITY PURPOSES 2 WIDE (DP590090)
◐ PROPOSED EASEMENT FOR TRANSMISSION LINES VAR. WIDTH VIDE D.P. 620943
Ø EASEMENT TO DRAIN WATER 5 WIDE & VARIABLE



DP 818981

Registered 31.7.1992

This is sheet 2 of my plan in 2 sheets

This is sheet 2 of the plan of SUBDIVISION ... LOT 5 D.P. 774130

Council Clerk

THE COMMON SEAL of HOMEBUSH BAY MINISTERIAL CORPORATION was hereunto affixed in the presence of:-

General Manager

G.J. CROUCH
(PRINT NAME)

Deputy General Manager

T. HUKINS
(PRINT NAME)

Reduction Ratio 1: 2500

Plan Drawing only to appear in this space

SURVEYOR'S REFERENCE: 34316 (10)

10	20	30	40	50	60	70 Table of mm	110	120	130	140

This negative is a photograph made as a permanent record of a document in the custody of the Registrar General this day 4th August 1992

2

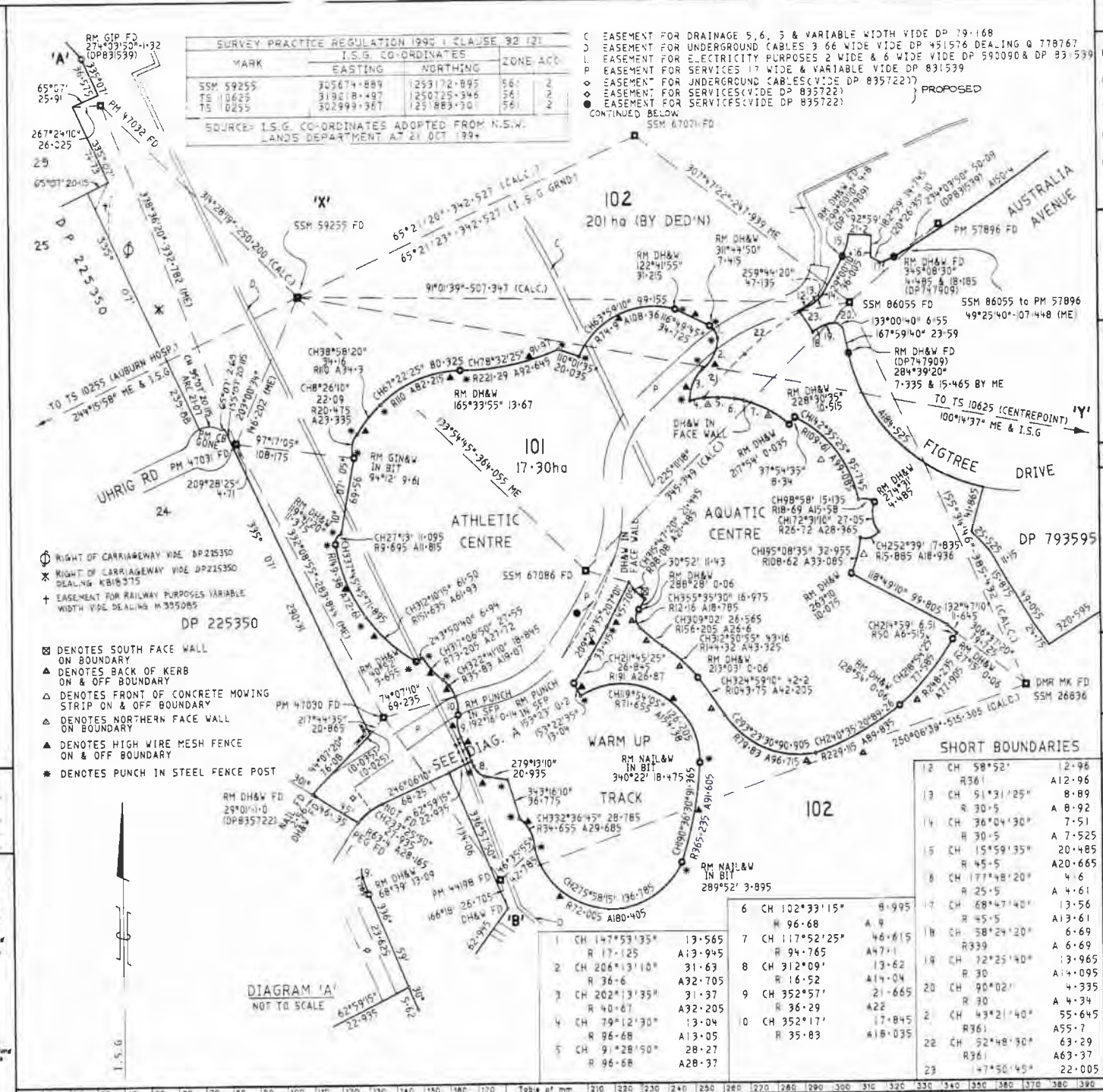
Req:R539373 /Doc:DP 0818981 P /Rev:13-Jan-1993 /Sts:OK.OK /Prt:17-Nov-2007 19:58 /Pgs:ALL /Seq:1 of 2
Ref:OITMAA /Src:B

PLAN FORM 2

Plan Drawing only to appear in this space

*OFFICE USE ONLY

Signatures, seals and statements of intention to dedicate public roads or to create public reserves, drainage reserves, easements, restrictions on the use of land or positive covenants.



Crown Lands Office Approval

PLAN APPROVED ..... Authorised Officer

Land District .....

Paper No. .....

Field Book ..... pages .....

Council Certificate

I hereby certify that :-

(a) the requirements of the Local Government Act, 1993 (other than the requirements for the registration of plans), and

* (b) the requirements of † Part 3 Division 2 of the Water Board Act 1987, or † Part 5 Division 1 of the Hunter Water Board (Corporatisation) Act 1991

have been complied with by the applicant in relation to the proposed †..... set out hereon

Subdivision No. .....

Date .....

(Signature) ..... General Manager/authorised person

Council File No. .....

* This part of certificate to be deleted where the application is only for a consolidated lot or the opening of a new road or where the land is to be subdivided is wholly outside the areas of operations of the Water Board and the Hunter Water Corporation Ltd.

† Insert "new road", "subdivision" or "consolidated lot"

‡ Delete if inapplicable.

DP 849975

Registered: 7 6 1995

C.A.:

Title System: TORRENS

Purpose: SUBDIVISION

Ref.Map: U0045-22 U0052-82.84.91.93

Last Plan: DP 225350 DP831539, DP835722

PLAN OF SUBDIVISION OF LOT 1 DP 831539, LOT 1 DP 835722 AND LOT 31 DP 225350

Lengths are in metres. Reduction Ratio 1:2500

L.G.A.: AUBURN

Locality: HOMEBUSH

Parish: CONCORD

County: CUMBERLAND

This is sheet 1 of my plan in 3 sheets. (Delete if inapplicable).

I JOHN CHARLES HUGHES of "HARD AND FORESTER P/L" at 52 FREDERICK ST. ROSEDALE 2216 a surveyor registered under the Surveyors Act 1929, hereby certify that the survey represented in this plan is accurate, has been made in accordance with the Survey Practice Regulation 1990 and was completed on 27th OCTOBER 1994

Signature .....

Surveyor registered under the Surveyors Act 1929.

Datum Line: 'X' - 'Y' (I.S.G) & 'A' - 'B'

Bearing: Azimuth

(insert date of survey)

Plans used in preparation of survey / compilation

DP 835722 DP 229640 DP 643434
DP 831539 DP 620943 DP 499007
DP 219096 DP 590090 DP 499008
DP 451576 DP 620949 DP 430149
DP 774930 DP 109129 DP 106717
DP 818981 DP 106356 DP 225350

PANEL FOR USE ONLY for statements of intention to dedicate public roads or to create public reserves, drainage reserves, easements, restrictions on the use of land or positive covenants.

HOMEBUSH BAY - OLYMPICS 2000

LOT 101 PROPOSED TO BE LEASED

LOT 102 PROPOSED TO BE ACQUIRED

SURVEYOR'S REFERENCE: B278AAAC/AAAE.GDI CHECKLIST: PDP 2752

WARNING : CREASING OR FOLDING WILL LEAD TO REJECTION

P.W.D. FILE :

P.W.D. PLAN : SB 51993

SB 51993

Req:R539374 /Doc:DP 0849975 P /Rev:16-Jun-1995 /Sts:OK.OK /Prt:17-Nov-2007 19:58 /Pgs:ALL /Seq:1 of 3
Ref:OITMAA /Src:B

PLAN FORM 3

To be used in conjunction with Plan Form 2

WARNING : CREASING OR FOLDING WILL LEAD TO REJECTION

* OFFICE USE ONLY

(AA) LAND EXCLUDES MINERALS - J886627
(AH) RESERVATIONS & CONDITIONS IN CROWN GRANT
(AD) BENEFITED BY RIGHT OF WAY - LB270159
(AE) BENEFITED BY RIGHT OF CARRIAGEWAY - J886626
(AF) BENEFITED BY RIGHT OF CARRIAGEWAY - K554665
(AG) BENEFITED BY EASEMENT TO DRAIN WATER - K868355

1.5.6

DP 849975

Registered : add 7-6-1995

This is sheet 3 of my plan in 3 sheets
dated 27th OCTOBER 1994

Signature
Surveyor registered under Surveyors Act, 1929.

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

General manager/authorised person

L.G.A.: AUBURN
Locality: HOMEBUSH
Parish: CONCORD
County: CUMBERLAND

For use where space is insufficient in any panel on Plan Form 2.

S.B. 51993

Lengths are in metres. Reduction Ratio 1:800

PDP 2752

Plan Drawing only to appear in this space

SURVEYOR'S REFERENCE : 8278AAAC/AAAE G05

Req:R539374 /Doc:DP 0849975 P /Rev:16-Jun-1995 /Sts:OK.OK /Prt:17-Nov-2007 19:58 /Pgs:ALL /Seq:3 of 3
Ref:OITMAA /Src:B
S.B. 51993

PLAN FORM 3

To be used in conjunction with Plan Form 2

WARNING : CREASING OR FOLDING WILL LEAD TO REJECTION

OFFICE USE ONLY

DP 849975

Registered 7-6-95

This is sheet 2 of my plan in 3 sheets
dated 27th OCTOBER 1994

Signature
Surveyor registered under Surveyors Act, 1929.

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

General Manager/authorised person

L.G.A.: AUBURN

Locality: HOMEBUSH

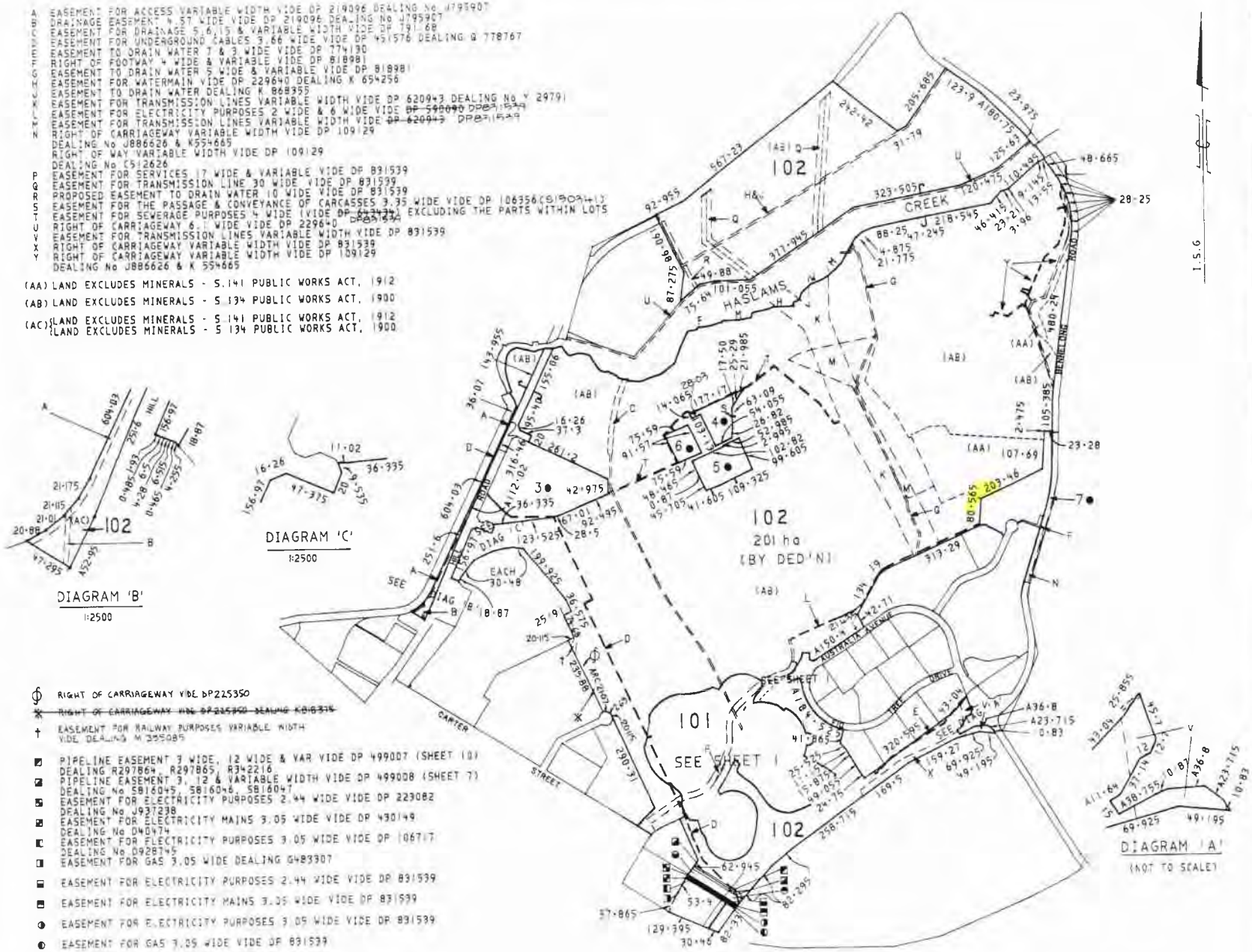
Parish: CONCORD

County: CUMBERLAND

For use where space is insufficient in any panel on Plan Form 2.

A EASEMENT FOR ACCESS VARIABLE WIDTH VIDE DP 219096 DEALING No J795907
B DRAINAGE EASEMENT 9.57 WIDE VIDE DP 219096 DEALING No J795907
C EASEMENT FOR DRAINAGE 5.6,15 & VARIABLE WIDTH VIDE DP 791.68
D EASEMENT FOR UNDERGROUND CABLES 3.66 WIDE VIDE DP 451576 DEALING Q 778767
E EASEMENT TO DRAIN WATER 7 & 3 WIDE VIDE DP 774130
F RIGHT OF FOOTWAY 4 WIDE & VARIABLE VIDE DP 818981
G EASEMENT TO DRAIN WATER 5 WIDE & VARIABLE VIDE DP 818981
H EASEMENT FOR WATERMAIN VIDE DP 229640 DEALING K 654256
J EASEMENT TO DRAIN WATER DEALING K 868355
K EASEMENT FOR TRANSMISSION LINES VARIABLE WIDTH VIDE DP 620943 DEALING No Y 297911
L EASEMENT FOR ELECTRICITY PURPOSES 2 WIDE & 6 WIDE VIDE ~~DP 590090~~ DP831539
M EASEMENT FOR TRANSMISSION LINES VARIABLE WIDTH VIDE ~~DP 620943~~ DP831539
N RIGHT OF CARRIAGEWAY VARIABLE WIDTH VIDE DP 109129
DEALING No J886626 & K554665
RIGHT OF WAY VARIABLE WIDTH VIDE DP 109129
DEALING No C512626
P EASEMENT FOR SERVICES 17 WIDE & VARIABLE VIDE DP 831539
Q EASEMENT FOR TRANSMISSION LINE 30 WIDE VIDE DP 831539
R PROPOSED EASEMENT TO DRAIN WATER 10 WIDE VIDE DP 831539
S EASEMENT FOR THE PASSAGE & CONVEYANCE OF CARCASSES 3.35 WIDE VIDE DP 106356 (S190341)
T EASEMENT FOR SEWERAGE PURPOSES 4 WIDE (VIDE DP ~~624347~~) EXCLUDING THE PARTS WITHIN LOTS
U RIGHT OF CARRIAGEWAY 6.1 WIDE VIDE DP 229640
V EASEMENT FOR TRANSMISSION LINES VARIABLE WIDTH VIDE DP 831539
X RIGHT OF CARRIAGEWAY VARIABLE WIDTH VIDE DP 831539
Y RIGHT OF CARRIAGEWAY VARIABLE WIDTH VIDE DP 109129
DEALING No J886626 & K 554665

(AA) LAND EXCLUDES MINERALS - S.141 PUBLIC WORKS ACT, 1912
(AB) LAND EXCLUDES MINERALS - S.134 PUBLIC WORKS ACT, 1900
(AC) LAND EXCLUDES MINERALS - S.141 PUBLIC WORKS ACT, 1912
LAND EXCLUDES MINERALS - S.134 PUBLIC WORKS ACT, 1900



RIGHT OF CARRIAGEWAY VIDE DP225350
~~RIGHT OF CARRIAGEWAY VIDE DP225350 DEALING K816315~~
EASEMENT FOR RAILWAY PURPOSES VARIABLE WIDTH VIDE DEALING M 355085
PIPELINE EASEMENT 3 WIDE, 12 WIDE & VAR VIDE DP 499007 (SHEET 8) DEALING R297864, R297865, R342216
PIPELINE EASEMENT 3, 12 & VARIABLE WIDTH VIDE DP 499008 (SHEET 7) DEALING No SB16045, SB16046, SB16047
EASEMENT FOR ELECTRICITY PURPOSES 2.44 WIDE VIDE DP 229082 DEALING No J937238
EASEMENT FOR ELECTRICITY MAINS 3.05 WIDE VIDE DP 430149 DEALING No D40174
EASEMENT FOR ELECTRICITY PURPOSES 3.05 WIDE VIDE DP 106717 DEALING No D928745
EASEMENT FOR GAS 3.05 WIDE DEALING G483307
EASEMENT FOR ELECTRICITY PURPOSES 2.44 WIDE VIDE DP 831539
EASEMENT FOR ELECTRICITY MAINS 3.05 WIDE VIDE DP 831539
EASEMENT FOR ELECTRICITY PURPOSES 3.05 WIDE VIDE DP 831539
EASEMENT FOR GAS 3.05 WIDE VIDE DP 831539
EASEMENT FOR TRANSMISSION LINE 30.48 WIDE DEALING No J930080
EASEMENT FOR TRANSMISSION LINE 30.48 WIDE VIDE DP 831539
DP 831539

Lengths are in metres. Reduction Ratio 1:8000

Plan Drawing only to appear in this space

SURVEYOR'S REFERENCE 8278AAAC/AAAE.G04

SB 51993

PDP 2752

Req:R539374 /Doc:DP 0849975 P /Rev:16-Jun-1995 /Sts:OK.OK /Prt:17-Nov-2007 19:58 /Pgs:ALL /Seq:2 of 3
Ref:OITMAA /Src:B

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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
20/11/2007 5:47PM

FOLIO: 72/818981

First Title(s): OLD SYSTEM
Prior Title(s): 5/774130

Recorded	Number	Type of Instrument	C.T. Issue
3/8/1992	DP818981	DEPOSITED PLAN	FOLIO CREATED EDITION 1
1/10/1992	E799640	WITHDRAWAL OF CAVEAT	
1/10/1992	E799641	WITHDRAWAL OF CAVEAT	
22/9/1993	I378527	REQUEST	
22/9/1993	I356058	REQUEST	
22/9/1993	I378525	APPLICATION	EDITION 2
8/12/1995	O738097	REQUEST	EDITION 3
25/8/1997	3350461	DEPARTMENTAL DEALING	
29/8/1997	DP870992	DEPOSITED PLAN	FOLIO CANCELLED

*** END OF SEARCH ***

oitmaa PRINTED ON 20/11/2007

LEGALSTREAM AUSTRALIA hereby certifies that the information contained in this document has been provided electronically by the Registrar General in accordance with Section 96B(2) of the Real Property Act, 1900.
*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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LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE
20/11/2007 5:45PM

FOLIO: 88/870992

First Title(s): OLD SYSTEM
Prior Title(s): 72/818981 102/849975

Recorded	Number	Type of Instrument	C.T. Issue
1/9/1997	DP870992	DEPOSITED PLAN	FOLIO CREATED EDITION 1
20/3/1998	3856206	LEASE	EDITION 2
30/12/1999	6461218	DEPARTMENTAL DEALING	
30/12/1999	6451582	REQUEST	EDITION 3
25/1/2002	8208818	APPLICATION	EDITION 4
5/6/2002	8631290	TRANSFER OF LEASE	
5/6/2002	8631291	SUB-LEASE	EDITION 5
2/2/2004	AA22827	REQUEST	
15/12/2005	AB885870	APPLICATION	
21/9/2007	AD419866	REQUEST	

*** END OF SEARCH ***

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LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: 88/870992

SEARCH DATE	TIME	EDITION NO	DATE
20/11/2007	5:45 PM	5	5/6/2002

LAND

LOT 88 IN DEPOSITED PLAN 870992
AT HOMEBUSH
LOCAL GOVERNMENT AREA AUBURN
PARISH OF CONCORD COUNTY OF CUMBERLAND
TITLE DIAGRAM DP870992

FIRST SCHEDULE

SYDNEY OLYMPIC PARK AUTHORITY (AP 8208818)

SECOND SCHEDULE (7 NOTIFICATIONS)

1 LAND EXCLUDES MINERALS (SEE SEC. 134 PUBLIC WORKS ACT, 1900) AFFECTING THE PART SHOWN SO BURDENED IN THE TITLE DIAGRAM

2 J886627 LAND EXCLUDES MINERALS (SEE SEC. 141 PUBLIC WORKS ACT, 1912) AFFECTING THE PART SHOWN SO BURDENED IN THE TITLE DIAGRAM

3 L827059 RIGHT OF WAY 20.115 WIDE APPURTENANT TO THE LAND ABOVE DESCRIBED AFFECTING LOTS 11 & 12 IN DP839591 & LOTS 10, 14 & 15 IN DP778665

4 DP818981 EASEMENT FOR ELECTRICITY PURPOSES 2 WIDE AFFECTING THE PART SHOWN SO BURDENED IN THE TITLE DIAGRAM

5 DP818981 EASEMENT FOR WATER DETENTION 20 WIDE AFFECTING THE PART SHOWN SO BURDENED IN THE TITLE DIAGRAM

6 3856206 LEASE TO SAMSUNG ELECTRONICS AUSTRALIA PTY LIMITED EXPIRES: 29/10/2096. OPTION OF RENEWAL: 99 YEARS.

8631290 TRANSFER OF LEASE 3856206 LESSEE NOW GPT MANAGEMENT LIMITED

8631291 LEASE OF LEASE 3856206 TO SAMSUNG ELECTRONICS AUSTRALIA PTY LIMITED EXPIRES: 2/5/2008. OPTION OF RENEWAL: 4 YEARS.

* AB885870 APPLICATION AFFECTING LEASE 3856206 LESSEE NOW GPT RE LIMITED

7 DP831539 EASEMENT FOR SERVICES 17 METRE(S) WIDE AND VARIABLE APPURTENANT TO THE LAND ABOVE DESCRIBED AFFECTING THE LAND DESIGNATED (P) IN DP831539

6451582 RELEASED IN SO FAR AS IT AFFECTS LOTS 5200 & 5201 IN DP1009021

END OF PAGE 1 - CONTINUED OVER

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WARNING: THE INFORMATION APPEARING UNDER NOTATIONS HAS NOT BEEN FORMALLY RECORDED IN THE REGISTER

LegalStream Australia Pty Ltd

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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 - TITLE SEARCH

FOLIO: 88/870992 PAGE 2

NOTATIONS

NOTE: THE CERTIFICATE OF TITLE FOR THIS FOLIO OF THE REGISTER DOES NOT INCLUDE SECURITY FEATURES INCLUDED ON COMPUTERISED CERTIFICATES OF TITLE ISSUED FROM 4TH JANUARY, 2004. IT IS RECOMMENDED THAT STRINGENT PROCESSES ARE ADOPTED IN VERIFYING THE IDENTITY OF THE PERSON(S) CLAIMING A RIGHT TO DEAL WITH THE LAND COMPRISED IN THIS FOLIO.
NOTE: 1997M8 SYDNEY SHOWGROUND & OLYMPIC SITE REFER TO ND13
UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

oitmaa PRINTED ON 20/11/2007

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***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

Photo 1: Aerial photo from 1949

Photo 2: Aerial photo from 1951

Douglas Partners Geotechnics / Environment / Groundwater	**Historical Photographs** **4 Murray Rose Avenue** **Sydney Olympic Park**	PROJECT: 45153.03 PLATE No: 1 REV: 0
	CLIENT: Lend Lease Building Pty Ltd	DATE: 15-Nov-13

Photo 3: Aerial photo from 1961

Photo 4: Aerial photo from 1965

Douglas Partners Geotechnics / Environment / Groundwater	**Historical Photographs** **4 Murray Rose Avenue** **Sydney Olympic Park**	PROJECT: 45153.03 PLATE No: 2 REV: 0
	CLIENT: Lend Lease Building Pty Ltd	DATE: 15-Nov-13

Photo 5: Aerial photo from 1970

Photo 6: Aerial photo from 1982

Douglas Partners Geotechnics / Environment / Groundwater	**Historical Photographs** **4 Murray Rose Avenue** **Sydney Olympic Park**	PROJECT: 45153.03 PLATE No: 3 REV: 0
	CLIENT: Lend Lease Building Pty Ltd	DATE: 15-Nov-13

Photo 7: Aerial photo from 1991

Photo 8: Aerial photo from 1998

Douglas Partners Geotechnics / Environment / Groundwater	**Historical Photographs** **4 Murray Rose Avenue** **Sydney Olympic Park**	PROJECT: 45153.03 PLATE No: 4 REV: 0
	CLIENT: Lend Lease Building Pty Ltd	DATE: 15-Nov-13

Photo 9: Aerial photo from 2009

Photo 10: Aerial photo from 2013

Douglas Partners Geotechnics / Environment / Groundwater	**Historical Photographs** **4 Murray Rose Avenue** **Sydney Olympic Park**	PROJECT: 45153.03 PLATE No: 5 REV: 0
	CLIENT: Lend Lease Building Pty Ltd	DATE: 15-Nov-13

Healthy Environment, Healthy Community, Healthy Business

Search results

Your search for: LGA: Auburn Council

Matched 58 notices relating to 12 sites.

Search Again

Refine Search

Suburb	Address	Site Name	Notices related to this site
Auburn	Short and Junction Streets	Ajax Chemical Factory	2 former
Homebush Bay	Olympic Boulevard	Aquatic Centre Car Park	1 current and 8 former
Homebush Bay	Bennelong Road	Bicentennial Park	1 current and 2 former
Homebush Bay	Hill Road	Haslams Creek South Area 3	1 current and 3 former
Homebush Bay	Kevin Coombs Avenue	Haslams Creek South Areas 1 and 2	1 current and 13 former
Homebush Bay	No specific Street	Homebush Bay General Area	2 former
Homebush Bay	Australia Avenue	State Sports Centre	1 current and 6 former
Homebush Bay	25 Bennelong Road	Timber Treatment Plant	4 former
Newington	Bennelong Road	Landfill - North Newington	2 current and 3 former
Silverwater	Jamieson Street	Auburn Landfill	2 current and 2 former
Silverwater	Jamieson Street	Silverwater Transport Unit	1 former
Silverwater	Silverwater Road	Wilson Park	4 current and 6 former

NSW Environment Protection A

19 November 2013

WorkCover
NEW SOUTH WALES

DOUGLAS PARTNERS
26 OCT 2010

Our Ref: D10/144458
Your Ref: Tim Carrick

25 October 2010

Attention: Caitlyn Falla/Scott Easton
Douglas Partners Pty Ltd
PO Box 472
West Ryde NSW 1685

Dear Mr Choo,

RE SITE: 7 Parkview Drive Sydney Olympic Park

I refer to your site search request received by WorkCover NSW on 22 October 2010 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 NSW has not located any records pertaining to the above-mentioned premises.

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

Yours Sincerely

Brent Jones

Senior Licensing Officer
Dangerous Goods Team

Appendix D

Sampling and Analysis Quality Plan

Douglas Partners Pty Ltd
ABN 75 053 980 117
www.douglaspartners.com.au
96 Hermitage Road
West Ryde NSW 2114
PO Box 472
West Ryde NSW 1685
Phone (02) 9809 0666
Fax (02) 9809 4095

Project 45153.03
25 September 2013
PMO

Lend Lease Building Pty Ltd
30 The Bond
30 Hickson Road
MILLERS POINT NSW 2000

Attention: Ms Johanna Nolan

Dear Sirs

Sampling and Analysis Quality Plan
Proposed Commercial Development
4 Murray Rose Avenue, Sydney Olympic Park

1. Introduction

This Sampling and Analysis Quality Plan (SAQP) has been prepared for a proposed Detailed Site Investigation (Contamination) at 4 Murray Rose Avenue, Sydney Olympic Park. The work was commissioned by Lend Lease Building Pty Ltd, development managers and builders.

The project involves the construction of a five to six-storey commercial office building over a three-level basement. Bulk excavation to approximately RL 2 relative to Australian Height Datum (AHD) is proposed. Detailed Site Investigation is required to confirm that the site is suitable for the new development and to delineate any areas on the greater site which may require remediation prior to or during the development works.

The scope of the Detailed Site Investigation has been prepared with reference to the newly adopted National Environment Protection Measure (NEPM) guidelines where possible. However, it is noted that the scope of the investigation was largely prepared prior to the formal adoption of the NEPM guidelines and therefore *Contaminated Sites: Guidelines for the NSW Site Auditor Scheme* (NSW DECC, 2006) has also been used where relevant. This is approach is understood to be acceptable to the NSW EPA as both these guidelines remain current and legally acceptable under the *Contaminated Land Management Act 1997.*

2. Purpose of Detailed Site Investigation

A Detailed Site Investigation was commissioned by Lend Lease Building to aid in the management of contamination risks associated with the site. Previous assessments on adjacent sites have indicated the presence of elevated levels of contaminants within filling and groundwater, and confirmation of the contaminant characteristics of the current development site is now required.

The proposed investigation components of the Detailed Site Investigation are described in the following sections.

3. Summary of Conceptual Site Model

The site forms part of a former warehouse and office building that was constructed in the mid-1990s. Prior to that, it had been used as part of an abattoir with commercial buildings known to have been present on the site. Previous investigations on adjacent sites to the north have encountered elevated levels of heavy metals in filling, and volatile organic compounds and petroleum hydrocarbons within the groundwater. No sources of the groundwater contamination have been identified.

The Conceptual Site Model (CSM) has therefore been developed on the basis of the information currently available. Potential soil contamination may be present as a result of:

- Placement of filling on the site;
- Previously contaminating activities associated with its previous use as part of the abattoir and later as a commercial warehouse; and
- Naturally occurring metals in the soils and rock underlying the site.

Potential groundwater contamination may be present as a result of:

- Storage of chemicals on the site in the past; and
- Migration of diffuse sources of contamination onto the site.

Soil vapour intrusion is currently considered to be a very low risk on the site and will only be considered if significant concentrations of volatile contaminants are encountered during the assessment.

The human receptors to soil and groundwater contamination are likely to be the occupants of and visitors to the proposed commercial building. Construction personnel and nearby workers may also be receptors during the construction phase of the development project.

The ecological receptors are likely to be limited to the flora and fauna that grow/live on areas of the site in which vegetation is proposed. The area is not known to be ecologically significant.

Exposure pathways are expected to be limited to dermal contact with soils and groundwater on the site by humans, ingestion of soils and vegetation by fauna, and phytotoxic exposure to flora.

4. Data Quality Objectives

This SAQP has been devised in general accordance with the seven-step data quality objective (DQO) process outlined in Australian Standard AS 4482.1 – 2005 *Guide to the investigation and sampling of sites with potentially contaminated soil – Part 1: Non-volatile and semi-volatile compounds*. The DQO process is outlined below.

(a) State The Problem

The site is to be redeveloped into a multi-storey commercial office building with basement parking levels. Detailed Site Investigation is required to assess the risks associated with redeveloping and continuing to use the site so that appropriate allowances and remediation measures can be provided as part of the works, if necessary.

(b) Identify the Decision

No specific areas of potential concern were identified on the site during the development of this SAQP and therefore a systematic sampling pattern, incorporating sampling in areas of the site that were accessible, was determined to be the most suitable approach for sampling.

The site is near-rectangular and approximately 4,000 m^2 in area. The site is primarily on part of Lot 88 in Deposited Plan 870992 in the Parish of Concord, County of Cumberland. A portion of the site is on the adjacent Lot 70 in DP 818981, Lot 70 in DP 1134933 and Lot 1 in DP 1122970, although it is understood that the lot boundaries will ultimately be altered to reflect the layout of the new development. A site location plan is shown in Figure 1.

Figure 1: Approximate location of site with respect to current lot boundaries

A sampling frequency of 12 sampling points on the 4,000 m^2 site is considered appropriate based on Table A of *Contaminated Sites: Sampling Design Guidelines* (NSW EPA, 1995). This frequency should be able to detect a contamination hot spot of 22.5 m diameter with 95% confidence.

