C. M. Jewell & Associates Pty Ltd
Water and Environmental Management
A.C.N. 056 283 295

SITE AUDIT STATEMENT

Schedule 1, Form 2 (Contaminated Land Management Regulation 1998)

Site Auditor (accredited under Contaminated Land Management Act 1997):

Name: Christopher M. Jewell *Phone:* 02) 4759 3251
Company: C. M. Jewell & Associates Pty Ltd *Fax:* 02) 4759 3257
Address: 1/13 Kalinda Road, *Accred. No.:* 9810
Bullaburra NSW 2784

Site Audit Statement No.: SA183/2

Site details:

Address: 100-120 King Street
RANDWICK NSW *Postcode*: 2031
Lot and DP Number: Part 1 of Lot 202 in DP879576, as shown on the attached "Plan A".
Local Government Area: Randwick City Council

Site audit requested by:

Name: Mr David Freeman
Company: Sir Moses Montefiore Jewish Home
Address: 120 High Street
HUNTERS HILL NSW *Postcode:* 2110
Phone: 02 9879 2715 *Fax:* 02 9871 2700
Name of contact person (if different from above): Mr Tim Greenaway

Consultancy who conducted the site investigations and/or remediation:
URS Australia Pty Ltd

Titles of reports reviewed:
Remediation Action Plan, Lot 202 King Street, Randwick. Report No. 51072-001 Rap_Rev1_Final dated 26 November 2002, prepared by URS Australia Pty Ltd.

Supplementary Sampling and Analysis Plan – Lot 202, King Street, Randwick. Letter/Report dated 12 June 2002, prepared by URS Australia Pty Ltd.

Data Assessment Report - Lot 202, King St, Randwick. Report No. 51072-001-R001H dated 5 December 2002, prepared by URS Australia Pty Ltd.

Remediation Validation, Part 1 Area, Lot 202 King Street, Randwick. Report No. 51072-001, Revision O dated 18 September 2003, prepared by URS Australia Pty Ltd.

Other information reviewed:
Regional topographical and geological mapping.

C. M. Jewell & Associates Pty Ltd
Water and Environmental Management
A.C.N. 056 283 295

Site Audit Statement No.: SA183/2

Summary Site Audit Report

Title: Site Audit – 100-120 King Street, Randwick (Sir Moses Montefiore Jewish Home)

Date: 17 November 2003

I have completed a site audit (as defined in the Contaminated Land Management Act 1997) and reviewed the reports and information referred to above with due regard to relevant laws and guidelines. I certify that the site (tick **all** appropriate boxes):

(a) is suitable for the following use(s):

☐ ~~residential, including substantial vegetable garden and poultry;~~

☐ ~~residential, including substantial vegetable garden excluding poultry;~~

☐ ~~residential with accessible soil, including garden (minimal home grown produce contributing less than 10% fruit and vegetable intake) excluding poultry;~~

☐ ~~residential with minimal opportunity for soil access, including units;~~

☐ ~~daycare centre, preschool, primary school;~~

☐ ~~secondary school;~~

☐ ~~park, recreational open space, playing field;~~

☐ ~~commercial/industrial use;~~

☑ other (please specify):

A composite development as an aged care and community facility comprising areas of residential use with minimal opportunity for soil access, and areas of landscaped open space, as shown on the attached "Plan B".

subject to

☑ conditions: This Site Audit Statement should be used in conjunction with the attached Summary Site Audit Report which contains important supporting information.

(b) is not suitable for any beneficial use due to risk of harm from contamination:

☐ (comments):

I am accredited by the NSW Environment Protection Authority under the *Contaminated Land Management Act 1997* as a Site Auditor

Accreditation Number: 9810

C. M. Jewell & Associates Pty Ltd
Water and Environmental Management
A.C.N. 056 283 295

Site Audit Statement No.: SA183/2

I certify that:

(a) I have personally examined and am familiar with the information contained in this statement, including the reports and information referred to in this statement, and

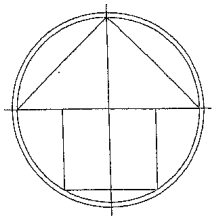
(b) this statement is, to the best of my knowledge, true, accurate and complete, and

(c) on the basis of my inquiries made to those individuals immediately responsible for making the reports, and obtaining the information referred to in this statement, those reports and that information are, to the best of my knowledge, true, accurate and complete.

I am aware that there are penalties for wilfully submitting false, inaccurate or incomplete information.

Signed: _____ Date: 17 November 2003

Plan A



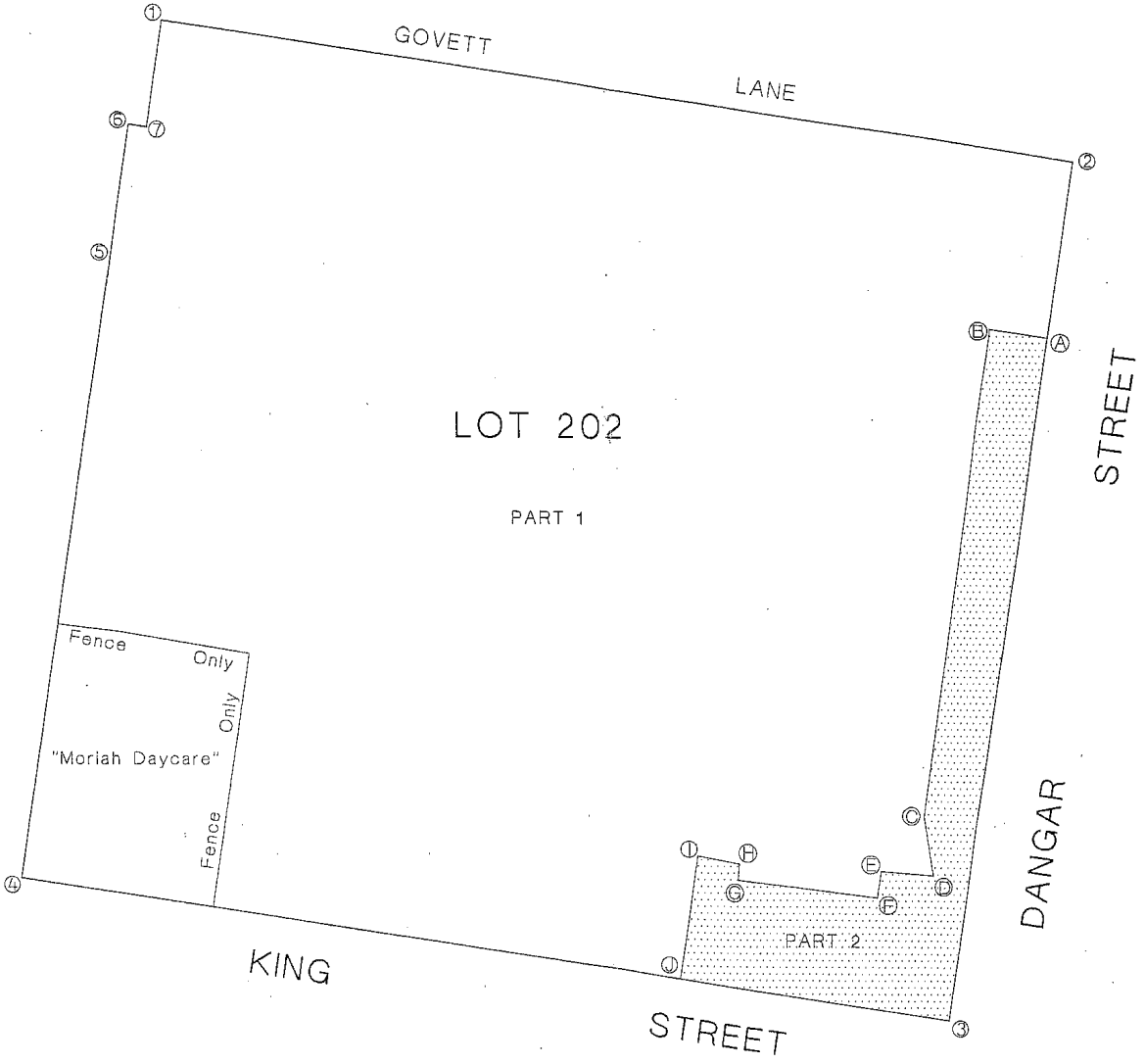


TABLE OF CO-ORDS		
POINT	EASTING	NORTHING
1	337058.68	6246924.26
2	337231.98	6246899.03
3	337208.58	6246736.20
4	337031.60	6246761.69
5	337048.90	6246880.90
6	337052.30	6246904.73
7	337055.82	6246904.23
A	337227.21	6246865.86
B	337216.19	6246867.35
C	337203.50	6246774.42
D	337205.32	6246763.29
E	337195.38	6246764.10
F	337194.56	6246759.12
G	337168.24	6246762.24
H	337168.49	6246765.29
I	337160.55	6246766.68
J	337157.40	6246743.54

SIGNED: .....

GLENN R. BEASLEY
REGISTERED SURVEYOR
IDENTIFICATION No. 446

ISSUE	DATE	AMENDMENT	DRAWN	CHKD
C	9/2003	'STAGE' REPLACED WITH 'PART'	G.B.	
B	9/2003	CO-ORDINATE ADJUSTMENT.	G.O.	
A	9/2003	ORIGINAL ISSUE	G.O.	

NOTES:
1). NO BOUNDARY SURVEY HAS BEEN MADE.
2). CO-ORDS IN TABLE ARE ON M.G.A. CO-ORDINATE SYSTEM.

SCALE :- 1:1000 | DATUM :- N/A
DATE :- SEPT. 2003 | DRAWN :- G.O.
JOB No.:- 19987 | APPROVED
CLIENT :- SIR MOSES MONTEFIORE JEWISH HOME
Plotted :- 08/09/2003 14:46
Filename :- \\Mtserver\go\R14Drawings\Randwick\Randwick Remediation Boundaries\19987.dwg

PREPARED BY:
PROUST&GARDNER
CONSULTING PTY LIMITED
SURVEYORS & PLANNERS
406 Pacific Highway
PO Box 192
DX 29410
Lindfield NSW 2070
Tel: 9416 1825
Fax: 9416 3845
Penrith Tel: 4722 2677
Email: pnq@png.com.au
ABN 74 003 046 467

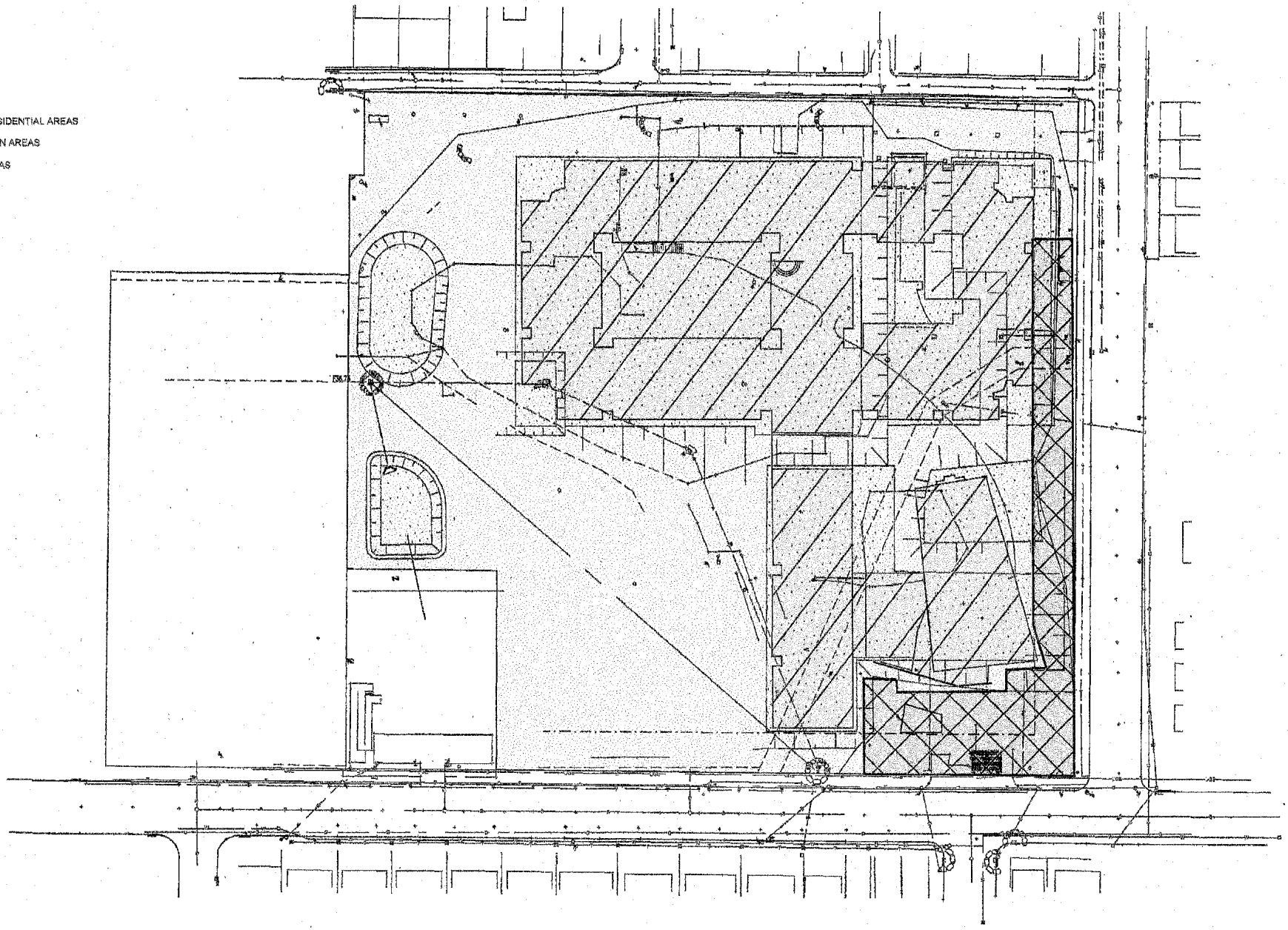
COUNCIL OF RANDWICK
REMEDIATION BOUNDARY
SHOWN AS STAGE 1 & STAGE 2
WITHIN LOT 202 D.P.879576
CORNER OF
KING STREET & DANGAR STREET
RANDWICK

REFERENCE :- 19987/DET/R. | SHEET No. 1 OF 1 | ISSUE :- C

Plan B

LEGEND

- HIGH DENSITY RESIDENTIAL AREAS
- PART 2 VALIDATION AREAS
- OPEN SPACE AREAS



NOTES: (1) SOURCE OF BULK EARTHWORKS DRAWING RECEIVED 8th AUGUST 2003 TTW

(2) SOURCE OF BUILDING FOOTPRINT DRAWING RECEIVED 1st SEPTEMBER 2003 JTCW

CLIENT
SIR MOSES MONTEFIORE JEWISH HOME

PROJECT
REMEDIATION VALIDATION,
LOT 202 KING STREET RANDWICK

TITLE
VALIDATION AREAS
Modified by CM Jewell & Associates Pty Ltd
Extracted from figure by URS Australia

0 10 20 30 40 50
1:1000 (metres)

DESIGNED: FM
DRAWN: RR/JT
DATE: 02/09/03

APPROVED:
DATE: 17.9.03
STATUS: DRAFT

PROJECT: 51072-001
CAD FILE: 048.DWG
REVISION: B

FIGI

Report No. J0807.12

SITE AUDIT
100-120 KING STREET, RANDWICK

for

SIR MOSES MONTEFIORE JEWISH HOME

November 2003

Controlled Copy No. 4

C.M. Jewell & Associates Pty Ltd

A.C.N. 056 283 295 A.B.N. 54 056 283 295

Water and Environmental Management

1/13 Kalinda Road, Bullaburra, NSW 2784, Australia
P.O. Box 10, Wentworth Falls, NSW 2782
Phone: (02) 4759 3251 Fax: (02) 4759 3257
Email: postie@cm-jewell.com.au

My Ref: J0807.12 CMJ:jlt
17 November 2003

Sir Moses Montefiore Jewish Home
120 High Street
HUNTERS HILL NSW 2110

Attention: Mr David Freeman

Dear Mr Freeman,

RE: Site Audit - 100-120 King Street, Randwick (Sir Moses Montefiore Jewish Home)

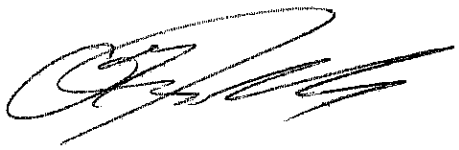
As requested, I have carried out a Statutory Site Audit of the above land; my Site Audit Report is attached to this letter.