Further information on the proposed sampling locations and suite of potential contaminants to be analysed is included in Sections 5 to 7 of this SAQP.

(c) Identify Inputs to the Decision

The primary inputs in assessing the presence of contamination on the site will be:

- The information available from previous nearby investigations;
- Field observations;
- Laboratory test results; and
- Published guidelines appropriate for the proposed land use (commercial/industrial).

(d) Define the Boundary of the Assessment

The boundary of the assessment is shown in Figure 1. The portions of the individual lots were identified in (b) above.

(e) Develop a Decision Rule

The decision rule is based on the following documents:

- NSW EPA (1995); *Contaminated Sites: Sampling Design Guidelines*; and
- NEPC (2013), *National Environment Protection (Assessment of Site Contamination) Measure, Schedule B1 – Guideline on Investigation Levels for Soil and Groundwater*. The site is assumed to be a commercial/industrial site for the health-based components of the assessment. The site categories for the ecological-based components will be determined during the assessment (i.e. determined from soil types, pH and assumed cation exchange capacities of the soils encountered).

(f) Specify Acceptable Limits on Decision Errors

Appropriate quality assurance and quality control measures will be incorporated into the sampling and testing regime to ensure the quality of the assessment data. These measures are outlined in Section 8 of this SAQP.

(g) Optimise the Design for Obtaining Data

The soil sampling locations have been selected based site accessibility, as described above. Samples will be collected from different depths in the boreholes and samples will be selected for analysis to ensure a spread of depths are analysed, where relevant.

Groundwater wells will be installed in four of the deeper geotechnical bores to enable up-gradient and down-gradient samples to be collected.

The procedures for collecting samples will be in general accordance with NEPM, EPA guidelines and/or industry best-practice. Only laboratories accredited by the National Association of Testing Authorities (NATA) will be used to analyse samples.

5. Proposed Sampling Locations

The proposed sampling points are shown on the attached sketch.

6. Proposed Sampling Methodology

Soil samples will be collected at regular depth intervals until natural soils are encountered or the rig refuses. Environmental sampling will be performed in general accordance with the standard procedures outlined in the *Douglas Partners Field Procedures Manual*. All sampling data will be recorded on chain of custody information sheets. The soil sampling programme will generally include:

- Soil sampling using disposable equipment and/or equipment that has been decontaminated using a phosphate-free detergent;
- Placement of soil samples into laboratory prepared jars and immediate capping;
- Labelling of soil sample jars/bags with individual and unique markings including project number, sample location, sample depth and date of sampling; and
- Storage of soil sample jars in a cooled, insulated and sealed container for transport to the laboratory.

The groundwater sampling programme will generally include:

- Water sampling using equipment that has been decontaminated using a phosphate-free detergent;
- Placement of water samples into laboratory prepared bottles with appropriate preservatives (where required) and immediate capping;
- Labelling of water sample bottles with individual and unique markings including project number, sample location and date of sampling; and

- Storage of water sample bottles in a cooled, insulated and sealed container for transport to the laboratory.

In addition, a laboratory prepared blank sample and spiked sample will be collected and carried throughout the field work to provide an indication of the potential loss of volatile hydrocarbons and to assess the adequacy of the sample handling and storage methods adopted for the assessment. Rinsate samples will also be collected by rinsing decontaminated soil and water sampling equipment with demineralised water to assess the effectiveness of the decontamination process.

7. Proposed Laboratory Testing Programme

Selected soil samples collected during the field work will be sent to NATA accredited analytical laboratories and analysed for the following potential contaminants:

- Priority heavy metals (As, Cd, Cr, Cu, Pb, Hg, Ni and Zn);
- Total recoverable hydrocarbons (TRH);
- Monocyclic aromatic hydrocarbons (BTEX);
- Polycyclic aromatic hydrocarbons (PAH);
- Organochlorine pesticides (OCP);
- Organophosphorus pesticides (OPP);
- Polychlorinated biphenyls (PCB);
- Phenols; and
- Asbestos.

The number of samples tested will depend on the subsurface conditions encountered during the field work. It is envisaged that, on average, two soil samples from each sampling location will be tested.

The water samples will also be tested for the contaminants listed above (excluding asbestos), plus volatile organic compounds (VOC).

8. Quality Assurance Plan

8.1 Quality assurance & quality control in the field

Douglas Partners' quality assurance (QA) and quality control (QC) procedures will be adopted throughout the field sampling programme to ensure sampling precision and accuracy and to prevent cross-contamination. We will check sampling accuracy and precision through the analysis of triplicate samples in the primary analytical laboratory and a secondary analytical laboratory. The potential for

cross-contamination and loss of volatile compounds will be assessed using trip blank and trip spike samples.

Appropriate sampling procedures will be undertaken to ensure that cross-contamination does not occur as outlined in the *Douglas Partners Field Procedures Manual*. This specifies that:

- Standard operating procedures are to be followed;
- Site safety plans are to be developed prior to commencing the works;
- Triplicate field samples are to be collected and analysed;
- Samples are to be stored under secure, temperature-controlled conditions;
- Chain of custody documentation is to be employed for the handling, transport and delivery of samples to the selected laboratory; and
- Contaminated filling, soil and groundwater originating from the site is to be disposed of in accordance with relevant regulatory guidelines.

8.2 Quality assurance & quality control in the laboratory

The analytical laboratories used during the assessment will conduct in-house QA/QC procedures including:

- Analysis of reagent blanks;
- Spike recovery analysis;
- Laboratory duplicate analysis;
- Analysis of control standards;
- Analysis of calibration standards and blanks; and
- Statistical analysis of QC data.

8.3 Data quality indicators

The following data quality indicators (DQIs) will need to be achieved during the analysis of QA/QC samples:

- Conformance with specified holding times;
- Accuracy of spiked samples to generally be in the range of 70% to 130%;
- Field triplicate samples to be collected at a frequency of at least 10% of all samples; and
- Field and laboratory duplicate samples to have a precision average within a 30% relative percent difference (RPD) unless circumstances allow a greater range.

Please contact the undersigned if further information is required.

Yours faithfully,
Douglas Partners Pty Ltd

Peter Oitmaa
Senior Associate

Attachment: Sketch


1
2
3
4
5
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7
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9
10
11
12
nearmap
current : clear : change

Appendix E

Field Work Results

BOREHOLE LOG

CLIENT: Lend Lease Building Pty Ltd
PROJECT: Proposed Commercial Development
LOCATION: 4 Murray Rose Avenue, Sydney Olympic Park

SURFACE LEVEL: 11.5 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 1
PROJECT No: 45153.03
DATE: 27/9/2013
SHEET 1 OF 2

RL	Depth (m)	Description of Strata	Degree of Weathering	Graphic Log	Rock Strength	Water	Fracture Spacing (m)	Discontinuities (B - Bedding J - Joint S - Shear F - Fault)	Sampling & In Situ Testing: Type	Core Rec. %	RQD %	Test Results & Comments
11	0.15	CONCRETE										
		SILTY CLAY - very stiff, light grey brown silty clay with a trace of ironstone gravel, moist							E			PID<1
	0.6	SHALE - extremely low strength, grey brown shale with ironstone bands							S			9,16,14 N = 30 PID<1
1								Unless otherwise stated rock is fractured along rough planar bedding dipping 0°-10°	S			7,9,14 N = 23 PID<1
10	1.5	SHALE - very low to low strength, grey shale										
	1.8	SHALE - low to medium strength, highly and highly to moderately weathered, fractured, grey brown shale, some very low strength bands						1.9m: B5°, fe 2.0 to 2.5m: B(x3) 0°-5°, cly 2.5 to 2.7m: B(x4) 0°, cly , fe 2.7m: J45° to 55°, cu, ro, cly 2.75 to 3.0m: B(x5) 0°, fe, cly 3m: J35°, un, ro, fe 3.12m: B5°, fe, cly 10mm 3.17 & 3.23m: B0°, fe 3.4 & 3.5m: J40°, pl, ro, fe 3.68m: B0°, fe, cly 10mm 3.85m: J80°, he 4.07 to 4.7m: B(x13) 0°, cly co 1-2mm 4.7m: J75°, pl, ro, fe	C	100	17	PL(A) = 0.3 PL(A) = 0.2 PL(A) = 0.3
9	4.7	SHALE - medium strength, fresh stained then fresh, slightly fractured and unbroken grey shale. Approximately 10% fine grained sandstone laminations. Some high strength siderite bands						4.9 to 5.13m: B(x3) 0°, fe 5.13 & 5.21m: J30°, pl, ro, cln 5.35m: B0°, cly 2mm 5.52m: J45°, pl, ro, cly 5.67m: J75°, pl, ro, fe 5.9m: J55°, un, ro, fe 6.04m: J80°, un, ro, fe 6.28m: J30°, pl, ro, cly 6.35m: J70°-90°, st, he, fe	C	100	92	PL(A) = 0.4 PL(A) = 1.3 PL(A) = 0.9
3								7.94m: J60°, pl, ro, cln 8.1 to 8.65m: J(x3) 20°-30°, pl, sm, cln	C	100	96	PL(A) = 0.6 PL(A) = 0.8

RIG: Scout 1 **DRILLER:** LC **LOGGED:** SI **CASING:** HW to 1.2m

TYPE OF BORING: Diatube to 0.15m; Solid flight auger to 1.0m; Rotary to 1.8m; NMLC coring to 15.05m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS: Standpipe installed to 15.05m (Screen 3.5m to 15.05m; Gravel 1.5m to 15.05m; Bentonite 1.0m to 1.5m; Backfill to Ground Level then Gatic cover)

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U$_x$	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: Lend Lease Building Pty Ltd
PROJECT: Proposed Commercial Development
LOCATION: 4 Murray Rose Avenue, Sydney Olympic Park

SURFACE LEVEL: 11.5 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 1
PROJECT No: 45153.03
DATE: 27/9/2013
SHEET 2 OF 2

RL	Depth (m)	Description of Strata	Degree of Weathering (EW HW MW SW FS FR)	Graphic Log	Rock Strength (Ex Low / Very Low / Low / Medium / High / Very High / Ex High)	Water	Fracture Spacing (m) (0.01 / 0.05 / 0.10 / 0.50 / 1.00)	Discontinuities (B - Bedding J - Joint S - Shear F - Fault)	Sampling & In Situ Testing: Type	Core Rec. %	RQD %	Test Results & Comments
1	11	SHALE - medium strength, fresh stained then fresh, slightly fractured and unbroken grey shale. Approximately 10% fine grained sandstone laminations. Some high strength siderite bands *(continued)*							C	100	96	PL(A) = 0.5
0	12							11.13m: J35°, pl, ro, cln				PL(A) = 1.5
-1	13							12.15m: J85°, pl, ro, cln	C	100	100	PL(A) = 0.7
-2	14											PL(A) = 0.6
-3	15								C	100	100	PL(A) = 0.8
	15.05	Bore discontinued at 15.05m										
-4	16											
-5	17											
-6	18											
-7	19											
-8												

RIG: Scout 1 **DRILLER:** LC **LOGGED:** SI **CASING:** HW to 1.2m

TYPE OF BORING: Diatube to 0.15m; Solid flight auger to 1.0m; Rotary to 1.8m; NMLC coring to 15.05m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS: Standpipe installed to 15.05m (Screen 3.5m to 15.05m; Gravel 1.5m to 15.05m; Bentonite 1.0m to 1.5m; Backfill to Ground Level then Gatic cover)

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: Lend Lease Building Pty Ltd
PROJECT: Proposed Commercial Development
LOCATION: 4 Murray Rose Avenue, Sydney Olympic Park

SURFACE LEVEL: 12.3 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 2
PROJECT No: 45153.03
DATE: 30/9/2013
SHEET 1 OF 2

RL	Depth (m)	Description of Strata	Degree of Weathering (EW HW MW SW FS FR)	Graphic Log	Rock Strength (Ex Low, Very Low, Low, Medium, High, Very High, Ex High)	Water	Fracture Spacing (m) (0.01, 0.05, 0.10, 0.50, 1.00)	Discontinuities (B - Bedding J - Joint S - Shear F - Fault)	Type	Core Rec. %	RQD %	Test Results & Comments
12	0.2	TOPSOIL - grey sandy clay topsoil with some grass rootlets, moist							E			PID<1
		CLAY - very stiff, mottled orange brown clay, moist							S			6,9,11 N = 20 PID<1
11	0.8	CLAY - stiff to very stiff, light grey mottled brown clay, moist							S			3,6,9 N = 15 PID<1
	1.8	SHALE - extremely low strength, light grey brown shale						Unless otherwise stated rock is fractured along rough planar bedding dipping 0°-10°				
10	2.3							2.3m: CORE LOSS: 100mm				
	2.4	SHALE - very low to low strength, highly weathered, fragmented to highly fractured, light grey brown shale. Some medium strength bands						2.4 to 3.0m: fg, fe, cly 3.0 to 3.6m: B5°, fe, cly	C	89	0	PL(A) = 0.9
9	4.0							3.75m: CORE LOSS: 250mm				
		SHALE - medium then low to medium strength, moderately weathered, fractured and slightly fractured, brown shale						4.0 to 4.4m: B(x4) 0°, fe 4.4 to 5.3m: B(x18) 0°, fe, he 4.6m: J35°, pl, ro, fe 4.85m: J55°, pl, ro, fe 5.3m: J45°-50°, he, fe 5.4 to 6.05m: J(x5) 60°-70°, pl, ro, fe	C	92	51	PL(A) = 0.4 PL(A) = 0.3
8	6.17	SHALE - medium strength, fresh, slightly fractured, grey shale. Approximately 10% fine grained sandstone laminations. Some high strength siderite bands						6.15m: B0°, fe, cly 10mm 6.2 to 6.3m: B(x3) 0°, fe 6.35m: J90°, pl, ro, cln 6.72m: J65° to 70°, cu, sm, cln 7.0 to 7.2m: J80°, un, ro, cln 7.75 to 7.9m: J45°, pl, sm, cln 8.65 to 9.3m: J(x3) 70°, pl, ro, cln	C	100	98	PL(A) = 2.7 PL(A) = 0.6 PL(A) = 0.6 PL(A) = 0.6
7												
6												
5												
4												
3												

RIG: Scout 1 **DRILLER:** LC **LOGGED:** SI **CASING:** HW to 1.2m

TYPE OF BORING: Solid flight auger to 1.0m; Rotary to 2.3m; NMLC coring to 15.1m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS: Standpipe installed to 15.1m (Screen 3.1m to 15.1m; Gravel 2.0m to 15.1m; Bentonite 1.5m to 2.0m; Backfill to Ground Level then Gatic cover)

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics | Environment | Groundwater

BOREHOLE LOG

CLIENT: Lend Lease Building Pty Ltd
PROJECT: Proposed Commercial Development
LOCATION: 4 Murray Rose Avenue, Sydney Olympic Park

SURFACE LEVEL: 12.3 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 2
PROJECT No: 45153.03
DATE: 30/9/2013
SHEET 2 OF 2

RL	Depth (m)	Description of Strata	Degree of Weathering (EW HW MW SW FS FR)	Graphic Log	Rock Strength (Ex Low / Very Low / Low / Medium / High / Very High / Ex High)	Water	Fracture Spacing (m) (0.01 / 0.05 / 0.10 / 0.50 / 1.00)	Discontinuities (B - Bedding J - Joint S - Shear F - Fault)	Sampling & In Situ Testing: Type	Core Rec. %	RQD %	Test Results & Comments
2	11	SHALE - medium strength, fresh, slightly fractured, grey shale. Approximately 10% fine grained sandstone laminations. Some high strength siderite bands *(continued)*						10.1 to 10.6m: J(x4) 70°, pl, ro, cln 10.35m: J65°, he	C	100	93	PL(A) = 0.8
1	11.2	SHALE - medium to high strength, fresh, slightly fractured, grey shale with high strength siderite bands						10.97m: J90°, pl, sm, cln				PL(A) = 1.2
0	12 12.25	SHALE - medium strength, fresh, slightly fractured grey shale, with approximately 10% fine grained sandstone laminations						11.65 & 11.71m: J65°, pl, ro, cln 12.2m: J60°, Cz10mm	C	100	93	PL(A) = 1
-1	13							13.1 & 13.3m: J30°, un, ro, cln 13.6 & 13.85m; J70°, pl, sm, cln				PL(A) = 0.9
-2	14							13.9 & 14.33m: B0°-5°, cly 10-20mm	C	100	95	PL(A) = 0.6
-3	15 15.1	Bore discontinued at 15.1m										
-4	16											
-5	17											
-6	18											
-7	19											

RIG: Scout 1 **DRILLER:** LC **LOGGED:** SI **CASING:** HW to 1.2m

TYPE OF BORING: Solid flight auger to 1.0m; Rotary to 2.3m; NMLC coring to 15.1m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS: Standpipe installed to 15.1m (Screen 3.1m to 15.1m; Gravel 2.0m to 15.1m; Bentonite 1.5m to 2.0m; Backfill to Ground Level then Gatic cover)

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: Lend Lease Building Pty Ltd
PROJECT: Proposed Commercial Development
LOCATION: 4 Murray Rose Avenue, Sydney Olympic Park

SURFACE LEVEL: 12.1 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 3
PROJECT No: 45153.03
DATE: 30/9/2013
SHEET 1 OF 2

RL	Depth (m)	Description of Strata	Degree of Weathering (EW HW MW SW FS FR)	Graphic Log	Rock Strength (Ex Low, Very Low, Low, Medium, High, Very High, Ex High)	Water	Fracture Spacing (m) (0.01, 0.05, 0.10, 0.50, 1.00)	Discontinuities (B - Bedding J - Joint S - Shear F - Fault)	Type	Core Rec. %	RQD %	Test Results & Comments
12	0.16	CONCRETE							E			PID<1
	0.3	FILLING - shaly clay filling, damp										
		CLAY - very stiff, grey brown clay with a trace of ironstone gravel, moist							S			4,9,6 N = 15 PID<1
11	1								S			4,8,20 N = 28 PID<1
	1.5	SHALE - extremely low strength, light grey brown shale with ironstone bands						Unless otherwise stated rock is fractured along rough planar bedding dipping 0°-10°				
	1.8	SHALE- low strength, highly weathered, fragmented and fractured, light grey brown shale						1.8 to 2.08m: fg, fe 2.08 to 3.0m: B0°, fe, cly	C	100	0	PL(A) = 0.2
10	2											
	3.0	SHALE - very low and very low to low strength, highly weathered, light grey and grey shale						3.0 to 3.4m: Ds				
9	3							3.4m: CORE LOSS: 450mm				
	3.85											
8	4							4.2 to 4.7m: fg, cly				
	4.7	SHALE - low strength, highly then slightly weathered, slightly fractured, grey brown shale							C	85	45	PL(A) = 0.2
7	5							5.0 to 5.06m: fg 5.06m: J35°, pl, ro, fe				PL(A) = 0.2
								5.4m: J90°, pl, ro, cln				
								5.75m: J70°, un, ro, fe, cly				
								5.85m: B0°, fe and J80°, un, ro, fe				
6	6.0	SHALE - medium and medium to high strength, slightly weathered then fresh, slightly fractured and unbroken, grey shale. Approximately 5% fine grained sandstone laminations						6.1 to 6.4m: B(x6) 0°, fe				PL(A) = 0.6
								6.55m: J90°, pl, ro, fe				
5	7							6.75m: B0°, cly				
								7.45 to 7.9m: J(x5) 25°-30°, pl, ro, cln				PL(A) = 0.7
4	8								C	100	94	
												PL(A) = 0.6
3	9							9.15m: J60°, pl, ro, cln 9.2m: J85°, un, ro, cln				
								9.67m: J45°, pl, ro, cln	C	100	100	PL(A) = 0.7

RIG: Scout 4 **DRILLER:** LC **LOGGED:** SI **CASING:** HW to 1.8m

TYPE OF BORING: Diatube to 0.16m; Solid flight auger to 1.0m; Rotary to 1.8m; NMLC coring to 15.0m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U$_x$	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: Lend Lease Building Pty Ltd
PROJECT: Proposed Commercial Development
LOCATION: 4 Murray Rose Avenue, Sydney Olympic Park

SURFACE LEVEL: 12.1 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 3
PROJECT No: 45153.03
DATE: 30/9/2013
SHEET 2 OF 2

RL	Depth (m)	Description of Strata	Degree of Weathering (EW HW MW SW FS FR)	Graphic Log	Rock Strength (Ex Low / Very Low / Low / Medium / High / Very High / Ex High)	Water	Fracture Spacing (m) (0.01 / 0.05 / 0.10 / 0.50 / 1.00)	Discontinuities (B - Bedding J - Joint S - Shear F - Fault)	Sampling & In Situ Testing: Type	Core Rec. %	RQD %	Test Results & Comments
11		SHALE - medium and medium to high strength, slightly weathered then fresh, slightly fractured and unbroken, grey shale. Approximately 5% fine grained sandstone laminations *(continued)*						10.6m: J30°, pl, ro, cln				PL(A) = 1.5
								11.35m: J45°, pl, ro, cln	C	100	100	PL(A) = 0.6
12												PL(A) = 0.6
								12.52m: J30°, sl, sm, cln				
13								12.9m: J30°, sl, sm, cln				PL(A) = 0.5
								13.53m: J45°, pl, sm, cln 13.73 to 13.78m: Cz, cly 13.78 to 14.03m: J(x6) 20°-30°, pl, sm	C	100	98	
14												PL(A) = 0.5
								14.7m: J50°, pl, sm, cln				
15	15.0	Bore discontinued at 15.0m										
16												
17												
18												
19												

RIG: Scout 4 **DRILLER:** LC **LOGGED:** SI **CASING:** HW to 1.8m

TYPE OF BORING: Diatube to 0.16m; Solid flight auger to 1.0m; Rotary to 1.8m; NMLC coring to 15.0m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U$_x$	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: Lend Lease Building Pty Ltd
PROJECT: Proposed Commercial Development
LOCATION: 4 Murray Rose Avenue, Sydney Olympic Park

SURFACE LEVEL: 11.6 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 5
PROJECT No: 45153.03
DATE: 1/10/2013
SHEET 1 OF 2

RL	Depth (m)	Description of Strata	Degree of Weathering (EW HW MW SW FS FR)	Graphic Log	Rock Strength (Ex Low, Very Low, Low, Medium, High, Very High, Ex High)	Water	Fracture Spacing (m) (0.01, 0.05, 0.10, 0.50, 1.00)	Discontinuities (B - Bedding J - Joint S - Shear F - Fault)	Type	Core Rec. %	RQD %	Test Results & Comments
11	0.2	TOPSOIL - grey brown silty clay topsoil with a trace of grass rootlets, moist							E			PID<1
		CLAY - very stiff, red brown clay with ironstone bands, moist						Unless otherwise stated rock is fractured along rough planar bedding dipping at 0°-10°	S			5,7,9 N = 16 PID<1
1	1.0	SHALE - extremely low to very low strength, light grey brown shale							S			7,9,25 N = 34 PID<1
10	1.45	SHALE - low to medium strength, highly to moderately weathered, fractured then slightly fractured, light grey brown shale						1.45 to 1.62m: fg, fe 1.8m: J85°, un, ro, fe 2.4 to 2.81m: J(x3) 55°-70°, pl, ro, cln 3.3m: J55° & 75°, st, ro, cln	C	100	95	PL(A) = 0.6 PL(A) = 0.3 PL(A) = 0.4
8	3.5	SHALE - medium strength, slightly weathered, fractured and slightly fractured, grey brown shale						3.8m: J85°, pl, ro, cln 4m: J80°, pl, ro, fe 4.17m: B0°, cly 5mm 4.43m: B0°, fe 4.75m: J30°, pl, ro, fe 5.5 to 5.9m: J(x5) 50°-70°, pl, ro, fe	C	100	96	PL(A) = 0.5 PL(A) = 0.5 PL(A) = 0.5
6	6.1	- high strength siderite band SHALE - medium and medium to high strength, fresh, slightly fractured and unbroken, grey shale. Approximately 5% fine grained sandstone laminations - 6.7m and 10.65m: high strength siderite bands						6.07m: J75°, un, ro, cln >> 9.7 to 9.85m: J75°, pl, ro, cln	C	100	100	PL(A) = 0.7 PL(A) = 0.6
2									C	100	100	PL(A) = 0.7

RIG: Scout 1 **DRILLER:** LC **LOGGED:** SI **CASING:** HW to 1.2m

TYPE OF BORING: Solid flight auger to 1.0m; Rotary to 1.45m; NMLC coring to 15.15m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS: Standpipe installed to 15.15m (Screen 3.15m to 15.15m; Gravel 1.5m to 15.15m; Bentonite 1.0m to 1.5m; Backfill to Ground Level then Gatic cover)

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U$_x$	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: Lend Lease Building Pty Ltd
PROJECT: Proposed Commercial Development
LOCATION: 4 Murray Rose Avenue, Sydney Olympic Park

SURFACE LEVEL: 11.6 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 5
PROJECT No: 45153.03
DATE: 1/10/2013
SHEET 2 OF 2

RL	Depth (m)	Description of Strata	Degree of Weathering (EW HW MW SW FS FR)	Graphic Log	Rock Strength (Ex Low, Very Low, Low, Medium, High, Very High, Ex High)	Water	Fracture Spacing (m) (0.01, 0.05, 0.10, 0.50, 1.00)	Discontinuities (B - Bedding J - Joint S - Shear F - Fault)	Sampling & In Situ Testing: Type	Core Rec. %	RQD %	Test Results & Comments
1	11	SHALE - medium and medium to high strength, fresh, slightly fractured and unbroken, grey shale. Approximately 5% fine grained sandstone laminations *(continued)*						10.35m: J65°, pl, ro, cln	C	100	100	PL(A) = 0.7 PL(A) = 2.5
0	12											
-1	13								C	100	100	PL(A) = 1.2
-2	14							13.6m: J20°, un, ro, cln 14.3m: J80°, pl, ro, cln				PL(A) = 0.6 PL(A) = 0.6
-3	15											PL(A) = 0.5
	15.15	Bore discontinued at 15.15m										
-4	16											
-5	17											
-6	18											
-7	19											
-8												

RIG: Scout 1 **DRILLER:** LC **LOGGED:** SI **CASING:** HW to 1.2m

TYPE OF BORING: Solid flight auger to 1.0m; Rotary to 1.45m; NMLC coring to 15.15m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS: Standpipe installed to 15.15m (Screen 3.15m to 15.15m; Gravel 1.5m to 15.15m; Bentonite 1.0m to 1.5m; Backfill to Ground Level then Gatic cover)

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: Lend Lease Building Pty Ltd
PROJECT: Proposed Commercial Development
LOCATION: 4 Murray Rose Avenue, Sydney Olympic Park

SURFACE LEVEL: 10.2 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 6
PROJECT No: 45153.03
DATE: 2/10/2013
SHEET 1 OF 2

RL	Depth (m)	Description of Strata	Degree of Weathering (EW HW MW SW FS FR)	Graphic Log	Rock Strength (Ex Low, Very Low, Low, Medium, High, Very High, Ex High)	Water	Fracture Spacing (m) (0.01, 0.05, 0.10, 0.50, 1.00)	Discontinuities (B - Bedding J - Joint S - Shear F - Fault)	Type	Core Rec. %	RQD %	Test Results & Comments
10	0.14	CONCRETE										
		FILLING - grey clay and crushed shale filling with some road base gravel and a trace of ash, moist							A			PID<1
	0.8	CLAY - stiff then very stiff, brown clay with a trace of ironstone gravel, moist							S			4,7,7 N = 14 PID<1
9	1								S			3,6,8 N = 14 PID<1
8	2											
7	3							Unless otherwise stated rock is fractured along rough planar bedding dipping at 0°-10°	S			4,7,18 N = 25 PID<1
	3.0	SHALE - extremely low strength, light grey brown shale										
6	4							3.8m: CORE LOSS: 580mm				
	4.38	SHALE - medium and low to medium strength, highly then slightly weathered, highly fractured to fractured, grey brown to grey shale, some very low strength bands						4.38 to 4.8m: B0°*10°, fe 4.8 to 5.3m: fg 5.4 to 5.7m: Ds	C	60	0	PL(A) = 0.4
	5							5.7m: CORE LOSS: 530mm				
4	6											
	6.23							6.23 to 6.37m: fg, fe 6.42 nto 6.57m: J(x3) 30°-35°, pl, ro, fe 6.73 to 6.83m: fg, fe 6.83m: J45°, pl, ro, fe 7.03 & 7.16m: J(x2) 30°, pl, sm, cln 7.3 to 7.35m: Cz	C	94	57	PL(A) = 0.6 PL(A) = 0.6 PL(A) = 1
3	7											
	7.35	SHALE - medium strength, fresh, slightly fractured and unbroken, grey shale. Approximately 5% fine grained sandstone laminations										
2	8											
1	9							9.0 & 10.38m: B0°, cly, vn	C	100	100	PL(A) = 0.7

RIG: Scout 1 **DRILLER:** LC **LOGGED:** SI **CASING:** HW to 2.7m

TYPE OF BORING: Diatube to 0.17m; Solid flight auger to 2.5m; Rotary to 3.8m; NMLC coring to 15.0m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS: Standpipe installed to 14.9m (Screen 3.5m to 14.9m; Gravel 3.0m to 14.9m; Bentonite 2.5m to 3.0m; Backfill 2.5m to Ground Level then Gatic cover)

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: Lend Lease Building Pty Ltd
PROJECT: Proposed Commercial Development
LOCATION: 4 Murray Rose Avenue, Sydney Olympic Park

SURFACE LEVEL: 10.2 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 6
PROJECT No: 45153.03
DATE: 2/10/2013
SHEET 2 OF 2

RL	Depth (m)	Description of Strata	Degree of Weathering (EW HW MW SW FS FR)	Graphic Log	Rock Strength (Ex Low, Very Low, Low, Medium, High, Very High, Ex High)	Water	Fracture Spacing (m) (0.01, 0.05, 0.10, 0.50, 1.00)	Discontinuities (B - Bedding J - Joint S - Shear F - Fault)	Sampling & In Situ Testing: Type	Core Rec. %	RQD %	Test Results & Comments
0		SHALE - medium strength, fresh, slightly fractured and unbroken, grey shale. Approximately 5% fine grained sandstone laminations *(continued)*										PL(A) = 0.8
-1	11								C	100	100	PL(A) = 0.6
-2	12 12.0	LAMINITE - high strength, fresh, unbroken light grey and grey laminite with approximately 25% fine grained sandstone laminations						>>				PL(A) = 1.2
-3	13											PL(A) = 1.8
-4	14								C	96	96	
	14.88	- 14.88m to 15.0m: core left down the hole										PL(A) = 2
-5	15 15.0	Bore discontinued at 15.0m						14.88m: CORE LOSS: 120mm				
-6	16											
-7	17											
-8	18											
-9	19											

RIG: Scout 1 **DRILLER:** LC **LOGGED:** SI **CASING:** HW to 2.7m

TYPE OF BORING: Diatube to 0.17m; Solid flight auger to 2.5m; Rotary to 3.8m; NMLC coring to 15.0m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS: Standpipe installed to 14.9m (Screen 3.5m to 14.9m; Gravel 3.0m to 14.9m; Bentonite 2.5m to 3.0m; Backfill 2.5m to Ground Level then Gatic cover)

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: Lend Lease Building Pty Ltd
PROJECT: Proposed Commercial Development
LOCATION: 4 Murray Rose Avenue, Sydney Olympic Park

SURFACE LEVEL: 11.5 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 7
PROJECT No: 45153.03
DATE: 11/10/2013
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.16	CONCRETE							
		FILLING - light brown, silty clay filling with some shale gravel, damp		E*	0.2 0.3		PID<1		
11	0.4	SHALE - low strength, light brown, shale		E	0.5 0.6		PID<1		
				E	0.8		PID<1		
	0.9	Bore discontinued at 0.9m - target depth reached			0.9				

RIG: Bobcat **DRILLER:** DJ **LOGGED:** AG **CASING:** Uncased

TYPE OF BORING: Diatube to 0.16m; Solid flight auger to 0.9m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS: *TS1A/TS1B are triplicate samples of 0.2m to 0.3m

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: Lend Lease Building Pty Ltd
PROJECT: Proposed Commercial Development
LOCATION: 4 Murray Rose Avenue, Sydney Olympic Park

SURFACE LEVEL: 12.7 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 8
PROJECT No: 45153.03
DATE: 11/10/2013
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.08	CONCRETE			0.08				
	0.18	FILLING - dark grey, gravel (blue metal) filling, humid. Generally 20mm diameter		E	0.18		PID<1		
				E*	0.2		PID<1		
		FILLING - brown, silty clay filling with some shale gravel/cobbles and sandstone gravel, damp			0.3				
				E	0.5		PID<1		
	0.6	SHALE - low strength, light brown, shale			0.6				
				E	0.8		PID<1		
					0.9				
				E	1.0		PID<1		
	1.1	Bore discontinued at 1.1m - target depth reached			1.1				

RIG: Bobcat **DRILLER:** DJ **LOGGED:** AG **CASING:** Uncased

TYPE OF BORING: Diatube to 0.08m; Solid flight auger to 1.1m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS: *TS2A/TS26 are triplicate samples of 0.2m to 0.3m

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: Lend Lease Building Pty Ltd
PROJECT: Proposed Commercial Development
LOCATION: 4 Murray Rose Avenue, Sydney Olympic Park

SURFACE LEVEL: 12.1 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 9
PROJECT No: 45153.03
DATE: 11/10/2013
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
12	0.15	CONCRETE							
	0.25	FILLING - light brown and orange-brown, ripped shale filling, humid		E*	0.15 0.25		PID<1		
		SHALE - low strength, light brown, shale		E	0.3 0.4		PID<1		
				E	0.8		PID<1		
11	0.9	Bore discontinued at 0.9m - target depth reached			0.9				
10	1								1
	2								2
9	3								3
8	4								4

RIG: Bobcat **DRILLER:** DJ **LOGGED:** AG **CASING:** Uncased

TYPE OF BORING: Diatube to 0.15m; Solid flight auger to 0.9m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS: *TS3A/TS3B are triplicate samples of 0.15m to 0.25m

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: Lend Lease Building Pty Ltd
PROJECT: Proposed Commercial Development
LOCATION: 4 Murray Rose Avenue, Sydney Olympic Park

SURFACE LEVEL: 12.0 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 10
PROJECT No: 45153.03
DATE: 11/10/2013
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
12	0.05	FILLING - grey-brown, silty sand (topsoil) filling with some rootlets and clay, humid		E	0.0		PID<1		
					0.05				
				E*	0.1		PID<1		
	0.2	FILLING - brown, clayey silt filling with some fine ironstone gravel and a trace of plastic fragments, humid		E	0.2		PID<1		
	0.3	CLAYEY SILT - very stiff, brown, clayey silt with some fine ironstone gravel, humid			0.3				
				E	0.4		PID<1		
		GRAVELLY CLAY - hard, brown, gravelly (ironstone) clay with some silt, humid			0.5				
				E	0.8		PID<1		
11	1				0.9				1
				E	1.1		PID<1		
	1.2	Bore discontinued at 1.2m - target depth reached			1.2				
10	2								2
9	3								3
8	4								4

RIG: Bobcat **DRILLER:** DJ **LOGGED:** AG **CASING:** Uncased

TYPE OF BORING: Solid flight auger to 1.2m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS: *TS4A/TS4B are triplicate samples of 0.1m to 0.2m

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: Lend Lease Building Pty Ltd
PROJECT: Proposed Commercial Development
LOCATION: 4 Murray Rose Avenue, Sydney Olympic Park

SURFACE LEVEL: 10.9 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 11
PROJECT No: 45153.03
DATE: 11/10/2013
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
10	0.0	FILLING - brown, orange-brown and grey, clay filling with some ironstone gravel/cobbles, damp		E*	0.1 0.2		PID<1		
	0.3	FILLING - brown, silty clay filling with some fine ironstone gravel and shale gravel, damp - with some plywood fragments		E	0.5 0.6		PID<1		
	0.7	FILLING - brown, silty clay filling with some fine ironstone gravel and sand, damp - with some plastic fragments		E	0.8 0.9		PID<1		
	1			E	1.4 1.5		PID<1		1
9	2			E	1.9 2.0		PID<1		2
	2.3	FILLING - dark grey-brown, silty clay filling with some fine ironstone gravel, damp - with some wet bands		E	2.4 2.5		PID<1		
8	2.9	FILLING - dark grey, gravel (blue metal) filling, damp - hessian at 2.9m		E^	3.2 3.3		PID<1		3
	3								
	3.4	Bore discontinued at 3.4m - refusal on possible concrete obstruction							
7	4								4
6									

RIG: Bobcat **DRILLER:** DJ **LOGGED:** AG **CASING:** Uncased

TYPE OF BORING: Solid flight auger to 3.4m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS: *TS7A/TS7B are triplicate samples of 0.1m to 0.2m

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: Lend Lease Building Pty Ltd
PROJECT: Proposed Commercial Development
LOCATION: 4 Murray Rose Avenue, Sydney Olympic Park

SURFACE LEVEL: 11.1 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 12
PROJECT No: 45153.03
DATE: 11/10/2013
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
11	0.1	FILLING - brown, orange-brown and grey, silty clay filling with some fine ironstone gravel and rootlets, humid		E	0.0 0.1		PID<1		
		FILLING - brown, clayey silt filling with some fine ironstone gravel, humid		E*	0.2 0.3		PID<1		
				E	0.5 0.6		PID<1		
	0.8	CLAYEY SILT - very stiff, brown, clayey silt with some fine ironstone gravel, humid		E	0.9 1.0		PID<1		
10	1								1
	1.2	CLAY - very stiff, brown, clay with some fine ironstone gravel, humid		E	1.4		PID<1		
	1.5	Bore discontinued at 1.5m - target depth reached			1.5				
9	2								2
8	3								3
7	4								4

RIG: Bobcat **DRILLER:** DJ **LOGGED:** AG **CASING:** Uncased

TYPE OF BORING: Solid flight auger to 1.5m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS: *TS6A/TS6B are triplicate samples of 0.2m to 0.3m

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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Groundwater Field Sheet

Project and Bore Installation Details					
Bore / Standpipe ID:	BH1				
Project Name:	Proposed Commercial Development				
Project Number:	45153.03				
Site Location:	4 Murray Rose Avenue, Sydney Olympic Park				
Bore Easting:		Northing:			
Installation Date:	27/09/2013				
GW Level (during drilling):	N/A m bgl				
Well Depth:	15.05 m bgl				
Screened Interval:	3.5-15.05 m bgl				
Contaminants/Comments:					
Bore Development Details					
Date/Time:	27/09/2013				
Purged By:	AG				
GW Level (pre-purge):	4.9 m bgl				
GW Level (post-purge):	15 m bgl				
PSH observed:	No free phase product detected by interphase metre				
Observed Well Depth:	15 m bgl				
Estimated Bore Volume:	30 L				
Total Volume Purged:	40 L				
Equipment:	Twister				
Micropurge and Sampling Details					
Date/Time:	8/11/2013				
Sampled By:	AG				
Weather Conditions:	Sunny				
GW Level (pre-purge):	4.9 m bgl				
GW Level (post sample):	7.4 m bgl				
PSH observed:	No free phase product detected by interphase metre				
Observed Well Depth:	12.5 m bgl				
Estimated Bore Volume:	30 L				
Total Volume Purged:	4 L				
Equipment:	Geopump				
Water Quality Parameters					
Time / Volume	Temp (°C)	DO (mg/L)	EC (µS or mS/cm)	pH	Redox (mV)
Stabilisation Criteria (3 readings)	***0.1°C***	**+/- 0.3 mg/L**	**+/- 3%**	**+/- 0.1**	**+/- 10 mV**
R1	21.8	3.27	6474	6.88	85.5
R2	21.4	25.8	6113	6.9	84.3
R3	21.5	1.7	5898	6.89	89.3
R4	21.4	2.02	5538	6.93	74.8
R5	21.6	2.44	6224	6.96	63.3
Additional Readings Following stabilisation:	DO % Sat	SPC	TDS		
Sample Details					
Sampling Depth (rationale):	4.9-7.4 m bgl,				
Sample Appearance (e.g. colour, siltiness, odour):	Relatively clear				
Sample ID:	BH1				
QA/QC Samples:	D1/081113				
Sampling Containers and filtration:	1 x 1L glass, 1 x 500mL glass, 1 x 500mL glass (H2SO4), 2 x 40mL glass vials (HCl), 1 x 100mL plastic (HCL), 1 x 200ml plastic, 1 x 100mL plastic (HNO3 (filtered)), 1 x 200ml plastic (H2SO4)				
Comments / Observations:					

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Groundwater Field Sheet

Project and Bore Installation Details					
Bore / Standpipe ID:	BH5				
Project Name:	Proposed Commercial Development				
Project Number:	45153.03				
Site Location:	4 Murray Rose Avenue, Sydney Olympic Park				
Bore Easting:		Northing:			
Installation Date:	1/10/2013				
GW Level (during drilling):	N/A m bgl				
Well Depth:	15.15 m bgl				
Screened Interval:	3.15-15.15 m bgl				
Contaminants/Comments:					
Bore Development Details					
Date/Time:	1/10/2013				
Purged By:	AG				
GW Level (pre-purge):	4.5 m bgl				
GW Level (post-purge):	15 m bgl				
PSH observed:	No free phase product detected by interphase metre				
Observed Well Depth:	15 m bgl				
Estimated Bore Volume:	30 L				
Total Volume Purged:	45 L				
Equipment:	Twister				
Micropurge and Sampling Details					
Date/Time:	8/11/2013				
Sampled By:	AG				
Weather Conditions:	Sunny				
GW Level (pre-purge):	4 m bgl				
GW Level (post sample):	6 m bgl				
PSH observed:	No free phase product detected by interphase metre				
Observed Well Depth:	15 m bgl				
Estimated Bore Volume:	30 L				
Total Volume Purged:	4 L				
Equipment:	Geopump				
Water Quality Parameters					
Time / Volume	Temp (^{o}C)	DO (mg/L)	EC (µS or mS/cm)	pH	Redox (mV)
Stabilisation Criteria (3 readings)	***0.1^{o}C***	**+/- 0.3 mg/L**	**+/- 3%**	**+/- 0.1**	**+/- 10 mV**
R1	21.6	1.47	5384	6.9	75.9
R2	21.4	1.7	5792	6.93	84.2
R3	21.6	30.3	6440	6.88	72.3
R4	21.5	1.93	6892	6.92	64.2
R5	21.6	2.1	6322	6.97	72.9
Additional Readings Following stabilisation:	DO % Sat	SPC	TDS		
Sample Details					
Sampling Depth (rationale):	4 to 6 m bgl,				
Sample Appearance (e.g. colour, siltiness, odour):	Slightly silty				
Sample ID:	BH5				
QA/QC Samples:					
Sampling Containers and filtration:	1 x 1L glass, 1 x 500mL glass, 1 x 500mL glass (H2SO4), 2 x 40mL glass vials (HCl), 1 x 100mL plastic (HCL), 1 x 200ml plastic, 1 x 100mL plastic (HNO3 (filtered)), 1 x 200ml plastic (H2SO4)				
Comments / Observations:					

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Groundwater Field Sheet

Project and Bore Installation Details					
Bore / Standpipe ID:	BH6				
Project Name:	Proposed Commercial Development				
Project Number:	45153.03				
Site Location:	4 Murray Rose Avenue, Sydney Olympic Park				
Bore Easting:		Northing:			
Installation Date:	2/10/2013				
GW Level (during drilling):	N/A m bgl				
Well Depth:	14.9 m bgl				
Screened Interval:	3.5-14.9 m bgl				
Contaminants/Comments:					
Bore Development Details					
Date/Time:	2/10/2013				
Purged By:	AG				
GW Level (pre-purge):	5 m bgl				
GW Level (post-purge):	14.5 m bgl				
PSH observed:	No free phase product detected by interphase metre				
Observed Well Depth:	14.5 m bgl				
Estimated Bore Volume:	30 L				
Total Volume Purged:	40 L				
Equipment:	Twister				
Micropurge and Sampling Details					
Date/Time:	8/11/2013				
Sampled By:	AG				
Weather Conditions:	Sunny				
GW Level (pre-purge):	4.5 m bgl				
GW Level (post sample):	7 m bgl				
PSH observed:	No free phase product detected by interphase metre				
Observed Well Depth:	14.5 m bgl				
Estimated Bore Volume:	30 L				
Total Volume Purged:	4 L				
Equipment:	Geopump				
Water Quality Parameters					
Time / Volume	Temp (°C)	DO (mg/L)	EC (µS or mS/cm)	pH	Redox (mV)
Stabilisation Criteria (3 readings)	***0.1° C***	**+/- 0.3 mg/L**	**+/- 3%**	**+/- 0.1**	**+/- 10 mV**
R1	21.5	2.56	4863	6.98	79.6
R2	21.3	3.96	5264	6.93	83.6
R3	21.6	5.21	5489	6.87	81.6
R4	21.5	2.45	5396	6.93	77.6
R5	21.5	2.3	5264	6.94	72.6
Additional Readings Following stabilisation:	DO % Sat	SPC	TDS		
Sample Details					
Sampling Depth (rationale):	4 to 6 m bgl,				
Sample Appearance (e.g. colour, siltiness, odour):	Slightly silty				
Sample ID:	BH6				
QA/QC Samples:					
Sampling Containers and filtration:	1 x 1L glass, 1 x 500mL glass, 1 x 500mL glass (H2SO4), 2 x 40mL glass vials (HCl), 1 x 100mL plastic (HCL), 1 x 200ml plastic, 1 x 100mL plastic (HNO3 (filtered)), 1 x 200ml plastic (H2SO4)				
Comments / Observations:					

Appendix F

Summary of Laboratory Test Results

Table F1: Contaminant Concentrations in Soils

Sample/ Depth (m)	B	T	E	X	Napth.	F1	F2	+PAH	B.TEQ	OCP	OPP	PCB	Phenol	Asbestos	As	Cd	Cr	Cu	Pb	Hg	Ni	Zn
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	(Y/N)	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Filling																						
BH3/0.2	<0.2	<0.5	<1	<3	<0.1	<25	<50	NIL	<0.5	<2	<0.8	<0.7	<5	NT	6	<0.4	7	27	23	<0.1	7	26
BH6/0.2	<0.2	<0.5	<1	<3	<0.1	<25	<50	3.9	1	<2	<0.8	<0.7	<5	NT	6	<0.4	18	49	22	<0.1	28	51
BH6/0.5-0.95	<0.2	<0.5	<1	<3	<0.1	<25	<50	7.2	1	<2	<0.8	<0.7	<5	NT	13	<0.4	17	34	33	<0.1	13	49
BH7/0.2-0.3	<0.2	<0.5	<1	<3	<0.1	<25	<50	NIL	<0.5	<2	<0.8	<0.7	<5	N	<4	<0.4	6	21	16	<0.1	4	19
BH8/0.2-0.3	<0.2	<0.5	<1	<3	<0.1	<25	<50	NIL	<0.5	<2	<0.8	<0.7	<5	N	<4	<0.4	8	22	16	<0.1	11	37
BH8/0.5-0.6	<0.2	<0.5	<1	<3	<0.1	<25	<50	NIL	<0.5	<2	<0.8	<0.7	<5	NT	<4	<0.4	4	16	16	<0.1	3	19
BH9/0.15-0.25	<0.2	<0.5	<1	<3	<0.1	<25	<50	NIL	<0.5	<2	<0.8	<0.7	<5	N	<4	<0.4	6	25	26	<0.1	8	31
BH10/0.1-0.2	<0.2	<0.5	<1	<3	<0.1	<25	<50	0.66	<0.5	<2	<0.8	<0.7	<5	N	6	<0.4	16	20	19	<0.1	14	35
BH11/0.1-0.2	<0.2	<0.5	<1	<3	<0.1	<25	<50	0.2	<0.5	<2	<0.8	<0.7	<5	N	<4	<0.4	7	23	21	<0.1	10	45
BH11/1.4-1.5	<0.2	<0.5	<1	<3	<0.1	<25	<50	9	1	<2	<0.8	<0.7	<5	NT	<4	<0.4	8	10	29	<0.1	4	34
BH12A/0.5-0.6	<0.2	<0.5	<1	<3	<0.1	<25	<50	1.6	<0.5	<2	<0.8	<0.7	<5	N	5	<0.4	14	14	24	<0.1	7	22
Natural Soil																						
BH1/0.2	<0.2	<0.5	<1	<3	<0.1	<25	<50	NIL	<0.5	<2	<0.8	<0.7	<5	NT	5	<0.4	7	31	20	<0.1	5	23
BH1/0.5-0.95	<0.2	<0.5	<1	<3	<0.1	<25	<50	NIL	<0.5	<2	<0.8	<0.7	<5	NT	14	<0.4	7	40	22	<0.1	6	24
BH2/0.5-0.95	<0.2	<0.5	<1	<3	<0.1	<25	<50	0.55	<0.5	<2	<0.8	<0.7	<5	NT	<4	<0.4	6	27	10	<0.1	3	14
BH2/1-1.45	<0.2	<0.5	<1	<3	<0.1	<25	<50	NIL	<0.5	<2	<0.8	<0.7	<5	NT	<4	<0.4	4	11	17	<0.1	1	11
BH3/0.5-0.95	<0.2	<0.5	<1	<3	<0.1	<25	<50	NIL	<0.5	<2	<0.8	<0.7	<5	NT	5	<0.4	15	22	21	<0.1	2	10
BH5/0.2	<0.2	<0.5	<1	<3	<0.1	<25	<50	7	1	<2	<0.8	<0.7	<5	NT	12	<0.4	25	28	47	<0.1	10	79
BH5/1-1.45	<0.2	<0.5	<1	<3	<0.1	<25	<50	NIL	<0.5	<2	<0.8	<0.7	<5	NT	6	<0.4	15	25	22	<0.1	2	12
BH7/0.5-0.6	<0.2	<0.5	<1	<3	<0.1	<25	<50	NIL	<0.5	<2	<0.8	<0.7	<5	NT	<4	<0.4	5	28	17	<0.1	6	30
BH9/0.8-0.9	<0.2	<0.5	<1	<3	<0.1	<25	<50	NIL	<0.5	<2	<0.8	<0.7	<5	NT	<4	<0.4	7	21	22	<0.1	4	23
BH10/0.2-0.3	<0.2	<0.5	<1	<3	<0.1	<25	<50	0.76	<0.5	<2	<0.8	<0.7	<5	NT	5	<0.4	15	16	16	<0.1	18	24
BH12A/1.4-1.5	<0.2	<0.5	<1	<3	<0.1	<25	<50	NIL	<0.5	<2	<0.8	<0.7	<5	NT	5	<0.4	18	18	20	<0.1	4	12

Notes: B = Benzene; T = Toluene; E = Ethylbenzene; X = Xylene; Napth. = Naphthalene; F1 = (C_6 – C_{10}) – BTEX; F2 = (C_{11} – C_{16}) – Naphthalene; +PAH = Positive polycyclic aromatic hydrocarbons; B.TEQ = Carcinogenic PAHs (as B(a)P TEQ); OCP = Organochlorine pesticides; OPP = Organophosphorus pesticides; PCB = Polychlorinated biphenyls; As = Arsenic; Cd = Cadmium; Cr = Chromium; Cu = Copper; Pb = Lead; Hg = Mercury; Ni = Nickel; Zn = Zinc; NT = Not tested

Table F2: Contaminant Concentrations in QA/QC Soil Samples

Sample/ Depth (m)	B	T	E	X	Napth.	F1	F2	+PAH	B.TEQ	OCP	OPP	PCB	Phenol	Asbestos	As	Cd	Cr	Cu	Pb	Hg	Ni	Zn
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	(Y/N)	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
QA/QC Soil Samples																						
TS1A(BH7/0.2-0.3)	<0.2	<0.5	<1	<3	<0.1	<25	<50	NIL	<0.5	<2	<0.8	<0.7	<5	NT	<4	<0.4	5	22	17	<0.1	5	22
TS1B(BH7/0.2-0.3)	<0.1	<0.1	<0.1	<0.3	<0.5	<20	<50	NIL	<0.5	<0.5	<20	<3.5	NT	NT	<2	0.4	5.1	24	19	<0.05	5.8	25
TS7A(BH11/0.1-0.2)	<0.2	<0.5	<1	<3	<0.1	<25	<50	NIL	<0.5	<2	<0.8	<0.7	<5	NT	5	<0.4	17	25	21	<0.1	4	19
TS7B(BH11/0.1-0.2)	<0.1	<0.1	<0.1	<0.3	<0.5	<20	<50	NIL	<0.5	<0.5	<20	<3.5	NT	NT	<2	0.6	19	33	22	<0.05	10	57
Blank	<0.2	<0.5	<1	<3	<0.1	<25	<50	NIL	<0.5	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Spike	71%	67%	62%	65%	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
QA/QC Water Samples (µg/L)																						
Rins1	<1	<1	<1	<3	<1	<10	<50	NIL	<5	<4	<1.6	<14	<50	NT	<50	<10	<10	<10	<30	<0.5	<20	<20

Notes: B = Benzene; T = Toluene; E = Ethylbenzene; X = Xylene; Napth. = Naphthalene; F1 = (C_6 – C_{10}) – BTEX; F2 = (C_{11} – C_{16}) – Naphthalene; +PAH = Positive polycyclic aromatic hydrocarbons; B.TEQ = Carcinogenic PAHs (as B(a)P TEQ); OCP = Organochlorine pesticides; OPP = Organophosphorus pesticides; PCB = Polychlorinated biphenyls; As = Arsenic; Cd = Cadmium; Cr = Chromium; Cu = Copper; Pb = Lead; Hg = Mercury; Ni = Nickel; Zn = Zinc; NT = Not tested

Table F3: Statistical Analysis of Soil Contaminant Concentrations

Sample/ Depth (m)	B	T	E	X	Napth.	F1	F2	+PAH	B.TEQ	OCP	OPP	PCB	Phenol	Asbestos	As	Cd	Cr	Cu	Pb	Hg	Ni	Zn
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	(Y/N)	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Statistical Analysis of Filling Contaminant Concentrations (mg/kg)																						
Maximum	0	0	0	0	0	0	0	9	1	0	0	0	0	N/A	13	0	18	49	33	0	28	51
Average	0	0	0	0	0	0	0	3.8	1	0	0	0	0	N/A	7.2	0	10.1	23.7	22.3	0	9.9	33.5
Std. Deviation	0	0	0	0	0	0	0	3.6	0	0	0	0	0	N/A	3.3	0	5.1	10.6	5.6	0	7.0	11.4
95% UCL	0	0	0	0	0	0	0	N/A	N/A	0	0	0	0	N/A	10.3	0	13.6	29.5	25.3	0	14.6	39.7
Statistical Analysis of Natural Soil Contaminant Concentrations (mg/kg)																						
Maximum	0	0	0	0	0	0	0	7	1	0	0	0	0	N/A	14	0	25	40	47	0	18	79
Average	0	0	0	0	0	0	0	2.8	1	0	0	0	0	N/A	7.4	0	11.3	24.3	21.3	0	5.5	23.8
Std. Deviation	0	0	0	0	0	0	0	3.7	0	0	0	0	0	N/A	3.9	0	6.7	7.9	9.3	0	4.8	19.5
95% UCL	0	0	0	0	0	0	0	N/A	N/A	0	0	0	0	N/A	10.3	0	14.9	28.6	26.3	0	8.9	35.1
Statistical Analysis of All Primary Soil Sample Contaminant Concentrations (mg/kg)																						
Maximum	0	0	0	0	0	0	0	9	1	0	0	0	0	N/A	14	0	25	49	47	0	28	79
Average	0	0	0	0	0	0	0	3.4	1	0	0	0	0	N/A	7.3	0	10.7	24	21.8	0	7.7	28.6
Std. Deviation	0	0	0	0	0	0	0	3.4	0	0	0	0	0	N/A	3.5	0	5.8	9.1	7.5	0	6.3	16.4
95% UCL	0	0	0	0	0	0	0	N/A	N/A	0	0	0	0	N/A	9.1	0	13.7	27.4	24.5	0	10.4	35.2

Notes: B = Benzene; T = Toluene; E = Ethylbenzene; X = Xylene; Napth. = Naphthalene; F1 = (C_6 – C_{10}) – BTEX; F2 = (C_{11} – C_{16}) – Naphthalene; +PAH = Positive polycyclic aromatic hydrocarbons; B.TEQ = Carcinogenic PAHs (as B(a)P TEQ); OCP = Organochlorine pesticides; OPP = Organophosphorus pesticides; PCB = Polychlorinated biphenyls; As = Arsenic; Cd = Cadmium; Cr = Chromium; Cu = Copper; Pb = Lead; Hg = Mercury; Ni = Nickel; Zn = Zinc; NA = Not applicable

Table F4: Adopted Comparative Criteria for Soils

Sample/ Depth (m)	B	T	E	X	Napth.	F1	F2	+PAH	B.TEQ	OCP	OPP	PCB	Phenol	Asbestos	As	Cd	Cr	Cu	Pb	Hg	Ni	Zn
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	(Y/N)	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Adopted Investigation/Screening Levels (mg/kg)																						
Health-Based[1]	4	NL	NL	NL	NL	250	NL	4000	40	Various	Various	7	240000		3000	900	3600	240000	1500	730	6000	400000
Ecological[2]					370										160		670	280	1820		295	380

Notes: B = Benzene; T = Toluene; E = Ethylbenzene; X = Xylene; Napth. = Naphthalene; F1 = (C_6 – C_{10}) – BTEX; F2 = (C_{11} – C_{16}) – Naphthalene; +PAH = Positive polycyclic aromatic hydrocarbons; B.TEQ = Carcinogenic PAHs (as B(a)P TEQ); OCP = Organochlorine pesticides; OPP = Organophosphorus pesticides; PCB = Polychlorinated biphenyls; As = Arsenic; Cd = Cadmium; Cr = Chromium; Cu = Copper; Pb = Lead; Hg = Mercury; Ni = Nickel; Zn = Zinc

[1]Based on NEPM Commercial/Industrial Sites; [2]Based on NEPM ACL and average background concentrations from natural soil samples analysed

Table F5: Contaminant Concentrations in Groundwater

Sample/ Depth (m)	B	T	E	X	Napth.	F1	F2	+PAH	B.TEQ	OCP	OPP	PCB	Phenol	+VOC	As	Cd	Cr	Cu	Pb	Hg	Ni	Zn
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Primary Samples																						
BH1/8 Nov	<1	<1	<1	<3	<1	<10	<50	NIL	<5	NIL	NIL	NIL	<50	2	3	<0.1	<1	<1	<1	<0.05	10	8
BH5/8 Nov	<1	<1	<1	<3	<1	<10	<50	NIL	<5	NIL	NIL	NIL	60	4	2	<0.1	<1	<1	<1	<0.05	3	11
BH6/8 Nov	<1	<1	<1	3	<1	<10	63	NIL	<5	NIL	NIL	NIL	<50	9	7	<0.1	<1	1	<1	<0.05	7	10
QA/QC Sample																						
D1 (BH1)	<1	<1	<1	<3	<1	<10	<50	NIL	<5	NIL	NIL	NIL	<50	3	6	<0.1	<1	<1	<1	<0.05	11	<1
R1 (Rinsate)	<1	<1	<1	<3	<1	<10	<50	NIL	<5	NT	NT	NT	NT	NT	<1	<0.1	2	<1	<1	<0.05	<1	<1

Notes: B = Benzene; T = Toluene; E = Ethylbenzene; X = Xylene; Napth. = Naphthalene; F1 = (C_6 – C_{10}) – BTEX; F2 = (C_{11} – C_{16}) – Naphthalene; +PAH = Positive polycyclic aromatic hydrocarbons; B.TEQ = Carcinogenic PAHs (as B(a)P TEQ); OCP = Organochlorine pesticides; OPP = Organophosphorus pesticides; PCB = Polychlorinated biphenyls; +VOC = Positive volatile organic compounds; As = Arsenic; Cd = Cadmium; Cr = Chromium; Cu = Copper; Pb = Lead; Hg = Mercury; Ni = Nickel; Zn = Zinc; NT = Not tested

Table F6: Adopted Comparative Criteria for Groundwater

Sample/ Depth (m)	B	T	E	X	Napth.	F1	F2	+PAH	B.TEQ	OCP	OPP	PCB	Phenol	VOC	As	Cd	Cr	Cu	Pb	Hg	Ni	Zn
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Adopted Investigation/Screening Levels (µg/L)																						
GILs[1]	30			200	50			50		Various			400	Various	24	7	227	11.7	117	0.1	63	135

Notes: B = Benzene; T = Toluene; E = Ethylbenzene; X = Xylene; Napth. = Naphthalene; F1 = (C_6 – C_{10}) – BTEX; F2 = (C_{11} – C_{16}) – Naphthalene; +PAH = Positive polycyclic aromatic hydrocarbons; B.TEQ = Carcinogenic PAHs (as B(a)P TEQ); OCP = Organochlorine pesticides; OPP = Organophosphorus pesticides; PCB = Polychlorinated biphenyls; +VOC = Positive volatile organic compounds; As = Arsenic; Cd = Cadmium; Cr = Chromium; Cu = Copper; Pb = Lead; Hg = Mercury; Ni = Nickel; Zn = Zinc

[1]Based on NEPM GILs and groundwater vapour intrusion (lower value used). Metal concentrations adjusted for hardness assuming extremely hard conditions based on test results

Appendix G

Detailed Laboratory Test Results

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

CERTIFICATE OF ANALYSIS 98390

Client:
Douglas Partners Pty Ltd
96 Hermitage Rd
West Ryde
NSW 2114

Attention: Peter Oitmaa

Sample log in details:

Your Reference:	**45153.03, Sydney Olympic Park**		
No. of samples:	10 soils		
Date samples received / completed instructions received	02/10/13	/	02/10/13

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

Report Details:

Date results requested by: / Issue Date:	10/10/13	/	9/10/13
Date of Preliminary Report:	Not issued		

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Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with *.**

Results Approved By:

Jacinta Hurst
Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	98390-1	98390-2	98390-3	98390-4	98390-5
Your Reference	----------	BH1	BH1	BH2	BH2	BH3
Depth	----------	0.2	0.5-0.95	0.5-0.95	1-1.45	0.2
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	03/10/2013	03/10/2013	03/10/2013	03/10/2013	03/10/2013
Date analysed	-	04/10/2013	04/10/2013	04/10/2013	04/10/2013	04/10/2013
TRHC$_6$ - C$_9$	mg/kg	<25	<25	<25	<25	<25
TRHC$_6$ - C$_{10}$	mg/kg	<25	<25	<25	<25	<25
vTPHC$_6$ - C$_{10}$ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	77	82	79	79	83

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	98390-6	98390-7	98390-8	98390-9	98390-10
Your Reference	----------	BH3	BH5	BH5	BH6	BH6
Depth	----------	0.5-0.95	0.2	1-1.45	0.2	0.5-0.95
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	03/10/2013	03/10/2013	03/10/2013	03/10/2013	03/10/2013
Date analysed	-	04/10/2013	04/10/2013	04/10/2013	04/10/2013	04/10/2013
TRHC$_6$ - C$_9$	mg/kg	<25	<25	<25	<25	<25
TRHC$_6$ - C$_{10}$	mg/kg	<25	<25	<25	<25	<25
vTPHC$_6$ - C$_{10}$ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	78	79	80	79	80

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	98390-1	98390-2	98390-3	98390-4	98390-5
Your Reference	----------	BH1	BH1	BH2	BH2	BH3
Depth	----------	0.2	0.5-0.95	0.5-0.95	1-1.45	0.2
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	03/10/2013	03/10/2013	03/10/2013	03/10/2013	03/10/2013
Date analysed	-	04/10/2013	04/10/2013	04/10/2013	04/10/2013	04/10/2013
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50	<50	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	<100	<100	<100	<100	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	<100	<100	<100	<100	<100
TRH>C$_{10}$-C$_{16}$	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{16}$-C$_{34}$	mg/kg	<100	<100	<100	<100	<100
TRH>C$_{34}$-C$_{40}$	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	94	96	92	89	93

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	98390-6	98390-7	98390-8	98390-9	98390-10
Your Reference	----------	BH3	BH5	BH5	BH6	BH6
Depth	----------	0.5-0.95	0.2	1-1.45	0.2	0.5-0.95
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	03/10/2013	03/10/2013	03/10/2013	03/10/2013	03/10/2013
Date analysed	-	04/10/2013	04/10/2013	04/10/2013	04/10/2013	04/10/2013
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50	<50	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	<100	130	<100	<100	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	<100	120	<100	<100	<100
TRH>C$_{10}$-C$_{16}$	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{16}$-C$_{34}$	mg/kg	<100	190	<100	<100	100
TRH>C$_{34}$-C$_{40}$	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	93	98	92	93	94

PAHs in Soil						
Our Reference:	UNITS	98390-1	98390-2	98390-3	98390-4	98390-5
Your Reference	----------	BH1	BH1	BH2	BH2	BH3
Depth	----------	0.2	0.5-0.95	0.5-0.95	1-1.45	0.2
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	03/10/2013	03/10/2013	03/10/2013	03/10/2013	03/10/2013
Date analysed	-	08/10/2013	08/10/2013	08/10/2013	08/10/2013	08/10/2013
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	0.2	<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	0.11	<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
Benzo(a)pyrene TEQ NEPM B1	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	mg/kg	NIL (+)VE	NIL (+)VE	0.55	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	94	100	92	94	91

PAHs in Soil						
Our Reference:	UNITS	98390-6	98390-7	98390-8	98390-9	98390-10
Your Reference	----------	BH3	BH5	BH5	BH6	BH6
Depth	----------	0.5-0.95	0.2	1-1.45	0.2	0.5-0.95
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	03/10/2013	03/10/2013	03/10/2013	03/10/2013	03/10/2013
Date analysed	-	08/10/2013	08/10/2013	08/10/2013	08/10/2013	08/10/2013
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	0.1	<0.1	<0.1	0.4
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.1
Fluoranthene	mg/kg	<0.1	0.7	<0.1	0.4	0.9
Pyrene	mg/kg	<0.1	0.9	<0.1	0.6	1.0
Benzo(a)anthracene	mg/kg	<0.1	0.4	<0.1	0.3	0.5
Chrysene	mg/kg	<0.1	0.6	<0.1	0.3	0.6
Benzo(b+k)fluoranthene	mg/kg	<0.2	1.6	<0.2	0.9	1.4
Benzo(a)pyrene	mg/kg	<0.05	0.97	<0.05	0.53	0.92
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	0.7	<0.1	0.4	0.6
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	0.9	<0.1	0.5	0.7
Benzo(a)pyrene TEQ NEPM B1	mg/kg	<0.5	1	<0.5	1	1
Total +ve PAH's	mg/kg	NIL (+)VE	7.0	NIL (+)VE	3.9	7.2
Surrogate p-Terphenyl-d14	%	88	81	87	88	89