I consider that the site is suitable for the proposed composite development as an aged care and community facility comprising areas for residential use with minimal opportunity for soil access, and areas for public open space use. I have consequently issued a Site Audit Statement indicating that the site is now suitable for that purpose. Two copies of the Site Audit Statement and one copy of the associated Site Audit Report have been provided.

As required by the Contaminated Land Management Act 1997, I have sent copies of the Site Audit Statement to Randwick City Council and the EPA. As a courtesy, copies of the report have also been provided to Randwick City Council and URS Australia Pty Ltd.

If you have any questions please do not hesitate to contact me on (02) 4759 3251.

For and on behalf of
C. M. JEWELL & ASSOCIATES PTY LTD



CHRIS JEWELL

Distribution
Sir Moses Montefiore Jewish Home (Controlled Copy No. 1)
URS Australia Pty Ltd (Controlled Copy No. 2)
Randwick City Council (Controlled Copy No. 3)
CMJA Library (Controlled Copy No. 4)
File (Original)

TABLE OF CONTENTS

TABLES

FIGURES

APPENDICES

ASSOCIATED REPORTS

Remediation Action Plan, Lot 202 King Street, Randwick. Report No. 51072-001 Rap_Rev1_Final dated 26 November 2002, prepared by URS Australia Pty Ltd.

Supplementary Sampling and Analysis Plan – Lot 202, King Street, Randwick. Letter/Report dated 12 June 2002, prepared by URS Australia Pty Ltd.

Draft Data Assessment Report - Lot 202, King St, Randwick. Report No. 51072-001-R001G dated 20 September 2002, prepared by URS Australia Pty Ltd.

Data Assessment Report - Lot 202, King St, Randwick. Report No. 51072-001-R001H dated 5 December 2002, prepared by URS Australia Pty Ltd.

Remediation Validation, Part 1 Area, Lot 202 King Street, Randwick. Report No. 51072-001, Revision O dated 18 September 2003, prepared by URS Australia Pty Ltd.

LIST OF ABBREVIATIONS

Measures

µg/L	micrograms per litre
km	kilometre
L	litre
m	metre
m^2	square metre
mg/kg	milligrams per kilogram
mm	millimetre

General

AHD	Australian Height Datum
ANZECC	Australian and New Zealand Environment and Conservation Council
AST	above-ground storage tank
CLM Act	Contaminated Land Management Act
CMJA	C. M. Jewell & Associates Pty Ltd
DA	development application
DLWC	Department of Land and Water Conservation
DP	deposited plan
DQO	data quality objectives
EPA	Environment Protection Authority
ESA	Environmental Site Assessment
HDPE	high-density polyethylene
NATA	National Association of Testing Authorities
NEPM	National Environment Protection Measure
PID	photoionisation detector
PQL	practical quantitation limit
PSH	phase-separated hydrocarbons
QA	quality assurance
QC	quality control
RAP	remediation action plan
RL	relative level
RPD	relative percentage difference
TCLP	Toxicity Characteristic Leaching Procedure
UCL	upper confidence limit
UST	underground storage tank

Analytes - Organic

BaP	benzo(a)pyrene
BTEX	benzene, toluene, ethyl benzene, xylene
OCP	organochlorine pesticides
OPP	organophosphorus pesticides
PAH	polycyclic aromatic hydrocarbons
PCB	polychlorinated biphenyls
SVOC	semivolatile organic compounds
TPH	total petroleum hydrocarbons
VHC	volatile halogenated compounds
VOC	volatile organic compounds

Analytes - Inorganic

As	arsenic
Cd	cadmium
Cr	chromium
Cu	copper
Fe	iron
Hg	mercury
Mn	manganese
Ni	nickel
Pb	lead
Zn	zinc

1.0 INTRODUCTION

1.1 Background

This Site Audit Report relates to a portion of land located at 100-120 King Street, Randwick, in New South Wales.

Specifically, the Site Audit relates to the validation work completed by URS Australia Pty Ltd (URS) on behalf of Sir Moses Montefiore Jewish Home (and as described in URS's report dated 18 September 2003).

The Site Audit which this report describes was requested by Mr David Freeman of Sir Moses Montefiore Jewish Home on 27 May 2002, for the purpose of complying with the conditions of the Notice of Determination dated 29 October 2002 issued by Randwick City Council in respect of Development Application No. 02/00551/G1, under the Environmental Planning and Assessment Act 1979. The Site Audit is thus a Statutory Site Audit under the provisions of Part 4 of the Contaminated Land Management Act 1997.

The audit was conducted for the purpose of determining

(i) the nature and extent of any contamination of the land,

(ii) the nature and extent of the investigation or remediation,

(iii) what investigation or remediation remains necessary before the land is suitable for any specified use or range of uses.

The Site Audit Report has been prepared in accordance with the guidelines issued by the NSW Environment Protection Authority (EPA) (*Guidelines for the NSW Site Auditor Scheme*, 1998). It has been prepared by Christopher Jewell, who is a Site Auditor accredited under the NSW Contaminated Land Management Act 1997.

1.2 Involvement of Auditor

The Auditor became involved in this project at the start of URS's current engagement, and has had appropriate input into the scope and planning of that phase of assessment. He had no involvement in work previously undertaken on the site by others.

The Auditor reviewed the Supplementary Sampling and Analysis Plan (June 2002) and Draft Data Assessment Report (September 2002) prepared by URS.

Following that review, he concluded that residual contamination of the site was such as to preclude development of the site without prior remediation. Accordingly, on 30 September 2002, the Auditor issued Site Audit Statement SA183, indicating that the site was not suitable for any beneficial use due to risk of harm from contamination. A process of remediation planning, remediation and validation was recommended in the Site Audit Statement.

That work has now been completed and the results reviewed.

The Auditor has visited the site on four occasions. A compliance checklist has been completed and is held on file.

1.3 Scope and Structure of Review Report

Section 2 of this report sets out basic identification and location information concerning the site, and briefly describes the site's topography, geology and hydrogeological setting. An indication of the site's history and an outline of the proposed future use and the associated assessment criteria are also provided.

Section 3 sets out a summary of previous environmental assessments undertaken on the site by environmental consultancies other than URS, together with additional environmental assessments carried out by URS.

The completed remedial works and validation sampling and the associated validation results are discussed within Section 4.

Section 5 of this report presents an audit of the completeness and adequacy of the environmental assessments and validation works which have been completed. The audit was carried out against the criteria established by the NSW EPA publication, *Guidelines for the NSW Site Auditor Scheme* (1998), but also incorporates the reviewer's own judgement; reference has been made to other guideline publications issued or endorsed by the NSW EPA, including *Guidelines for Consultants Reporting on Contaminated Sites* (1997), *Guidelines for Assessing Service Station Sites* (1994), *Sampling Design Guidelines* (1995) and the National Environmental Protection (Assessment of Site Contamination) Measure (1999), as appropriate.

Section 6 of this report sets out the Auditor's conclusions with regard to the current condition of the land at the site and its suitability for the intended use.

Throughout this report, extensive use has been made of the site assessment and validation reports prepared by URS; sections of those reports have been adopted for use in this report.

1.4 Limitations and Intellectual Property Matters

This report has been prepared by C. M. Jewell & Associates Pty Ltd for the use of the client and local government agency identified in Section 1.1, for the specific purpose described in that section.

The work has been carried out, and this report prepared, utilising the standards of skill and care normally expected of a site auditor practising in New South Wales under the requirements of the Contaminated Land Management Act 1997. The level of confidence of the conclusions reached is governed, as in all such work, by the scope of the investigation carried out and by the availability and quality of the data. The Auditor has satisfied himself that the available data are adequate to support the conclusions he has reached, and comply with the minimum requirements indicated in the guideline documents specified for the NSW Site Auditor Scheme. Where limitations or uncertainties in conclusions are known, they are identified in this report. However, no liability can be accepted for failure to identify conditions or issues which arise in the future and which could not reasonably have been assessed or predicted using the site information and analytical data available for review.

Data collected by others have, of necessity, been used to support the conclusions of this report. Those data have been subjected to reasonable scrutiny but have essentially, and necessarily, been used in good faith. Liability cannot be accepted for errors in data collected by others where such errors could not have been detected by reasonable scrutiny of the data and supporting information supplied to or requested by the Auditor.

This report, any original data contained in the report, and its findings and conclusions remain the intellectual property of C. M. Jewell & Associates Pty Ltd. A licence to use the report for the specific purpose identified in Section 1.1 is granted to the persons identified in that section on the condition of receipt of full payment for the services involved in the preparation of the report.

It is recommended that this report should not be used by other persons or for other purposes than those identified in Section 1.1 without prior reference to the Auditor. The report should not be reproduced except in full and with the permission of C. M. Jewell & Associates Pty Ltd.

2.0 SITE INFORMATION

2.1 Site Identification and Location

The site is located at 100-120 King Street, Randwick, New South Wales. The site location is shown on Figure 1. Australian Map Grid Zone 56H co-ordinates of the centre of the site are approximately 33700E 6246650N. At the date of this report, the site was owned by the Honorary Board of Management of the Sir Moses Montefiore Jewish Home.

The site lies within Randwick City Council local government area and is currently zoned 2B and 2C. The site is identified as Part 1 of Lot 202 in DP879576, in the Parish of Alexandria, County of Cumberland.

The site is approximately rectangular in shape, with maximum dimensions of approximately 165 metres north–south by 178 metres east–west, and has an area of approximately 27,100 m^2.

An indication of the site's former layout is provided on Figure 2.

2.2 Site Setting

The site is located in a predominantly residential area, bounded as outlined below.

To the north

The site is bounded to the north by Govett Lane. Residential properties are located on the northern side of Govett Lane.

To the east

The site is bounded to the east partially by Dangar Street but mostly by Part 2 of Lot 202. Residential properties are located to the east of Dangar Street.

To the south

King Street bounds most of the site to the south although Part 2 of Lot 202 bounds part of the site to the south. The Moriah Daycare facility is located in the south-west corner of the site. Residential properties are located across King Street.

To the west

Lot 201, which together with Lot 202 was the former location of the Randwick Bus Depot, adjoins the western boundary of the site. A NSW State Transit Authority bus depot is located to the west of Lot 201.

2.3 Topography and Drainage

Following is URS's description of the topography prior to the most recent remediation works.

> . . . the ground gently sloped in a general westerly direction across the site. A constructed cutting was located in the eastern third of the site to improve the access for the bus depot operations. This cutting was been reinforced by the placement of a concrete retaining wall which effectively divided the site into a higher eastern section and a lower western section.
>
> A number of stockpiles exist on site, some of which are up to 4 m high. The estimated volume of the stockpiled material is approximately 9,000 m^3. The largest of these stockpiles extends from half way along the King Street boundary towards the centre of the site and is comprised primarily of building rubble and sandy soil, with some areas of sandstone rubble.

In the northwestern section of the site there was a large excavated area, which was undertaken as part of the previous remediation works at the site. The excavation was approximately 100 m in length running east to west and up to 40 m in width. The elevation of the base of the excavation was between 37 and 38 m AHD.

As most of the site has been cleared of pavement, and the surface soils are typically sandy, it is expected that at present rainfall will infiltrate the surface soils either directly or via runoff from the pavement. Prolonged heavy rainfall may cause saturation of the surface soils and percolation of rainwater into the groundwater system. This situation will change following redevelopment, when most of the site will be paved and rainwater will be directed to an engineered drainage system.

The site has been inundated under high rainfall/runoff conditions.

2.4 Geology

Reference to the 1:100,000-scale Sydney Geological Sheet (9130, Edition 1, 1983) indicates that the site is situated on the Holocene sediments of the Botany Basin. The sediments are variable in thickness, ranging up to 35 metres, although thickness is commonly of the order of 15 metres in the north of the basin. The sediments predominantly consist of well-sorted quartz sands interbedded with minor clay, peat and ironstone lenses. Most of the formation overlies the eroded bedrock surface of the Triassic Hawkesbury Sandstone, although moderately to highly weathered horizons of Ashfield Shale have been observed to underlie the Botany Sands in the north and west of the basin.

Site observations during assessment and validation have confirmed the presence of Holocene Sands to the maximum depth of investigation.

Reference to the Sydney 1:100,000 Soils Landscape Series Sheet (9130) indicates that the site is underlain by aeolian soil of the Newport soil landscape. The typical characteristics are shallow (less than 0.5 metre), well-sorted siliceous sands overlying moderately deep (less than 1.5 metres), buried soils including yellow podzolic soils, with sandy topsoils on crests and gentle slopes. Deep podzols are found on steep slopes, on lower slopes, and in depressions. Limitations of this soil landscape group include very high soil erosion hazard, localised steep slopes, non-cohesive topsoil, and very low soil fertility.

Intrusive investigations indicated that fill from 0.1 metre up to several metres thick overlies most the site. URS described the fill as being of a similar type to the underlying natural material.