Organochlorine Pesticides in soil						
Our Reference:	UNITS	98390-1	98390-2	98390-3	98390-4	98390-5
Your Reference	----------	BH1	BH1	BH2	BH2	BH3
Depth	----------	0.2	0.5-0.95	0.5-0.95	1-1.45	0.2
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	03/10/2013	03/10/2013	03/10/2013	03/10/2013	03/10/2013
Date analysed	-	04/10/2013	04/10/2013	04/10/2013	04/10/2013	04/10/2013
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	100	105	104	98	102

Organochlorine Pesticides in soil						
Our Reference:	UNITS	98390-6	98390-7	98390-8	98390-9	98390-10
Your Reference	----------	BH3	BH5	BH5	BH6	BH6
Depth	----------	0.5-0.95	0.2	1-1.45	0.2	0.5-0.95
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	03/10/2013	03/10/2013	03/10/2013	03/10/2013	03/10/2013
Date analysed	-	04/10/2013	04/10/2013	04/10/2013	04/10/2013	04/10/2013
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	94	97	104	105	105

Organophosphorus Pesticides						
Our Reference:	UNITS	98390-1	98390-2	98390-3	98390-4	98390-5
Your Reference	----------	BH1	BH1	BH2	BH2	BH3
Depth	----------	0.2	0.5-0.95	0.5-0.95	1-1.45	0.2
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	03/10/2013	03/10/2013	03/10/2013	03/10/2013	03/10/2013
Date analysed	-	04/10/2013	04/10/2013	04/10/2013	04/10/2013	04/10/2013
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	100	105	104	98	102

Organophosphorus Pesticides						
Our Reference:	UNITS	98390-6	98390-7	98390-8	98390-9	98390-10
Your Reference	----------	BH3	BH5	BH5	BH6	BH6
Depth	----------	0.5-0.95	0.2	1-1.45	0.2	0.5-0.95
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	03/10/2013	03/10/2013	03/10/2013	03/10/2013	03/10/2013
Date analysed	-	04/10/2013	04/10/2013	04/10/2013	04/10/2013	04/10/2013
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	94	97	104	105	105

PCBs in Soil						
Our Reference:	UNITS	98390-1	98390-2	98390-3	98390-4	98390-5
Your Reference	----------	BH1	BH1	BH2	BH2	BH3
Depth	----------	0.2	0.5-0.95	0.5-0.95	1-1.45	0.2
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	03/10/2013	03/10/2013	03/10/2013	03/10/2013	03/10/2013
Date analysed	-	04/10/2013	04/10/2013	04/10/2013	04/10/2013	04/10/2013
Arochlor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	100	105	104	98	102

PCBs in Soil						
Our Reference:	UNITS	98390-6	98390-7	98390-8	98390-9	98390-10
Your Reference	----------	BH3	BH5	BH5	BH6	BH6
Depth	----------	0.5-0.95	0.2	1-1.45	0.2	0.5-0.95
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	03/10/2013	03/10/2013	03/10/2013	03/10/2013	03/10/2013
Date analysed	-	04/10/2013	04/10/2013	04/10/2013	04/10/2013	04/10/2013
Arochlor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	94	97	104	105	105

Total Phenolics in Soil						
Our Reference:	UNITS	98390-1	98390-2	98390-3	98390-4	98390-5
Your Reference	----------	BH1	BH1	BH2	BH2	BH3
Depth	----------	0.2	0.5-0.95	0.5-0.95	1-1.45	0.2
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	04/10/2013	04/10/2013	04/10/2013	04/10/2013	04/10/2013
Date analysed	-	04/10/2013	04/10/2013	04/10/2013	04/10/2013	04/10/2013
Total Phenolics (as Phenol)	mg/kg	<5	<5	<5	<5	<5

Total Phenolics in Soil						
Our Reference:	UNITS	98390-6	98390-7	98390-8	98390-9	98390-10
Your Reference	----------	BH3	BH5	BH5	BH6	BH6
Depth	----------	0.5-0.95	0.2	1-1.45	0.2	0.5-0.95
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	04/10/2013	04/10/2013	04/10/2013	04/10/2013	04/10/2013
Date analysed	-	04/10/2013	04/10/2013	04/10/2013	04/10/2013	04/10/2013
Total Phenolics (as Phenol)	mg/kg	<5	<5	<5	<5	<5

Acid Extractable metals in soil						
Our Reference:	UNITS	98390-1	98390-2	98390-3	98390-4	98390-5
Your Reference	----------	BH1	BH1	BH2	BH2	BH3
Depth	----------	0.2	0.5-0.95	0.5-0.95	1-1.45	0.2
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	03/10/2013	03/10/2013	03/10/2013	03/10/2013	03/10/2013
Date analysed	-	03/10/2013	03/10/2013	03/10/2013	03/10/2013	03/10/2013
Arsenic	mg/kg	5	14	<4	<4	6
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	7	7	6	4	7
Copper	mg/kg	31	40	27	11	27
Lead	mg/kg	20	22	10	17	23
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	5	6	3	1	7
Zinc	mg/kg	23	24	14	11	26
Manganese	mg/kg	18	23	21	2	43

Acid Extractable metals in soil						
Our Reference:	UNITS	98390-6	98390-7	98390-8	98390-9	98390-10
Your Reference	----------	BH3	BH5	BH5	BH6	BH6
Depth	----------	0.5-0.95	0.2	1-1.45	0.2	0.5-0.95
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	03/10/2013	03/10/2013	03/10/2013	03/10/2013	03/10/2013
Date analysed	-	03/10/2013	03/10/2013	03/10/2013	03/10/2013	03/10/2013
Arsenic	mg/kg	5	12	6	6	13
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	15	25	15	18	17
Copper	mg/kg	22	28	25	49	34
Lead	mg/kg	21	47	22	22	33
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	2	10	2	28	13
Zinc	mg/kg	10	79	12	51	49
Manganese	mg/kg	13	450	8	300	240

Moisture						
Our Reference:	UNITS	98390-1	98390-2	98390-3	98390-4	98390-5
Your Reference	----------	BH1	BH1	BH2	BH2	BH3
Depth	----------	0.2	0.5-0.95	0.5-0.95	1-1.45	0.2
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	3/10/2013	3/10/2013	3/10/2013	3/10/2013	3/10/2013
Date analysed	-	4/10/2013	4/10/2013	4/10/2013	4/10/2013	4/10/2013
Moisture	%	15	11	11	15	9.5

Moisture						
Our Reference:	UNITS	98390-6	98390-7	98390-8	98390-9	98390-10
Your Reference	----------	BH3	BH5	BH5	BH6	BH6
Depth	----------	0.5-0.95	0.2	1-1.45	0.2	0.5-0.95
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	3/10/2013	3/10/2013	3/10/2013	3/10/2013	3/10/2013
Date analysed	-	4/10/2013	4/10/2013	4/10/2013	4/10/2013	4/10/2013
Moisture	%	20	13	18	20	17

Method ID	Methodology Summary
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note Naphthalene is determined from the VOC analysis.
Org-012 subset	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-008	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Inorg-030	Total Phenolics - determined colorimetrically following disitillation, based upon APHA 22nd ED 5530 D.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Inorg-008	Moisture content determined by heating at 105+/-5 deg C for a minimum of 12 hours.

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			03/10/2013	98390-1	03/10/2013 || 03/10/2013	LCS-3	03/10/2013
Date analysed	-			04/10/2013	98390-1	04/10/2013 || 04/10/2013	LCS-3	04/10/2013
TRHC$_6$ - C$_9$	mg/kg	25	Org-016	<25	98390-1	<25 || <25	LCS-3	103%
TRHC$_6$ - C$_{10}$	mg/kg	25	Org-016	<25	98390-1	<25 || <25	LCS-3	103%
Benzene	mg/kg	0.2	Org-016	<0.2	98390-1	<0.2 || <0.2	LCS-3	91%
Toluene	mg/kg	0.5	Org-016	<0.5	98390-1	<0.5 || <0.5	LCS-3	89%
Ethylbenzene	mg/kg	1	Org-016	<1	98390-1	<1 || <1	LCS-3	107%
m+p-xylene	mg/kg	2	Org-016	<2	98390-1	<2 || <2	LCS-3	115%
o-Xylene	mg/kg	1	Org-016	<1	98390-1	<1 || <1	LCS-3	115%
naphthalene	mg/kg	1	Org-014	<1	98390-1	<1 || <1	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%		Org-016	82	98390-1	77 || 80 || RPD: 4	LCS-3	79%

QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			03/10/2013	98390-1	03/10/2013 || 03/10/2013	LCS-3	03/10/2013
Date analysed	-			04/10/2013	98390-1	04/10/2013 || 04/10/2013	LCS-3	04/10/2013
TRHC$_{10}$ - C$_{14}$	mg/kg	50	Org-003	<50	98390-1	<50 || <50	LCS-3	103%
TRHC$_{15}$ - C$_{28}$	mg/kg	100	Org-003	<100	98390-1	<100 || <100	LCS-3	112%
TRHC$_{29}$ - C$_{36}$	mg/kg	100	Org-003	<100	98390-1	<100 || <100	LCS-3	91%
TRH>C$_{10}$-C$_{16}$	mg/kg	50	Org-003	<50	98390-1	<50 || <50	LCS-3	103%
TRH>C$_{16}$-C$_{34}$	mg/kg	100	Org-003	<100	98390-1	<100 || <100	LCS-3	112%
TRH>C$_{34}$-C$_{40}$	mg/kg	100	Org-003	<100	98390-1	<100 || <100	LCS-3	91%
Surrogate o-Terphenyl	%		Org-003	91	98390-1	94 || 94 || RPD: 0	LCS-3	114%

QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			03/10/2013	98390-1	03/10/2013 || 03/10/2013	LCS-3	03/10/2013
Date analysed	-			08/10/2013	98390-1	08/10/2013 || 08/10/2013	LCS-3	08/10/2013
Naphthalene	mg/kg	0.1	Org-012 subset	<0.1	98390-1	<0.1 || <0.1	LCS-3	102%
Acenaphthylene	mg/kg	0.1	Org-012 subset	<0.1	98390-1	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	0.1	Org-012 subset	<0.1	98390-1	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	0.1	Org-012 subset	<0.1	98390-1	<0.1 || <0.1	LCS-3	94%
Phenanthrene	mg/kg	0.1	Org-012 subset	<0.1	98390-1	<0.1 || <0.1	LCS-3	104%
Anthracene	mg/kg	0.1	Org-012 subset	<0.1	98390-1	<0.1 || <0.1	[NR]	[NR]
Fluoranthene	mg/kg	0.1	Org-012 subset	<0.1	98390-1	<0.1 || <0.1	LCS-3	95%

QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Pyrene	mg/kg	0.1	Org-012 subset	<0.1	98390-1	<0.1 || <0.1	LCS-3	98%
Benzo(a)anthracene	mg/kg	0.1	Org-012 subset	<0.1	98390-1	<0.1 || <0.1	[NR]	[NR]
Chrysene	mg/kg	0.1	Org-012 subset	<0.1	98390-1	<0.1 || <0.1	LCS-3	95%
Benzo(b+k)fluoranthene	mg/kg	0.2	Org-012 subset	<0.2	98390-1	<0.2 || <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	0.05	Org-012 subset	<0.05	98390-1	<0.05 || <0.05	LCS-3	94%
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012 subset	<0.1	98390-1	<0.1 || <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012 subset	<0.1	98390-1	<0.1 || <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012 subset	<0.1	98390-1	<0.1 || <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012 subset	85	98390-1	94 || 96 || RPD: 2	LCS-3	93%
QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			03/10/2013	98390-1	03/10/2013 || 03/10/2013	LCS-3	03/10/2013
Date analysed	-			04/10/2013	98390-1	04/10/2013 || 04/10/2013	LCS-3	04/10/2013
HCB	mg/kg	0.1	Org-005	<0.1	98390-1	<0.1 || <0.1	[NR]	[NR]
alpha-BHC	mg/kg	0.1	Org-005	<0.1	98390-1	<0.1 || <0.1	LCS-3	93%
gamma-BHC	mg/kg	0.1	Org-005	<0.1	98390-1	<0.1 || <0.1	[NR]	[NR]
beta-BHC	mg/kg	0.1	Org-005	<0.1	98390-1	<0.1 || <0.1	LCS-3	93%
Heptachlor	mg/kg	0.1	Org-005	<0.1	98390-1	<0.1 || <0.1	LCS-3	108%
delta-BHC	mg/kg	0.1	Org-005	<0.1	98390-1	<0.1 || <0.1	[NR]	[NR]
Aldrin	mg/kg	0.1	Org-005	<0.1	98390-1	<0.1 || <0.1	LCS-3	96%
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	98390-1	<0.1 || <0.1	LCS-3	91%
gamma-Chlordane	mg/kg	0.1	Org-005	<0.1	98390-1	<0.1 || <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	0.1	Org-005	<0.1	98390-1	<0.1 || <0.1	[NR]	[NR]
Endosulfan I	mg/kg	0.1	Org-005	<0.1	98390-1	<0.1 || <0.1	[NR]	[NR]
pp-DDE	mg/kg	0.1	Org-005	<0.1	98390-1	<0.1 || <0.1	LCS-3	105%
Dieldrin	mg/kg	0.1	Org-005	<0.1	98390-1	<0.1 || <0.1	LCS-3	96%
Endrin	mg/kg	0.1	Org-005	<0.1	98390-1	<0.1 || <0.1	LCS-3	94%
pp-DDD	mg/kg	0.1	Org-005	<0.1	98390-1	<0.1 || <0.1	LCS-3	108%
Endosulfan II	mg/kg	0.1	Org-005	<0.1	98390-1	<0.1 || <0.1	[NR]	[NR]
pp-DDT	mg/kg	0.1	Org-005	<0.1	98390-1	<0.1 || <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	0.1	Org-005	<0.1	98390-1	<0.1 || <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	0.1	Org-005	<0.1	98390-1	<0.1 || <0.1	LCS-3	117%
Methoxychlor	mg/kg	0.1	Org-005	<0.1	98390-1	<0.1 || <0.1	[NR]	[NR]
Surrogate TCMX	%		Org-005	93	98390-1	100 || 96 || RPD: 4	LCS-3	97%

QUALITY CONTROL Organophosphorus Pesticides	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			03/10/2013	98390-1	03/10/2013 || 03/10/2013	LCS-3	03/10/2013
Date analysed	-			04/10/2013	98390-1	04/10/2013 || 04/10/2013	LCS-3	04/10/2013
Diazinon	mg/kg	0.1	Org-008	<0.1	98390-1	<0.1 || <0.1	[NR]	[NR]
Dimethoate	mg/kg	0.1	Org-008	<0.1	98390-1	<0.1 || <0.1	[NR]	[NR]
Chlorpyriphos-methyl	mg/kg	0.1	Org-008	<0.1	98390-1	<0.1 || <0.1	[NR]	[NR]
Ronnel	mg/kg	0.1	Org-008	<0.1	98390-1	<0.1 || <0.1	[NR]	[NR]
Chlorpyriphos	mg/kg	0.1	Org-008	<0.1	98390-1	<0.1 || <0.1	LCS-3	92%
Fenitrothion	mg/kg	0.1	Org-008	<0.1	98390-1	<0.1 || <0.1	LCS-3	116%
Bromophos-ethyl	mg/kg	0.1	Org-008	<0.1	98390-1	<0.1 || <0.1	[NR]	[NR]
Ethion	mg/kg	0.1	Org-008	<0.1	98390-1	<0.1 || <0.1	LCS-3	115%
Surrogate TCMX	%		Org-008	93	98390-1	100 || 96 || RPD: 4	LCS-3	105%

QUALITY CONTROL PCBs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			03/10/2013	98390-1	03/10/2013 || 03/10/2013	LCS-3	03/10/2013
Date analysed	-			04/10/2013	98390-1	04/10/2013 || 04/10/2013	LCS-3	04/10/2013
Arochlor 1016	mg/kg	0.1	Org-006	<0.1	98390-1	<0.1 || <0.1	[NR]	[NR]
Arochlor 1221	mg/kg	0.1	Org-006	<0.1	98390-1	<0.1 || <0.1	[NR]	[NR]
Arochlor 1232	mg/kg	0.1	Org-006	<0.1	98390-1	<0.1 || <0.1	[NR]	[NR]
Arochlor 1242	mg/kg	0.1	Org-006	<0.1	98390-1	<0.1 || <0.1	[NR]	[NR]
Arochlor 1248	mg/kg	0.1	Org-006	<0.1	98390-1	<0.1 || <0.1	[NR]	[NR]
Arochlor 1254	mg/kg	0.1	Org-006	<0.1	98390-1	<0.1 || <0.1	LCS-3	113%
Arochlor 1260	mg/kg	0.1	Org-006	<0.1	98390-1	<0.1 || <0.1	[NR]	[NR]
Surrogate TCLMX	%		Org-006	93	98390-1	100 || 96 || RPD: 4	LCS-3	93%

QUALITY CONTROL Total Phenolics in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			04/10/2013	98390-1	04/10/2013 || 04/10/2013	LCS-1	04/10/2013
Date analysed	-			04/10/2013	98390-1	04/10/2013 || 04/10/2013	LCS-1	04/10/2013
Total Phenolics (as Phenol)	mg/kg	5	Inorg-030	<5	98390-1	<5 || <5	LCS-1	88%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date digested	-			03/10/2013	98390-1	03/10/2013 || 03/10/2013	LCS-2	03/10/2013
Date analysed	-			03/10/2013	98390-1	03/10/2013 || 03/10/2013	LCS-2	03/10/2013
Arsenic	mg/kg	4	Metals-020 ICP-AES	<4	98390-1	5 || <4	LCS-2	107%
Cadmium	mg/kg	0.4	Metals-020 ICP-AES	<0.4	98390-1	<0.4 || <0.4	LCS-2	118%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Chromium	mg/kg	1	Metals-020 ICP-AES	<1	98390-1	7 || 6 || RPD: 15	LCS-2	108%
Copper	mg/kg	1	Metals-020 ICP-AES	<1	98390-1	31 || 25 || RPD: 21	LCS-2	110%
Lead	mg/kg	1	Metals-020 ICP-AES	<1	98390-1	20 || 19 || RPD: 5	LCS-2	108%
Mercury	mg/kg	0.1	Metals-021 CV-AAS	<0.1	98390-1	<0.1 || <0.1	LCS-2	84%
Nickel	mg/kg	1	Metals-020 ICP-AES	<1	98390-1	5 || 5 || RPD: 0	LCS-2	110%
Zinc	mg/kg	1	Metals-020 ICP-AES	<1	98390-1	23 || 25 || RPD: 8	LCS-2	110%
Manganese	mg/kg	1	Metals-020 ICP-AES	<1	98390-1	18 || 14 || RPD: 25	LCS-2	110%

QUALITY CONTROL Moisture	UNITS	PQL	METHOD	Blank
Date prepared	-			[NT]
Date analysed	-			[NT]
Moisture	%	0.1	Inorg-008	[NT]

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	98390-2	03/10/2013
Date analysed	-	[NT]	[NT]	98390-2	03/10/2013
TRHC$_6$ - C$_9$	mg/kg	[NT]	[NT]	98390-2	107%
TRHC$_6$ - C$_{10}$	mg/kg	[NT]	[NT]	98390-2	107%
Benzene	mg/kg	[NT]	[NT]	98390-2	95%
Toluene	mg/kg	[NT]	[NT]	98390-2	92%
Ethylbenzene	mg/kg	[NT]	[NT]	98390-2	111%
m+p-xylene	mg/kg	[NT]	[NT]	98390-2	119%
o-Xylene	mg/kg	[NT]	[NT]	98390-2	118%
naphthalene	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%	[NT]	[NT]	98390-2	78%

QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	98390-2	03/10/2013
Date analysed	-	[NT]	[NT]	98390-2	04/10/2013
TRHC$_{10}$ - C$_{14}$	mg/kg	[NT]	[NT]	98390-2	99%
TRHC$_{15}$ - C$_{28}$	mg/kg	[NT]	[NT]	98390-2	113%
TRHC$_{29}$ - C$_{36}$	mg/kg	[NT]	[NT]	98390-2	93%
TRH>C$_{10}$-C$_{16}$	mg/kg	[NT]	[NT]	98390-2	99%
TRH>C$_{16}$-C$_{34}$	mg/kg	[NT]	[NT]	98390-2	113%
TRH>C$_{34}$-C$_{40}$	mg/kg	[NT]	[NT]	98390-2	93%
Surrogate o-Terphenyl	%	[NT]	[NT]	98390-2	111%
QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	98390-2	03/10/2013
Date analysed	-	[NT]	[NT]	98390-2	08/10/2013
Naphthalene	mg/kg	[NT]	[NT]	98390-2	103%
Acenaphthylene	mg/kg	[NT]	[NT]	[NR]	[NR]
Acenaphthene	mg/kg	[NT]	[NT]	[NR]	[NR]
Fluorene	mg/kg	[NT]	[NT]	98390-2	107%
Phenanthrene	mg/kg	[NT]	[NT]	98390-2	104%
Anthracene	mg/kg	[NT]	[NT]	[NR]	[NR]
Fluoranthene	mg/kg	[NT]	[NT]	98390-2	102%
Pyrene	mg/kg	[NT]	[NT]	98390-2	105%
Benzo(a)anthracene	mg/kg	[NT]	[NT]	[NR]	[NR]
Chrysene	mg/kg	[NT]	[NT]	98390-2	95%
Benzo(b+k)fluoranthene	mg/kg	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	mg/kg	[NT]	[NT]	98390-2	96%
Indeno(1,2,3-c,d)pyrene	mg/kg	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d14	%	[NT]	[NT]	98390-2	93%

QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	98390-2	03/10/2013
Date analysed	-	[NT]	[NT]	98390-2	04/10/2013
HCB	mg/kg	[NT]	[NT]	[NR]	[NR]
alpha-BHC	mg/kg	[NT]	[NT]	98390-2	90%
gamma-BHC	mg/kg	[NT]	[NT]	[NR]	[NR]
beta-BHC	mg/kg	[NT]	[NT]	98390-2	90%
Heptachlor	mg/kg	[NT]	[NT]	98390-2	104%
delta-BHC	mg/kg	[NT]	[NT]	[NR]	[NR]
Aldrin	mg/kg	[NT]	[NT]	98390-2	93%
Heptachlor Epoxide	mg/kg	[NT]	[NT]	98390-2	87%
gamma-Chlordane	mg/kg	[NT]	[NT]	[NR]	[NR]
alpha-chlordane	mg/kg	[NT]	[NT]	[NR]	[NR]
Endosulfan I	mg/kg	[NT]	[NT]	[NR]	[NR]
pp-DDE	mg/kg	[NT]	[NT]	98390-2	102%
Dieldrin	mg/kg	[NT]	[NT]	98390-2	92%
Endrin	mg/kg	[NT]	[NT]	98390-2	89%
pp-DDD	mg/kg	[NT]	[NT]	98390-2	104%
Endosulfan II	mg/kg	[NT]	[NT]	[NR]	[NR]
pp-DDT	mg/kg	[NT]	[NT]	[NR]	[NR]
Endrin Aldehyde	mg/kg	[NT]	[NT]	[NR]	[NR]
Endosulfan Sulphate	mg/kg	[NT]	[NT]	98390-2	113%
Methoxychlor	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate TCMX	%	[NT]	[NT]	98390-2	93%

QUALITY CONTROL Organophosphorus Pesticides	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	98390-2	03/10/2013
Date analysed	-	[NT]	[NT]	98390-2	04/10/2013
Diazinon	mg/kg	[NT]	[NT]	[NR]	[NR]
Dimethoate	mg/kg	[NT]	[NT]	[NR]	[NR]
Chlorpyriphos-methyl	mg/kg	[NT]	[NT]	[NR]	[NR]
Ronnel	mg/kg	[NT]	[NT]	[NR]	[NR]
Chlorpyriphos	mg/kg	[NT]	[NT]	98390-2	92%
Fenitrothion	mg/kg	[NT]	[NT]	98390-2	133%
Bromophos-ethyl	mg/kg	[NT]	[NT]	[NR]	[NR]
Ethion	mg/kg	[NT]	[NT]	98390-2	116%
Surrogate TCMX	%	[NT]	[NT]	98390-2	107%
QUALITY CONTROL PCBs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	98390-2	03/10/2013
Date analysed	-	[NT]	[NT]	98390-2	04/10/2013
Arochlor 1016	mg/kg	[NT]	[NT]	[NR]	[NR]
Arochlor 1221	mg/kg	[NT]	[NT]	[NR]	[NR]
Arochlor 1232	mg/kg	[NT]	[NT]	[NR]	[NR]
Arochlor 1242	mg/kg	[NT]	[NT]	[NR]	[NR]
Arochlor 1248	mg/kg	[NT]	[NT]	[NR]	[NR]
Arochlor 1254	mg/kg	[NT]	[NT]	98390-2	105%
Arochlor 1260	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate TCLMX	%	[NT]	[NT]	98390-2	97%
QUALITY CONTROL Total Phenolics in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	98390-2	04/10/2013
Date analysed	-	[NT]	[NT]	98390-2	04/10/2013
Total Phenolics (as Phenol)	mg/kg	[NT]	[NT]	98390-2	84%
QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	[NT]	[NT]	98390-2	03/10/2013
Date analysed	-	[NT]	[NT]	98390-2	03/10/2013
Arsenic	mg/kg	[NT]	[NT]	98390-2	92%
Cadmium	mg/kg	[NT]	[NT]	98390-2	91%
Chromium	mg/kg	[NT]	[NT]	98390-2	93%
Copper	mg/kg	[NT]	[NT]	98390-2	113%
Lead	mg/kg	[NT]	[NT]	98390-2	93%
Mercury	mg/kg	[NT]	[NT]	98390-2	95%
Nickel	mg/kg	[NT]	[NT]	98390-2	89%
Zinc	mg/kg	[NT]	[NT]	98390-2	92%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Manganese	mg/kg	[NT]	[NT]	98390-2	102%

Report Comments:

Asbestos ID was analysed by Approved Identifier:	Not applicable for this job
Asbestos ID was authorised by Approved Signatory:	Not applicable for this job

INS: Insufficient sample for this test	PQL: Practical Quantitation Limit	NT: Not tested
NA: Test not required	RPD: Relative Percent Difference	NA: Test not required
<: Less than	>: Greater than	LCS: Laboratory Control Sample

Quality Control Definitions

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

Matrix Spike : A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

LCS (Laboratory Control Sample) : This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Surrogate Spike: Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.
Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.
Spikes for Physical and Aggregate Tests are not applicable.
For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.
Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable.

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

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

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

SAMPLE RECEIPT ADVICE

Client:

Douglas Partners Pty Ltd
96 Hermitage Rd
West Ryde NSW 2114

ph: 02 9809 0666
Fax: 02 9809 4095

Attention: Peter Oitmaa

Sample log in details:

Your reference:	**45153.03, Sydney Olympic Park**
Envirolab Reference:	**98390**
Date received:	02/10/13
Date results expected to be reported:	**10/10/13**

Samples received in appropriate condition for analysis:	YES
No. of samples provided	10 soils
Turnaround time requested:	Standard
Temperature on receipt (°C)	4.8
Cooling Method:	Ice Pack
Sampling Date Provided:	Not Provided on the COC

Comments:

Samples will be held for 1 month for water samples and 2 months for soil samples from date of receipt of samples.

BH5 1-1.45 - actually labelled 0.5-0.95

Contact details:

Please direct any queries to Aileen Hie or Jacinta Hurst
ph: 02 9910 6200 fax: 02 9910 6201
email: ahie@envirolabservices.com.au or jhurst@envirolabservices.com.au

Douglas Partners
Geotechnics · Environment · Groundwater

CHAIN OF CUSTODY

Project Name: Sydney Olympic Park
Project No: 45153.03 Sampler: PMO
Project Mgr: Peter Oitmaa Mob. Phone: 0412 574 518
Email: peter.oitmaa@douglaspartners.com.au
Date Required: Std. Lab Quote No.

To: Envirolab Services
12 Ashley Street, Chatswood NSW 2067
Attn: Tania Notaras
Phone: 02 9910 6200 Fax: 02 9910 6201
Email: tnotaras@envirolabservices.com.au

	Sample ID	Sample Depth	Lab ID	Sampling Date	Sample Type S - soil W – water	Container type	Analytes: 8 Heavy Metal + [redacted]	TRH BTEX	PAH	OCP OPP	PCB	Phenol	Asbestos		Notes
1	BH1	0.2			S	Jar									
2	BH1	0.5-0.95													
3	BH2	0.5-0.95													
4	BH2	1-1.45													
5	BH3	0.2													
6	BH3	0.5-0.95													
7	BH5	0.2													
8	BH5	1-1.45	0.5-0.95	JC.											
9	BH6	0.2													
10	BH6	0.5-0.95													

Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200
Job No: 98390
Date Received: 2-10-13
Time Received: 16:20
Received by: JRC
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

Lab Report No.
Send Results to: Douglas Partners Address: 96 Hermitage Road, West Ryde 2114
Phone: (02) 9809 0666
Fax: (02) 9809 4095

Relinquished by: P. Oitmaa Signed: Date & Time: 2/10/13 1300hrs Received By: JRC Date & Time: 2.10.13/16.20
Relinquished by: Signed: Date & Time: Received By: Date & Time:

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

CERTIFICATE OF ANALYSIS 98975

Client:
Douglas Partners Pty Ltd
96 Hermitage Rd
West Ryde
NSW 2114

Attention: Peter Oitmaa

Sample log in details:

Your Reference:	**45153.03, Sydney Olympic Park**
No. of samples:	17 Soils 1 Water
Date samples received / completed instructions received	14/10/2013 / 14/10/2013

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

Report Details:

Date results requested by: / Issue Date:	21/10/13 / 18/10/13
Date of Preliminary Report:	Not issued

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Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with *.**

Results Approved By:

Jacinta Hurst
Laboratory Manager

NATA
ACCREDITED FOR TECHNICAL COMPETENCE

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	98975-1	98975-2	98975-3	98975-4	98975-5
Your Reference	----------	BH7	BH7	BH8	BH8	BH9
Depth	----------	0.2-0.3	0.5-0.6	0.2-0.3	0.5-0.6	015-025
Date Sampled		11/10/2013	11/10/2013	11/10/2013	11/10/2013	11/10/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	15/10/2013	15/10/2013	15/10/2013	15/10/2013	15/10/2013
Date analysed	-	15/10/2013	15/10/2013	15/10/2013	15/10/2013	15/10/2013
TRHC$_6$ - C$_9$	mg/kg	<25	<25	<25	<25	<25
TRHC$_6$ - C$_{10}$	mg/kg	<25	<25	<25	<25	<25
vTPHC$_6$ - C$_{10}$ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	91	83	62	91	85

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	98975-6	98975-7	98975-8	98975-9	98975-10
Your Reference	----------	BH9	BH10	BH10	BH11	BH11
Depth	----------	0.8-0.9	0.1-0.2	0.2-0.3	0.1-0.2	1.4-1.5
Date Sampled		11/10/2013	11/10/2013	11/10/2013	11/10/2013	11/10/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	15/10/2013	15/10/2013	15/10/2013	15/10/2013	15/10/2013
Date analysed	-	15/10/2013	15/10/2013	15/10/2013	15/10/2013	15/10/2013
TRHC$_6$ - C$_9$	mg/kg	<25	<25	<25	<25	<25
TRHC$_6$ - C$_{10}$	mg/kg	<25	<25	<25	<25	<25
vTPHC$_6$ - C$_{10}$ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	88	71	74	86	86

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	98975-11	98975-12	98975-13	98975-15	98975-16
Your Reference	----------	BH12A	BH12A	TS1A	TS7A	TS
Depth	----------	0.5-0.6	1.4-1.5	-	-	-
Date Sampled		11/10/2013	11/10/2013	11/10/2013	11/10/2013	11/10/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	15/10/2013	15/10/2013	15/10/2013	15/10/2013	15/10/2013
Date analysed	-	15/10/2013	15/10/2013	15/10/2013	15/10/2013	15/10/2013
TRHC$_6$ - C$_9$	mg/kg	<25	<25	<25	<25	[NA]
TRHC$_6$ - C$_{10}$	mg/kg	<25	<25	<25	<25	[NA]
vTPHC$_6$ - C$_{10}$ less BTEX (F1)	mg/kg	<25	<25	<25	<25	[NA]
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	71%
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	67%
Ethylbenzene	mg/kg	<1	<1	<1	<1	62%
m+p-xylene	mg/kg	<2	<2	<2	<2	64%
o-Xylene	mg/kg	<1	<1	<1	<1	66%
naphthalene	mg/kg	<1	<1	<1	<1	[NA]
Surrogate aaa-Trifluorotoluene	%	87	88	89	88	77

vTRH(C6-C10)/BTEXN in Soil		
Our Reference:	UNITS	98975-17
Your Reference	----------	TB
Depth	----------	-
Date Sampled		11/10/2013
Type of sample		Soil
Date extracted	-	15/10/2013
Date analysed	-	15/10/2013
TRHC$_6$ - C$_9$	mg/kg	<25
TRHC$_6$ - C$_{10}$	mg/kg	<25
vTPHC$_6$ - C$_{10}$ less BTEX (F1)	mg/kg	<25
Benzene	mg/kg	<0.2
Toluene	mg/kg	<0.5
Ethylbenzene	mg/kg	<1
m+p-xylene	mg/kg	<2
o-Xylene	mg/kg	<1
naphthalene	mg/kg	<1
Surrogate aaa-Trifluorotoluene	%	90

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	98975-1	98975-2	98975-3	98975-4	98975-5
Your Reference	----------	BH7	BH7	BH8	BH8	BH9
Depth	----------	0.2-0.3	0.5-0.6	0.2-0.3	0.5-0.6	015-025
Date Sampled		11/10/2013	11/10/2013	11/10/2013	11/10/2013	11/10/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	15/10/2013	15/10/2013	15/10/2013	15/10/2013	15/10/2013
Date analysed	-	15/10/2013	15/10/2013	15/10/2013	15/10/2013	15/10/2013
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50	<50	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	<100	<100	<100	<100	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	<100	<100	<100	<100	<100
TRH>C$_{10}$-C$_{16}$	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{16}$-C$_{34}$	mg/kg	<100	<100	<100	<100	<100
TRH>C$_{34}$-C$_{40}$	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	111	112	114	112	106

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	98975-6	98975-7	98975-8	98975-9	98975-10
Your Reference	----------	BH9	BH10	BH10	BH11	BH11
Depth	----------	0.8-0.9	0.1-0.2	0.2-0.3	0.1-0.2	1.4-1.5
Date Sampled		11/10/2013	11/10/2013	11/10/2013	11/10/2013	11/10/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	15/10/2013	15/10/2013	15/10/2013	15/10/2013	15/10/2013
Date analysed	-	15/10/2013	15/10/2013	15/10/2013	15/10/2013	15/10/2013
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50	<50	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	<100	<100	<100	<100	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	<100	<100	<100	<100	<100
TRH>C$_{10}$-C$_{16}$	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{16}$-C$_{34}$	mg/kg	<100	<100	<100	<100	<100
TRH>C$_{34}$-C$_{40}$	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	105	112	108	109	117

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	98975-11	98975-12	98975-13	98975-15	98975-17
Your Reference	----------	BH12A	BH12A	TS1A	TS7A	TB
Depth	----------	0.5-0.6	1.4-1.5	-	-	-
Date Sampled		11/10/2013	11/10/2013	11/10/2013	11/10/2013	11/10/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	15/10/2013	15/10/2013	15/10/2013	15/10/2013	15/10/2013
Date analysed	-	15/10/2013	15/10/2013	15/10/2013	15/10/2013	15/10/2013
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50	<50	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	<100	<100	<100	<100	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	<100	<100	<100	<100	<100
TRH>C$_{10}$-C$_{16}$	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{16}$-C$_{34}$	mg/kg	<100	<100	<100	<100	<100
TRH>C$_{34}$-C$_{40}$	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	104	105	109	105	107

PAHs in Soil						
Our Reference:	UNITS	98975-1	98975-2	98975-3	98975-4	98975-5
Your Reference	----------	BH7	BH7	BH8	BH8	BH9
Depth	----------	0.2-0.3	0.5-0.6	0.2-0.3	0.5-0.6	015-025
Date Sampled		11/10/2013	11/10/2013	11/10/2013	11/10/2013	11/10/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	15/10/2013	15/10/2013	15/10/2013	15/10/2013	15/10/2013
Date analysed	-	15/10/2013	15/10/2013	15/10/2013	15/10/2013	15/10/2013
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<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
Benzo(a)pyrene TEQ NEPM B1	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	mg/kg	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	101	104	106	102	101

PAHs in Soil						
Our Reference:	UNITS	98975-6	98975-7	98975-8	98975-9	98975-10
Your Reference	----------	BH9	BH10	BH10	BH11	BH11
Depth	----------	0.8-0.9	0.1-0.2	0.2-0.3	0.1-0.2	1.4-1.5
Date Sampled		11/10/2013	11/10/2013	11/10/2013	11/10/2013	11/10/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	15/10/2013	15/10/2013	15/10/2013	15/10/2013	15/10/2013
Date analysed	-	15/10/2013	15/10/2013	15/10/2013	15/10/2013	15/10/2013
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.8
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.2
Fluoranthene	mg/kg	<0.1	0.2	0.1	0.1	1.7
Pyrene	mg/kg	<0.1	0.2	0.2	0.1	1.8
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.8
Chrysene	mg/kg	<0.1	0.1	0.1	<0.1	0.8
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	0.2	<0.2	1.2
Benzo(a)pyrene	mg/kg	<0.05	0.11	0.13	<0.05	0.79
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.4
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	0.4
Benzo(a)pyrene TEQ NEPM B1	mg/kg	<0.5	<0.5	<0.5	<0.5	1
Total +ve PAH's	mg/kg	NIL (+)VE	0.66	0.76	0.20	9.0
Surrogate p-Terphenyl-d14	%	95	110	113	108	117

PAHs in Soil						
Our Reference:	UNITS	98975-11	98975-12	98975-13	98975-15	98975-17
Your Reference	----------	BH12A	BH12A	TS1A	TS7A	TB
Depth	----------	0.5-0.6	1.4-1.5	-	-	-
Date Sampled		11/10/2013	11/10/2013	11/10/2013	11/10/2013	11/10/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	15/10/2013	15/10/2013	15/10/2013	15/10/2013	15/10/2013
Date analysed	-	15/10/2013	15/10/2013	15/10/2013	15/10/2013	15/10/2013
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.2	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.3	<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	0.2	<0.1	<0.1	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	0.4	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	0.19	<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
Benzo(a)pyrene TEQ NEPM B1	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	mg/kg	1.6	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	114	105	106	114	113

Organochlorine Pesticides in soil						
Our Reference:	UNITS	98975-1	98975-2	98975-3	98975-4	98975-5
Your Reference	----------	BH7	BH7	BH8	BH8	BH9
Depth	----------	0.2-0.3	0.5-0.6	0.2-0.3	0.5-0.6	015-025
Date Sampled		11/10/2013	11/10/2013	11/10/2013	11/10/2013	11/10/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	15/10/2013	15/10/2013	15/10/2013	15/10/2013	15/10/2013
Date analysed	-	16/10/2013	16/10/2013	16/10/2013	16/10/2013	16/10/2013
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	112	110	116	113	110

Organochlorine Pesticides in soil						
Our Reference:	UNITS	98975-6	98975-7	98975-8	98975-9	98975-10
Your Reference	----------	BH9	BH10	BH10	BH11	BH11
Depth	----------	0.8-0.9	0.1-0.2	0.2-0.3	0.1-0.2	1.4-1.5
Date Sampled		11/10/2013	11/10/2013	11/10/2013	11/10/2013	11/10/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	15/10/2013	15/10/2013	15/10/2013	15/10/2013	15/10/2013
Date analysed	-	16/10/2013	16/10/2013	16/10/2013	16/10/2013	16/10/2013
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	109	122	114	111	120

Organochlorine Pesticides in soil					
Our Reference:	UNITS	98975-11	98975-12	98975-13	98975-15
Your Reference	----------	BH12A	BH12A	TS1A	TS7A
Depth	----------	0.5-0.6	1.4-1.5	-	-
Date Sampled		11/10/2013	11/10/2013	11/10/2013	11/10/2013
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	15/10/2013	15/10/2013	15/10/2013	15/10/2013
Date analysed	-	16/10/2013	16/10/2013	16/10/2013	16/10/2013
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	112	113	113	115

Organophosphorus Pesticides						
Our Reference:	UNITS	98975-1	98975-2	98975-3	98975-4	98975-5
Your Reference	----------	BH7	BH7	BH8	BH8	BH9
Depth	----------	0.2-0.3	0.5-0.6	0.2-0.3	0.5-0.6	015-025
Date Sampled		11/10/2013	11/10/2013	11/10/2013	11/10/2013	11/10/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	15/10/2013	15/10/2013	15/10/2013	15/10/2013	15/10/2013
Date analysed	-	16/10/2013	16/10/2013	16/10/2013	16/10/2013	16/10/2013
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	112	110	116	113	110

Organophosphorus Pesticides						
Our Reference:	UNITS	98975-6	98975-7	98975-8	98975-9	98975-10
Your Reference	----------	BH9	BH10	BH10	BH11	BH11
Depth	----------	0.8-0.9	0.1-0.2	0.2-0.3	0.1-0.2	1.4-1.5
Date Sampled		11/10/2013	11/10/2013	11/10/2013	11/10/2013	11/10/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	15/10/2013	15/10/2013	15/10/2013	15/10/2013	15/10/2013
Date analysed	-	16/10/2013	16/10/2013	16/10/2013	16/10/2013	16/10/2013
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	109	122	114	111	120

Organophosphorus Pesticides					
Our Reference:	UNITS	98975-11	98975-12	98975-13	98975-15
Your Reference	----------	BH12A	BH12A	TS1A	TS7A
Depth	----------	0.5-0.6	1.4-1.5	-	-
Date Sampled		11/10/2013	11/10/2013	11/10/2013	11/10/2013
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	15/10/2013	15/10/2013	15/10/2013	15/10/2013
Date analysed	-	16/10/2013	16/10/2013	16/10/2013	16/10/2013
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	112	113	113	115

PCBs in Soil						
Our Reference:	UNITS	98975-1	98975-2	98975-3	98975-4	98975-5
Your Reference	----------	BH7	BH7	BH8	BH8	BH9
Depth	----------	0.2-0.3	0.5-0.6	0.2-0.3	0.5-0.6	015-025
Date Sampled		11/10/2013	11/10/2013	11/10/2013	11/10/2013	11/10/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	15/10/2013	15/10/2013	15/10/2013	15/10/2013	15/10/2013
Date analysed	-	16/10/2013	16/10/2013	16/10/2013	16/10/2013	16/10/2013
Arochlor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	112	110	116	113	110

PCBs in Soil						
Our Reference:	UNITS	98975-6	98975-7	98975-8	98975-9	98975-10
Your Reference	----------	BH9	BH10	BH10	BH11	BH11
Depth	----------	0.8-0.9	0.1-0.2	0.2-0.3	0.1-0.2	1.4-1.5
Date Sampled		11/10/2013	11/10/2013	11/10/2013	11/10/2013	11/10/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	15/10/2013	15/10/2013	15/10/2013	15/10/2013	15/10/2013
Date analysed	-	16/10/2013	16/10/2013	16/10/2013	16/10/2013	16/10/2013
Arochlor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	109	122	114	111	120

PCBs in Soil					
Our Reference:	UNITS	98975-11	98975-12	98975-13	98975-15
Your Reference	----------	BH12A	BH12A	TS1A	TS7A
Depth	----------	0.5-0.6	1.4-1.5	-	-
Date Sampled		11/10/2013	11/10/2013	11/10/2013	11/10/2013
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	15/10/2013	15/10/2013	15/10/2013	15/10/2013
Date analysed	-	16/10/2013	16/10/2013	16/10/2013	16/10/2013
Arochlor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1
Arochlor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1
Arochlor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1
Arochlor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1
Arochlor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1
Arochlor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1
Arochlor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	112	113	113	115

Total Phenolics in Soil						
Our Reference:	UNITS	98975-1	98975-2	98975-3	98975-4	98975-5
Your Reference	----------	BH7	BH7	BH8	BH8	BH9
Depth	----------	0.2-0.3	0.5-0.6	0.2-0.3	0.5-0.6	015-025
Date Sampled		11/10/2013	11/10/2013	11/10/2013	11/10/2013	11/10/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	15/10/2013	15/10/2013	15/10/2013	15/10/2013	15/10/2013
Date analysed	-	15/10/2013	15/10/2013	15/10/2013	15/10/2013	15/10/2013
Total Phenolics (as Phenol)	mg/kg	<5	<5	<5	<5	<5

Total Phenolics in Soil						
Our Reference:	UNITS	98975-6	98975-7	98975-8	98975-9	98975-10
Your Reference	----------	BH9	BH10	BH10	BH11	BH11
Depth	----------	0.8-0.9	0.1-0.2	0.2-0.3	0.1-0.2	1.4-1.5
Date Sampled		11/10/2013	11/10/2013	11/10/2013	11/10/2013	11/10/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	15/10/2013	15/10/2013	15/10/2013	15/10/2013	15/10/2013
Date analysed	-	15/10/2013	15/10/2013	15/10/2013	15/10/2013	15/10/2013
Total Phenolics (as Phenol)	mg/kg	<5	<5	<5	<5	<5

Total Phenolics in Soil					
Our Reference:	UNITS	98975-11	98975-12	98975-13	98975-15
Your Reference	----------	BH12A	BH12A	TS1A	TS7A
Depth	----------	0.5-0.6	1.4-1.5	-	-
Date Sampled		11/10/2013	11/10/2013	11/10/2013	11/10/2013
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	15/10/2013	15/10/2013	15/10/2013	15/10/2013
Date analysed	-	15/10/2013	15/10/2013	15/10/2013	15/10/2013
Total Phenolics (as Phenol)	mg/kg	<5	<5	<5	<5

Acid Extractable metals in soil						
Our Reference:	UNITS	98975-1	98975-2	98975-3	98975-4	98975-5
Your Reference	----------	BH7	BH7	BH8	BH8	BH9
Depth	----------	0.2-0.3	0.5-0.6	0.2-0.3	0.5-0.6	015-025
Date Sampled		11/10/2013	11/10/2013	11/10/2013	11/10/2013	11/10/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	15/10/2013	15/10/2013	15/10/2013	15/10/2013	15/10/2013
Date analysed	-	15/10/2013	15/10/2013	15/10/2013	15/10/2013	15/10/2013
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	6	5	8	4	6
Copper	mg/kg	21	28	22	16	25
Lead	mg/kg	16	17	16	16	26
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	4	6	11	3	8
Zinc	mg/kg	19	30	37	19	31
Manganese	mg/kg	31	15	73	17	49

Acid Extractable metals in soil						
Our Reference:	UNITS	98975-6	98975-7	98975-8	98975-9	98975-10
Your Reference	----------	BH9	BH10	BH10	BH11	BH11
Depth	----------	0.8-0.9	0.1-0.2	0.2-0.3	0.1-0.2	1.4-1.5
Date Sampled		11/10/2013	11/10/2013	11/10/2013	11/10/2013	11/10/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	15/10/2013	15/10/2013	15/10/2013	15/10/2013	15/10/2013
Date analysed	-	15/10/2013	15/10/2013	15/10/2013	15/10/2013	15/10/2013
Arsenic	mg/kg	<4	6	5	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	7	16	15	7	8
Copper	mg/kg	21	20	16	23	10
Lead	mg/kg	22	19	16	21	29
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	4	14	18	10	4
Zinc	mg/kg	23	35	24	45	34
Manganese	mg/kg	48	200	180	390	150

Acid Extractable metals in soil					
Our Reference:	UNITS	98975-11	98975-12	98975-13	98975-15
Your Reference	----------	BH12A	BH12A	TS1A	TS7A
Depth	----------	0.5-0.6	1.4-1.5	-	-
Date Sampled		11/10/2013	11/10/2013	11/10/2013	11/10/2013
Type of sample		Soil	Soil	Soil	Soil
Date digested	-	15/10/2013	15/10/2013	15/10/2013	15/10/2013
Date analysed	-	15/10/2013	15/10/2013	15/10/2013	15/10/2013
Arsenic	mg/kg	5	5	<4	5
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	14	18	5	17
Copper	mg/kg	14	18	22	25
Lead	mg/kg	24	20	17	21
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	7	4	5	4
Zinc	mg/kg	22	12	22	19
Manganese	mg/kg	460	42	30	59

Moisture						
Our Reference:	UNITS	98975-1	98975-2	98975-3	98975-4	98975-5
Your Reference	----------	BH7	BH7	BH8	BH8	BH9
Depth	----------	0.2-0.3	0.5-0.6	0.2-0.3	0.5-0.6	015-025
Date Sampled		11/10/2013	11/10/2013	11/10/2013	11/10/2013	11/10/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	15/10/2013	15/10/2013	15/10/2013	15/10/2013	15/10/2013
Date analysed	-	16/10/2013	16/10/2013	16/10/2013	16/10/2013	16/10/2013
Moisture	%	16	8.1	14	16	8.4

Moisture						
Our Reference:	UNITS	98975-6	98975-7	98975-8	98975-9	98975-10
Your Reference	----------	BH9	BH10	BH10	BH11	BH11
Depth	----------	0.8-0.9	0.1-0.2	0.2-0.3	0.1-0.2	1.4-1.5
Date Sampled		11/10/2013	11/10/2013	11/10/2013	11/10/2013	11/10/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	15/10/2013	15/10/2013	15/10/2013	15/10/2013	15/10/2013
Date analysed	-	16/10/2013	16/10/2013	16/10/2013	16/10/2013	16/10/2013
Moisture	%	9.4	12	12	19	16

Moisture					
Our Reference:	UNITS	98975-11	98975-12	98975-13	98975-15
Your Reference	----------	BH12A	BH12A	TS1A	TS7A
Depth	----------	0.5-0.6	1.4-1.5	-	-
Date Sampled		11/10/2013	11/10/2013	11/10/2013	11/10/2013
Type of sample		Soil	Soil	Soil	Soil
Date prepared	-	15/10/2013	15/10/2013	15/10/2013	15/10/2013
Date analysed	-	16/10/2013	16/10/2013	16/10/2013	16/10/2013
Moisture	%	15	20	15	23

Asbestos ID - soils						
Our Reference:	UNITS	98975-1	98975-3	98975-5	98975-7	98975-9
Your Reference	----------	BH7	BH8	BH9	BH10	BH11
Depth	----------	0.2-0.3	0.2-0.3	015-025	0.1-0.2	0.1-0.2
Date Sampled		11/10/2013	11/10/2013	11/10/2013	11/10/2013	11/10/2013
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	18/10/2013	18/10/2013	18/10/2013	18/10/2013	18/10/2013
Sample mass tested	g	Approx 40g	Approx 40g	Approx 40g	Approx 40g	Approx 40g
Sample Description	-	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks	Dark brown fine-grained soil & rocks	Dark brown fine-grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg
Trace Analysis	-	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected

Asbestos ID - soils		
Our Reference:	UNITS	98975-11
Your Reference	----------	BH12A
Depth	----------	0.5-0.6
Date Sampled		11/10/2013
Type of sample		Soil
Date analysed	-	18/10/2013
Sample mass tested	g	Approx 40g
Sample Description	-	Dark brown fine-grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg
Trace Analysis	-	No respirable fibres detected

vTRH(C6-C10)/BTEXN in Water		
Our Reference:	UNITS	98975-18
Your Reference	----------	Rins1
Depth	----------	-
Date Sampled		11/10/2013
Type of sample		Water
Date extracted	-	14/10/2013
Date analysed	-	15/10/2013
$TRHC_6$ - C_9	µg/L	<10
$TRHC_6$ - C_{10}	µg/L	<10
$TRHC_6$ - C_{10} less BTEX (F1)	µg/L	<10
Benzene	µg/L	<1
Toluene	µg/L	<1
Ethylbenzene	µg/L	<1
m+p-xylene	µg/L	<2
o-xylene	µg/L	<1
Naphthalene	µg/L	<1
Surrogate Dibromofluoromethane	%	127
Surrogate toluene-d8	%	99
Surrogate 4-BFB	%	78

svTRH (C10-C40) in Water		
Our Reference:	UNITS	98975-18
Your Reference	----------	Rins1
Depth	----------	-
Date Sampled		11/10/2013
Type of sample		Water
Date extracted	-	15/10/2013
Date analysed	-	15/10/2013
TRHC$_{10}$ - C$_{14}$	µg/L	<50
TRHC$_{15}$ - C$_{28}$	µg/L	<100
TRHC$_{29}$ - C$_{36}$	µg/L	<100
TRH>C$_{10}$ - C$_{16}$	µg/L	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	µg/L	<50
TRH>C$_{16}$ - C$_{34}$	µg/L	<100
TRH>C$_{34}$ - C$_{40}$	µg/L	<100
Surrogate o-Terphenyl	%	98

PAHs in Water		
Our Reference:	UNITS	98975-18
Your Reference	----------	Rins1
Depth	----------	-
Date Sampled		11/10/2013
Type of sample		Water
Date extracted	-	15/10/2013
Date analysed	-	15/10/2013
Naphthalene	µg/L	<1
Acenaphthylene	µg/L	<1
Acenaphthene	µg/L	<1
Fluorene	µg/L	<1
Phenanthrene	µg/L	<1
Anthracene	µg/L	<1
Fluoranthene	µg/L	<1
Pyrene	µg/L	<1
Benzo(a)anthracene	µg/L	<1
Chrysene	µg/L	<1
Benzo(b+k)fluoranthene	µg/L	<2
Benzo(a)pyrene	µg/L	<1
Indeno(1,2,3-c,d)pyrene	µg/L	<1
Dibenzo(a,h)anthracene	µg/L	<1
Benzo(g,h,i)perylene	µg/L	<1
Benzo(a)pyrene TEQ	µg/L	<5
Total +ve PAH's	µg/L	NIL (+)VE
Surrogate p-Terphenyl-d14	%	91

OCP in water		
Our Reference:	UNITS	98975-18
Your Reference	----------	Rins1
Depth	----------	-
Date Sampled		11/10/2013
Type of sample		Water
Date extracted	-	15/10/2013
Date analysed	-	16/10/2013
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
pp-DDT	µg/L	<0.2
Endrin Aldehyde	µg/L	<0.2
Endosulfan Sulphate	µg/L	<0.2
Methoxychlor	µg/L	<0.2
Surrogate TCMX	%	95

OP Pesticides in water		
Our Reference:	UNITS	98975-18
Your Reference	----------	Rins1
Depth	----------	-
Date Sampled		11/10/2013
Type of sample		Water
Date extracted	-	15/10/2013
Date analysed	-	16/10/2013
Diazinon	µg/L	<0.2
Dimethoate	µg/L	<0.2
Chlorpyriphos-methyl	µg/L	<0.2
Ronnel	µg/L	<0.2
Chlorpyriphos	µg/L	<0.2
Fenitrothion	µg/L	<0.2
Bromophos ethyl	µg/L	<0.2
Ethion	µg/L	<0.2
Surrogate TCMX	%	95

PCBs in Water		
Our Reference:	UNITS	98975-18
Your Reference	----------	Rins1
Depth	----------	-
Date Sampled		11/10/2013
Type of sample		Water
Date extracted	-	15/10/2013
Date analysed	-	16/10/2013
Arochlor 1016	µg/L	<2
Arochlor 1221	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	%	95

Total Phenolics in Water		
Our Reference:	UNITS	98975-18
Your Reference	----------	Rins1
Depth	----------	-
Date Sampled		11/10/2013
Type of sample		Water
Date extracted	-	15/10/2013
Date analysed	-	15/10/2013
Total Phenolics (as Phenol)	mg/L	<0.05

Metals in Water - Dissolved		
Our Reference:	UNITS	98975-18
Your Reference	----------	Rins1
Depth	----------	-
Date Sampled		11/10/2013
Type of sample		Water
Date digested	-	15/10/2013
Date analysed	-	15/10/2013
Arsenic - Dissolved	mg/L	<0.05
Cadmium - Dissolved	mg/L	<0.01
Chromium - Dissolved	mg/L	<0.01
Copper - Dissolved	mg/L	<0.01
Lead - Dissolved	mg/L	<0.03
Mercury - Dissolved	mg/L	<0.0005
Nickel - Dissolved	mg/L	<0.02
Zinc - Dissolved	mg/L	<0.02
Manganese - Dissolved	mg/L	<0.01

Method ID	Methodology Summary
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note Naphthalene is determined from the VOC analysis.
Org-012 subset	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-008	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Inorg-030	Total Phenolics - determined colorimetrically following disitillation, based upon APHA 22nd ED 5530 D.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Inorg-008	Moisture content determined by heating at 105+/-5 deg C for a minimum of 12 hours.
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.
Org-013	Water samples are analysed directly by purge and trap GC-MS.

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base || Duplicate || %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			15/10/2013	98975-1	15/10/2013 || 15/10/2013	LCS-2	15/10/2013
Date analysed	-			15/10/2013	98975-1	15/10/2013 || 15/10/2013	LCS-2	15/10/2013
TRHC$_6$ - C$_9$	mg/kg	25	Org-016	<25	98975-1	<25 || <25	LCS-2	102%
TRHC$_6$ - C$_{10}$	mg/kg	25	Org-016	<25	98975-1	<25 || <25	LCS-2	102%
Benzene	mg/kg	0.2	Org-016	<0.2	98975-1	<0.2 || <0.2	LCS-2	91%
Toluene	mg/kg	0.5	Org-016	<0.5	98975-1	<0.5 || <0.5	LCS-2	104%
Ethylbenzene	mg/kg	1	Org-016	<1	98975-1	<1 || <1	LCS-2	103%
m+p-xylene	mg/kg	2	Org-016	<2	98975-1	<2 || <2	LCS-2	107%
o-Xylene	mg/kg	1	Org-016	<1	98975-1	<1 || <1	LCS-2	106%
naphthalene	mg/kg	1	Org-014	<1	98975-1	<1 || <1	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%		Org-016	91	98975-1	91 || 76 || RPD: 18	LCS-2	92%

QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base || Duplicate || %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			15/10/2013	98975-1	15/10/2013 || 15/10/2013	LCS-2	15/10/2013
Date analysed	-			15/10/2013	98975-1	15/10/2013 || 15/10/2013	LCS-2	15/10/2013
TRHC$_{10}$ - C$_{14}$	mg/kg	50	Org-003	<50	98975-1	<50 || <50	LCS-2	117%
TRHC$_{15}$ - C$_{28}$	mg/kg	100	Org-003	<100	98975-1	<100 || <100	LCS-2	126%
TRHC$_{29}$ - C$_{36}$	mg/kg	100	Org-003	<100	98975-1	<100 || <100	LCS-2	98%
TRH>C$_{10}$-C$_{16}$	mg/kg	50	Org-003	<50	98975-1	<50 || <50	LCS-2	117%
TRH>C$_{16}$-C$_{34}$	mg/kg	100	Org-003	<100	98975-1	<100 || <100	LCS-2	126%
TRH>C$_{34}$-C$_{40}$	mg/kg	100	Org-003	<100	98975-1	<100 || <100	LCS-2	98%
Surrogate o-Terphenyl	%		Org-003	108	98975-1	111 || 111 || RPD: 0	LCS-2	115%

QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base || Duplicate || %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			15/10/2013	98975-1	15/10/2013 || 15/10/2013	LCS-2	15/10/2013
Date analysed	-			15/10/2013	98975-1	15/10/2013 || 15/10/2013	LCS-2	15/10/2013
Naphthalene	mg/kg	0.1	Org-012 subset	<0.1	98975-1	<0.1 || <0.1	LCS-2	110%
Acenaphthylene	mg/kg	0.1	Org-012 subset	<0.1	98975-1	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	0.1	Org-012 subset	<0.1	98975-1	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	0.1	Org-012 subset	<0.1	98975-1	<0.1 || <0.1	LCS-2	105%
Phenanthrene	mg/kg	0.1	Org-012 subset	<0.1	98975-1	<0.1 || <0.1	LCS-2	103%
Anthracene	mg/kg	0.1	Org-012 subset	<0.1	98975-1	<0.1 || <0.1	[NR]	[NR]
Fluoranthene	mg/kg	0.1	Org-012 subset	<0.1	98975-1	<0.1 || <0.1	LCS-2	102%

QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base || Duplicate || %RPD	Spike Sm#	Spike % Recovery
Pyrene	mg/kg	0.1	Org-012 subset	<0.1	98975-1	<0.1 || <0.1	LCS-2	105%
Benzo(a)anthracene	mg/kg	0.1	Org-012 subset	<0.1	98975-1	<0.1 || <0.1	[NR]	[NR]
Chrysene	mg/kg	0.1	Org-012 subset	<0.1	98975-1	<0.1 || <0.1	LCS-2	101%
Benzo(b+k)fluoranthene	mg/kg	0.2	Org-012 subset	<0.2	98975-1	<0.2 || <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	0.05	Org-012 subset	<0.05	98975-1	<0.05 || <0.05	LCS-2	100%
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012 subset	<0.1	98975-1	<0.1 || <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012 subset	<0.1	98975-1	<0.1 || <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012 subset	<0.1	98975-1	<0.1 || <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012 subset	107	98975-1	101 || 103 || RPD: 2	LCS-2	111%
QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base || Duplicate || %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			15/10/2013	98975-1	15/10/2013 || 15/10/2013	LCS-2	15/10/2013
Date analysed	-			15/10/2013	98975-1	16/10/2013 || 16/10/2013	LCS-2	16/10/2013
HCB	mg/kg	0.1	Org-005	<0.1	98975-1	<0.1 || <0.1	[NR]	[NR]
alpha-BHC	mg/kg	0.1	Org-005	<0.1	98975-1	<0.1 || <0.1	LCS-2	108%
gamma-BHC	mg/kg	0.1	Org-005	<0.1	98975-1	<0.1 || <0.1	[NR]	[NR]
beta-BHC	mg/kg	0.1	Org-005	<0.1	98975-1	<0.1 || <0.1	LCS-2	100%
Heptachlor	mg/kg	0.1	Org-005	<0.1	98975-1	<0.1 || <0.1	LCS-2	122%
delta-BHC	mg/kg	0.1	Org-005	<0.1	98975-1	<0.1 || <0.1	[NR]	[NR]
Aldrin	mg/kg	0.1	Org-005	<0.1	98975-1	<0.1 || <0.1	LCS-2	107%
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	98975-1	<0.1 || <0.1	LCS-2	101%
gamma-Chlordane	mg/kg	0.1	Org-005	<0.1	98975-1	<0.1 || <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	0.1	Org-005	<0.1	98975-1	<0.1 || <0.1	[NR]	[NR]
Endosulfan I	mg/kg	0.1	Org-005	<0.1	98975-1	<0.1 || <0.1	[NR]	[NR]
pp-DDE	mg/kg	0.1	Org-005	<0.1	98975-1	<0.1 || <0.1	LCS-2	104%
Dieldrin	mg/kg	0.1	Org-005	<0.1	98975-1	<0.1 || <0.1	LCS-2	106%
Endrin	mg/kg	0.1	Org-005	<0.1	98975-1	<0.1 || <0.1	LCS-2	102%
pp-DDD	mg/kg	0.1	Org-005	<0.1	98975-1	<0.1 || <0.1	LCS-2	109%
Endosulfan II	mg/kg	0.1	Org-005	<0.1	98975-1	<0.1 || <0.1	[NR]	[NR]
pp-DDT	mg/kg	0.1	Org-005	<0.1	98975-1	<0.1 || <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	0.1	Org-005	<0.1	98975-1	<0.1 || <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	0.1	Org-005	<0.1	98975-1	<0.1 || <0.1	LCS-2	124%
Methoxychlor	mg/kg	0.1	Org-005	<0.1	98975-1	<0.1 || <0.1	[NR]	[NR]
Surrogate TCMX	%		Org-005	106	98975-1	112 || 108 || RPD: 4	LCS-2	106%

QUALITY CONTROL Organophosphorus Pesticides	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			15/10/2013	98975-1	15/10/2013 || 15/10/2013	LCS-2	15/10/2013
Date analysed	-			15/10/2013	98975-1	16/10/2013 || 16/10/2013	LCS-2	16/10/2013
Diazinon	mg/kg	0.1	Org-008	<0.1	98975-1	<0.1 || <0.1	[NR]	[NR]
Dimethoate	mg/kg	0.1	Org-008	<0.1	98975-1	<0.1 || <0.1	[NR]	[NR]
Chlorpyriphos-methyl	mg/kg	0.1	Org-008	<0.1	98975-1	<0.1 || <0.1	[NR]	[NR]
Ronnel	mg/kg	0.1	Org-008	<0.1	98975-1	<0.1 || <0.1	[NR]	[NR]
Chlorpyriphos	mg/kg	0.1	Org-008	<0.1	98975-1	<0.1 || <0.1	LCS-2	85%
Fenitrothion	mg/kg	0.1	Org-008	<0.1	98975-1	<0.1 || <0.1	LCS-2	127%
Bromophos-ethyl	mg/kg	0.1	Org-008	<0.1	98975-1	<0.1 || <0.1	[NR]	[NR]
Ethion	mg/kg	0.1	Org-008	<0.1	98975-1	<0.1 || <0.1	LCS-2	107%
Surrogate TCMX	%		Org-008	106	98975-1	112 || 108 || RPD: 4	LCS-2	103%