2.5 Hydrogeology

The Quaternary alluvial, estuarine and, in places, aeolian sediments are known locally as the Botany Sands. The Botany Sands host an unconfined aquifer that has in the past been used extensively for water supply purposes. The aquifer is still used for industrial and irrigation purposes.

Groundwater movement within the Botany Sands occurs via primary porosity (i.e. intergranular flow). The hydraulic conductivity of the cleaner sands ranges up to 30 metres per day (m/d), with 10-15 m/d more typical for the clayey and peaty sands in the area. Yields obtained from the Botany Sands are generally moderate to high, usually of the order of 10 litres per second (L/s), although yields of up to 35 L/s have been obtained from the aquifer for industrial purposes.

The groundwater in the Botany Basin is considered to be of good and generally potable quality. It has a low salinity, typically less than 200 milligrams per litre (mg/L), although higher concentrations of up to 4000 mg/L occur. The pH of the water is generally low, usually of the

order of 5.0 to 6.0 pH units, allowing for the enhanced solubility of most metals, including iron, in the aquifer.

Intrusive investigations at the site indicated the presence of groundwater at depths of less than 3 metres. It was assessed that the hydraulic gradient at the site was towards the west, although the regional gradient in the Botany Aquifer it is generally towards the south-west.

The nearest receptors of the groundwater flowing from the site are likely to be irrigation wells located at Randwick Racecourse. At its closest point, Randwick Racecourse is located approximately 330 metres south-west of the site.

2.6 Site History

URS provided the following site history.

> The former Randwick Bus Depot has been the subject of several site contamination investigations conducted between 1991 and 1998 by both Sinclair Knight and Dames & Moore (D&M).
>
> A detailed site historical study was conducted by Doring (1990) . . . .The historical data provided in the Doring study indicates that the eastern portion of the original depot, including both Lots 201 and 202, was used for tram and bus mechanical services (workshops, depot) throughout its life. The study indicated that the area initially commenced operations as a tramway workshop and depot in 1881.
>
> Critical uses of the site, not known to have occurred on either Lot 201 or Lot 202, which have occurred in other areas of the depot (the western portion of original depot property where the present day STA bus depot exists), as reported by Doring, included:
>
> - A foundry;
> - Munitions and arms manufacturing during WWII; and
> - Electrical substations.

2.7 Contaminants of Concern

On the basis of the site history and previous environmental investigations undertaken at the site, potential contaminant groups of concern were identified as:

- heavy metals;
- monocyclic aromatic hydrocarbons, particularly benzene, toluene, ethyl benzene, and xylenes (BTEX);
- total petroleum hydrocarbons (TPH); and
- polycyclic aromatic hydrocarbons (PAH).

The individual compounds that make up these contaminant groups are listed in Appendix A.

Given the age of the buildings that had been located on the site, it was considered that asbestos was also a contaminant of concern.

2.8 Proposed Development

It is proposed that the site be redeveloped for an aged care facility.

2.9 Assessment Criteria

2.9.1 Adopted Criteria

The investigation criteria proposed by URS are as follows.

For areas under building footprints, they are the guideline levels set out in Column 2 of the table: 'Soil Investigation Levels for Urban Redevelopment Sites in NSW', in the NSW EPA's *Guidelines for the NSW Site Auditor Scheme* (1998).

For open space areas, the proposed criteria are the guideline levels set out in Columns 3 and 5 from the EPA table cited above.

Criteria derived from Column 2 are health-based soil investigation levels for residential settings where there is minimal opportunity for soil access. Criteria derived from Column 3 are health-based soil investigation levels for parks, recreational open space and playing fields. Both sets of criteria were originally developed by Imray and Langley in 1996, and currently reissued as Imray and Langley (1999): *Health-Based Soil Investigation Levels*, National Environment Protection (Assessment of Site Contamination) Measure (the NEPM), Schedule B, Guideline 7A. These soil investigation levels are also listed in Columns D and E of Table 5-A, Schedule B(1) of the NEPM.

Criteria derived from Column 5 are provisional phytotoxicity-based investigation levels, and are identical to the Interim Urban Ecological Investigation Levels listed in Table 5-A, Schedule B(1) of the NEPM.

Criteria for TPH and BTEX are those published in the NSW EPA's *Guidelines for Assessing Service Station Sites* (1994) and listed in its Table 3 – 'Threshold Concentrations for Sensitive Land Use – Soils'.

These criteria are listed in Table 1.

TABLE 1
Assessment Criteria – Soils
(mg/kg)

Analyte	*EPA Column 2** (NEPM Column D) Residential with Minimal Access to Soil	*EPA Column 3** (NEPM Column E) Parks, Recreational Open Space & Playing Fields	*EPA Column 5** (NEPM Interim Urban Ecological) Phytotoxicity-based Criteria††	Sensitive Land Use – Soils†
Arsenic	400	200	20	-
Cadmium	80	40	3	-
Chromium (III)	480,000	240,000	400	-
Copper	4000	2000	100	-
Lead	1200	600	600	-
Mercury (inorganic)	60	30	1[5]	-
Nickel	2400	600	60	-
Zinc	28,000	14,000	200	-
PAH	80	40	-	-
Benzo(a)pyrene	4	2	-	-
TPH C_6-C_9	-	-	-	65
TPH C_{10}-C_{40}	-	-	-	1000
Benzene	-	-	-	1
Toluene	-	-	-	1.4‡/130§
Ethyl benzene	-	-	-	3.1‖/50¶
Total xylenes	-	-	-	14**/25¶

Notes: * NSW EPA (1998)

†† Interim EILs for the urban setting are based on considerations of phytotoxicity, ANZECC B levels, and soil survey data from urban residential properties in four Australian capital cities.

‡‡ The carbon number is an 'equivalent carbon number' based on a method that standardises according to boiling point. It is a method used by some analytical laboratories to report carbon numbers for chemicals evaluated on a boiling point GC column.

† and notes below: NSW EPA (1994)

‡ The toluene threshold concentration is the Netherlands MPC to protect terrestrial organisms in soil. This value is obtained by applying a US EPA assessment factor to terrestrial chronic No Observed Effect Concentration (NOEC) data. The MPC is an 'indicative' value (Van de Plassche et al. 1993; Van de Plassche & Bockting 1993).

§ Human health and ecologically based protection level for toluene. The threshold concentration presented here is the Netherlands intervention value for the protection of terrestrial organisms. Other considerations such as odours and the protection of groundwater may require a lower remediation criterion.

‖ The ethyl benzene threshold concentration is the Netherlands MPC for the protection of terrestrial organisms in soil. No terrestrial ecotoxicological data could be found for use in the Netherlands criteria derivation. Therefore, equilibrium partitioning has been applied to the MPC for water to obtain estimates of the MPC for soil. The MPC for water has been derived from aquatic ecotoxicological data (Van de Plassche et al. 1993; Van de Plassche & Bockting 1993).

¶ Human health based protection level for ethyl benzene or total xylenes as shown. The threshold concentration presented here is the Netherlands intervention value. Other considerations such as odours and the protection of groundwater may require a lower remediation criterion.

** The xylene threshold concentration is the Netherlands MPC for the protection of terrestrial organisms in soil. No terrestrial ecotoxicological data could be found for use in the Netherlands criteria derivation. Therefore, equilibrium partitioning has been applied to the MPC for water to obtain an estimate of the MPC for soil. The MPC for water has been derived from aquatic ecotoxicological data. The concentration shown applies to total xylenes and is based on the arithmetic average of the individual xylene MPCs (Van de Plassche et al. 1993; Van de Plassche & Bockting 1993).

2.9.2 Auditor's Comments

The suggested criteria are considered appropriate for the site and the proposed use.

3.0 SUMMARY OF PREVIOUS INVESTIGATIONS

The site forms part of a property which operated as a tram and bus depot from 1881 until the 1980s. The western portion of this property houses the current Randwick NSW State Transit Authority Bus Depot. Excerpts from URS's Data Assessment Report for the site are provided below, and include a brief summary of previous investigations undertaken on the site as part of investigations of the property. As indicated below, some data from previous investigations have been used to complement data more recently obtained by URS to complete an environmental assessment of the site.

At the Auditor's request an evaluation of the quality and usability of pre-existing data was undertaken at the beginning of URS's assessment. Only data of acceptable quality were to be incorporated in the current dataset.

> In 1997, STA required subdivision of the greater property area into Lots 201 and 202 in preparation for future divestment. The subdivision required the demolition of buildings which straddled the boundary of Lot 201 and Lot 202. As the demolition works appeared to have been conducted in an uncontrolled manner Lot 202 required Post Demolition Validation in 1998 to assess if the demolition works had not adversely impacted the environmental condition of the site. The 1998 assessment was completed prior to the enactments of various sections of the *Contaminated Land Management Act, 1997*. In particular the works did not result in a Site Audit Statement (SAS) being prepared by an Independent Site Auditor which is a key requirement in the DA approvals process for Randwick City Council.
>
> The objective of the assessment is to combine the results of recent investigations (July, August and September 2002) and historic investigations (1995 and 1998) in order to characterise the site condition for review by the site Auditor and preparation of a SAS.
>
> The former Randwick Bus Depot has been the subject of several site contamination investigations conducted between 1991 and 1998 by both Sinclair Knight (SKM) and Dames & Moore (D&M) as outlined below:
>
> - Sinclair Knight Partners (SKP, 1991) Preliminary Geotechnical and Environmental Investigation of the State Transit Authority's Randwick Bus Depot;
> - Dames & Moore (D&M, 1991) Feasibility/Design Study for a Site Remediation Program at the Randwick Bus Depot;
> - D&M (1992) EPA Compliance Report, Site Remediation Program: Phase I, Randwick Bus Depot;
> - D&M (1994) EPA Compliance Report, Initial Site Validation Program, Randwick Bus Depot;
> - D&M (1995) EPA Compliance Report, Final Site Validation Program, Randwick Bus Depot; and
> - D&M (1998) EPA Compliance Report Post Demolition Site Validation Program Lot 202 King and Dangar Streets Randwick.
>
> A detailed review of the historical files and reports was completed to establish the extent of data which could be considered suitable for the purposes of validation reporting. Data was considered useable if the appropriate level of field and laboratory QA/QC was undertaken in accordance with current NSW EPA Guidelines and where data had continued to be relevant following the uncontrolled demolitions undertaken at the time of the decommissioning of the Depot. The uncontrolled demolition rendered some of the data unusable from a materials tracking perspective.

Appropriate data, relevant to the current site conditions, was extracted from each of these reports in order to undertake this assessment . . . . Other data has been rejected as not being suitable for site validation reporting.

Acceptable data from the sampling at the site (1991-1998) have been reviewed as part of the assessment process in April 2002. URS assessed the data for its suitability for inclusion in the final site validation of Lot 202 with respect to the current Auditor Guidelines. Several of the data were found to be invalid for reasons such as lack of laboratory certificates and laboratory quality assurance/quality control (QA/QC). This resulted in all data prior to and including 1994 as being identified as unsuitable for validation and issue of a SAS.

The summary table below outlines the analytes and numbers of acceptable historical data (1991 – 1998) considered suitable by URS for use in the final site validation.

Analytes	Number of Retained Historic Samples
Heavy Metals	30
TPH/BTEX	54
TPH only	7
PAHs	10

Summary tables for data collected during the 1995 and 1998 works and considered suitable for validation purposes are provided in Appendix C.

URS's sampling strategy is outlined below.

The NSW EPA Sampling Design Guidelines (1995) state that for a site of this size (2.93 hectares), approximately 40 sample locations is optimum for analysing and defining the site for a specific landuse and reducing the possibility of the occurrence of contamination 'hotspots'. Based on the selected contaminants of concern and the locations of accepted historic samples, URS recommended that supplementary site assessment be undertaken for asbestos, metals, TPH/BTEX and PAHs. Although over 54 historical samples for TPH/BTEX could be retained, the samples are concentrated in localised areas associated with excavations. The intention of the supplementary works was to enable a spread of the sample locations across the site . . . .

URS devised a sampling and analysis plan (URS 12 June 2002) for supplementary works at Lot 202 based on the data gaps listed above and submitted the plan to the Site Auditor for approval commensurate with current NSW EPA Auditor Guidelines.

The number of sampling locations for the supplementary works at Lot 202 has been devised using an approximate 40 m grid pattern with a total of an additional 25 sample locations as outlined in the Sampling and Analysis Plan (12 June 2002). Samples collected at each location were analysed for different sets of contaminants of concern. For example, only 15 of the locations required samples for PAHs and 10 locations for heavy metals. The background to this is that some of the historical data is considered valid in particular areas (for particular analytes) and the supplementary program fulfilled the existing data gaps for each contaminant of concern. The locations were chosen on the basis of where sampling and analysis for particular analytes had not been completed historically. The extent of supplementary sampling was minimised to a level required to meet the Site Auditor's Guidelines and submitted to the Site Auditor for comment prior to commencing the fieldwork.

3.1 Auditor's Comments

The Auditor reviewed the Supplementary Sampling and Analytical Plan developed by URS and suggested some minor modifications in a facsimile dated 26 June 2002 to URS. A copy of this facsimile is provided in Appendix B.

3.2 Initial Supplementary Works, July 2002

3.2.1 Soil Sampling and Analysis

The initial supplementary works carried out by URS included:

- the excavation of twenty-eight test pits (identified as TP1 to TP28) across the site on a grid pattern with an approximate spacing of 40 metres;
- analysis for PAHs, for samples collected from seventeen sample locations;
- analysis for heavy metals, for samples collected from fourteen sample locations;
- analysis for TPH and BTEX, for samples collected from fourteen sample locations; and
- analysis for asbestos, for samples collected from twelve sample locations.

The sampling and analysis schedule for initial supplementary sampling is summarised in Table 2, whilst the sampling locations are shown on Figure 2.