QUALITY CONTROL PCBs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			15/10/2013	98975-1	15/10/2013 || 15/10/2013	LCS-2	15/10/2013
Date analysed	-			15/10/2013	98975-1	16/10/2013 || 16/10/2013	LCS-2	16/10/2013
Arochlor 1016	mg/kg	0.1	Org-006	<0.1	98975-1	<0.1 || <0.1	[NR]	[NR]
Arochlor 1221	mg/kg	0.1	Org-006	<0.1	98975-1	<0.1 || <0.1	[NR]	[NR]
Arochlor 1232	mg/kg	0.1	Org-006	<0.1	98975-1	<0.1 || <0.1	[NR]	[NR]
Arochlor 1242	mg/kg	0.1	Org-006	<0.1	98975-1	<0.1 || <0.1	[NR]	[NR]
Arochlor 1248	mg/kg	0.1	Org-006	<0.1	98975-1	<0.1 || <0.1	[NR]	[NR]
Arochlor 1254	mg/kg	0.1	Org-006	<0.1	98975-1	<0.1 || <0.1	LCS-2	104%
Arochlor 1260	mg/kg	0.1	Org-006	<0.1	98975-1	<0.1 || <0.1	[NR]	[NR]
Surrogate TCLMX	%		Org-006	106	98975-1	112 || 108 || RPD: 4	LCS-2	87%

QUALITY CONTROL Total Phenolics in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			15/10/2013	98975-1	15/10/2013 || 15/10/2013	LCS-1	15/10/2013
Date analysed	-			15/10/2013	98975-1	15/10/2013 || 15/10/2013	LCS-1	15/10/2013
Total Phenolics (as Phenol)	mg/kg	5	Inorg-030	<5	98975-1	<5 || <5	LCS-1	108%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date digested	-			15/10/2013	98975-1	15/10/2013 || 15/10/2013	LCS-1	15/10/2013
Date analysed	-			15/10/2013	98975-1	15/10/2013 || 15/10/2013	LCS-1	15/10/2013
Arsenic	mg/kg	4	Metals-020 ICP-AES	<4	98975-1	<4 || <4	LCS-1	99%
Cadmium	mg/kg	0.4	Metals-020 ICP-AES	<0.4	98975-1	<0.4 || <0.4	LCS-1	104%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Chromium	mg/kg	1	Metals-020 ICP-AES	<1	98975-1	6 || 5 || RPD: 18	LCS-1	102%
Copper	mg/kg	1	Metals-020 ICP-AES	<1	98975-1	21 || 22 || RPD: 5	LCS-1	99%
Lead	mg/kg	1	Metals-020 ICP-AES	<1	98975-1	16 || 16 || RPD: 0	LCS-1	100%
Mercury	mg/kg	0.1	Metals-021 CV-AAS	<0.1	98975-1	<0.1 || <0.1	LCS-1	90%
Nickel	mg/kg	1	Metals-020 ICP-AES	<1	98975-1	4 || 4 || RPD: 0	LCS-1	101%
Zinc	mg/kg	1	Metals-020 ICP-AES	<1	98975-1	19 || 17 || RPD: 11	LCS-1	103%
Manganese	mg/kg	1	Metals-020 ICP-AES	<1	98975-1	31 || 23 || RPD: 30	LCS-1	102%

QUALITY CONTROL Moisture	UNITS	PQL	METHOD	Blank
Date prepared	-			[NT]
Date analysed	-			[NT]
Moisture	%	0.1	Inorg-008	[NT]

QUALITY CONTROL Asbestos ID - soils	UNITS	PQL	METHOD	Blank
Date analysed	-			[NT]

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			14/10/2013	[NT]	[NT]	LCS-W1	14/10/2013
Date analysed	-			15/10/2013	[NT]	[NT]	LCS-W1	15/10/2013
TRHC$_6$ - C$_9$	µg/L	10	Org-016	<10	[NT]	[NT]	LCS-W1	105%
TRHC$_6$ - C$_{10}$	µg/L	10	Org-016	<10	[NT]	[NT]	LCS-W1	105%
Benzene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	101%
Toluene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	104%
Ethylbenzene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	103%
m+p-xylene	µg/L	2	Org-016	<2	[NT]	[NT]	LCS-W1	108%
o-xylene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	108%
Naphthalene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Surrogate Dibromofluoromethane	%		Org-016	123	[NT]	[NT]	LCS-W1	104%
Surrogate toluene-d8	%		Org-016	98	[NT]	[NT]	LCS-W1	98%
Surrogate 4-BFB	%		Org-016	68	[NT]	[NT]	LCS-W1	100%

QUALITY CONTROL svTRH (C10-C40) in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			15/10/2013	[NT]	[NT]	LCS-W1	15/10/2013
Date analysed	-			15/10/2013	[NT]	[NT]	LCS-W1	15/10/2013
TRHC$_{10}$ - C$_{14}$	µg/L	50	Org-003	<50	[NT]	[NT]	LCS-W1	131%
TRHC$_{15}$ - C$_{28}$	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	124%
TRHC$_{29}$ - C$_{36}$	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	107%
TRH>C$_{10}$ - C$_{16}$	µg/L	50	Org-003	<50	[NT]	[NT]	LCS-W1	131%
TRH>C$_{16}$ - C$_{34}$	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	124%
TRH>C$_{34}$ - C$_{40}$	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	107%
Surrogate o-Terphenyl	%		Org-003	102	[NT]	[NT]	LCS-W1	96%
QUALITY CONTROL PAHs in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			15/10/2013	[NT]	[NT]	LCS-W1	15/10/2013
Date analysed	-			15/10/2013	[NT]	[NT]	LCS-W1	15/10/2013
Naphthalene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	87%
Acenaphthylene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Acenaphthene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Fluorene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	87%
Phenanthrene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	80%
Anthracene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Fluoranthene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	78%
Pyrene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	99%
Benzo(a)anthracene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Chrysene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	80%
Benzo(b+k)fluoranthene	µg/L	2	Org-012 subset	<2	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W1	78%
Indeno(1,2,3-c,d)pyrene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012 subset	99	[NT]	[NT]	LCS-W1	77%

QUALITY CONTROL OCP in water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			15/10/2013	[NT]	[NT]	LCS-W1	15/10/2013
Date analysed	-			16/10/2013	[NT]	[NT]	LCS-W1	16/10/2013
HCB	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NR]	[NR]
alpha-BHC	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	LCS-W1	97%
gamma-BHC	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NR]	[NR]
beta-BHC	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	LCS-W1	101%
Heptachlor	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	LCS-W1	94%
delta-BHC	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NR]	[NR]
Aldrin	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	LCS-W1	96%
Heptachlor Epoxide	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	LCS-W1	94%
gamma-Chlordane	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NR]	[NR]
alpha-Chlordane	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NR]	[NR]
Endosulfan I	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NR]	[NR]
pp-DDE	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	LCS-W1	97%
Dieldrin	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	LCS-W1	94%
Endrin	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	LCS-W1	82%
pp-DDD	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	LCS-W1	105%
Endosulfan II	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NR]	[NR]
pp-DDT	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NR]	[NR]
Endrin Aldehyde	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NR]	[NR]
Endosulfan Sulphate	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	LCS-W1	93%
Methoxychlor	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NR]	[NR]
Surrogate TCMX	%		Org-005	100	[NT]	[NT]	LCS-W1	107%

QUALITY CONTROL OP Pesticides in water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			15/10/2013	[NT]	[NT]	LCS-W1	15/10/2013
Date analysed	-			16/10/2013	[NT]	[NT]	LCS-W1	16/10/2013
Diazinon	µg/L	0.2	Org-008	<0.2	[NT]	[NT]	[NR]	[NR]
Dimethoate	µg/L	0.2	Org-008	<0.2	[NT]	[NT]	[NR]	[NR]
Chlorpyriphos-methyl	µg/L	0.2	Org-008	<0.2	[NT]	[NT]	[NR]	[NR]
Ronnel	µg/L	0.2	Org-008	<0.2	[NT]	[NT]	[NR]	[NR]
Chlorpyriphos	µg/L	0.2	Org-008	<0.2	[NT]	[NT]	LCS-W1	92%
Fenitrothion	µg/L	0.2	Org-008	<0.2	[NT]	[NT]	LCS-W1	130%
Bromophos ethyl	µg/L	0.2	Org-008	<0.2	[NT]	[NT]	[NR]	[NR]
Ethion	µg/L	0.2	Org-008	<0.2	[NT]	[NT]	LCS-W1	113%
Surrogate TCMX	%		Org-008	100	[NT]	[NT]	LCS-W1	100%

QUALITY CONTROL PCBs in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			15/10/2013	[NT]	[NT]	LCS-W1	15/10/2013
Date analysed	-			16/10/2013	[NT]	[NT]	LCS-W1	16/10/2013
Arochlor 1016	µg/L	2	Org-006	<2	[NT]	[NT]	[NR]	[NR]
Arochlor 1221	µg/L	2	Org-006	<2	[NT]	[NT]	[NR]	[NR]
Arochlor 1232	µg/L	2	Org-006	<2	[NT]	[NT]	[NR]	[NR]
Arochlor 1242	µg/L	2	Org-006	<2	[NT]	[NT]	[NR]	[NR]
Arochlor 1248	µg/L	2	Org-006	<2	[NT]	[NT]	[NR]	[NR]
Arochlor 1254	µg/L	2	Org-006	<2	[NT]	[NT]	LCS-W1	87%
Arochlor 1260	µg/L	2	Org-006	<2	[NT]	[NT]	[NR]	[NR]
Surrogate TCLMX	%		Org-006	100	[NT]	[NT]	LCS-W1	88%

QUALITY CONTROL Total Phenolics in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			[NT]	[NT]	[NT]	LCS-W1	15/10/2013
Date analysed	-			[NT]	[NT]	[NT]	LCS-W1	15/10/2013
Total Phenolics (as Phenol)	mg/L	0.05	Inorg-030	<0.05	[NT]	[NT]	LCS-W1	108%

QUALITY CONTROL Metals in Water - Dissolved	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date digested	-			15/10/2013	[NT]	[NT]	LCS-W1	15/10/2013
Date analysed	-			15/10/2013	[NT]	[NT]	LCS-W1	15/10/2013
Arsenic - Dissolved	mg/L	0.05	Metals-020 ICP-AES	<0.05	[NT]	[NT]	LCS-W1	96%
Cadmium - Dissolved	mg/L	0.01	Metals-020 ICP-AES	<0.01	[NT]	[NT]	LCS-W1	101%
Chromium - Dissolved	mg/L	0.01	Metals-020 ICP-AES	<0.01	[NT]	[NT]	LCS-W1	101%

QUALITY CONTROL Metals in Water - Dissolved	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Copper - Dissolved	mg/L	0.01	Metals-020 ICP-AES	<0.01	[NT]	[NT]	LCS-W1	98%
Lead - Dissolved	mg/L	0.03	Metals-020 ICP-AES	<0.03	[NT]	[NT]	LCS-W1	97%
Mercury - Dissolved	mg/L	0.0005	Metals-021 CV-AAS	<0.0005	[NT]	[NT]	LCS-W1	101%
Nickel - Dissolved	mg/L	0.02	Metals-020 ICP-AES	<0.02	[NT]	[NT]	LCS-W1	115%
Zinc - Dissolved	mg/L	0.02	Metals-020 ICP-AES	<0.02	[NT]	[NT]	LCS-W1	100%
Manganese - Dissolved	mg/L	0.01	Metals-020 ICP-AES	<0.01	[NT]	[NT]	LCS-W1	100%

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	98975-11	15/10/2013 || 15/10/2013	98975-2	15/10/2013
Date analysed	-	98975-11	15/10/2013 || 15/10/2013	98975-2	15/10/2013
TRHC$_6$ - C$_9$	mg/kg	98975-11	<25 || <25	98975-2	83%
TRHC$_6$ - C$_{10}$	mg/kg	98975-11	<25 || <25	98975-2	83%
Benzene	mg/kg	98975-11	<0.2 || <0.2	98975-2	73%
Toluene	mg/kg	98975-11	<0.5 || <0.5	98975-2	85%
Ethylbenzene	mg/kg	98975-11	<1 || <1	98975-2	83%
m+p-xylene	mg/kg	98975-11	<2 || <2	98975-2	88%
o-Xylene	mg/kg	98975-11	<1 || <1	98975-2	86%
naphthalene	mg/kg	98975-11	<1 || <1	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%	98975-11	87 || 88 || RPD: 1	98975-2	73%

QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	98975-11	15/10/2013 || 15/10/2013	98975-2	15/10/2013
Date analysed	-	98975-11	15/10/2013 || 15/10/2013	98975-2	15/10/2013
TRHC$_{10}$ - C$_{14}$	mg/kg	98975-11	<50 || <50	98975-2	110%
TRHC$_{15}$ - C$_{28}$	mg/kg	98975-11	<100 || <100	98975-2	128%
TRHC$_{29}$ - C$_{36}$	mg/kg	98975-11	<100 || <100	98975-2	100%
TRH>C$_{10}$-C$_{16}$	mg/kg	98975-11	<50 || <50	98975-2	110%
TRH>C$_{16}$-C$_{34}$	mg/kg	98975-11	<100 || <100	98975-2	128%
TRH>C$_{34}$-C$_{40}$	mg/kg	98975-11	<100 || <100	98975-2	100%
Surrogate o-Terphenyl	%	98975-11	104 || 109 || RPD: 5	98975-2	98%

QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	98975-11	15/10/2013 || 15/10/2013	98975-2	15/10/2013
Date analysed	-	98975-11	15/10/2013 || 15/10/2013	98975-2	15/10/2013
Naphthalene	mg/kg	98975-11	<0.1 || <0.1	98975-2	107%
Acenaphthylene	mg/kg	98975-11	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	98975-11	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	98975-11	<0.1 || <0.1	98975-2	104%
Phenanthrene	mg/kg	98975-11	<0.1 || <0.1	98975-2	102%
Anthracene	mg/kg	98975-11	<0.1 || <0.1	[NR]	[NR]
Fluoranthene	mg/kg	98975-11	0.2 || 0.2 || RPD: 0	98975-2	101%
Pyrene	mg/kg	98975-11	0.3 || 0.2 || RPD: 40	98975-2	104%
Benzo(a)anthracene	mg/kg	98975-11	0.1 || 0.1 || RPD: 0	[NR]	[NR]
Chrysene	mg/kg	98975-11	0.2 || 0.2 || RPD: 0	98975-2	100%
Benzo(b+k)fluoranthene	mg/kg	98975-11	0.4 || 0.3 || RPD: 29	[NR]	[NR]
Benzo(a)pyrene	mg/kg	98975-11	0.19 || 0.20 || RPD: 5	98975-2	95%
Indeno(1,2,3-c,d)pyrene	mg/kg	98975-11	0.1 || 0.1 || RPD: 0	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	98975-11	<0.1 || <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	98975-11	0.1 || 0.1 || RPD: 0	[NR]	[NR]
Surrogate p-Terphenyl-d14	%	98975-11	114 || 112 || RPD: 2	98975-2	113%

QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	98975-11	15/10/2013 || 15/10/2013	98975-2	15/10/2013
Date analysed	-	98975-11	16/10/2013 || 16/10/2013	98975-2	16/10/2013
HCB	mg/kg	98975-11	<0.1 || <0.1	[NR]	[NR]
alpha-BHC	mg/kg	98975-11	<0.1 || <0.1	98975-2	113%
gamma-BHC	mg/kg	98975-11	<0.1 || <0.1	[NR]	[NR]
beta-BHC	mg/kg	98975-11	<0.1 || <0.1	98975-2	105%
Heptachlor	mg/kg	98975-11	<0.1 || <0.1	98975-2	128%
delta-BHC	mg/kg	98975-11	<0.1 || <0.1	[NR]	[NR]
Aldrin	mg/kg	98975-11	<0.1 || <0.1	98975-2	106%
Heptachlor Epoxide	mg/kg	98975-11	<0.1 || <0.1	98975-2	111%
gamma-Chlordane	mg/kg	98975-11	<0.1 || <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	98975-11	<0.1 || <0.1	[NR]	[NR]
Endosulfan I	mg/kg	98975-11	<0.1 || <0.1	[NR]	[NR]
pp-DDE	mg/kg	98975-11	<0.1 || <0.1	98975-2	111%
Dieldrin	mg/kg	98975-11	<0.1 || <0.1	98975-2	100%
Endrin	mg/kg	98975-11	<0.1 || <0.1	98975-2	100%
pp-DDD	mg/kg	98975-11	<0.1 || <0.1	98975-2	108%
Endosulfan II	mg/kg	98975-11	<0.1 || <0.1	[NR]	[NR]
pp-DDT	mg/kg	98975-11	<0.1 || <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	98975-11	<0.1 || <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	98975-11	<0.1 || <0.1	98975-2	133%

QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Methoxychlor	mg/kg	98975-11	<0.1 || <0.1	[NR]	[NR]
Surrogate TCMX	%	98975-11	112 || 117 || RPD: 4	98975-2	111%
QUALITY CONTROL Organophosphorus Pesticides	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	98975-11	15/10/2013 || 15/10/2013	98975-2	15/10/2013
Date analysed	-	98975-11	16/10/2013 || 16/10/2013	98975-2	16/10/2013
Diazinon	mg/kg	98975-11	<0.1 || <0.1	[NR]	[NR]
Dimethoate	mg/kg	98975-11	<0.1 || <0.1	[NR]	[NR]
Chlorpyriphos-methyl	mg/kg	98975-11	<0.1 || <0.1	[NR]	[NR]
Ronnel	mg/kg	98975-11	<0.1 || <0.1	[NR]	[NR]
Chlorpyriphos	mg/kg	98975-11	<0.1 || <0.1	98975-2	93%
Fenitrothion	mg/kg	98975-11	<0.1 || <0.1	98975-2	136%
Bromophos-ethyl	mg/kg	98975-11	<0.1 || <0.1	[NR]	[NR]
Ethion	mg/kg	98975-11	<0.1 || <0.1	98975-2	122%
Surrogate TCMX	%	98975-11	112 || 117 || RPD: 4	98975-2	108%
QUALITY CONTROL PCBs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	98975-11	15/10/2013 || 15/10/2013	98975-2	15/10/2013
Date analysed	-	98975-11	16/10/2013 || 16/10/2013	98975-2	16/10/2013
Arochlor 1016	mg/kg	98975-11	<0.1 || <0.1	[NR]	[NR]
Arochlor 1221	mg/kg	98975-11	<0.1 || <0.1	[NR]	[NR]
Arochlor 1232	mg/kg	98975-11	<0.1 || <0.1	[NR]	[NR]
Arochlor 1242	mg/kg	98975-11	<0.1 || <0.1	[NR]	[NR]
Arochlor 1248	mg/kg	98975-11	<0.1 || <0.1	[NR]	[NR]
Arochlor 1254	mg/kg	98975-11	<0.1 || <0.1	98975-2	111%
Arochlor 1260	mg/kg	98975-11	<0.1 || <0.1	[NR]	[NR]
Surrogate TCLMX	%	98975-11	112 || 117 || RPD: 4	98975-2	91%
QUALITY CONTROL Total Phenolics in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	98975-11	15/10/2013 || 15/10/2013	98975-2	15/10/2013
Date analysed	-	98975-11	15/10/2013 || 15/10/2013	98975-2	15/10/2013
Total Phenolics (as Phenol)	mg/kg	98975-11	<5 || <5	98975-2	90%
QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	98975-11	15/10/2013 || 15/10/2013	98975-2	15/10/2013
Date analysed	-	98975-11	15/10/2013 || 15/10/2013	98975-2	15/10/2013
Arsenic	mg/kg	98975-11	5 || 5 || RPD: 0	98975-2	80%
Cadmium	mg/kg	98975-11	<0.4 || <0.4	98975-2	85%
Chromium	mg/kg	98975-11	14 || 15 || RPD: 7	98975-2	83%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Copper	mg/kg	98975-11	14 || 14 || RPD: 0	98975-2	82%
Lead	mg/kg	98975-11	24 || 23 || RPD: 4	98975-2	76%
Mercury	mg/kg	98975-11	<0.1 || <0.1	98975-2	70%
Nickel	mg/kg	98975-11	7 || 7 || RPD: 0	98975-2	78%
Zinc	mg/kg	98975-11	22 || 20 || RPD: 10	98975-2	85%
Manganese	mg/kg	98975-11	460 || 450 || RPD: 2	98975-2	77%

Report Comments:

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

Asbestos ID was analysed by Approved Identifier:	Alex Tam
Asbestos ID was authorised by Approved Signatory:	Matt Mansfield

INS: Insufficient sample for this test	PQL: Practical Quantitation Limit	NT: Not tested
NA: Test not required	RPD: Relative Percent Difference	NA: Test not required
<: Less than	>: Greater than	LCS: Laboratory Control Sample

Quality Control Definitions

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

Matrix Spike : A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

LCS (Laboratory Control Sample) : This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Surrogate Spike: Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.
Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.
Spikes for Physical and Aggregate Tests are not applicable.
For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.
Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable.

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

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

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

SAMPLE RECEIPT ADVICE

Client:

Douglas Partners Pty Ltd
96 Hermitage Rd
West Ryde NSW 2114

ph: 02 9809 0666
Fax: 02 9809 4095

Attention: Peter Oitmaa

Sample log in details:

Your reference:	**45153.03, Sydney Olympic Park**
Envirolab Reference:	**98975**
Date received:	14/10/2013
Date results expected to be reported:	**21/10/13**

Samples received in appropriate condition for analysis:	YES
No. of samples provided	17 Soils 1 Water
Turnaround time requested:	Standard
Temperature on receipt (°C)	10.8
Cooling Method:	Ice Pack
Sampling Date Provided:	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 9910 6200 fax: 02 9910 6201
email: ahie@envirolabservices.com.au or jhurst@envirolabservices.com.au

Douglas Partners
Geotechnics · Environment · Groundwater

CHAIN OF CUSTODY

Project Name: Sydney Olympic Park
Project No: 45153.03 Sampler: AG
Project Mgr: Peter Oitmaa Mob. Phone: 0412 574 518
Email: peter.oitmaa@douglaspartners.com.au
Date Required: Std Lab Quote No.

To: Envirolab Services
12 Ashley Street, Chatswood NSW 2067
Attn: Tania Notaras
Phone: 02 9910 6200 Fax: 02 9910 6201
Email: tnotaras@envirolabservices.com.au

ENVIROLAB
Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

Job No: 98975
Date Received: 14/10/13
Time Received: 17:00
Received by: PT
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

Sample ID	Sample Depth	Lab ID	Sampling Date	Sample Type S - soil W - water	Container type	Analytes: 8 Heavy metals + Mn	TRH BTEX	PAH	OCP OPP	PCB	Phenol	Asbestos		Notes
BH7	0.2-0.3	1	11/10	S	Jar							✓		Combo 8a+Mn
BH7	0.5-0.6	2												8+Mn
BH8	0.2-0.3	3										✓		8a+Mn
BH8	0.5-0.6	4												8+Mn
BH9	0.15-0.25	5										✓		8a+Mn
BH9	0.8-0.9	6												8+Mn
BH10	0.1-0.2	7										✓		8a+Mn
BH10	0.2-0.3	8												8+Mn
BH11	0.1-0.2	9										✓		8a+Mn
BH11	1.4-1.5	10												8+Mn
BH12A	0.5-0.6	11										✓		8a+Mn
BH12A	1.4-1.5	12												8+Mn

Lab Report No.

Send Results to: Douglas Partners Address: 96 Hermitage Road, West Ryde 2114
Phone: (02) 9809 0666
Fax: (02) 9809 4095

Relinquished by: P. Oitmaa	Signed:	Date & Time: 14/10 1430hrs	Received By: PT	Date & Time: 14/10/13 17:00
Relinquished by:	Signed:	Date & Time:	Received By:	Date & Time:

Douglas Partners
Geotechnics · Environment · Groundwater

CHAIN OF CUSTODY

Project Name: Sydney Olympic Park
Project No: 45153.03 Sampler: AG
Project Mgr: Peter Oitmaa Mob. Phone: 0412 574 518
Email: peter.oitmaa@douglaspartners.com.au
Date Required: Std Lab Quote No.

To: Envirolab Services
12 Ashley Street, Chatswood NSW 2067
Attn: Tania Notaras
Phone: 02 9910 6200 Fax: 02 9910 6201
Email: tnotaras@envirolabservices.com.au

Sample ID	Sample Depth	Lab ID	Sampling Date	Sample Type S - soil W - water	Container type	Analytes: 8 Heavy metals + Mn	TRH BTEX	PAH	OCP OPP	PCB	Phenol	Asbestos		Notes
TS1A	N/A	13	11/10	S	Jar									Combo 8
TS1B		14												Send to Labmark
TS7A		15												Combo 8
TS7B		[redacted]												Send to Labmark
[redacted]		16	10/10				✓ BTEX ONLY							
TB		[redacted]17	11				✓	✓						
Rins 1		18	11/10	W	Various	✓	✓	✓	✓	✓	✓			
														98975

Lab Report No.
Send Results to: Douglas Partners Address: 96 Hermitage Road, West Ryde 2114
Phone: (02) 9809 0666
Fax: (02) 9809 4095

Relinquished by:	P. Oitmaa	Signed:		Date & Time:	14/10 1430hrs	Received By: PT	Date & Time: 14/10/13 17:00
Relinquished by:		Signed:		Date & Time:		Received By:	Date & Time:

eurofins | mgt

Certificate of Analysis

NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025.
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Douglas Partners (Syd)
96 Hermitage Road
West Ryde
NSW 2114

Attention: **Peter Oitmaa**

Report **396293-S**
Client Reference SYDNEY OLYMPIC PARK 45153.03
Received Date Oct 15, 2013

Client Sample ID			**TS1B**	**TS7B**
Sample Matrix			**Soil**	**Soil**
Eurofins | mgt Sample No.			**S13-Oc11156**	**S13-Oc11157**
Date Sampled			**Oct 11, 2013**	**Oct 11, 2013**
Test/Reference	LOR	Unit		
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				
TRH C6-C9	20	mg/kg	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50
TRH C10-36 (Total)	50	mg/kg	< 50	< 50
BTEX				
Benzene	0.1	mg/kg	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	110	120
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100
Polycyclic Aromatic Hydrocarbons				
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5

Client Sample ID			TS1B	TS7B
Sample Matrix			Soil	Soil
Eurofins | mgt Sample No.			S13-Oc11156	S13-Oc11157
Date Sampled			Oct 11, 2013	Oct 11, 2013
Test/Reference	LOR	Unit		
Polycyclic Aromatic Hydrocarbons				
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5
Total PAH	0.5	mg/kg	< 0.5	< 0.5
Benzo(a)pyrene TEQ*	0.5	mg/kg	0.6	0.6
2-Fluorobiphenyl (surr.)	1	%	98	94
p-Terphenyl-d14 (surr.)	1	%	74	73
Organochlorine Pesticides				
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05
a-BHC	0.05	mg/kg	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05
b-BHC	0.05	mg/kg	< 0.05	< 0.05
d-BHC	0.05	mg/kg	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05
g-BHC (Lindane)	0.05	mg/kg	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05
Methoxychlor	0.2	mg/kg	< 0.2	< 0.2
Toxaphene	1	mg/kg	< 1	< 1
Dibutylchlorendate (surr.)	1	%	85	87
Tetrachloro-m-xylene (surr.)	1	%	94	90
Polychlorinated Biphenyls (PCB)				
Aroclor-1016	0.5	mg/kg	< 0.5	< 0.5
Aroclor-1232	0.5	mg/kg	< 0.5	< 0.5
Aroclor-1242	0.5	mg/kg	< 0.5	< 0.5
Aroclor-1248	0.5	mg/kg	< 0.5	< 0.5
Aroclor-1254	0.5	mg/kg	< 0.5	< 0.5
Aroclor-1260	0.5	mg/kg	< 0.5	< 0.5
Total PCB	0.5	mg/kg	< 0.5	< 0.5
Dibutylchlorendate (surr.)	1	%	85	87
Organophosphorus Pesticides (OP)				
Chlorpyrifos	0.5	mg/kg	< 0.5	< 0.5
Coumaphos	0.5	mg/kg	< 0.5	< 0.5
Demeton (total)	1	mg/kg	< 1	< 1
Diazinon	0.5	mg/kg	< 0.5	< 0.5
Dichlorvos	0.5	mg/kg	< 0.5	< 0.5
Dimethoate	0.5	mg/kg	< 0.5	< 0.5
Disulfoton	0.5	mg/kg	< 0.5	< 0.5
Ethoprop	0.5	mg/kg	< 0.5	< 0.5

Client Sample ID			TS1B	TS7B
Sample Matrix			Soil	Soil
Eurofins | mgt Sample No.			S13-Oc11156	S13-Oc11157
Date Sampled			Oct 11, 2013	Oct 11, 2013
Test/Reference	LOR	Unit		
Organophosphorus Pesticides (OP)				
Fenitrothion	0.5	mg/kg	< 0.5	< 0.5
Fensulfothion	0.5	mg/kg	< 0.5	< 0.5
Fenthion	0.5	mg/kg	< 0.5	< 0.5
Methyl azinphos	0.5	mg/kg	< 0.5	< 0.5
Malathion	0.5	mg/kg	< 0.5	< 0.5
Methyl parathion	0.5	mg/kg	< 0.5	< 0.5
Mevinphos	0.5	mg/kg	< 0.5	< 0.5
Monocrotophos	10	mg/kg	< 10	< 10
Parathion	0.5	mg/kg	< 0.5	< 0.5
Phorate	0.5	mg/kg	< 0.5	< 0.5
Profenofos	0.5	mg/kg	< 0.5	< 0.5
Prothiofos	0.5	mg/kg	< 0.5	< 0.5
Ronnel	0.5	mg/kg	< 0.5	< 0.5
Stirophos	0.5	mg/kg	< 0.5	< 0.5
Trichloronate	0.5	mg/kg	< 0.5	< 0.5
Triphenylphosphate (surr.)	1	%	90	91
Heavy Metals				
Arsenic	2	mg/kg	< 2	< 2
Cadmium	0.4	mg/kg	0.4	0.6
Chromium	5	mg/kg	5.1	19
Copper	5	mg/kg	24	33
Lead	5	mg/kg	19	22
Manganese	5	mg/kg	32	270
Mercury	0.05	mg/kg	< 0.05	< 0.05
Nickel	5	mg/kg	5.8	10
Zinc	5	mg/kg	25	57
% Moisture	0.1	%	3.2	17

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	Oct 16, 2013	14 Day
- Method: E004 Petroleum Hydrocarbons (TPH)			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Oct 16, 2013	14 Day
- Method: LM-LTM-ORG2010			
BTEX	Sydney	Oct 16, 2013	14 Day
- Method: E029/E016 BTEX			
Polycyclic Aromatic Hydrocarbons	Sydney	Oct 16, 2013	14 Day
- Method: E007 Polyaromatic Hydrocarbons (PAH)			
Organochlorine Pesticides	Sydney	Oct 16, 2013	14 Day
- Method: E013 Organochlorine Pesticides (OC)			
Polychlorinated Biphenyls (PCB)	Sydney	Oct 16, 2013	28 Day
- Method: E013 Polychlorinated Biphenyls (PCB)			
Organophosphorus Pesticides (OP)	Sydney	Oct 16, 2013	14 Day
- Method: E014 Organophosphorus Pesticides (OP)			
Metals M8	Sydney	Oct 16, 2013	28 Day
- Method: E022 Acid Extractable metals in Soils & E026 Mercury			
Heavy Metals	Sydney	Oct 16, 2013	180 Day
- Method: E022 Acid Extractable metals in Soils			
% Moisture	Sydney	Oct 16, 2013	28 Day
- Method: E005 Moisture Content			

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NATA # 1261 Site # 20794

Company Name: Douglas Partners (Syd)
Address: 96 Hermitage Road
West Ryde
NSW 2114

Client Job No.: SYDNEY OLYMPIC PARK 45153.03

Order No.:
Report #: 396293
Phone: 02 9809 0666
Fax:

Received: Oct 15, 2013 1:45 PM
Due: Oct 22, 2013
Priority: 5 Day
Contact Name: Peter Oitmaa

Eurofins | mgt Client Manager: Jean Heng

Sample Detail					% Moisture	Manganese	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Metals M8	BTEX	Polychlorinated Biphenyls (PCB)	Organophosphorus Pesticides (OP)	Total Recoverable Hydrocarbons
Laboratory where analysis is conducted													
Melbourne Laboratory - NATA Site # 1254 & 14271													
Sydney Laboratory - NATA Site # 18217					X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794													
External Laboratory													
Sample ID	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**									
TS1B	Oct 11, 2013		Soil	S13-Oc11156	X	X	X	X	X	X	X	X	X
TS7B	Oct 11, 2013		Soil	S13-Oc11157	X	X	X	X	X	X	X	X	X

Eurofins | mgt Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Actual PQLs are matrix dependant. Quoted PQLs may be raised where sample extracts are diluted due to interferences.
4. Results are uncorrected for matrix spikes or surrogate recoveries.
5. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
6. Samples were analysed on an 'as received' basis. 7. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Acknowledgment.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

****NOTE:** pH duplicates are reported as a range NOT as RPD

UNITS

mg/kg: milligrams per Kilogram

mg/l: milligrams per litre

ug/l: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100ml: Organisms per 100 millilitres

NTU: Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

TERMS

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery
CRM	Certified Reference Material - reported as percent recovery
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands. In the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
Batch Duplicate	A second piece of analysis from a sample outside of the clients batch of samples but run within the laboratory batch of analysis.
Batch SPIKE	Spike recovery reported on a sample from outside of the clients batch of samples but run within the laboratory batch of analysis.
USEPA	United States Environment Protection Authority
APHA	American Public Health Association
ASLP	Australian Standard Leaching Procedure (AS4439.3)
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within

QC - ACCEPTANCE CRITERIA

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries : Recoveries must lie between 50-150% - Phenols 20-130%.

QC DATA GENERAL COMMENTS

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxophene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxophene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Arochlor 1260 in Matrix Spikes and LCS's.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPD's are calculated from raw analytical data thus it is possible to have two sets of data.

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions E004 Petroleum Hydrocarbons (TPH)							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Method Blank							
BTEX E029/E016 BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions LM-LTM-ORG2010							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH C6-C10 less BTEX (F1)	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons E007 Polyaromatic Hydrocarbons (PAH)							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organochlorine Pesticides E013 Organochlorine Pesticides (OC)							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
4.4'-DDD	mg/kg	< 0.05			0.05	Pass	
4.4'-DDE	mg/kg	< 0.05			0.05	Pass	
4.4'-DDT	mg/kg	< 0.05			0.05	Pass	
a-BHC	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-BHC	mg/kg	< 0.05			0.05	Pass	
d-BHC	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endosulfan II	mg/kg	< 0.05			0.05	Pass	
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-BHC (Lindane)	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.2			0.2	Pass	
Toxaphene	mg/kg	< 1			1	Pass	
Method Blank							
Polychlorinated Biphenyls (PCB) E013 Polychlorinated Biphenyls (PCB)							
Aroclor-1016	mg/kg	< 0.5			0.5	Pass	
Aroclor-1232	mg/kg	< 0.5			0.5	Pass	
Aroclor-1242	mg/kg	< 0.5			0.5	Pass	
Aroclor-1248	mg/kg	< 0.5			0.5	Pass	
Aroclor-1254	mg/kg	< 0.5			0.5	Pass	
Aroclor-1260	mg/kg	< 0.5			0.5	Pass	
Total PCB	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organophosphorus Pesticides (OP) E014 Organophosphorus Pesticides (OP)							
Chlorpyrifos	mg/kg	< 0.5			0.5	Pass	
Coumaphos	mg/kg	< 0.5			0.5	Pass	
Demeton (total)	mg/kg	< 1			1	Pass	
Diazinon	mg/kg	< 0.5			0.5	Pass	
Dichlorvos	mg/kg	< 0.5			0.5	Pass	
Dimethoate	mg/kg	< 0.5			0.5	Pass	
Disulfoton	mg/kg	< 0.5			0.5	Pass	
Ethoprop	mg/kg	< 0.5			0.5	Pass	
Fenitrothion	mg/kg	< 0.5			0.5	Pass	
Fensulfothion	mg/kg	< 0.5			0.5	Pass	
Fenthion	mg/kg	< 0.5			0.5	Pass	
Methyl azinphos	mg/kg	< 0.5			0.5	Pass	
Malathion	mg/kg	< 0.5			0.5	Pass	
Methyl parathion	mg/kg	< 0.5			0.5	Pass	
Mevinphos	mg/kg	< 0.5			0.5	Pass	
Monocrotophos	mg/kg	< 10			10	Pass	
Parathion	mg/kg	< 0.5			0.5	Pass	
Phorate	mg/kg	< 0.5			0.5	Pass	
Profenofos	mg/kg	< 0.5			0.5	Pass	
Prothiofos	mg/kg	< 0.5			0.5	Pass	
Ronnel	mg/kg	< 0.5			0.5	Pass	
Stirophos	mg/kg	< 0.5			0.5	Pass	
Trichloronate	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Metals M8 E022 Acid Extractable metals in Soils & E026 Mercury							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Manganese	mg/kg	< 5			5	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Mercury	mg/kg	< 0.05			0.05	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions E004 Petroleum Hydrocarbons (TPH)							
TRH C6-C9	%	102			70-130	Pass	
TRH C10-C14	%	85			70-130	Pass	
LCS - % Recovery							
BTEX E029/E016 BTEX							
Benzene	%	108			70-130	Pass	
Toluene	%	107			70-130	Pass	
Ethylbenzene	%	99			70-130	Pass	
m&p-Xylenes	%	97			70-130	Pass	
o-Xylene	%	103			70-130	Pass	
Xylenes - Total	%	99			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions LM-LTM-ORG2010							
Naphthalene	%	76			70-130	Pass	
TRH C6-C10	%	103			70-130	Pass	
TRH >C10-C16	%	92			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons E007 Polyaromatic Hydrocarbons (PAH)							
Acenaphthene	%	114			70-130	Pass	
Acenaphthylene	%	106			70-130	Pass	
Anthracene	%	110			70-130	Pass	
Benz(a)anthracene	%	91			70-130	Pass	
Benzo(a)pyrene	%	78			70-130	Pass	
Benzo(b&j)fluoranthene	%	87			70-130	Pass	
Benzo(g.h.i)perylene	%	86			70-130	Pass	
Benzo(k)fluoranthene	%	106			70-130	Pass	
Chrysene	%	106			70-130	Pass	
Dibenz(a.h)anthracene	%	98			70-130	Pass	
Fluoranthene	%	98			70-130	Pass	
Fluorene	%	115			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	93			70-130	Pass	
Naphthalene	%	108			70-130	Pass	
Phenanthrene	%	117			70-130	Pass	
Pyrene	%	99			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides E013 Organochlorine Pesticides (OC)							
Chlordanes - Total	%	91			70-130	Pass	
4.4'-DDD	%	96			70-130	Pass	
4.4'-DDE	%	92			70-130	Pass	
4.4'-DDT	%	99			70-130	Pass	
a-BHC	%	93			70-130	Pass	
Aldrin	%	98			70-130	Pass	
b-BHC	%	72			70-130	Pass	
d-BHC	%	81			70-130	Pass	
Dieldrin	%	93			70-130	Pass	
Endosulfan I	%	95			70-130	Pass	
Endosulfan II	%	81			70-130	Pass	
Endosulfan sulphate	%	72			70-130	Pass	
Endrin	%	109			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endrin aldehyde	%	72			70-130	Pass	
Endrin ketone	%	74			70-130	Pass	
g-BHC (Lindane)	%	89			70-130	Pass	
Heptachlor	%	95			70-130	Pass	
Heptachlor epoxide	%	92			70-130	Pass	
Hexachlorobenzene	%	89			70-130	Pass	
Methoxychlor	%	79			70-130	Pass	
LCS - % Recovery							
Polychlorinated Biphenyls (PCB) E013 Polychlorinated Biphenyls (PCB)							
Aroclor-1260	%	78			70-130	Pass	
LCS - % Recovery							
Organophosphorus Pesticides (OP) E014 Organophosphorus Pesticides (OP)							
Chlorpyrifos	%	119			70-130	Pass	
Coumaphos	%	106			70-130	Pass	
Diazinon	%	120			70-130	Pass	
Dichlorvos	%	121			70-130	Pass	
Dimethoate	%	112			70-130	Pass	
Disulfoton	%	121			70-130	Pass	
Ethoprop	%	126			70-130	Pass	
Fenitrothion	%	119			70-130	Pass	
Fensulfothion	%	89			70-130	Pass	
Fenthion	%	125			70-130	Pass	
Methyl azinphos	%	78			70-130	Pass	
Malathion	%	122			70-130	Pass	
Methyl parathion	%	130			70-130	Pass	
Mevinphos	%	116			70-130	Pass	
Monocrotophos	%	81			70-130	Pass	
Parathion	%	110			70-130	Pass	
Phorate	%	128			70-130	Pass	
Profenofos	%	111			70-130	Pass	
Prothiofos	%	126			70-130	Pass	
Ronnel	%	123			70-130	Pass	
Stirophos	%	89			70-130	Pass	
Trichloronate	%	123			70-130	Pass	
LCS - % Recovery							
Metals M8 E022 Acid Extractable metals in Soils & E026 Mercury							
Arsenic	%	77			70-130	Pass	
Cadmium	%	88			70-130	Pass	
Chromium	%	85			70-130	Pass	
Copper	%	88			70-130	Pass	
Lead	%	109			70-130	Pass	
Manganese	%	94			70-130	Pass	
Mercury	%	97			70-130	Pass	
Nickel	%	85			70-130	Pass	
Zinc	%	88			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	S13-Oc11039	NCP	%	94			70-130	Pass	
TRH C10-C14	S13-Oc10219	NCP	%	94			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S13-Oc11039	NCP	%	99			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Toluene	S13-Oc11039	NCP	%	97			70-130	Pass	
Ethylbenzene	S13-Oc11039	NCP	%	88			70-130	Pass	
m&p-Xylenes	S13-Oc11039	NCP	%	85			70-130	Pass	
o-Xylene	S13-Oc11039	NCP	%	90			70-130	Pass	
Xylenes - Total	S13-Oc11039	NCP	%	87			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S13-Oc11039	NCP	%	84			70-130	Pass	
TRH C6-C10	S13-Oc11039	NCP	%	91			70-130	Pass	
TRH >C10-C16	S13-Oc10219	NCP	%	104			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	S13-Oc11207	NCP	%	119			70-130	Pass	
Acenaphthylene	S13-Oc11207	NCP	%	116			70-130	Pass	
Anthracene	S13-Oc11207	NCP	%	99			70-130	Pass	
Benz(a)anthracene	S13-Oc11207	NCP	%	94			70-130	Pass	
Benzo(a)pyrene	S13-Oc11207	NCP	%	84			70-130	Pass	
Benzo(b&j)fluoranthene	S13-Oc11207	NCP	%	110			70-130	Pass	
Benzo(g.h.i)perylene	S13-Oc11207	NCP	%	92			70-130	Pass	
Benzo(k)fluoranthene	S13-Oc11207	NCP	%	101			70-130	Pass	
Chrysene	S13-Oc11207	NCP	%	112			70-130	Pass	
Dibenz(a.h)anthracene	S13-Oc11207	NCP	%	100			70-130	Pass	
Fluoranthene	S13-Oc11207	NCP	%	110			70-130	Pass	
Fluorene	S13-Oc11207	NCP	%	94			70-130	Pass	
Indeno(1.2.3-cd)pyrene	S13-Oc11207	NCP	%	98			70-130	Pass	
Pyrene	S13-Oc11207	NCP	%	112			70-130	Pass	
Spike - % Recovery									
Polychlorinated Biphenyls (PCB)				Result 1					
Aroclor-1260	S13-Oc10219	NCP	%	80			70-130	Pass	
Spike - % Recovery									
Organophosphorus Pesticides (OP)				Result 1					
Chlorpyrifos	S13-Oc10170	NCP	%	117			70-130	Pass	
Coumaphos	S13-Oc10170	NCP	%	120			70-130	Pass	
Diazinon	S13-Oc10170	NCP	%	116			70-130	Pass	
Dichlorvos	S13-Oc10170	NCP	%	129			70-130	Pass	
Dimethoate	S13-Oc10170	NCP	%	117			70-130	Pass	
Disulfoton	S13-Oc10170	NCP	%	109			70-130	Pass	
Ethoprop	S13-Oc10170	NCP	%	118			70-130	Pass	
Fenitrothion	S13-Oc10170	NCP	%	118			70-130	Pass	
Fensulfothion	S13-Oc10170	NCP	%	114			70-130	Pass	
Fenthion	S13-Oc10170	NCP	%	118			70-130	Pass	
Methyl azinphos	S13-Oc10170	NCP	%	130			70-130	Pass	
Malathion	S13-Oc10170	NCP	%	124			70-130	Pass	
Methyl parathion	S13-Oc10170	NCP	%	119			70-130	Pass	
Mevinphos	S13-Oc10170	NCP	%	124			70-130	Pass	
Monocrotophos	S13-Oc10170	NCP	%	92			70-130	Pass	
Parathion	S13-Oc10170	NCP	%	98			70-130	Pass	
Phorate	S13-Oc10170	NCP	%	113			70-130	Pass	
Profenofos	S13-Oc10170	NCP	%	125			70-130	Pass	
Prothiofos	S13-Oc10170	NCP	%	120			70-130	Pass	
Ronnel	S13-Oc10170	NCP	%	120			70-130	Pass	
Stirophos	S13-Oc10170	NCP	%	125			70-130	Pass	
Trichloronate	S13-Oc10170	NCP	%	119			70-130	Pass	
Spike - % Recovery									
Metals M8				Result 1					

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Arsenic	S13-Oc11203	NCP	%	97			70-130	Pass	
Cadmium	S13-Oc11203	NCP	%	85			70-130	Pass	
Chromium	S13-Oc11203	NCP	%	88			70-130	Pass	
Copper	S13-Oc11203	NCP	%	100			70-130	Pass	
Lead	S13-Oc11203	NCP	%	109			70-130	Pass	
Manganese	S13-Oc11207	NCP	%	86			70-130	Pass	
Mercury	S13-Oc11203	NCP	%	94			70-130	Pass	
Nickel	S13-Oc11203	NCP	%	91			70-130	Pass	
Zinc	S13-Oc11203	NCP	%	94			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	S13-Oc11039	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	S13-Oc11203	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S13-Oc11203	NCP	mg/kg	59	< 50	35	30%	Fail	Q15
TRH C29-C36	S13-Oc11203	NCP	mg/kg	51	57	12	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S13-Oc11039	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S13-Oc11039	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S13-Oc11039	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S13-Oc11039	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S13-Oc11039	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total	S13-Oc11039	NCP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S13-Oc11039	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S13-Oc11039	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C6-C10 less BTEX (F1)	S13-Oc11039	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH >C10-C16	S13-Oc11203	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	S13-Oc11203	NCP	mg/kg	110	< 100	17	30%	Pass	
TRH >C34-C40	S13-Oc11203	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S13-Oc11207	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S13-Oc11207	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S13-Oc11207	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S13-Oc11207	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	S13-Oc11207	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	S13-Oc11207	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	S13-Oc11207	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	S13-Oc11207	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	S13-Oc11207	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	S13-Oc11207	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S13-Oc11207	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	S13-Oc11207	NCP	mg/kg	2.3	2.2	5.0	30%	Pass	
Indeno(1.2.3-cd)pyrene	S13-Oc11207	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	S13-Oc11207	NCP	mg/kg	3.2	3.1	3.0	30%	Pass	
Pyrene	S13-Oc11207	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	S13-Oc11156	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	S13-Oc11156	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	S13-Oc11156	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	

Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
4.4'-DDT	S13-Oc11156	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-BHC	S13-Oc11156	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	S13-Oc11156	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-BHC	S13-Oc11156	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-BHC	S13-Oc11156	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	S13-Oc11156	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	S13-Oc11156	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	S13-Oc11156	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	S13-Oc11156	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	S13-Oc11156	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	S13-Oc11156	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	S13-Oc11156	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-BHC (Lindane)	S13-Oc11156	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	S13-Oc11156	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	S13-Oc11156	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	S13-Oc11156	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	S13-Oc11156	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Toxaphene	S13-Oc11156	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Duplicate									
Polychlorinated Biphenyls (PCB)				Result 1	Result 2	RPD			
Aroclor-1016	S13-Oc11156	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1232	S13-Oc11156	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1242	S13-Oc11156	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1248	S13-Oc11156	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1254	S13-Oc11156	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1260	S13-Oc11156	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Organophosphorus Pesticides (OP)				Result 1	Result 2	RPD			
Chlorpyrifos	S13-Oc10160	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Coumaphos	S13-Oc10160	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Diazinon	S13-Oc10160	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dichlorvos	S13-Oc10160	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dimethoate	S13-Oc10160	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Disulfoton	S13-Oc10160	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Ethoprop	S13-Oc10160	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fenitrothion	S13-Oc10160	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fensulfothion	S13-Oc10160	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fenthion	S13-Oc10160	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Methyl azinphos	S13-Oc10160	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Malathion	S13-Oc10160	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Methyl parathion	S13-Oc10160	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Mevinphos	S13-Oc10160	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Monocrotophos	S13-Oc10160	NCP	mg/kg	< 10	< 10	<1	30%	Pass	
Parathion	S13-Oc10160	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phorate	S13-Oc10160	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Profenofos	S13-Oc10160	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Prothiofos	S13-Oc10160	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Ronnel	S13-Oc10160	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Stirophos	S13-Oc10160	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Trichloronate	S13-Oc10160	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Metals M8				Result 1	Result 2	RPD			
Arsenic	S13-Oc11203	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Cadmium	S13-Oc11203	NCP	mg/kg	0.40	< 0.4	21	30%	Pass	

Duplicate									
Metals M8				Result 1	Result 2	RPD			
Chromium	S13-Oc11203	NCP	mg/kg	10	9.2	12	30%	Pass	
Copper	S13-Oc11203	NCP	mg/kg	10	8.9	15	30%	Pass	
Lead	S13-Oc11203	NCP	mg/kg	11	14	25	30%	Pass	
Manganese	S13-Oc09633	NCP	mg/kg	7.0	11	44	30%	Fail	Q15
Mercury	S13-Oc11203	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Nickel	S13-Oc11203	NCP	mg/kg	6.1	6.3	4.0	30%	Pass	
Zinc	S13-Oc11203	NCP	mg/kg	34	31	10	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Organic samples had Teflon liners	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
Q15	The RPD reported passes Eurofins | mgt's Acceptance Criteria as stipulated in SOP 05. Refer to Glossary Page of this report for further details

Authorised By

Jean Heng	Client Services
James Norford	Senior Analyst-Metal (NSW)
Ryan Hamilton	Senior Analyst-Organic (NSW)
Ryan Hamilton	Senior Analyst-Volatile (NSW)

Dr. Bob Symons

Laboratory Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Uncertainty data is available on request

Eurofins | mgt shall not be liable for loss, cost, damages or expenses incurred by the client, or any other person or company, resulting from the use of any information or interpretation given in this report. In no case shall Eurofins | mgt be liable for consequential damages including, but not limited to, lost profits, damages for failure to meet deadlines and lost production arising from this report. This document shall not be reproduced except in full and relates only to the items tested. Unless indicated otherwise, the tests were performed on the samples as received.

eurofins | mgt

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NATA # 1261 Site # 18217

Brisbane
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Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Company Name: Douglas Partners (Syd)
Address: 96 Hermitage Road
West Ryde
NSW 2114

Client Job No.: SYDNEY OLYMPIC PARK 45153.03

Order No.:
Report #: 396293
Phone: 02 9809 0666
Fax:

Received: Oct 15, 2013 1:45 PM
Due: Oct 22, 2013
Priority: 5 Day
Contact Name: Peter Oitmaa

Eurofins | mgt Client Manager: Jean Heng

Sample Detail					% Moisture	Manganese	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Metals M8	BTEX	Polychlorinated Biphenyls (PCB)	Organophosphorus Pesticides (OP)	Total Recoverable Hydrocarbons
Laboratory where analysis is conducted													
Melbourne Laboratory - NATA Site # 1254 & 14271													
Sydney Laboratory - NATA Site # 18217					X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794													
External Laboratory													
Sample ID	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**									
TS1B	Oct 11, 2013		Soil	S13-Oc11156	X	X	X	X	X	X	X	X	X
TS7B	Oct 11, 2013		Soil	S13-Oc11157	X	X	X	X	X	X	X	X	X

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Brisbane
1/21 Smallwood Place
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Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Sample Receipt Advice

Company name: **Douglas Partners (Syd)**

Contact name: Peter Oitmaa
Client job number: SYDNEY OLYMPIC PARK 45153.03
COC number: Not provided
Turn around time: 5 Day
Date/Time received: Oct 15, 2013 1:45 PM
Eurofins | mgt reference: **396293**

Sample information

☑ A detailed list of analytes logged into our LIMS, is included in the attached summary table.

☑ All samples have been received as described on the above COC.

☑ COC has been completed correctly.

☑ Attempt to chill was evident.

☑ Appropriately preserved sample containers have been used.

☑ All samples were received in good condition.

☑ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.

☑ Organic samples had Teflon liners.

☒ Some samples have been subcontracted.

N/A Custody Seals intact (if used).

Contact notes

If you have any questions with respect to these samples please contact:

Jean Heng on Phone : (+61) (2) 9900 8400 or by e.mail: JeanHeng@eurofins.com.au

Results will be delivered electronically via e.mail to Peter Oitmaa - peter.oitmaa@douglaspartners.com.au.

Eurofins | mgt Sample Receipt

Douglas Partners
Geotechnics · Environment · Groundwater

CHAIN OF CUSTODY

Project Name: Sydney Olympic Park
Project No: 45153.03 Sampler: AG
Project Mgr: Peter Oitmaa Mob. Phone: 0412 574 518
Email: peter.oitmaa@douglaspartners.com.au
Date Required: Std Lab Quote No.

To: Envirolab Services
12 Ashley Street, Chatswood NSW 2067
Attn: Tania Notaras
Phone: 02 9910 6200 Fax: 02 9910 6201
Email: tnotaras@envirolabservices.com.au

#396293

Sample ID	Sample Depth	Lab ID	Sampling Date	Sample Type S - soil W - water	Container type	Analytes: 8 Heavy metals + Mn	TRH BTEX	PAH	OCP OPP	PCB	Phenol	Asbestos		Notes
TS1A	N/A	13	11/10	S	Jar									Combo 8
TS1B	|	[illegible]	|	|	|	|	|	|	|	|	|	|	Send to Labmark
TS7A	|	15	|	|	|	|	|	|	|	|	|	|	|	Combo 8
TS7B	|	[illegible]	|	|	|	|	|	|	|	|	|	|	|	Send to Labmark
[illegible]	|	16	10/10	|	|		✓ BTEX ONLY							
TB	|	[illegible]17	11	|	|		✓	✓						
Rins 1	|	18	11/10	W	Various	✓	✓	✓	✓	✓	✓			
														98975

Lab Report No.
Send Results to: Douglas Partners Address: 96 Hermitage Road, West Ryde 2114
Phone: (02) 9809 0666
Fax: (02) 9809 4095

Relinquished by: P. Oitmaa Signed: Date & Time: 14/10 1430hrs Received By: PT Date & Time: 14/10/13 17:00
Relinquished by: JTH (ELS) Signed: Date & Time: 15/10/13 1200 Received By: Date & Time:

RECEIVED
15 OCT 2013
BY: Sean Lim

Form COC Rev0/November 2006

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

CERTIFICATE OF ANALYSIS 100526

Client:
Douglas Partners Pty Ltd
96 Hermitage Rd
West Ryde
NSW 2114

Attention: Peter Oitmaa

Sample log in details:

Your Reference:	**45153.03, Sydney Olympic Park**		
No. of samples:	5 waters		
Date samples received / completed instructions received	08/11/13	/	08/11/13

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

Report Details:

Date results requested by: / Issue Date:	12/11/13	/	12/11/13
Date of Preliminary Report:	Not issued		

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Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with *.**

Results Approved By:

Jacinta Hurst
Laboratory Manager

VOCs in water Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- ----------	100526-1 BH1 08/11/2013 Water	100526-2 BH5 08/11/2013 Water	100526-3 BH6 08/11/2013 Water	100526-4 D1 08/11/2013 Water
Date extracted	-	12/11/2013	12/11/2013	12/11/2013	12/11/2013
Date analysed	-	12/11/2013	12/11/2013	12/11/2013	12/11/2013
Dichlorodifluoromethane	µg/L	<10	<10	<10	<10
Chloromethane	µg/L	<10	<10	<10	<10
Vinyl Chloride	µg/L	<10	<10	<10	<10
Bromomethane	µg/L	<10	<10	<10	<10
Chloroethane	µg/L	<10	<10	<10	<10
Trichlorofluoromethane	µg/L	<10	<10	<10	<10
1,1-Dichloroethene	µg/L	<1	<1	<1	<1
Trans-1,2-dichloroethene	µg/L	<1	<1	<1	<1
1,1-dichloroethane	µg/L	<1	<1	<1	<1
Cis-1,2-dichloroethene	µg/L	<1	<1	<1	<1
Bromochloromethane	µg/L	<1	<1	<1	<1
Chloroform	µg/L	2	4	2	3
2,2-dichloropropane	µg/L	<1	<1	<1	<1
1,2-dichloroethane	µg/L	<1	<1	<1	<1
1,1,1-trichloroethane	µg/L	<1	<1	<1	<1
1,1-dichloropropene	µg/L	<1	<1	<1	<1
Cyclohexane	µg/L	<1	<1	1	<1
Carbon tetrachloride	µg/L	<1	<1	<1	<1
Benzene	µg/L	<1	<1	<1	<1
Dibromomethane	µg/L	<1	<1	<1	<1
1,2-dichloropropane	µg/L	<1	<1	<1	<1
Trichloroethene	µg/L	<1	<1	<1	<1
Bromodichloromethane	µg/L	<1	<1	<1	<1
trans-1,3-dichloropropene	µg/L	<1	<1	<1	<1
cis-1,3-dichloropropene	µg/L	<1	<1	<1	<1
1,1,2-trichloroethane	µg/L	<1	<1	<1	<1
Toluene	µg/L	<1	<1	<1	<1
1,3-dichloropropane	µg/L	<1	<1	<1	<1
Dibromochloromethane	µg/L	<1	<1	<1	<1
1,2-dibromoethane	µg/L	<1	<1	<1	<1
Tetrachloroethene	µg/L	<1	<1	<1	<1
1,1,1,2-tetrachloroethane	µg/L	<1	<1	<1	<1
Chlorobenzene	µg/L	<1	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1	<1
Bromoform	µg/L	<1	<1	<1	<1
m+p-xylene	µg/L	<2	<2	<2	<2
Styrene	µg/L	<1	<1	<1	<1
1,1,2,2-tetrachloroethane	µg/L	<1	<1	<1	<1
o-xylene	µg/L	<1	<1	3	<1
1,2,3-trichloropropane	µg/L	<1	<1	<1	<1

VOCs in water Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- ----------	100526-1 BH1 08/11/2013 Water	100526-2 BH5 08/11/2013 Water	100526-3 BH6 08/11/2013 Water	100526-4 D1 08/11/2013 Water
Isopropylbenzene	µg/L	<1	<1	<1	<1
Bromobenzene	µg/L	<1	<1	<1	<1
n-propyl benzene	µg/L	<1	<1	<1	<1
2-chlorotoluene	µg/L	<1	<1	<1	<1
4-chlorotoluene	µg/L	<1	<1	<1	<1
1,3,5-trimethyl benzene	µg/L	<1	<1	3	<1
Tert-butyl benzene	µg/L	<1	<1	<1	<1
1,2,4-trimethyl benzene	µg/L	<1	<1	<1	<1
1,3-dichlorobenzene	µg/L	<1	<1	<1	<1
Sec-butyl benzene	µg/L	<1	<1	<1	<1
1,4-dichlorobenzene	µg/L	<1	<1	<1	<1
4-isopropyl toluene	µg/L	<1	<1	<1	<1
1,2-dichlorobenzene	µg/L	<1	<1	<1	<1
n-butyl benzene	µg/L	<1	<1	<1	<1
1,2-dibromo-3-chloropropane	µg/L	<1	<1	<1	<1
1,2,4-trichlorobenzene	µg/L	<1	<1	<1	<1
Hexachlorobutadiene	µg/L	<1	<1	<1	<1
1,2,3-trichlorobenzene	µg/L	<1	<1	<1	<1
Surrogate Dibromofluoromethane	%	107	114	110	112
Surrogate toluene-d8	%	89	88	87	90
Surrogate 4-BFB	%	79	71	84	66

vTRH(C6-C10)/BTEXN in Water						
Our Reference:	UNITS	100526-1	100526-2	100526-3	100526-4	100526-5
Your Reference	----------	BH1	BH5	BH6	D1	R1
Date Sampled	----------	08/11/2013	08/11/2013	08/11/2013	08/11/2013	08/11/2013
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	12/11/2013	12/11/2013	12/11/2013	12/11/2013	12/11/2013
Date analysed	-	12/11/2013	12/11/2013	12/11/2013	12/11/2013	12/11/2013
TRHC$_6$ - C$_9$	µg/L	<10	<10	<10	<10	<10
TRHC$_6$ - C$_{10}$	µg/L	<10	<10	<10	<10	<10
TRHC$_6$ - C$_{10}$ less BTEX (F1)	µg/L	<10	<10	<10	<10	<10
Benzene	µg/L	<1	<1	<1	<1	<1
Toluene	µg/L	<1	<1	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1	<1	<1
m+p-xylene	µg/L	<2	<2	<2	<2	<2
o-xylene	µg/L	<1	<1	3	<1	<1
Naphthalene	µg/L	<1	<1	<1	<1	<1
Surrogate Dibromofluoromethane	%	107	114	110	112	108
Surrogate toluene-d8	%	89	88	87	90	95
Surrogate 4-BFB	%	79	71	84	66	85

svTRH (C10-C40) in Water						
Our Reference:	UNITS	100526-1	100526-2	100526-3	100526-4	100526-5
Your Reference	----------	BH1	BH5	BH6	D1	R1
Date Sampled	----------	08/11/2013	08/11/2013	08/11/2013	08/11/2013	08/11/2013
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	11/11/2013	11/11/2013	11/11/2013	11/11/2013	11/11/2013
Date analysed	-	12/11/2013	12/11/2013	12/11/2013	12/11/2013	12/11/2013
TRHC$_{10}$ - C$_{14}$	µg/L	<50	<50	56	<50	<50
TRHC$_{15}$ - C$_{28}$	µg/L	<100	<100	<100	<100	<100
TRHC$_{29}$ - C$_{36}$	µg/L	<100	<100	<100	<100	<100
TRH>C$_{10}$ - C$_{16}$	µg/L	<50	<50	63	<50	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	µg/L	<50	<50	63	<50	<50
TRH>C$_{16}$ - C$_{34}$	µg/L	<100	<100	<100	<100	<100
TRH>C$_{34}$ - C$_{40}$	µg/L	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	93	83	97	100	90

PAHs in Water Our Reference: Your Reference Date Sampled Type of sample	UNITS ---------- ----------	100526-1 BH1 08/11/2013 Water	100526-2 BH5 08/11/2013 Water	100526-3 BH6 08/11/2013 Water	100526-4 D1 08/11/2013 Water	100526-5 R1 08/11/2013 Water
Date extracted	-	11/11/2013	11/11/2013	11/11/2013	11/11/2013	11/11/2013
Date analysed	-	11/11/2013	11/11/2013	11/11/2013	11/11/2013	11/11/2013
Naphthalene	µg/L	<1	<1	<1	<1	<1
Acenaphthylene	µg/L	<1	<1	<1	<1	<1
Acenaphthene	µg/L	<1	<1	<1	<1	<1
Fluorene	µg/L	<1	<1	<1	<1	<1
Phenanthrene	µg/L	<1	<1	<1	<1	<1
Anthracene	µg/L	<1	<1	<1	<1	<1
Fluoranthene	µg/L	<1	<1	<1	<1	<1
Pyrene	µg/L	<1	<1	<1	<1	<1
Benzo(a)anthracene	µg/L	<1	<1	<1	<1	<1
Chrysene	µg/L	<1	<1	<1	<1	<1
Benzo(b+k)fluoranthene	µg/L	<2	<2	<2	<2	<2
Benzo(a)pyrene	µg/L	<1	<1	<1	<1	<1
Indeno(1,2,3-c,d)pyrene	µg/L	<1	<1	<1	<1	<1
Dibenzo(a,h)anthracene	µg/L	<1	<1	<1	<1	<1
Benzo(g,h,i)perylene	µg/L	<1	<1	<1	<1	<1
Benzo(a)pyrene TEQ	µg/L	<5	<5	<5	<5	<5
Total +ve PAH's	µg/L	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	117	129	104	96	129

Total Phenolics in Water					
Our Reference:	UNITS	100526-1	100526-2	100526-3	100526-4
Your Reference	----------	BH1	BH5	BH6	D1
Date Sampled	----------	08/11/2013	08/11/2013	08/11/2013	08/11/2013
Type of sample		Water	Water	Water	Water
Date extracted	-	11/11/2013	11/11/2013	11/11/2013	11/11/2013
Date analysed	-	11/11/2013	11/11/2013	11/11/2013	11/11/2013
Total Phenolics (as Phenol)	mg/L	<0.05	0.06	<0.05	<0.05

OCP in water - low level					
Our Reference:	UNITS	100526-1	100526-2	100526-3	100526-4
Your Reference	----------	BH1	BH5	BH6	D1
Date Sampled	----------	08/11/2013	08/11/2013	08/11/2013	08/11/2013
Type of sample		Water	Water	Water	Water
Date extracted	-	11/11/2013	11/11/2013	11/11/2013	11/11/2013
Date analysed	-	11/11/2013	11/11/2013	11/11/2013	11/11/2013
HCB	µg/L	<0.01	<0.01	<0.01	<0.01
alpha-BHC	µg/L	<0.01	<0.01	<0.01	<0.01
gamma-BHC	µg/L	<0.01	<0.01	<0.01	<0.01
beta-BHC	µg/L	<0.01	<0.01	<0.01	<0.01
Heptachlor	µg/L	<0.01	<0.01	<0.01	<0.01
delta-BHC	µg/L	<0.01	<0.01	<0.01	<0.01
Aldrin	µg/L	<0.01	<0.01	<0.01	<0.01
Heptachlor Epoxide	µg/L	<0.01	<0.01	<0.01	<0.01
gamma-Chlordane	µg/L	<0.01	<0.01	<0.01	<0.01
alpha-Chlordane	µg/L	<0.01	<0.01	<0.01	<0.01
Endosulfan I	µg/L	<0.01	<0.01	<0.01	<0.01
pp-DDE	µg/L	<0.01	<0.01	<0.01	<0.01
Dieldrin	µg/L	<0.01	<0.01	<0.01	<0.01
Endrin	µg/L	<0.01	<0.01	<0.01	<0.01
pp-DDD	µg/L	<0.01	<0.01	<0.01	<0.01
Endosulfan II	µg/L	<0.01	<0.01	<0.01	<0.01
DDT	µg/L	<0.01	<0.01	<0.01	<0.01
Endrin Aldehyde	µg/L	<0.01	<0.01	<0.01	<0.01
Endosulfan Sulphate	µg/L	<0.01	<0.01	<0.01	<0.01
Methoxychlor	µg/L	<0.010	<0.010	<0.010	<0.010
Surrogate TCMX	%	78	84	96	87

OP Pesticides in water LL					
Our Reference:	UNITS	100526-1	100526-2	100526-3	100526-4
Your Reference	----------	BH1	BH5	BH6	D1
Date Sampled	----------	08/11/2013	08/11/2013	08/11/2013	08/11/2013
Type of sample		Water	Water	Water	Water
Date extracted	-	11/11/2013	11/11/2013	11/11/2013	11/11/2013
Date analysed	-	11/11/2013	11/11/2013	11/11/2013	11/11/2013
Diazinon	µg/L	<0.01	<0.01	<0.01	<0.01
Dimethoate	µg/L	<0.01	<0.01	<0.01	<0.01
Chlorpyriphos-methyl	µg/L	<0.01	<0.01	<0.01	<0.01
Ronnel	µg/L	<0.01	<0.01	<0.01	<0.01
Chlorpyriphos	µg/L	<0.01	<0.01	<0.01	<0.01
Fenitrothion	µg/L	<0.01	<0.01	<0.01	<0.01
Bromophos ethyl	µg/L	<0.01	<0.01	<0.01	<0.01
Ethion	µg/L	<0.01	<0.01	<0.01	<0.01
Surrogate TCMX	%	78	84	96	87

PCBs in Water - Low Level					
Our Reference:	UNITS	100526-1	100526-2	100526-3	100526-4
Your Reference	----------	BH1	BH5	BH6	D1
Date Sampled	----------	08/11/2013	08/11/2013	08/11/2013	08/11/2013
Type of sample		Water	Water	Water	Water
Date extracted	-	11/11/2013	11/11/2013	11/11/2013	11/11/2013
Date analysed	-	11/11/2013	11/11/2013	11/11/2013	11/11/2013
Arochlor 1016	µg/L	<0.1	<0.1	<0.1	<0.1
Arochlor 1221	µg/L	<0.1	<0.1	<0.1	<0.1
Arochlor 1232	µg/L	<0.1	<0.1	<0.1	<0.1
Arochlor 1242	µg/L	<0.1	<0.1	<0.1	<0.1
Arochlor 1248	µg/L	<0.1	<0.1	<0.1	<0.1
Arochlor 1254	µg/L	<0.1	<0.1	<0.1	<0.1
Arochlor 1260	µg/L	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	78	84	96	87

HM in water - dissolved						
Our Reference:	UNITS	100526-1	100526-2	100526-3	100526-4	100526-5
Your Reference	----------	BH1	BH5	BH6	D1	R1
Date Sampled	----------	08/11/2013	08/11/2013	08/11/2013	08/11/2013	08/11/2013
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	11/11/2013	11/11/2013	11/11/2013	11/11/2013	11/11/2013
Date analysed	-	12/11/2013	12/11/2013	12/11/2013	12/11/2013	12/11/2013
Arsenic-Dissolved	µg/L	6	2	7	6	<1
Cadmium-Dissolved	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium-Dissolved	µg/L	<1	<1	<1	<1	2
Copper-Dissolved	µg/L	<1	<1	1	<1	<1
Lead-Dissolved	µg/L	<1	<1	<1	<1	<1
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Nickel-Dissolved	µg/L	10	3	7	11	<1
Zinc-Dissolved	µg/L	8	11	10	<1	<1

Miscellaneous Inorganics					
Our Reference:	UNITS	100526-1	100526-2	100526-3	100526-4
Your Reference	----------	BH1	BH5	BH6	D1
Date Sampled	----------	08/11/2013	08/11/2013	08/11/2013	08/11/2013
Type of sample		Water	Water	Water	Water
Date prepared	-	12/11/2013	12/11/2013	12/11/2013	12/11/2013
Date analysed	-	12/11/2013	12/11/2013	12/11/2013	12/11/2013
Hardness	mgCaCO3/L	1,800	89	2,000	1,800
Calcium - Dissolved	mg/L	140	13	170	140
Magnesium - Dissolved	mg/L	340	14	390	360

Method ID	Methodology Summary
Org-013	Water samples are analysed directly by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note Naphthalene is determined from the VOC analysis.
Org-012 subset	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Inorg-030	Total Phenolics - determined colorimetrically following disitillation, based upon APHA 22nd ED 5530 D.
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-008	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Metals-022 ICP-MS	Determination of various metals by ICP-MS.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.