TABLE 2
Soil Sampling and Analysis Schedule – July 2002

Sample	Heavy Metals	TPH	BTEX	PAH	Asbestos
TP01/0.3-0.5					✓
TP01/1.3-1.5		✓	✓		
TP02/0.2-0.4	✓			✓	
TP03/0.3-0.5		✓	✓		✓
TP04/0.3-0.5	✓			✓	
TP04/1.3-1.5	✓			✓	
TP5/0.3-0.5					✓
TP5/1.3-1.5	✓			✓	
TP6/1.3-1.5		✓	✓	✓	
TP07/0.3-0.5				✓	
TP8/0.3-0.5	✓			✓	
TP8/1.3-1.5	✓	✓	✓		
TP09/0.3-0.5					✓
TP9/1.3-1.5		✓	✓		
TP10/0.3-0.5				✓	
TP11/0.3-0.5					✓
TP12/0.3-0.5	✓			✓	
TP13/0.2-0.4					✓
TP14/0.3-0.5	✓	✓	✓	✓	
TP14/1.3-1.5	✓	✓	✓	✓	
TP14/2.4-2.6		✓	✓		
TP15/0.3-0.5	✓	✓	✓	✓	
TP15/1.3-1.5	✓	✓	✓	✓	
TP16/0.2-0.4	✓			✓	
TP17/0.3-0.5					✓
TP18/0.3-0.5	✓	✓	✓	✓	
TP19/0.3-0.5					✓
TP20/0.3-0.5	✓			✓	✓
TP21/0.3-0.5		✓	✓	✓	✓
TP22/0.3-0.5	✓	✓	✓		✓
TP22/1.3-1.5	✓	✓	✓		✓
TP23/0.3-0.5					✓
TP23/1.3-1.5	✓	✓	✓	✓	
TP24/0.3-0.5		✓	✓		
TP25/0.5-0.7	✓	✓	✓	✓	
TP25/1.3-1.5	✓	✓	✓	✓	
TP26/0.3-0.5	✓	✓	✓	✓	
TP26/1.3-1.5	✓	✓	✓	✓	
TP26/2.9-3.0		✓	✓		
TP27/0.3-0.5					✓
TP28/0.3-0.5					✓

The results of laboratory analysis indicated that the concentrations of contaminants of concern were within the assessment criteria except for the following:

- lead (1880 mg/kg) in sample TP02/0.2-0.4; and
- TPH C_{10}-C_{36} (1716 mg/kg) in sample TP25/1.3-1.5.

Furthermore, asbestos was not detected in any of the samples.

3.2.2 Stockpile Assessment

URS's summary of the stockpile assessment follows.

> In addition to the assessment of insitu materials, investigation of the stockpiles on the site was also required to determine their suitability to remain on site for use as fill. Survey results have indicated that the total volume of the stockpiles is approximately 9000 m^3. To achieve the stockpile assessment URS undertook the following scope of work:
>
> - Site inspection to establish those stockpiles requiring sampling. Stockpiles which were comprised of concrete and or brick rubble are not considered to require assessment. Stockpiles comprising soils were identified for assessment.
> - Division of those stockpiles requiring assessment by an excavator into zones of approximately 300 m^3 for individual assessment.

Ten stockpiles (identified as SP1 to SP7, and SP9 to SP11) were identified as comprising predominantly sandy soil. SP2 was identified as a concrete rubble stockpile but was also sampled. Samples were collected from these stockpiles, as described below, and analysed for heavy metals, TPH, BTEX, and PAH.

> Samples were collected from stockpiles containing predominantly soil. One composite sample (3 point) from each approximate 300 m^3 was collected. Stockpiles SP2, SP8, SP12, SP13, SP14, SP15, SP16, SP18 and SP19 consist of concrete slabs or brick (SP15 only) will be recycled and either retained on site or taken off site for recycling.

The results of laboratory analysis indicated that the concentrations of contaminants of concern were within the assessment criteria.

The stockpile samples were also submitted to a laboratory to determine whether any asbestos fibres were present in the samples. Asbestos (chrysotile) was only found in the sample from stockpile SP1. URS stated:

> The stockpile was resampled and 4 representative samples were collected across the 300 m^3. One sample was collected from each quadrant of the 300 m^3. Each of these samples returned a non-detect result for asbestos. No asbestos cement fragments were identified in SP1.

3.2.3 Asbestos Survey

URS described the asbestos survey as follows:

> The asbestos assessment followed the approach outlined in the ACLCA Code of Practice (draft February 2002). Sampling was undertaken by test pits such that observations of any suspect potential AC materials can be made. The sampling program was extended by a walk-over inspection of the whole site by an asbestos specialist. An outcome of the walk-over inspection was the inclusion of a further 2 test pits (TP27 and TP28) in a location where some demolition material had been spread, adjacent to the eastern boundary of the site.
>
> An asbestos survey was conducted by Hibbs & Associates Pty Ltd (Hibbs) on 19 and 20 July 2002. To assist with the survey Hibbs divided the site into assessment zones. The survey identified the following issues:
>
> - Fragments of bonded asbestos cement sheeting were noted at various locations around the site including within the assessment zones No. 1, 4, 5 . . . .
> - Some demolition rubble mixed with soil was spread across the eastern area of the site (grid location A3 – A5) adjacent to the site boundary. Cement bonded asbestos fragments were observed in this material.

A copy of the summarised results of the asbestos survey is included in Appendix C. The delineated areas of concern, with respect to asbestos, are shown on Figure 3.

3.3 Soil and Groundwater Sampling, August 2002

3.3.1 Soil Sampling

Twenty-four boreholes (identified as BH01 to BH24) were drilled and sampled to delineate the TPH contamination found in the soil samples collected from test pits in July 2002. The boreholes were drilled within and around the large excavated area on the site, which was a result of previous partial remediation of the site. The samples submitted for analysis are summarised in Table 3. A copy of the summarised laboratory results is provided in Appendix C; sample locations are shown on Figure 2.

TABLE 3
Analysis Schedule – August 2002

Sample	Analyte
BH1/2.3-2.5	TPH/BTEX
BH2/2.5-2.7	
BH3/1.0-1.2	
BH3/3.0-3.2	
BH4/3.2-3.4	
BH5/1.8-2.0	
BH8/3.7-3.9	
BH9/2.0-2.2	
BH10/1.0-1.2	
BH11/1.0-1.2	
BH12/2.2-2.3	
BH13/0.8-1.3	
BH14/2.0-2.2	
BH15/1.3-1.5	
BH16/1.0-1.2	
BH17/0.4-0.7	
BH18/3.3-3.5	
BH20/2.0-2.2	
BH21/1.8	
BH22/2.5-2.7	
BH23/1.3-1.5	
BH24/0.8-1.0	

The results of laboratory analysis indicated that the concentrations of TPH and BTEX were within the assessment criteria for all samples, except for the following:

- TPH C_{10}-C_{36} (4134 mg/kg) in sample BH2/2.5-2.7;
- TPH C_{10}-C_{36} (4751 mg/kg) in sample BH5/1.8-2.0;
- TPH C_{10}-C_{36} (1774 mg/kg) in sample BH14/2.0-2.2;
- TPH C_{10}-C_{36} (1320 mg/kg) in sample BH15/1.3-1.5;
- TPH C_{10}-C_{36} (13,227 mg/kg) in sample BH18/3.3-3.5; and
- TPH C_{10}-C_{36} (1129 mg/kg) in sample BH20/2.0-2.2.

TPH C_{10}-C_{36} concentrations also exceeded the assessment criterion in samples DUP09 (3524 mg/kg TPH C_{10}-C_{36}) and DUP10 (5833 mg/kg TPH C_{10}-C_{36}), which were duplicate

samples of BH2/2.5-2.7. Sample DUP07 (10,795 mg/kg TPH C_{10}-C_{36}), a duplicate of sample BH5/1.8-2.0, also contained TPH C_{10}-C_{36} at a concentration exceeding the assessment criterion.

The TPH (C_{10}-C_{36}) concentrations exceeding the assessment criterion were found in soil samples collected from boreholes located in the western and southern end of the pit area. Furthermore, these soil samples were collected from close to or at the depth of the water table. URS noted that the analytical results were consistent with olfactory indications of contamination noted in the field.

URS also noted that:

> No observations of impact (i.e. odour) were made in the boreholes completed just beyond the northern boundary of the pit (BH3, BH4, BH7 and BH8). The analytical results of the soil samples supported these observations with TPH concentrations below the laboratory detection limit. Further towards the middle and eastern end of the pit, soil samples were found to be above the laboratory limit of detection but below the guideline value of 1000mg/kg.

3.3.2 Groundwater Sampling

Boreholes BH03, BH05, BH12, and BH18 were completed as groundwater monitoring bores and identified as MW2, MW3, MW4, and MW1, respectively. Monitoring bores MW1 (BH18) and MW2 (BH03) were installed downgradient of the pit, while the other two bores were installed within the pit. Monitoring bore MW3 (BH05) was installed close to the location of test pit TP25, whilst MW4 (BH12) was installed in the eastern upgradient end of the pit. Groundwater was sampled from these boreholes on 28 August 2002 and submitted for analysis for TPH and BTEX. A copy of the summarised laboratory results is provided in Appendix C. The locations of test pits completed as groundwater monitoring bores are shown on Figure 2.

The results of analysis indicated that BTEX concentrations were below the limit of reporting for all samples. The TPH concentration in the sample collected from MW2 was below the limit of reporting, whilst the TPH concentrations in the remaining bores were relatively high, as follows:

- TPH C_6-C_9 (43 µg/L) and TPH C_{10}-C_{36} (72,333 µg/L) in sample MW1;
- TPH C_6-C_9 (39 µg/L) and TPH C_{10}-C_{36} (28,659 µg/L) in sample MW3; and
- TPH C_6-C_9 (<20 µg/L) and TPH C_{10}-C_{36} (25,887 µg/L) in sample MW4.

Furthermore sample DUP19, a duplicate sample of MW1, also contained high concentrations of TPH (132 µg/L TPH C_6-C_9 and 115,182 µg/L TPH C_{10}-C_{36}).

3.4 Soil Sampling, September 2002

Another fourteen test pits (identified as TP100 to TP113) were excavated in September 2002, in order to further delineate the TPH contamination in the vicinity of the pit. At least one sample from each pit was submitted for laboratory analysis for TPH. The samples submitted had generally been collected from a depth of between 3 and 4 metres, the approximate depth at which the TPH contamination was identified in the August 2002 sampling. A copy of the summarised laboratory data is included in Appendix C, whilst sampling locations are shown on Figure 2.

The results of laboratory analysis indicated that TPH concentrations for all samples were within the assessment criteria and below the limit of reporting.

3.5 Discussion of Results

URS provided the following discussion of results.

> Based on all the available information from the retained historical data (1991-1998) and the 2002 data the following applies:
>
> - All heavy metal analysis reported concentrations below the NEPM HIL D with the exception of a lead sample at TP02. The concentration however is not greater than 250% of the guideline and is therefore not identified as a contamination 'hot spot' in accordance with the NEPM guidelines.
> - All samples analysed for OC/OPs, VHCs, cyanide, sulphates and phenols were either below the relevant criteria or below the level of reporting by the laboratory.
> - Several samples selected for PAH analysis reported low concentrations of PAHs, however, there were no exceedances of NEPM HIL D for either total PAH or benzo(a)pyrene.
> - The investigations were able to establish the general trend for the location of TPH impact within the site. Borehole samples taken from inside the main pit on site such as BH2, BH5, BH14, BH15 and BH20 and one location at the western end outside the pit, BH18, all indicated TPH concentrations in excess of the relevant guidelines. The western end of the main pit appears to be the key area of TPH impacted material.
> - No observations of impact (i.e. odour) were made in the boreholes completed just beyond the northern boundary of the pit (BH3, BH4, BH7 and BH8). Similarly, the analytical results of the soil samples supported these observations in that the results were below the laboratory detection limit. As such, it is considered that the extent of any source and/or impact has been established in this area. Further towards the middle and eastern end of the pit, soil samples were found to be odorous and above the laboratory limit of detection but below the guideline value of 1000 mg/kg.
> - TPH results outside of the pit at the western end reported concentrations below the limit of reporting by the laboratory. The absence of concentrations of TPH does not correspond to the presence of hydrocarbon odour during investigations. The laboratory had been requested to reanalyse a percentage of the samples to confirm the TPH results.
> - Samples analysed for TPH/BTEX or only TPH indicate several samples below the relevant guidelines and/or below the level of reporting from the laboratory.

URS considered that removal of asbestos cement fragments could be undertaken by hand picking followed by inspection by a suitably qualified asbestos consultant.

URS also noted that:

> On the basis of the limited presence of asbestos fibres in SP1 (1 sample returned positive detection out of a total of 5 samples), it is considered reasonable to retain the stockpile on site as backfill. As a precautionary measure the stockpile should be placed beneath building slabs and/or pavements and that suitable control and contingency measures are taken to minimise dust generation during the relocation of the stockpile.
>
> The groundwater results indicated TPH to be present in three wells (MW1, MW3 and MW4), however [the sample from] MW2 [had] concentrations below the limit of reporting by the laboratory. This indicates that the TPH contaminated water is present within the main pit and flowing . . . in a westerly direction out of the pit. The results for MW2 and the analyses and observations made during the soil investigations, has shown no evidence of TPH contamination to the north of the pit.

3.5.1 Auditor's Comments

The Auditor reviewed the report concerned and considers that the course of action proposed by URS was appropriate.

4.0 REMEDIAL AND VALIDATION WORKS

4.1 Pre-Remediation Works

4.1.1 Hydrocarbon-Impacted Area

To further delineate the extent of hydrocarbon impact, and to assess the areas requiring remediation, two additional rounds of drilling and sampling were conducted in and around the area of concern. Drilling was carried out between 12 and 24 April 2003.

Seven boreholes (identified as BH100 to BH106) were drilled to a depth below the water table or to bedrock, in the area to the east of the existing excavation. The boreholes were logged and photoionisation readings recorded; a total of twenty-one soil samples were submitted for laboratory analysis for TPH and BTEX. Samples were collected from both above and below the water table.

The results of analysis indicated that the concentrations of the contaminants of concern in all samples were within the assessment criteria.

Because elevated TPH concentrations had previously been recorded in monitoring well MW4, four boreholes (identified as BH107 to BH110) were drilled in the vicinity of this well. A total of fourteen samples collected from these boreholes were submitted for analysis for TPH and BTEX.

The results of analysis indicated that the concentrations of the contaminants of concern in all samples were within the assessment criteria.

During the second round of drilling, fifteen boreholes (identified as BH111 to BH114, BH201 to BH209, MW05, and MW05A) were drilled; two (MW05 and MW05A) were completed as monitoring wells. URS noted that this round of drilling was designed to provide:

> an accurate estimate of the depth of hydrocarbon impact within the remediation area at the western end of the existing excavation.

During this round of sampling a total of fifty-two samples were analysed for TPH. Samples collected from all boreholes except BH207, BH208, BH209, and BH114 were also analysed for BTEX.

The results of analysis indicated that the concentrations of the contaminants of concern were within the assessment criteria for all samples with the following exceptions:

- TPH C_{10}-C_{36} (1432 mg/kg) in sample BH203_2.5-2.9;
- TPH C_{10}-C_{36} (1066 mg/kg) in sample BH205_1.9-2.3;
- TPH C_{10}-C_{36} (1277 mg/kg) in sample MW05A_2.3-2.7; and
- TPH C_{10}-C_{36} (5474 mg/kg) in sample BH208_1.0-1.4;

The sampling locations are shown on Figure 4, whilst a copy of the summarised laboratory data is provided in Appendix C.

4.1.2 Lead-Impacted Area

URS carried out some initial soil sampling in July 2002 to supplement historical data and to help fill in areas where historical data were for various reasons no longer useable. Of the samples analysed for heavy metals, one – identified as TP02/0.2-0.4 (1880 mg/kg lead) – contained lead at a concentration exceeding the investigation criterion.

URS undertook further investigations in 2003 to delineate the elevated lead concentration detected at test pit TP02. Sampling was carried out at thirty-two locations (identified as TP02, HA201 to HA209, TP201 to TP212, TP301 to TP304, TP306, TP307, TP309, and TP311 to TP313) via hand augering and test pitting. A total of eighty-six samples collected from these sampling locations were analysed for lead; the following samples contained lead in concentrations exceeding the NEPM 'D' guideline:

- TP02/0.5-0.6 (1880 mg/kg lead);
- TP02/1.0-1.1 (6600 mg/kg lead);
- HA202/0.4-0.5 (2940 mg/kg lead);
- HA204/0.2-0.3 (1430 mg/kg lead);
- HA204/0.6-0.7 (2460 mg/kg lead);
- HA204/1.0-1.1 (5100 mg/kg lead);
- HA207/0.2-0.3 (1460 mg/kg lead);
- HA207/0.6-0.7 (1340 mg/kg lead);
- HA207/1.0-1.1 (5130 mg/kg lead);
- HA208/0.6-0.7 (3370 mg/kg lead);
- TP202/0.5-0.6 (2330 mg/kg lead);
- TP204/0.5-0.6 (1660 mg/kg lead);
- TP206/0.5-0.6 (1390 mg/kg lead);
- TP207/0.5-0.6 (6460 mg/kg lead);
- TP207/1.0-1.1 (1900 mg/kg lead);
- TP212/1.0-1.1 (3730 mg/kg lead);
- TP302/0.5-0.6 (2810 mg/kg lead); and
- TP303/1.0-1.1 (1780 mg/kg lead).

In addition, the following samples contained lead in concentrations exceeding the NEPM 'E' guideline:

- HA201/0.2-0.3 (819 mg/kg lead);
- HA202/0.2-0.3 (749 mg/kg lead);
- HA205/1.0-1.1 (999 mg/kg lead);
- HA206/0.6-0.7 (764 mg/kg lead);
- HA208/1.0-1.1 (716 mg/kg lead);
- TP202/1.0-1.1 (631 mg/kg lead);

- TP204/1.0-1.1 (1080 mg/kg lead); and
- TP205/0.2-0.3 (614 mg/kg lead).

The sampling locations are shown on Figure 5, whilst a summary of the laboratory results is provided in Appendix C.

4.1.3 Groundwater Sampling

URS carried out groundwater sampling of monitoring wells MW01 to MW04, on 28 August 2002, and re-sampled those bores on 3 December 2002. Monitoring wells MW05 and MW05a were sampled on 9 May 2003. All samples were analysed for TPH and BTEX; BTEX compounds were below the limit of reporting in all samples. The results of TPH analysis for the three rounds of sampling are summarised in Table 4.

TABLE 4
Results of TPH Analysis – Groundwater Samples
(µg/L)

Sample	Date	TPH C_6-C_9	TPH C_{10}-C_{14}	TPH C_{14}-C_{28}	TPH C_{29}-C_{36}	TPH C_{10}-C_{36}
MW1	28-Aug-02	43	17,000	53,200	2090	72,290
MW2	28-Aug-02	<20	<50	<100	<50	ND
MW3	28-Aug-02	39	5830	21,200	1590	28,620
MW4	28-Aug-02	<20	4250	20,700	937	25,887
DUP19*	28-Aug-02	132	26,800	84,800	3450	115,182
MW1	03-Dec-02	<20	5650	14,900	896	21,446
MW2	03-Dec-02	<20	<50	<100	<50	ND
MW3	03-Dec-02	<20	2770	17,000	1800	21,570
MW4	03-Dec-02	<20	1260	6410	1160	8830
MW05	09-May-03	<20	243	1800	224	2267
MW05a	09-May-03	<20	2680	9190	1160	13,030

* Duplicate of MW1
ND Not detected

Locations of the monitoring wells are shown on Figure 4.

4.2 Remediation/Validation Objectives

4.2.1 Objectives

The remediation objectives as stated by URS were:

- to make the site suitable for the proposed residential [use] with minimal soil access and open space land areas surrounding the building areas;
- to protect human health (residents, site workers, off-site workers and off-site residents) and the environment from hazards relating to remediation works;
- confirmation that hydrocarbon impacted soil identified during environmental assessments are remediated to a level appropriate for the proposed land use of the site;
- compliance with regulatory and legislative requirements; and
- compliance with RCC Contaminated Land Policy, 1999.

4.2.2 Auditor's Comments

The Auditor reviewed the remedial action plan and amendments and considered that the proposed remediation was technically feasible and was appropriate to render the site suitable for the proposed use.

4.3 Remedial Works

4.3.1 Works Completed

Cardinal Project Services (Cardinal) carried out remedial works from December 2002 to March 2003, whilst J A Bradshaw Pty Ltd (JAB) undertook remedial works from 7 July to 9 September 2003. JAB was supported by Responsive Environmental Solutions (RES). Hibbs and Associates Pty Ltd (Hibbs) and URS supervised the works.

The remedial works are described in detail below.

4.3.2 Remediation of TPH-Impacted Area

Prior to the commencement of remedial works within this area, an exclusion zone was established in order to contain the related excavation, stockpiling and operational processes and to prevent contamination of validated areas of the site. Remediation of the area impacted by petroleum hydrocarbons commenced on 7 July 2003.

The remedial excavation was progressed using a 'strip mining' procedure. Separate stockpiles were established, to receive material designated as 'contaminated', 'suspect', and 'clean'. The strip mining procedure involved:

- removal and stockpiling of overburden as suspected clean material;
- excavation of hydrocarbon-impacted material; and
- segregation of impacted material into suspect and contaminated stockpiles, on the basis of visual and olfactory observations together with photoionisation detector (PID) readings.

The final remediated zone comprised two distinct areas: namely, the main excavation, which included the hot spot located at Borehole BH15, and an area targeting the hot spot centred on Z3-8. The remedial areas are shown on Figure 4.

URS noted that, with the inclusion of the area around the BH15 excavation (approximately 30 square metres), the main excavation covered an area of approximately 1000 square metres. The length of the walls was estimated to be approximately 170 metres. The excavation around Z3-8 was estimated at 50 square metres with a linear wall length of approximately 40 metres.

The remedial excavation often extended below the water table, which according to URS was 'elevated due to heavy rains prior to the remediation'. Material above the impacted zone consequently slumped into the base of the excavation. In an effort to control this slumping and reduce ingress of groundwater, only a small area was excavated in each progressive strip. A validation sample was collected from the base of the strip prior to backfilling to a level above the water table in order to prevent the excavation collapsing.

When strip mining, in order to minimise the risk of cross-contamination, each strip overlapped the preceding adjacent strip. This overlap was considered necessary to ensure the removal of all impacted material.

4.3.3 Remediation of Stockpiles and Areas Impacted by Asbestos-Containing Material (ACM)

The proposed method for remediating the areas impacted by ACM included the following.

- Excavation, via a surface scrape, of at least a 300-millimetre layer of soil and demolition materials containing ACM fragments over the area where demolition waste had been spread. Any ACM fragments visible at the base of the excavation were to be removed manually. All ACM was to be disposed of at a licensed landfill.

- Excavation and off-site disposal of soil stockpile SP7, where ACM fragments had been observed. Any ACM fragments visible at the base of the excavation were to be removed manually.
- A visual inspection of the entire surface prior to validation of the excavation base for asbestos fibres, and subsequent validation sampling on a 20-metre grid spacing.

Excavation of Fill Containing ACM Fragments
Fill material containing ACM had previously been identified along the eastern boundary of the site adjacent to Dangar Street. This area was excavated to a depth of between 0.3 and 1 metre, the depth to the natural sands, with the volume of excavated material estimated at 600 cubic metres.

Removal of Stockpile SP7
Stockpile SP7, which had an estimated volume of 30 cubic metres, was excavated and disposed of off site. Fragments visible at the stockpile footprint were removed manually.

Building Survey
Hibbs carried out a Hazardous Building Survey to assess whether it was necessary to remove additional materials from the buildings prior to their demolition. Minor quantities of asbestos containing materials were identified within the buildings; these included:

- one localised area of flat asbestos cement (AC) sheeting as wall panelling;
- two AC downpipes; and
- AC fragments in localised areas within the former recreation building.

As noted by URS:

> Assessment of ACM on the site was assisted through previous asbestos removal works completed in 1995 by the STA. Previous reporting by D&M (1995) compiled details of the asbestos removal program . . . . A report issued by SKP (1991) identified asbestos containing materials in several structures at the site. The sketch included in Appendix L [URS] illustrates the buildings comprising ACM. Verification of the removal of the identified ACM was provided by New Environment Pty Ltd. The asbestos removal works undertaken in 1995 was supported by a visual inspection and air monitoring for asbestos fibres.

Remediation of Stockpiles SP2 and SP19
During the sorting of on-site stockpiled materials into sandstone/concrete and residual sand/fill, Cardinal observed AC building materials within stockpile sectors SP2 and SP19. These materials had not been visible during previous inspection of the stockpiles. URS and Hibbs visited the site on 3 February 2002 to inspect these AC materials. Given the small quantity of AC materials in the stockpile, it was assessed that the sorting process could continue, and any ACM fragments would be removed by hand. Trained personnel, utilising appropriate environmental and health protection measures, removed the ACM, which was stored appropriately on site, prior to off-site disposal.

Soil separated from stockpiles SP2 and SP19 was subsequently sampled and analysed for asbestos fibres, in order to validate the material for on-site re-use. Hibbs inspected the areas underlying SP2 and SP19 for ACM. The area was sampled and analysed for asbestos fibres to ensure that no cross-contamination of soil had occurred on the site.

The separation process ultimately produced:

- concrete and sandstone, which was crushed and re-used on site;
- two stockpiles (identified as SP-A and SP-B) of residual sandy material; and
- ACM, which was stored appropriately, prior to disposal.

About 16 bags of ACM fragments and five large (1-metre) sections of suspected asbestos pipe were subsequently removed off site for disposal.

URS noted that ACM fragments were collected manually from the locations, as previously advised by Hibbs. All manual collection was carried out under the supervision of Hibbs, and the material was either placed in polythene bags or wrapped in polythene sheeting before being transported off site to an appropriately licensed landfill facility.

4.3.4 Remediation of Lead-Impacted Area

Remedial excavation of the lead-impacted area around test pit TP207 was conducted on 15 August 2003. The remedial excavation measured 4 metres by 3 metres and was 1.8 metres deep, the depth at which natural sands were encountered. The excavated materials were stockpiled and covered with black plastic sheet in Part 2 of the Lot. As the materials are no longer located on Part 1 of the Lot, they will not be dealt with further in this audit, but will rather be addressed in the Stage 2 audit.

4.3.5 Auditor's Comments

The Auditor visited the site twice during remediation. A member of the Auditor's support team attended on another occasion. URS staff maintained full-time supervision of remediation. The Auditor is satisfied that the remediation contractors carried out their work in an appropriate manner.

4.4 Validation Program

4.4.1 Validation of TPH Remedial Area

A total of sixty-four validation samples (identified as EXB-01 to EXB-64) were collected from the base of the excavation, and a further forty-eight validation samples (identified as EXW-01 to EXW-48) were collected from the walls of the excavation. All samples were analysed for TPH. URS noted that sampling density was greater where volume of groundwater ingress and degree of excavation collapse were greater. Wall samples were collected from the depth of greatest identified impact. The sampling locations are shown on Figure 6, and a copy of the summarised laboratory data is provided in Appendix C.

Analysis results indicated that the following samples contained TPH in concentrations exceeding the assessment criteria:

- EXW-04 (2383 mg/kg TPH C_{10}-C_{36});
- EXW-05 (2008 mg/kg TPH C_{10}-C_{36});
- EXW-20 (1218 mg/kg TPH C_{10}-C_{36});
- EXW-28 (8570 mg/kg TPH C_{10}-C_{36});
- EXW-41 (3090 mg/kg TPH C_{10}-C_{36});
- EXB-04 (1734 mg/kg TPH C_{10}-C_{36});
- EXB-09 (1744 mg/kg TPH C_{10}-C_{36}); and
- EXB-60 (1074 mg/kg TPH C_{10}-C_{36}).

URS indicated that the areas around these samples were re-excavated with the exception of sample location EXB-60. Sample locations EXW-18, EXW-35, EXW-37, EXW-47 were also excavated.

In addition to the primary validation samples, URS also collected nine spot check samples, which targeted elevated analytical validation results. This process involved re-excavation of the material at the location and the collection of a base sample and two wall samples. The nine spot check samples included three base samples (identified as SCB-01 to SCB-03) and six wall samples (identified as SCW-01 to SCW-06). The samples were submitted to the laboratory to be analysed for TPH. The locations of spot checks 1, 2, and 3 are shown on Figure 6.

Once all remedial works at the TPH remedial area were completed, the surface of the area was scraped (to a depth of approximately 75 millimetres) with an excavator. Eight validation samples (SS-01 to SS-08) were collected over this area on a 20-metre grid, and submitted for laboratory analysis for TPH. A figure showing these sample locations is included in Appendix C. The results of laboratory analysis are also included in Appendix C.

The material obtained during the surface scrape was stockpiled, sampled and validated for re-use beneath the building footprints, and covered with 0.5 metre of clean material. The material was placed in Cell 6, the location of which is shown on Figure 9.

The results of analysis indicated that TPH concentrations in all samples were within the assessment criteria.

Figure 7 shows TPH validation sampling locations for the balance of the site. Results of laboratory analysis for these samples are provided in Appendix C.

4.4.2 Validation of Stockpiled Materials

Material excavated from the TPH remediation area was, as mentioned previously, stockpiled as either Contaminated, Suspected Contaminated, or Believed Clean. The Contaminated and Suspected Contaminated materials were initially sampled at a rate of one sample per 100 cubic metres. The Believed Clean materials were sampled at a rate of between one in 10 and one in 25 cubic metres.

If analysis results for Suspected Contaminated materials were not within the assessment criteria, the material was classified and then transported off site. If the materials were within the assessment criteria, the material was re-sampled by URS at a rate of one sample per 25 cubic metres. If these results also met the assessment criteria, the material was placed beneath building footprints and covered with at least 0.5 metre of clean material. This material was placed into placement cells 1 to 4; their location is shown on Figure 9.

Furthermore URS noted that:

> Clean material was stockpiled adjacent to the excavation and sampled. At times during the excavation period, due to a lack of alternative backfill being readily available, this clean stockpiled material was reused as backfill prior to the receipt of laboratory results. Records were kept of the placement of this material in the event that the analytical results indicated that the material did not meet the Remediation Guideline. If the material exceeded the Remediation Guideline it was subsequently re-excavated and sent for off-site disposal.