QUALITY CONTROL VOCs in water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			12/11/2013	[NT]	[NT]	LCS-W1	12/11/2013
Date analysed	-			12/11/2013	[NT]	[NT]	LCS-W1	12/11/2013
Dichlorodifluoromethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NR]	[NR]
Chloromethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NR]	[NR]
Vinyl Chloride	µg/L	10	Org-013	<10	[NT]	[NT]	[NR]	[NR]
Bromomethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NR]	[NR]
Chloroethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NR]	[NR]
Trichlorofluoromethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NR]	[NR]
1,1-Dichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Trans-1,2-dichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,1-dichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W1	124%
Cis-1,2-dichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Bromochloromethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Chloroform	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W1	122%
2,2-dichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,2-dichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W1	108%
1,1,1-trichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W1	121%
1,1-dichloropropene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Cyclohexane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Carbon tetrachloride	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Dibromomethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,2-dichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Trichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W1	116%
Bromodichloromethane	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W1	117%
trans-1,3-dichloropropene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
cis-1,3-dichloropropene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,1,2-trichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Toluene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,3-dichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Dibromochloromethane	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W1	103%
1,2-dibromoethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Tetrachloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	LCS-W1	118%
1,1,1,2-tetrachloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Chlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Ethylbenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Bromoform	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
m+p-xylene	µg/L	2	Org-013	<2	[NT]	[NT]	[NR]	[NR]
Styrene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,1,2,2-tetrachloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
o-xylene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]

QUALITY CONTROL VOCs in water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
1,2,3-trichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Isopropylbenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Bromobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
n-propyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
2-chlorotoluene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
4-chlorotoluene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,3,5-trimethyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Tert-butyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,2,4-trimethyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,3-dichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Sec-butyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,4-dichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
4-isopropyl toluene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,2-dichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
n-butyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,2-dibromo-3-chloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,2,4-trichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Hexachlorobutadiene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
1,2,3-trichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Surrogate Dibromofluoromethane	%		Org-013	126	[NT]	[NT]	LCS-W1	104%
Surrogate toluene-d8	%		Org-013	98	[NT]	[NT]	LCS-W1	106%
Surrogate 4-BFB	%		Org-013	76	[NT]	[NT]	LCS-W1	103%

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			12/11/2013	[NT]	[NT]	LCS-W1	12/11/2013
Date analysed	-			12/11/2013	[NT]	[NT]	LCS-W1	12/11/2013
TRH C_6 - C_9	µg/L	10	Org-016	<10	[NT]	[NT]	LCS-W1	105%
TRH C_6 - C_{10}	µg/L	10	Org-016	<10	[NT]	[NT]	LCS-W1	105%
Benzene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	93%
Toluene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	98%
Ethylbenzene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	105%
m+p-xylene	µg/L	2	Org-016	<2	[NT]	[NT]	LCS-W1	111%
o-xylene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	109%
Naphthalene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Surrogate Dibromofluoromethane	%		Org-016	126	[NT]	[NT]	LCS-W1	105%
Surrogate toluene-d8	%		Org-016	98	[NT]	[NT]	LCS-W1	87%
Surrogate 4-BFB	%		Org-016	76	[NT]	[NT]	LCS-W1	98%
QUALITY CONTROL svTRH (C10-C40) in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			11/11/2013	[NT]	[NT]	LCS-W1	11/11/2013
Date analysed	-			12/11/2013	[NT]	[NT]	LCS-W1	12/11/2013
TRH C_{10} - C_{14}	µg/L	50	Org-003	<50	[NT]	[NT]	LCS-W1	86%
TRH C_{15} - C_{28}	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	101%
TRH C_{29} - C_{36}	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	104%
TRH>C_{10} - C_{16}	µg/L	50	Org-003	<50	[NT]	[NT]	LCS-W1	86%
TRH>C_{16} - C_{34}	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	101%
TRH>C_{34} - C_{40}	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	104%
Surrogate o-Terphenyl	%		Org-003	92	[NT]	[NT]	LCS-W1	93%
QUALITY CONTROL PAHs in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			11/11/2013	[NT]	[NT]	LCS-W2	11/11/2013
Date analysed	-			11/11/2013	[NT]	[NT]	LCS-W2	11/11/2013
Naphthalene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W2	90%
Acenaphthylene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Acenaphthene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Fluorene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W2	89%
Phenanthrene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W2	84%

QUALITY CONTROL PAHs in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Anthracene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Fluoranthene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W2	74%
Pyrene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W2	98%
Benzo(a)anthracene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Chrysene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W2	84%
Benzo(b+k)fluoranthene	µg/L	2	Org-012 subset	<2	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W2	83%
Indeno(1,2,3-c,d)pyrene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012 subset	119	[NT]	[NT]	LCS-W2	90%
QUALITY CONTROL Total Phenolics in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			11/11/2013	[NT]	[NT]	LCS-W1	11/11/2013
Date analysed	-			11/11/2013	[NT]	[NT]	LCS-W1	11/11/2013
Total Phenolics (as Phenol)	mg/L	0.05	Inorg-030	<0.05	[NT]	[NT]	LCS-W1	97%
QUALITY CONTROL OCP in water - low level	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			11/11/2013	[NT]	[NT]	LCS-W1	11/11/2013
Date analysed	-			11/11/2013	[NT]	[NT]	LCS-W1	11/11/2013
HCB	µg/L	0.01	Org-005	<0.01	[NT]	[NT]	[NR]	[NR]
alpha-BHC	µg/L	0.01	Org-005	<0.01	[NT]	[NT]	LCS-W1	103%
gamma-BHC	µg/L	0.01	Org-005	<0.01	[NT]	[NT]	[NR]	[NR]
beta-BHC	µg/L	0.01	Org-005	<0.01	[NT]	[NT]	LCS-W1	106%
Heptachlor	µg/L	0.01	Org-005	<0.01	[NT]	[NT]	LCS-W1	117%
delta-BHC	µg/L	0.01	Org-005	<0.01	[NT]	[NT]	[NR]	[NR]
Aldrin	µg/L	0.01	Org-005	<0.01	[NT]	[NT]	LCS-W1	104%
Heptachlor Epoxide	µg/L	0.01	Org-005	<0.01	[NT]	[NT]	LCS-W1	105%
gamma-Chlordane	µg/L	0.01	Org-005	<0.01	[NT]	[NT]	[NR]	[NR]
alpha-Chlordane	µg/L	0.01	Org-005	<0.01	[NT]	[NT]	[NR]	[NR]
Endosulfan I	µg/L	0.01	Org-005	<0.01	[NT]	[NT]	[NR]	[NR]
pp-DDE	µg/L	0.01	Org-005	<0.01	[NT]	[NT]	LCS-W1	107%

QUALITY CONTROL OCP in water - low level	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Dieldrin	µg/L	0.01	Org-005	<0.01	[NT]	[NT]	LCS-W1	113%
Endrin	µg/L	0.01	Org-005	<0.01	[NT]	[NT]	LCS-W1	107%
pp-DDD	µg/L	0.01	Org-005	<0.01	[NT]	[NT]	LCS-W1	103%
Endosulfan II	µg/L	0.01	Org-005	<0.01	[NT]	[NT]	[NR]	[NR]
DDT	µg/L	0.01	Org-005	<0.01	[NT]	[NT]	[NR]	[NR]
Endrin Aldehyde	µg/L	0.01	Org-005	<0.01	[NT]	[NT]	[NR]	[NR]
Endosulfan Sulphate	µg/L	0.01	Org-005	<0.01	[NT]	[NT]	LCS-W1	131%
Methoxychlor	µg/L	0.01	Org-005	<0.010	[NT]	[NT]	[NR]	[NR]
Surrogate TCMX	%		Org-005	78	[NT]	[NT]	LCS-W1	78%
QUALITY CONTROL OP Pesticides in water LL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			11/11/2013	[NT]	[NT]	LCS-W1	11/11/2013
Date analysed	-			11/11/2013	[NT]	[NT]	LCS-W1	11/11/2013
Diazinon	µg/L	0.01	Org-008	<0.01	[NT]	[NT]	[NR]	[NR]
Dimethoate	µg/L	0.01	Org-008	<0.01	[NT]	[NT]	[NR]	[NR]
Chlorpyriphos-methyl	µg/L	0.01	Org-008	<0.01	[NT]	[NT]	[NR]	[NR]
Ronnel	µg/L	0.01	Org-008	<0.01	[NT]	[NT]	[NR]	[NR]
Chlorpyriphos	µg/L	0.01	Org-008	<0.01	[NT]	[NT]	LCS-W1	101%
Fenitrothion	µg/L	0.01	Org-008	<0.01	[NT]	[NT]	LCS-W1	136%
Bromophos ethyl	µg/L	0.01	Org-008	<0.01	[NT]	[NT]	[NR]	[NR]
Ethion	µg/L	0.01	Org-008	<0.01	[NT]	[NT]	LCS-W1	110%
Surrogate TCMX	%		Org-008	78	[NT]	[NT]	LCS-W1	83%
QUALITY CONTROL PCBs in Water - Low Level	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			11/11/2013	[NT]	[NT]	LCS-W1	11/11/2013
Date analysed	-			11/11/2013	[NT]	[NT]	LCS-W1	11/11/2013
Arochlor 1016	µg/L	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Arochlor 1221	µg/L	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Arochlor 1232	µg/L	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Arochlor 1242	µg/L	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Arochlor 1248	µg/L	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Arochlor 1254	µg/L	0.1	Org-006	<0.1	[NT]	[NT]	LCS-W1	110%
Arochlor 1260	µg/L	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Surrogate TCLMX	%		Org-006	78	[NT]	[NT]	LCS-W1	89%

QUALITY CONTROL HM in water - dissolved	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			11/11/2013	100526-1	11/11/2013 || 11/11/2013	LCS-W1	11/11/2013
Date analysed	-			11/11/2013	100526-1	12/11/2013 || 12/11/2013	LCS-W1	12/11/2013
Arsenic-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	100526-1	6 || [N/T]	LCS-W1	117%
Cadmium-Dissolved	µg/L	0.1	Metals-022 ICP-MS	<0.1	100526-1	<0.1 || [N/T]	LCS-W1	115%
Chromium-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	100526-1	<1 || [N/T]	LCS-W1	113%
Copper-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	100526-1	<1 || [N/T]	LCS-W1	114%
Lead-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	100526-1	<1 || [N/T]	LCS-W1	114%
Mercury-Dissolved	µg/L	0.05	Metals-021 CV-AAS	<0.05	100526-1	<0.05 || <0.05	LCS-W1	104%
Nickel-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	100526-1	10 || [N/T]	LCS-W1	115%
Zinc-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	100526-1	8 || [N/T]	LCS-W1	113%

QUALITY CONTROL Miscellaneous Inorganics	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			12/11/2013	[NT]	[NT]	LCS-W1	12/11/2013
Date analysed	-			12/11/2013	[NT]	[NT]	LCS-W1	12/11/2013
Hardness	mgCaCO3/L	3		[NT]	[NT]	[NT]	[NR]	[NR]
Calcium - Dissolved	mg/L	0.5	Metals-020 ICP-AES	<0.5	[NT]	[NT]	LCS-W1	104%
Magnesium - Dissolved	mg/L	0.5	Metals-020 ICP-AES	<0.5	[NT]	[NT]	LCS-W1	106%

QUALITY CONTROL HM in water - dissolved	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	[NT]	[NT]	100526-2	12/11/2013
Date analysed	-	[NT]	[NT]	100526-2	12/11/2013
Arsenic-Dissolved	µg/L	[NT]	[NT]	[NR]	[NR]
Cadmium-Dissolved	µg/L	[NT]	[NT]	[NR]	[NR]
Chromium-Dissolved	µg/L	[NT]	[NT]	[NR]	[NR]
Copper-Dissolved	µg/L	[NT]	[NT]	[NR]	[NR]
Lead-Dissolved	µg/L	[NT]	[NT]	[NR]	[NR]
Mercury-Dissolved	µg/L	[NT]	[NT]	100526-2	104%
Nickel-Dissolved	µg/L	[NT]	[NT]	[NR]	[NR]
Zinc-Dissolved	µg/L	[NT]	[NT]	[NR]	[NR]

Report Comments:

Asbestos ID was analysed by Approved Identifier:	Not applicable for this job
Asbestos ID was authorised by Approved Signatory:	Not applicable for this job

INS: Insufficient sample for this test	PQL: Practical Quantitation Limit	NT: Not tested
NA: Test not required	RPD: Relative Percent Difference	NA: Test not required
<: Less than	>: Greater than	LCS: Laboratory Control Sample

Quality Control Definitions

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

Matrix Spike : A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

LCS (Laboratory Control Sample) : This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Surrogate Spike: Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.
Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.
Spikes for Physical and Aggregate Tests are not applicable.
For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.
Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable.

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

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

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

SAMPLE RECEIPT ADVICE

Client:

Douglas Partners Pty Ltd
96 Hermitage Rd
West Ryde NSW 2114

ph: 02 9809 0666
Fax: 02 9809 4095

Attention: Peter Oitmaa

Sample log in details:

Your reference:	**45153.03, Sydney Olympic Park**
Envirolab Reference:	**100526**
Date received:	08/11/13
Date results expected to be reported:	**12/11/13**

Samples received in appropriate condition for analysis:	YES
No. of samples provided	5 waters
Turnaround time requested:	48hr
Temperature on receipt (°C)	19.9
Cooling Method:	Ice Pack
Sampling Date Provided:	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 9910 6200 fax: 02 9910 6201
email: ahie@envirolabservices.com.au or jhurst@envirolabservices.com.au

Douglas Partners
Geotechnics · Environment · Groundwater

CHAIN OF CUSTODY

Project Name: Sydney Olympic Park
Project No: 45153.03 Sampler: AG
Project Mgr: Peter Oitmaa Mob. Phone: 0412 574 518
Email: peter.oitmaa@douglaspartners.com.au
Date Required: 2 day TA Lab Quote No.

To: Envirolab Services
12 Ashley Street, Chatswood NSW 2067
Attn: Tania Notaras
Phone: 02 9910 6200 Fax: 02 9910 6201
Email: tnotaras@envirolabservices.com.au

Sample ID	Sample Depth	Lab ID	Sampling Date	Sample Type S - soil W - water	Container type	Analytes: TRH BTEX	PAH	OCP OPP PCB (low level)	Phenol	VOC	8 Heavy Metals	Hardness		Notes
BH1	N/A	1	8/11	W	Various									
BH5		2												
BH6		3												
D1		4												
R1		5				✓	✓				✓			

Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200
Job No: 100526
Date Received 8/11/13
Time Received: 15:50
Received by: AW
Temp: Cool/Ambient
Cooling: Ice/icepack 19.9°C
Security: Intact/Broken/None

Lab Report No.
Send Results to: Douglas Partners Address: 96 Hermitage Road, West Ryde 2114 Phone: (02) 9809 0666 Fax: (02) 9809 4095
Relinquished by: P. Oitmaa Signed: Date & Time: 8/11 1300hrs Received By: A.Weir Date & Time: 8/11/13 15:50
Relinquished by: Signed: Date & Time: Received By: Date & Time:

Appendix H

QA/QC Information

Quality Assurance/Quality Control Procedures and Results

Field QA/QC for Soil Samples

The field QA/QC procedures for sampling described in the Douglas Partners *Field Procedures Manual* were followed at all times during the field work.

Laboratory-prepared Trip Blank and Trip Spike soil samples were taken to site during the field work, stored in the same container used to store the field samples, and transported to the laboratory with the field samples selected for analysis. The purpose of the Trip Blank was to determine whether cross-contamination of the samples was likely to have occurred. The purpose of the Trip Spike was to determine whether the significant loss of volatile contaminants may have occurred.

The results for the Trip Blank and Trip Spike soil samples are provided in Table H1.

Table H1: Trip Blank and Trip Spike QA/QC Results for Hydrocarbons in Soils

Sample ID	Total Concentration (mg/kg) or % Recovery				
	Benzene	Toluene	Ethyl-benzene	Xylene	TRH $C_6 – C_9$
Blank	<0.2	<0.5	<1	<3	<25
Spike	71%	67%	62%	65%	NT

Notes: TRH = Total recoverable hydrocarbons; NT = Not tested

The concentrations of analytes in the Trip Blank were below the laboratory detection limits which indicates that cross-contamination is unlikely to have occurred. The recovery rates for the Trip Spike analytes were within an acceptable range which indicates that the significant loss of volatile contaminants is unlikely to have occurred. The field sampling protocols are therefore considered appropriate.

A rinsate sample was collected by washing demineralised water over the decontaminated sampling equipment and collecting the rinsate for analysis. The purpose of the rinsate analysis was to determine whether decontamination procedures were adequate.

Selected results for the rinsate analysis are provided in Tables H2 and H3.

Table H2: Rinsate QA/QC Results for Hydrocarbons in Water

Sample ID	Total Concentration (µg/L)				
	Benzene	Toluene	Ethylbenzene	Xylene	TRH $C_6 – C_9$
Rins1	<1	<1	<1	<3	<10

Notes: TRH = Total recoverable hydrocarbons

Table H3: Rinsate QA/QC Results for Heavy Metals in Water

Sample ID	Total Concentration (µg/L)							
	As	Cd	Cr	Cu	Pb	Hg	Ni	Zn
Rins1	<50	<10	<10	<10	<30	<0.5	<20	<20

Notes: As = Arsenic; Cd = Cadmium; Cr = Chromium; Cu = Copper; Pb = Lead, Hg = Mercury; Ni = Nickel; Zn = Zinc

The concentrations of analytes in the rinsate samples were below the laboratory detection limits which indicates appropriate decontamination was undertaken during sampling. The field sampling protocols are therefore considered appropriate.

Field QA/QC for Water Samples

The field QA/QC procedures for sampling described in the Douglas Partners *Field Procedures Manual* were followed at all times during the field work. Groundwater sampling was undertaken using a decontaminated low-flow pump and disposable tubing. A rinsate sample was collected during groundwater sampling by decontaminating the pump with Decon90 phosphate-free detergent and collecting a sample of demineralised water that had been washed through the pump. The sample was analysed for a range of volatile contaminants and heavy metals.

The results for the rinsate sample are provided in Tables H4 and H5.

Table H4: Rinsate QA/QC Results for Hydrocarbons in Water

Sample ID	Total Concentration (µg/L)				
	Benzene	Toluene	Ethylbenzene	Xylene	TRH C_6 – C_9
R1	<1	<1	<1	<3	<10

Notes: TRH = Total recoverable hydrocarbons

Table H5: Rinsate QA/QC Results for Heavy Metals in Water

Sample ID	Total Concentration (µg/L)							
	As	Cd	Cr	Cu	Pb	Hg	Ni	Zn
R1	<1	<0.1	2	<1	<1	<0.05	<1	<1

Notes: As = Arsenic; Cd = Cadmium; Cr = Chromium; Cu = Copper; Pb = Lead, Hg = Mercury; Ni = Nickel; Zn = Zinc

The concentrations of analytes in the rinsate sample were either below the laboratory detection limits or were very low which indicates appropriate decontamination was undertaken during sampling. The field sampling protocols for groundwater are therefore considered appropriate.

Intra-Laboratory QA/QC Analysis on Soil Samples

Intra-laboratory analysis of soil samples was conducted as an internal check of the reproducibility of the results from the primary laboratory and as a measure of consistency of sampling techniques. The 'A' series of the triplicate QA/QC samples were analysed by the primary laboratory (Envirolab). The results were compared between the primary and 'A' samples to determine the relative percentage difference (RPD) between the samples. The RPD was then used to determine whether unacceptable errors may be present in the sample data.

Selected comparative results of the analysis of the intra-laboratory soil samples are summarised in Tables H6 to H8.

Table H6: Intra-Laboratory QA/QC Results for BTEX in Soil

Sample ID	Total Concentration (mg/kg)				
	Benzene	Toluene	Ethylbenzene	m + p xylene	o xylene
BH7/0.2-0.3	<0.2	<0.5	<1	<2	<1
TS1A	<0.2	<0.5	<1	<2	<1
RPD	0%	0%	0%	0%	0%
BH11/0.1-0.2	<0.2	<0.5	<1	<2	<1
TS7A	<0.2	<0.5	<1	<2	<1
RPD	0%	0%	0%	0%	0%

Table H7: Intra-Laboratory QA/QC Results for TRH in Soil

Sample ID	Total Concentration (mg/kg)			
	$C_6 - C_9$	$C_{10} - C_{14}$	$C_{15} - C_{28}$	$C_{29} - C_{36}$
BH7/0.2-0.3	<25	<50	<100	<100
TS1A	<25	<50	<100	<100
RPD	0%	0%	0%	0%
BH11/0.1-0.2	<25	<50	<100	<100
TS7A	<25	<50	<100	<100
RPD	0%	0%	0%	0%

Table H8: Intra-Laboratory QA/QC Results for Heavy Metals in Soil

Sample ID	Total Concentration (mg/kg)							
	As	Cd	Cr	Cu	Pb	Hg	Ni	Zn
BH7/0.2-0.3	<4	<0.4	6	21	16	<0.1	4	19
TS1A	<4	<0.4	5	22	17	<0.1	5	22
RPD	0%	0%	18%	5%	6%	0%	22%	15%
BH11/0.1-0.2	<4	<0.4	7	23	21	<0.1	10	45
TS7A	5	<0.4	17	25	21	<0.1	4	19
RPD	22%	0%	83%	8%	0%	0%	86%	81%

Notes: As = Arsenic; Cd = Cadmium; Cr = Chromium; Cu = Copper; Pb = Lead, Hg = Mercury; Ni = Nickel; Zn = Zinc

A RPD of ± 30% is generally considered acceptable for inorganic analytes and a wider range may be acceptable for organic analytes. The RPD values outside the generally acceptable range of ± 30% are indicated by yellow shading in Table H8. These values are not considered significant due to the relatively small actual differences between the sample pairs and the heterogeneous nature of the filling materials from which the samples were obtained.

It is therefore considered that the results indicate acceptable consistency between the primary and 'A' soil samples, that suitable field sampling methodology was adopted and that adequate laboratory precision was achieved.

Inter-Laboratory QA/QC Analysis on Soil Samples

Inter-laboratory analysis of soil samples was conducted as an internal check of the reproducibility of the results from the laboratories and as a measure of consistency of sampling techniques. The 'B' series of the triplicate QA/QC samples were analysed by the secondary laboratory (Eurofins). The results were compared between the primary and 'B' samples to determine the relative percentage difference (RPD) between the samples. The RPD was then used to determine whether unacceptable errors may be present in the sample data.

Selected comparative results of the analysis of the inter-laboratory soil samples are summarised in Tables H9 to H11.

Table H9: Inter-Laboratory QA/QC Results for BTEX in Soil

Sample ID	Total Concentration (mg/kg)				
	Benzene	Toluene	Ethylbenzene	m + p xylene	o xylene
BH7/0.2-0.3	<0.2	<0.5	<1	<2	<1
TS1B	<0.1	<0.1	<0.1	<0.2	<0.1
RPD	0%	0%	0%	0%	0%
BH11/0.1-0.2	<0.2	<0.5	<1	<2	<1
TS7B	<0.1	<0.1	<0.1	<0.2	<0.1
RPD	0%	0%	0%	0%	0%

Table H10: Inter-Laboratory QA/QC Results for TRH in Soil

Sample ID	Total Concentration (mg/kg)			
	$C_6 - C_9$	$C_{10} - C_{14}$	$C_{15} - C_{28}$	$C_{29} - C_{36}$
BH7/0.2-0.3	<25	<50	<100	<100
TS1B	<20	<20	<50	<50
RPD	0%	0%	0%	0%
BH11/0.1-0.2	<25	<50	<100	<100
TS7B	<20	<20	<50	<50
RPD	0%	0%	0%	0%

Table H11: Inter-Laboratory QA/QC Results for Heavy Metals in Soil

Sample ID	Total Concentration (mg/kg)							
	As	Cd	Cr	Cu	Pb	Hg	Ni	Zn
BH7/0.2-0.3	<4	<0.4	6	21	16	<0.1	4	19
TS1B	<2	0.4	5.1	24	19	<0.05	5.8	25
RPD	0%	0%	18%	13%	17%	0%	40%	27%
BH11/0.1-0.2	<4	<0.4	7	23	21	<0.1	10	45
TS7B	<2	0.6	19	33	22	<0.05	10	57
RPD	0%	40%	92%	36%	5%	0%	0%	24%

Notes: As = Arsenic; Cd = Cadmium; Cr = Chromium; Cu = Copper; Pb = Lead, Hg = Mercury; Ni = Nickel; Zn = Zinc

A RPD of ± 30% is generally considered acceptable for inorganic analytes and a wider range may be acceptable for organic analytes. The RPD values outside the generally acceptable range of ± 30% are indicated by yellow shading in Table H11. These values are not considered significant due to the relatively small actual differences between the sample pairs and the heterogeneous nature of the filling materials from which the samples were obtained.

It is therefore considered that the results indicate acceptable consistency between the primary and 'B' soil samples, that suitable field sampling methodology was adopted and that adequate laboratory precision was achieved.

Intra-Laboratory QA/QC Analysis on Water Samples

Intra-laboratory analysis of a duplicate water sample was conducted as an internal check of the reproducibility of the results from the laboratory and as a measure of consistency of sampling techniques. The results were compared within the duplicate pair to determine the relative percentage difference (RPD) between the samples. The RPD can then be used to determine whether unacceptable errors may be present in the sample data.

Selected comparative results of the analysis of the duplicate water sample are summarised in Tables H12 to H14.

Table H12: Intra-Laboratory QA/QC Results for BTEX in Water

Sample ID	Total Concentration (µg/L)				
	Benzene	Toluene	Ethylbenzene	m + p xylene	o xylene
BH1	<1	<1	<1	<1	<2
D1	<1	<1	<1	<1	<2
RPD	0%	0%	0%	0%	0%

Table H13: Intra-Laboratory QA/QC Results for TRH in Water

Sample ID	Total Concentration (µg/L)			
	$C_6 - C_9$	$C_{10} - C_{14}$	$C_{15} - C_{28}$	$C_{29} - C_{36}$
BH1	<10	<50	<100	<100
D1	<10	<50	<100	<100
RPD	0%	0%	0%	0%

Table H14: Intra-Laboratory QA/QC Results for Heavy Metals in Water

Sample ID	Total Concentration (µg/L)							
	As	Cd	Cr	Cu	Pb	Hg	Ni	Zn
BH1	3	<0.1	<1	<1	<1	<0.05	10	8
D1	6	<0.1	<1	<1	<1	<0.05	11	<1
RPD	67%	0%	0%	0%	0%	0%	10%	156%

Notes: As = Arsenic; Cd = Cadmium; Cr = Chromium; Cu = Copper; Pb = Lead, Hg = Mercury; Ni = Nickel; Zn = Zinc

A RPD of ± 30% is generally considered acceptable for inorganic analytes and a wider range may be acceptable for organic analytes. The RPD values outside the generally acceptable range of ± 30% are indicated by yellow shading in the tables. These values are not considered significant due to the relatively small actual differences between the contaminant concentrations.

It is therefore considered that the results indicate acceptable consistency between the duplicate water samples, that suitable field sampling methodology was adopted and that adequate laboratory precision was achieved.

Laboratory QA/QC Procedures

Quality control procedures used during the analyses include:

Reagent Blank

A reagent blank sample is prepared and analysed at the beginning of every analytical run, following calibration of the analytical apparatus. The laboratory results for reagent blanks indicated that concentrations of all analytes were below respective laboratory practical quantitation limits.

Duplicate

This is the complete duplicate of a sample from the process batch. The results of the two samples are compared to laboratory acceptance criteria and exceedences highlighted. No exceedences were detected.

Matrix Spike

A portion of a 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 determine whether matrix interference exists. The matrix spike recovery is compared to laboratory acceptance criteria. No exceedences were noted.

Laboratory Control Sample

This is a standard reference sample or control matrix used to check the analytical process. The results were within acceptable limits.

Surrogate Spike

Surrogates are known additions of known compounds to each sample, blank, matrix spike and laboratory control sample. The surrogates are similar to the analyte of interest, however are not expected to be detected in real samples. The results were acceptable.

Appendix I

PID Calibration Certificate

Douglas Partners
Geotechnics | Environment | Groundwater

CALIBRATION RECORD

Project:	Sydney Olympic Park
Project Number:	45153.03

Calibrated Equipment

Model:	MiniRAE2000 PID
Serial No.:	110003382
DP Reference:	DP 400
Other:	10.6eV Lamp

Calibration

Date(s):	26 Sep 2013
Operator(s):	AG
Zero Gas:	ambient air
Span Gas:	isobutylene
Span Gas Concentration:	100
Response Factor:	1.0

Approved:	AG
Date:	26 Sep 2013