All materials removed off site for disposal were classified JAB/RES as Solid Waste.

4.4.3 Validation of Lead Remedial Area

Following completion of the remedial excavation around test pit TP207, four validation samples (identified as EXW-101c to EXW-104c) were collected from the walls of the excavations, and one validation sample (identified as EXB-101) was collected from the base of the excavation. The five samples were submitted for laboratory analysis for lead. URS noted that the wall samples were collected at depths between 1 and 1.5 metres. The sampling locations are shown on Figure 5, and the summarised laboratory results are provided in Appendix C.

Analysis results indicated that lead concentrations in the validation samples were all within the assessment criterion, which, because in the final development this area will be covered by a building, is the NEPM 'D' guideline.

4.4.4 Other Lead-Impacted Areas

During sampling and analysis of material for the purpose of VENM classification, RES identified some stockpiled and in-situ material that contained lead in concentrations that exceeded the assessment criterion for open space use. The samples representing this material included 41.3 level S1, 41.3 level S2 (960 mg/kg lead), 41.3 level S3, 41.3 level S4, and Road 2-05 (960 mg/kg lead).

The material was within the assessment criterion for the areas beneath the proposed building footprints.

The material was subsequently buried beneath the proposed building footprints, above the water table, and covered with a layer of clean fill material. The material was placed into placement cells 5 and 8, as shown on Figure 9.

4.4.5 PAH-Impacted Areas

During sampling and analysis of material for the purpose of VENM classification, RES identified some stockpiled and in-situ material that contained PAH in concentrations exceeding the assessment criterion for open space use.

The material was within the assessment criterion for the areas beneath the proposed building footprints.

The material was subsequently buried beneath the proposed building footprints – above the water table – and covered with a layer of clean fill material. This material was placed into placement Cell 7, which is shown on Figure 9.

The PAH validation sampling locations are shown on Figure 8. A copy of the summarised laboratory data is provided in Appendix C.

4.4.6 Validation of Areas and Stockpiles Containing ACM

Excavation of Fill Containing ACM Fragments

Following excavation of the fill material containing ACM along the eastern boundary of the site, four validation samples (identified as AS-Z1-01 to AS-Z1-04) were collected from the base of the excavation and submitted for analysis for asbestos. Validation sampling together with a detailed visual inspection of the final excavation, carried out by Hibbs, was used to assess whether the ACM had been adequately removed.

Asbestos was not detected in the samples analysed.

Validation of Stockpile SP7

Following removal of the stockpile, Hibbs carried out a detailed visual inspection of the stockpile footprint, and reported that the material had been removed satisfactorily.

Validation of Stockpiles SP2 and SP19
As mentioned above, the residual sandy material, which resulted from separation of ACM, concrete, and sandstone from stockpiles SP2 and SP9, was set aside in two stockpiles, namely SP-A (the larger stockpile) and SP-B (the smaller stockpile). Sampling of this material was undertaken at a rate of approximately 1 sample per 400 cubic metres, resulting in the collection of fourteen validation samples (identified as SPA_01 to SPA_14) from stockpile SP-A and two validation samples (identified as SPB_01 and SPB_02) from SP-B.

Furthermore, four validation samples (identified as SP-BASE 01 to SP-BASE 04) were collected, on a 20-metre grid, over the footprint of the stockpile segregation work zone.

Asbestos was not detected in any of the samples analysed.

The asbestos validation sampling locations are shown on Figure 3.

4.4.7 Validation of Moriah Daycare Area

URS noted the following in relation to the construction of the Moriah Daycare Centre.

> Following acquisition of Lot 202 by Sir Moses Montefiore Jewish Home in 1998, the Moriah College entered a sub-lease agreement with Sir Moses Montefiore Home. Moriah commenced planning for the construction of the daycare centre in early 1999. A survey completed by Proust and Gardner of Lot 202 on 1 July 1999 illustrated an extensive stockpile of rubble material in the south-east corner of the site (refer Appendix D [URS]) located in part of the area presently occupied by the Moriah Daycare centre. A note on the survey drawing indicates that excavation activities were underway at the time of the survey. It is assumed that these works were associated with the development of the Moriah Daycare centre as it is understood that no other earthworks were completed on the Montefiore property until 2002. The Proust and Gardner survey undertaken in September 2002 (refer Appendix E [URS]), illustrates the boundaries and features of the finished daycare centre.
>
> URS understands that the building pad forming the base of the daycare centre was constructed of rubble sandstone and concrete materials, which were likely to have been stockpiled in the vicinity of the daycare centre. The building pad is raised and the batters of the underlying materials are exposed. The materials forming the building pad are similar in nature to the materials which were previously in a stockpile located directly adjacent to the Daycare centre. these stockpiles were characterised and validated through an investigation completed by URS in 2002. . . .

From previous reporting by Dames & Moore, URS compiled a summary of validation information related to the area occupied by the Moriah Daycare centre which indicated that:

- observations during the excavation of Zone 5 in 1995 indicated that the extent of contamination was minimal;
- over-excavation was completed to provide an increased level of confidence that no significant additional pockets of petroleum hydrocarbon were present in these areas;
- the excavation extended to bedrock;
- a total of 4 validation samples were collected from the bedrock surface and walls of the excavation;
- concentrations of TPH (C_{10}-C_{36}) detected in the validation samples ranged from less than the laboratory reporting limit of 250 mg/kg to 700 mg/kg; and
- re-instatement of the excavation was completed with validated reused site soil materials. These materials were also backfilled in other site excavations and the stockpiles were sampled at a ratio of no less than 1 sample per 200 m^3. The samples were analysed for

> concentrations of TPH and BTEX. A total of 42 samples were applicable to the reused materials. Statistical analysis was completed on the data set and the 95% UCL for TPH (C_{10}-C_{36}) was calculated to be 476 mg/kg and the maximum concentration was 980 mg/kg.

URS noted that although it was not possible to confirm the source of the backfill materials used to establish the building pad of the Daycare centre, survey data suggest the materials probably came from stockpiles directly adjacent to the development area. URS validated these stockpiles in 2002 as suitable for standard residential use with access to soil.

URS also stated that the following factors further validate the suitability of the Moriah Daycare for its current use.

> The areas understood to be available to the visitors of the daycare centre include the main building and the playground to the rear of the building. It is understood that the underlying backfill material has been covered with a variable thickness of topsoil and subsequently artificial grass, landscaping or paving was placed overlying the topsoil to create a playground. As such, access to the underlying backfill material is restricted.

4.4.8 Air Monitoring

Hydrocarbon Remediation

Environmental Resources Management Australia Pty Ltd (ERM) managed air monitoring for JAB during the hydrocarbon remediation works. Air monitoring involved the use of a high volume air sampler on three separate sampling events (18, 16, and 24 July 2003) and the use of two dust deposition gauges for the duration of the hydrocarbon remediation works (twenty-five days). One dust deposition gauge was placed on the west site boundary and one on the east site boundary.

The results of the monitoring indicated that the dust concentrations during the monitoring period were within acceptable levels.

ACM Remediation

Hibbs carried out collection and analysis for airborne respirable asbestos fibres in accordance with the WorkSafe Australia *Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Dust* (NOHSC:3003, 1998).

Sampling was carried out in December 2002, during remediation of SP7 and fill containing ACM adjacent to Dangar Street, and also over the period 3 to 28 February 2003 during the sorting of stockpiles SP2 and SP19.

The monitoring results indicated that the levels of airborne respirable fibres were below the reporting limit (<0.01 fibres/ml) during the monitoring program.

4.4.9 Auditor's Comments

Regular liaison was maintained with URS throughout remedial work. Significant variations in expected conditions, and the means of dealing with them, were discussed.

The Auditor visited the site twice during the course of remediation, and a further visit was carried out by a member of the Auditor's support team. The Auditor is satisfied that the procedures adopted by URS and Hibbs during remediation were adequate to ensure effective validation, and to protect worker and public health and safety.

4.5 URS's Conclusions

URS concluded the following:

> On the basis of the results of the remediation validation sampling, monitoring and visual validation inspections, URS concludes that the Part 1 area of Lot 202 King Street, Randwick has been remediated in accordance with the RAP (URS, 7 February 2003) and the NSW EPA Accredited Auditor's requirements for this portion of the site. Part 1 has been defined by a survey undertaken by a licensed registered survey[or] and is included as Appendix A [URS].
>
> Validation of the hydrocarbon remediation has been achieved through sampling and laboratory analysis. URS considers that hydrocarbon impacted materials have been remediated in accordance with the RAP and that the residual surfaces satisfy the NSW EPA Service Station guideline, as adopted for the remediation guideline. The 95% UCL of average TPH concentration satisfies the adopted remediation guideline for data sets compiled for either the hydrocarbon remediation area, or for the whole of the Part 1 area.
>
> Remediation of the hydrocarbon impacted material has removed the source of the ongoing groundwater contamination with TPH.
>
> Validation of the lead and PAH remediation has been completed by dividing the respective data sets into data applicable to either the open space or building footprints. Data relevant to the open space areas has been assessed against the NEPM HIL Level E guideline values and conversely, data relevant to the building footprints has been assessed against the NEPM HIL Level D guideline values.
>
> Validation of the lead remediation has been achieved through sampling and laboratory analysis. URS considers that the lead impacted materials have been remediated in accordance with the RAP Modification (26 August 2003) and that the residual surfaces or backfilled materials satisfy either the NEPM HIL Level D or Level E guideline in the respective guideline areas.
>
> Validation of the materials impacted with polyaromatic hydrocarbons has been achieved through sampling and laboratory analysis. The backfilled materials satisfy either the NEPM HIL Level D or Level E guideline in the respective guideline areas.
>
> Asbestos removal works have been conducted in accordance with the RAP to the satisfaction of an asbestos specialist, Hibbs. NSW Health has provided a written endorsement of the asbestos remediation methodology. The review completed by NSW Health stated that "... the risk to people's health from asbestos would appear to be so small that it need not be considered further" and as such, indicates that no unacceptable health risk with respect to asbestos remains.
>
> Off-site disposal of waste materials during the remediation program was undertaken in accordance with the NSW EPA Waste Guidelines (1999) and the site specific Sydney Water Trade Waste Agreement.
>
> As a consequence of the remediation and the validation program, Part 1 of Lot 202 as illustrated in the survey plan attached as Appendix A [URS] is considered to be suitable for the composite land use of medium density residential with minimal access to soils and open space areas. The delineation between the medium density residential areas and the open space areas is defined by the master plan drawings (Rev A, 08/03) as prepared by JJTW, presented as Figure 3 [URS].

URS's summary statistics for the analytical data for the soil sampling at the site are provided in Table 5. The samples and data used in validating the site and calculating the statistics below are included in Appendix C.

TABLE 5
Summary Statistics of Validation Data
(mg/kg)

Analyte	PQL	Set	Min.	Max.	Mean	C.V.	95% UCL*
Lead - NEPM 'D' Areas	<1	40	<1	2810	337.2	1.62	484.3 ‡
Lead - NEPM 'E' Areas	<1	71	<1	749	97.63	1.46	323.8 †
Benzo(a)pyrene - NEPM 'D' Areas	<0.5	13	<0.5	6.2	0.87	1.85	2.5†
Benzo(a)pyrene - NEPM 'E' Areas	<0.5	39	<0.5	3.7	0.63	1.01	0.8*
Total PAHs - NEPM 'D' Areas	<1	13	<0.5	61.2	8.65	1.84	19.2†
Total PAHs - NEPM 'E' Areas	<1	39	<0.5	38.7	7.79	0.93	9.8*
TPH – Remediation area	<250	155	<50	1074	295.4	0.54	316.8 *
TPH – Balance of site	<250	119	<50	900	294.6	0.49	316.9 *
TPH - Backfill	<250	41	<50	906	293.4	0.56	337.0 *

Notes: PQL laboratory practical quantitation limit
Set number of samples in data set
Min. minimum concentration
Max. maximum concentration
Mean arithmetic mean
C.V. coefficient of variation
* Calculated via procedure D (NSW EPA, 1995)
† Calculated via procedure G (NSW EPA, 1995)
‡ Calculated via US EPA Non-parametric Jack knife

4.5.1 Auditor's Comments

The Auditor has reviewed the validation report. Clarification was sought from URS on a number of issues, and this was provided in written form. Correspondence is attached in Appendix B. Disposal documentation for materials transported off site has been sighted. The Auditor is satisfied that remediation was carried out in an appropriate manner, and endorsed the conclusions of URS.

5.0 COMPLETENESS AND ADEQUACY OF INVESTIGATION

5.1 Initial Sampling Strategy

The strategy adopted by URS to assess and validate existing data, and the sampling carried out to fill the data gaps so identified, are considered appropriate.

5.2 Validation Sampling

The number of validation samples taken within the site, together with their distribution, is considered adequate. These samples provide an adequate level of assurance that concentrations of contaminants in soil are within the agreed criteria.

5.3 Sampling Procedures

The sampling procedures adopted by URS, as outlined in the assessment and validation reports, have been reviewed. These procedures are considered to comply with general industry standards and to be adequate to ensure the integrity of the data set used to assess contamination and validate remediation on this site.

5.4 Quality Assurance/Quality Control

The quality assurance and quality control procedures adopted by URS, as outlined in the assessment/validation reports, have been reviewed. These procedures are considered to comply with general industry standards and to be adequate to ensure the integrity of the data set used to assess contamination and validate remediation on this site.

A review of the laboratory QC results presented in the validation report has also been undertaken. A copy of the QC portion of the auditing checklist has been provided in Appendix D.

The QA/QC criteria examined in this review included:

- Precision
- Accuracy
- Sensitivity
- Representativeness
- Comparability
- Completeness
- Holding times
- Blanks

The Auditor considers that the overall quality of data and their presentation are of an adequate standard to support the conclusions he has reached.

5.5 Groundwater Issues

The Auditor considers that hydrocarbon contamination of groundwater has been adequately remediated, and does not consider that the potential for off-site migration of contamination originating from the site is an issue of concern.

5.6 Aesthetic Issues

The Auditor does not consider that aesthetic issues are now of concern on this site. Odorous soils have been effectively remediated.

5.7 Chemical Mixtures

The Auditor does not consider that the potential for chemical mixtures is an issue of concern on this site.

5.8 Reporting Standards

Although minor matters requiring clarification were identified in the validation report, the validation report and underlying RAP generally comply with the NSW EPA's *Guidelines for Consultants Reporting on Contaminated Sites* (1997).

6.0 CONCLUSIONS

The Auditor considers that the site has been validated to the required standard, and that analysis of validation samples demonstrates that concentrations of contaminants of concern remaining on the site are within the criteria applicable to residential use with minimal opportunity for soil access, or park and open space use as appropriate for the proposed development.

The Auditor has thus concluded that it is appropriate to issue a Site Audit Statement which indicates that the site is suitable for use as an aged care and community facility comprising areas for residential use with minimal opportunity for soil access, and areas for public open space use.

REFERENCES

Australian and New Zealand Environment and Conservation Council/Agriculture and Resource Management Council of Australia and New Zealand (2000): *Australian and New Zealand Guidelines for Fresh and Marine Water Quality.* National Water Quality Management Strategy.

Australian and New Zealand Environment and Conservation Council/National Health and Medical Research Council (1992): *Australian and New Zealand Guidelines for the Assessment and Management of Contaminated Sites.*

Imray, Paula and A. Langley (1999): *Health-Based Soil Investigation Levels*, National Environment Protection (Assessment of Site Contamination) Measure, Schedule B, Guideline 7A.

NSW Environment Protection Authority (1994): *Guidelines for Assessing Service Station Sites*, Chatswood NSW.

NSW Environment Protection Authority (1995): *Sampling Design Guidelines*, Chatswood NSW.

NSW Environment Protection Authority (1997): *Guidelines for Consultants Reporting on Contaminated Sites*, Chatswood NSW.

NSW Environment Protection Authority (1998): *Guidelines for the NSW Site Auditor Scheme*, Chatswood NSW.

Taylor, Roscoe and A. Langley (1999): *Exposure Scenarios and Exposure Settings*, National Environment Protection (Assessment of Site Contamination) Measure, Schedule B, Guideline 7B.

Van de Plassche, E. J. and G. J. M. Bockting (1993): *Towards Integrated Environmental Quality Objectives for Several Volatile Compounds.* National Institute of Public Health and Environmental Protection, Bilthoven, The Netherlands, Report No. 679101 011, 1993.

Van de Plassche, E. J., M. D. Polder and J. H. Canton (1993): *Derivation of Maximum Permissible Concentrations for Several Volatile Compounds for Water and Soil.* National Institute of Public Health and Environmental Protection, Bilthoven, The Netherlands, Report No. 679101 008, 1993.

WorkSafe Australia (1998): *Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Dust* (NOHSC:3003).

C. M. Jewell & Associates Pty Ltd
Water and Environmental Management
ABN 54 056 283 295

Important Information About Your Environmental Site Assessment

These notes have been prepared by C. M. Jewell & Associates using guidelines prepared by the National Ground Water Association (NGWA) and other sources. They are offered to help you in the interpretation of your Environmental Site Assessment (ESA) reports.

REASONS FOR CONDUCTING AN ESA

ESAs are typically, though not exclusively, carried out in the following circumstances:

- as pre-acquisition assessments, on behalf of either purchaser or vendor, when a property is to be sold;
- as pre-development assessments, when a property or area of land is to be redeveloped or have its use changed – for example, from a factory to a residential subdivision – as a requirement for development approval;
- as pre-development assessments of greenfield sites, to establish 'baseline' conditions and assess environmental, geological, hydrological constraints to the development of, for example, a landfill; and
- as audits of the environmental effects of an ongoing operation.

Each of these circumstances requires a specific approach to the assessment of soil and groundwater contamination. In all cases, however, the objective is to identify and if possible quantify the risks which unrecognised contamination poses to the proposed activity. Such risks may be financial (for example, clean-up costs or limitations on site use), or physical (for example, health risks to site users or the public).

THE LIMITATIONS OF AN ESA

Although the information provided by an ESA can reduce exposure to such risks, no ESA, however diligently carried out, can eliminate them. Even a rigorous professional assessment may fail to detect all contamination on a site. Contaminants may be present in areas that were not surveyed or sampled, or may migrate to areas which showed no signs of contamination when sampled.

The extent of sampling and subsequent analysis of soils is necessarily limited, and is generally targeted towards areas where contamination is considered to be most likely, based on the knowledge of the site history and visual observation. This approach maximises the probability of identifying contaminants; however, it may not identify contamination which occurs in unexpected locations or from unexpected sources.

Further, soil, rock and aquifer conditions are often variable, resulting in non-homogenous contaminant distributions across a site. Contaminant concentrations are identified at chosen sample locations; however, conditions between sample locations can only be inferred on the basis of the estimated geological and hydrogeological conditions and the nature and extent of identified contamination. Boundaries between zones of variable contamination are often indistinct, and must be interpreted based on available information and the application of professional judgement. The accuracy with which subsurface conditions can be characterised depends on the frequency and methods of sampling and the uniformity of subsurface conditions and is therefore limited by the scope of works undertaken.

ESA 'FINDINGS' ARE PROFESSIONAL ESTIMATES

Site assessment identifies actual subsurface conditions only at those points where samples are taken, when they are taken. Data derived through sampling and subsequent laboratory testing are interpreted by geologists, engineers or scientists who then render an opinion about overall subsurface conditions, the nature and extent of contamination, its likely impact on the proposed development and appropriate remediation measures. Statistical tools may be used to assist in such assessment, but the validity of conclusions depends entirely on the degree to which the original data reflect site conditions. Actual conditions may differ from those inferred to exist, because no professional, no matter how qualified, and no subsurface exploration program, no matter how comprehensive, can reveal what is hidden by earth, rock and time. The actual interface between materials may be far more gradual or abrupt than a report indicates. Actual conditions in areas not sampled may differ from predictions.

Nothing can be done to prevent the unanticipated, but steps can be taken to help minimise its impact. For this reason, owners should retain the services of their consultants through the development stage, to identify variances, to conduct additional tests which may be needed, and to recommend solutions to problems encountered on site.

SUBSURFACE CONDITIONS CAN CHANGE

Subsurface conditions are changed by natural processes and the activity of people. An ESA report is based on conditions that existed at the time of subsurface exploration; decisions should not be based on an ESA report whose adequacy may have been affected by time. Speak with the consultant to learn if additional tests are advisable.

ESA SERVICES ARE PERFORMED FOR SPECIFIC PURPOSES AND PERSONS

Every study and ESA report is prepared in response to a specific Brief to meet the specific needs of specific individuals. A report prepared for a consulting civil engineer may not be adequate for a construction contractor, or even some other consulting civil engineer. A report should not be used by other persons for any purpose, or by the client for a different purpose. No individual other than the client should apply a report even apparently for its intended purpose without first conferring with the consultant. No person should apply a report for any purpose other than that originally contemplated without first conferring with the consultant.

AN ESA REPORT IS BASED ON A UNIQUE SET OF PROJECT-SPECIFIC FACTORS

Your environmental report should not be used:

- when the nature of the proposed development is changed - for example, if a residential development is proposed instead of a commercial one;
- when the size or configuration of the proposed development is altered;
- when the location or orientation of the proposed structure is modified;
- when there is a change of ownership; or
- for application to an adjacent site.

To help avoid costly problems, refer to your consultant to determine how any factors which have changed subsequent to the date of the report may affect its recommendations.

AN ESA REPORT IS SUBJECT TO MISINTERPRETATION

Costly problems can occur when design professionals develop their plans based on misinterpretations of an ESA. To help avoid these problems, the environmental consultant should be retained to work with appropriate design professionals to explain relevant findings and to review the adequacy of their plans and specifications relative to contamination issues.

LOGS SHOULD NOT BE SEPARATED FROM THE GEOLOGICAL REPORT

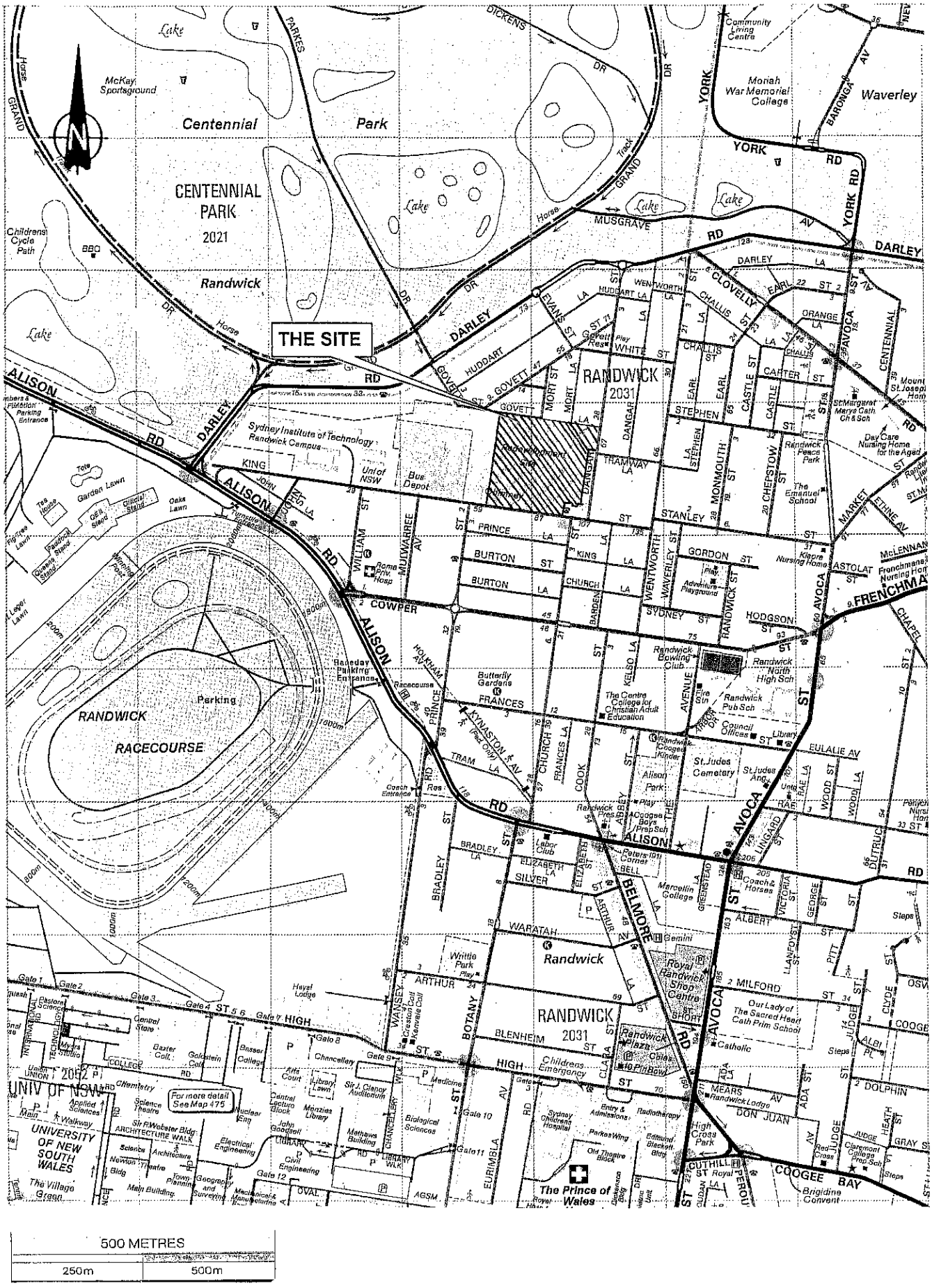
Final borehole or test pit logs are developed by environmental scientists, engineers or geologists based upon their interpretation of field logs (assembled by site personnel) and laboratory evaluation of field samples. Only final logs are customarily included in our reports. These logs should not under any circumstances be redrawn for inclusion in site remediation or other design drawings, because drafters may commit errors or omissions in the transfer process. Although photographic reproduction eliminates this problem, it does nothing to minimise the possibility of contractors misinterpreting the logs during bid preparation. When this occurs, delays, disputes and unanticipated costs are the all-too-frequent result.

To reduce the likelihood of borehole log misinterpretation, the complete report must be available to persons or organisations involved in the project, such as contractors, for their use. Those who do not provide such access may proceed under the mistaken impression that simply disclaiming responsibility for the accuracy of subsurface information always insulates them from attendant liability. Providing all the available information to persons and organisations such as contractors helps prevent costly construction problems and the adversarial attitudes which may aggravate them to disproportionate scale.

READ RESPONSIBILITY CLAUSES CLOSELY

Because an ESA is based extensively on judgement and opinion, it is necessarily less exact than design documents produced by other disciplines. This situation has resulted in wholly unwarranted claims being lodged against consultants. To help prevent this problem, model clauses have been developed for use in written transmittals. These are not exculpatory clauses designed to foist liabilities onto some other party. Rather, they are definitive clauses which identify where your consultant's responsibilities begin and end. Their use helps all parties involved recognise their individual responsibilities and take appropriate action.

Some of these definitive clauses are likely to appear in your ESA report, and you are encouraged to read them closely. Your consultant will be pleased to give full and frank answers to your questions.

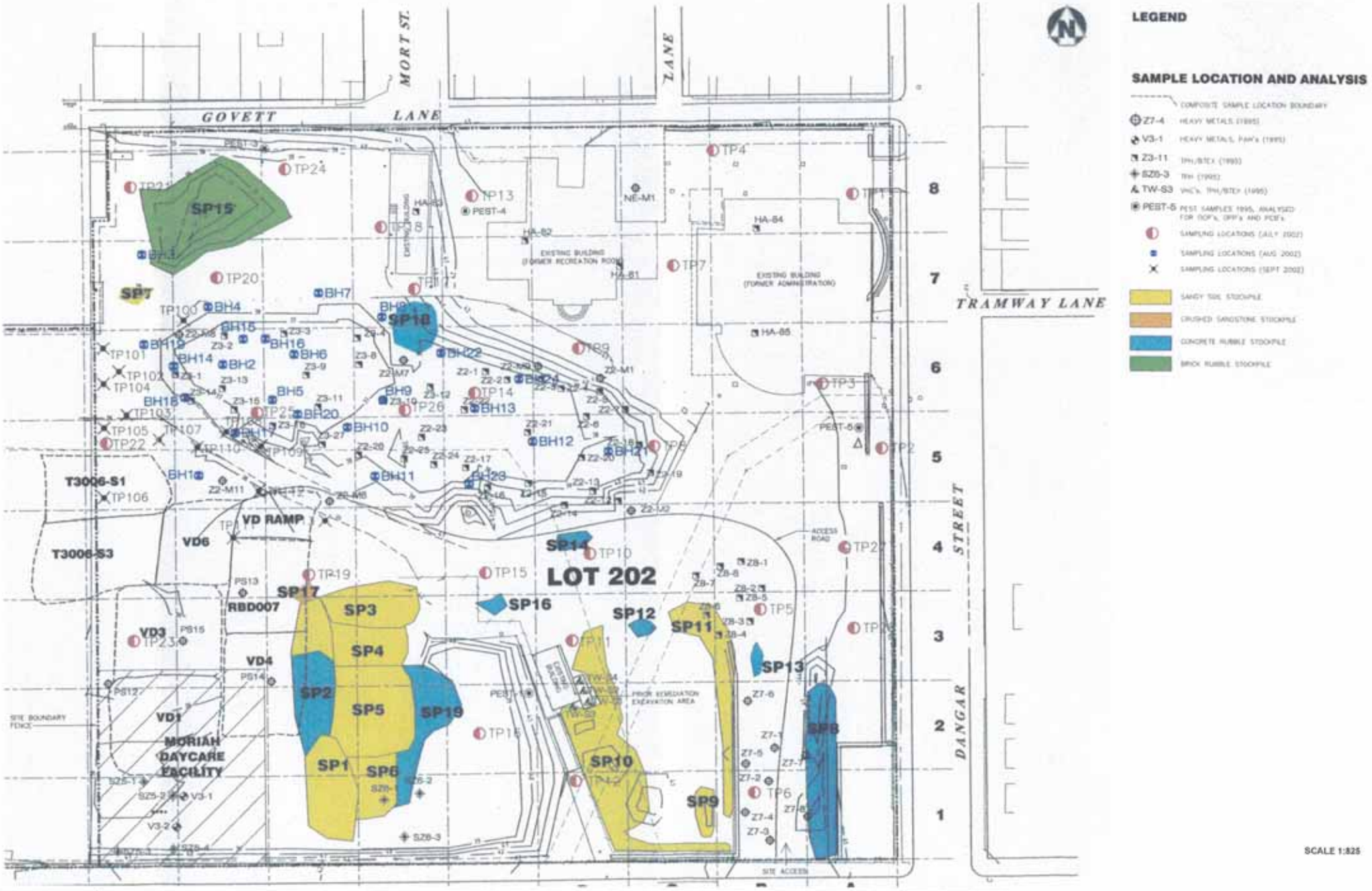


J0807 Site Audit – 100-120 King Street, Randwick

Site Location and Setting

Document: J0807.12
Rev: 1
Date: 13/11/2003
Author: JDM

Figure 1



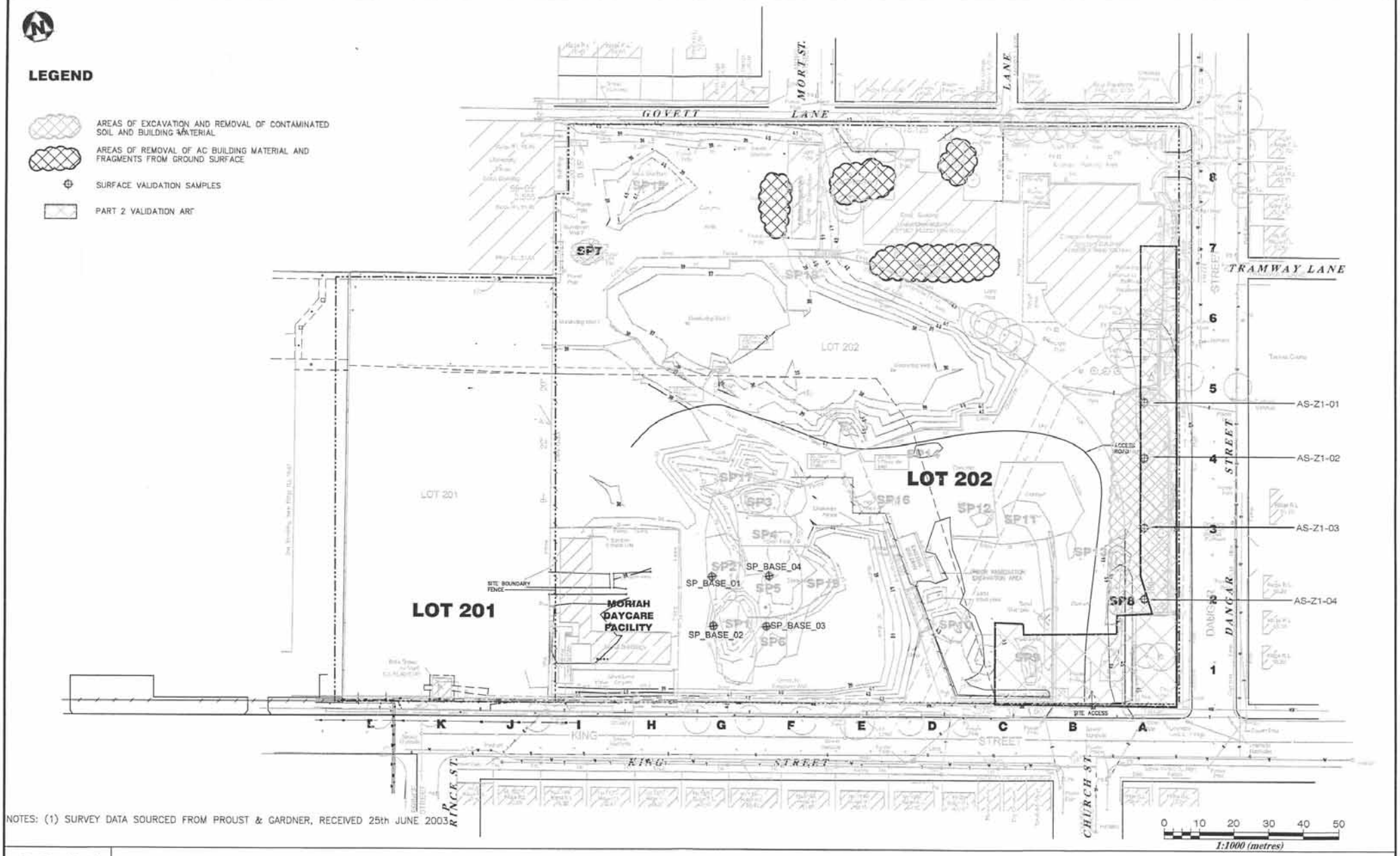
J0807 Site Audit - 100-120 King Street, Randwick

Site Layout and Previous Sampling Locations

abstracted from URS Report Project No:51072-001

Document: J0807.12
Rev: 1
Date: 13/11/2003
Author: JDM

Figure 2



NOTES: (1) SURVEY DATA SOURCED FROM PROUST & GARDNER, RECEIVED 25th JUNE 2003

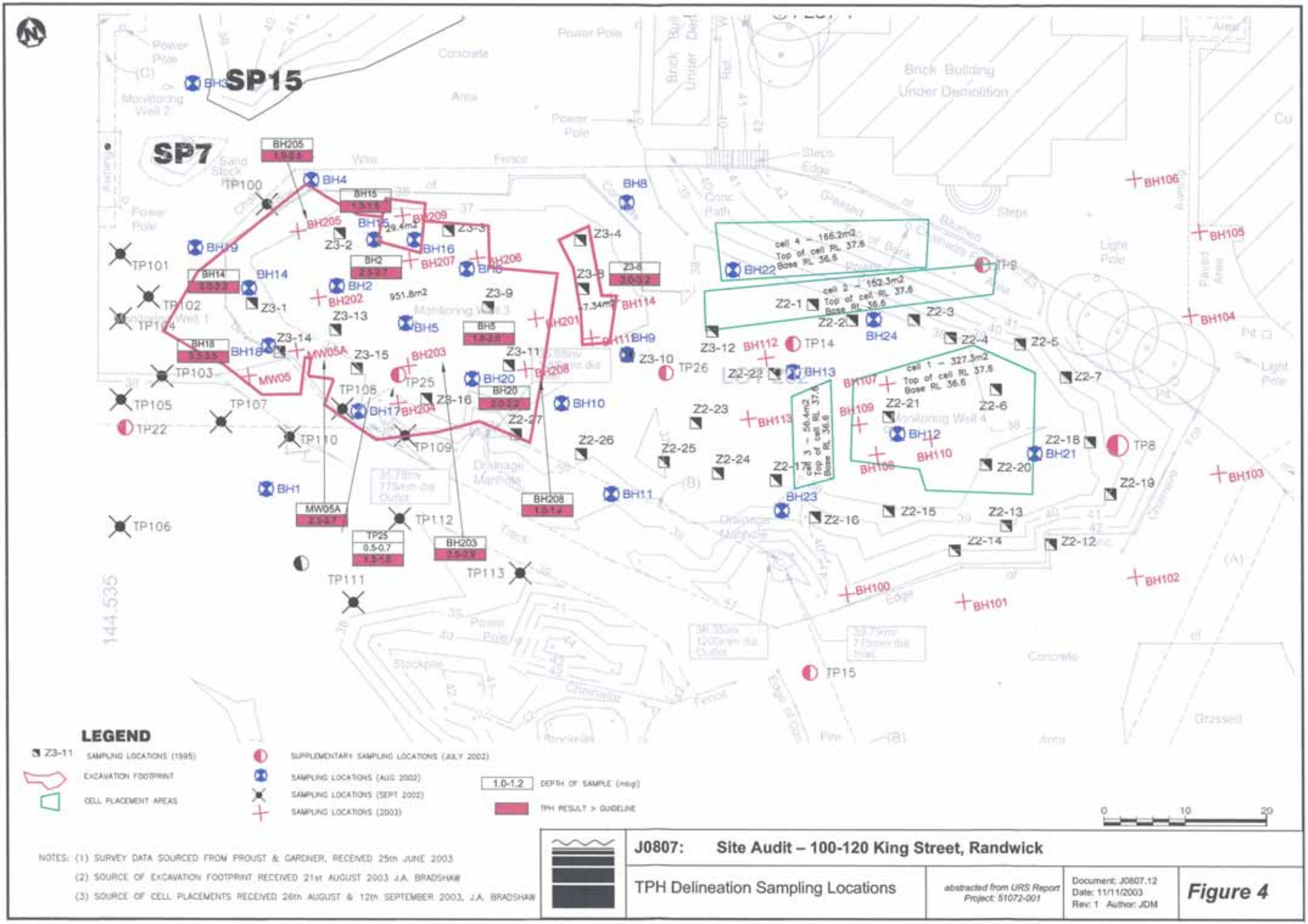
J0807 Site Audit - 100-120 King Street, Randwick

Asbestos Validation Sampling Locations and Areas of Concern

abstracted from URS Report
Project: 51072-001

Document: J0807.12
Date: 11/11/2003
Rev: 1 Author: JDM

Figure 3



NOTES: (1) SURVEY DATA SOURCED FROM PROUST & GARDINER, RECEIVED 25th JUNE 2003
(2) SOURCE OF EXCAVATION FOOTPRINT RECEIVED 21st AUGUST 2003 J.A. BRADSHAW
(3) SOURCE OF CELL PLACEMENTS RECEIVED 26th AUGUST & 12th SEPTEMBER 2003, J.A. BRADSHAW

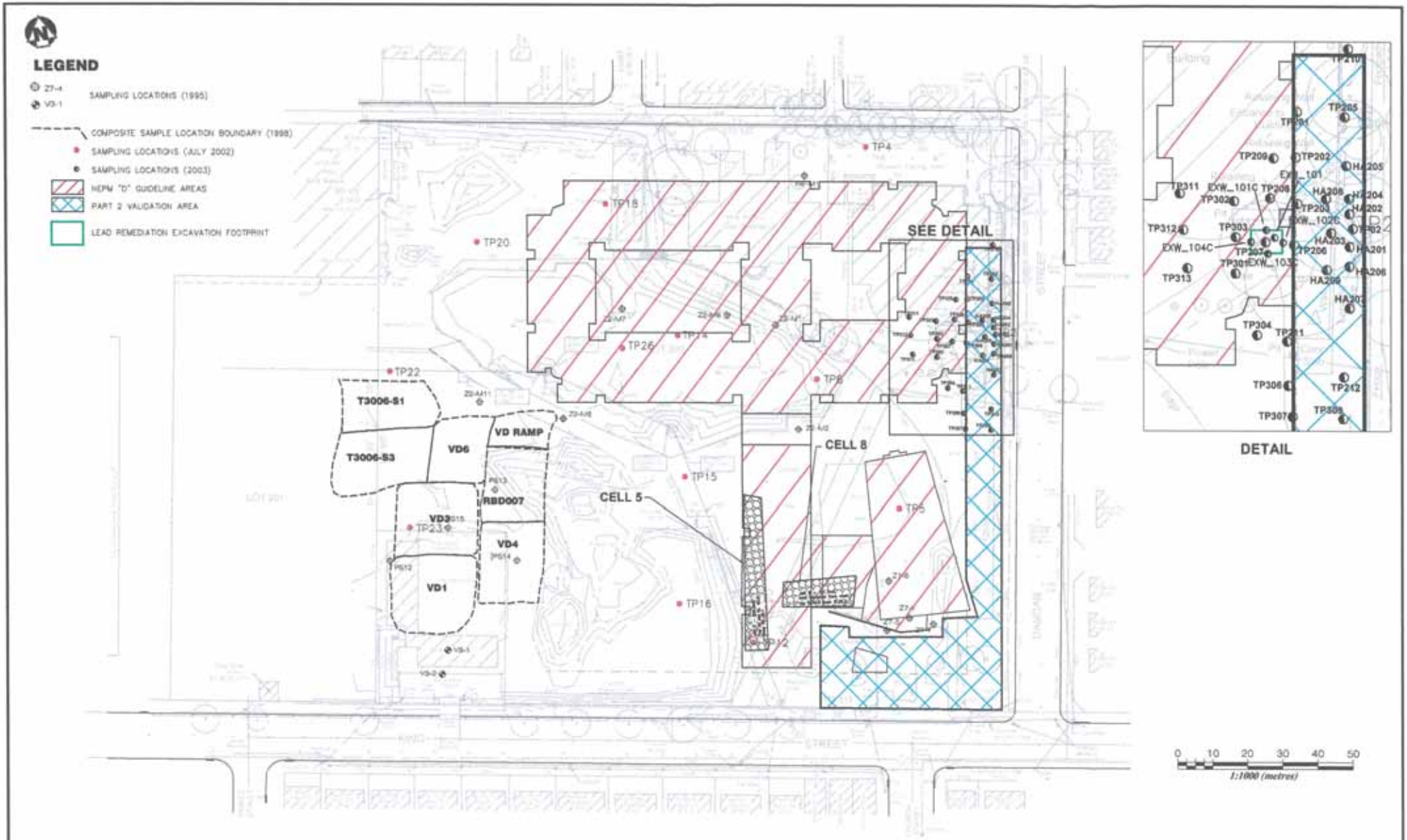
J0807: Site Audit – 100-120 King Street, Randwick

TPH Delineation Sampling Locations

abstracted from URS Report Project: 51072-001

Document: J0807.12
Date: 11/11/2003
Rev: 1 Author: JDM

Figure 4



NOTES: (1) SURVEY DATA SOURCED FROM PROUST & GARDINER, RECEIVED 25th JUNE 2003
(2) SOURCE OF BUILDING FOOTPRINTS RECEIVED 1st SEPTEMBER 2003 JTCW
(3) CELL PLACEMENT AREAS RECEIVED 26th AUGUST & 12th SEPTEMBER 2003, J A BRADSHAW

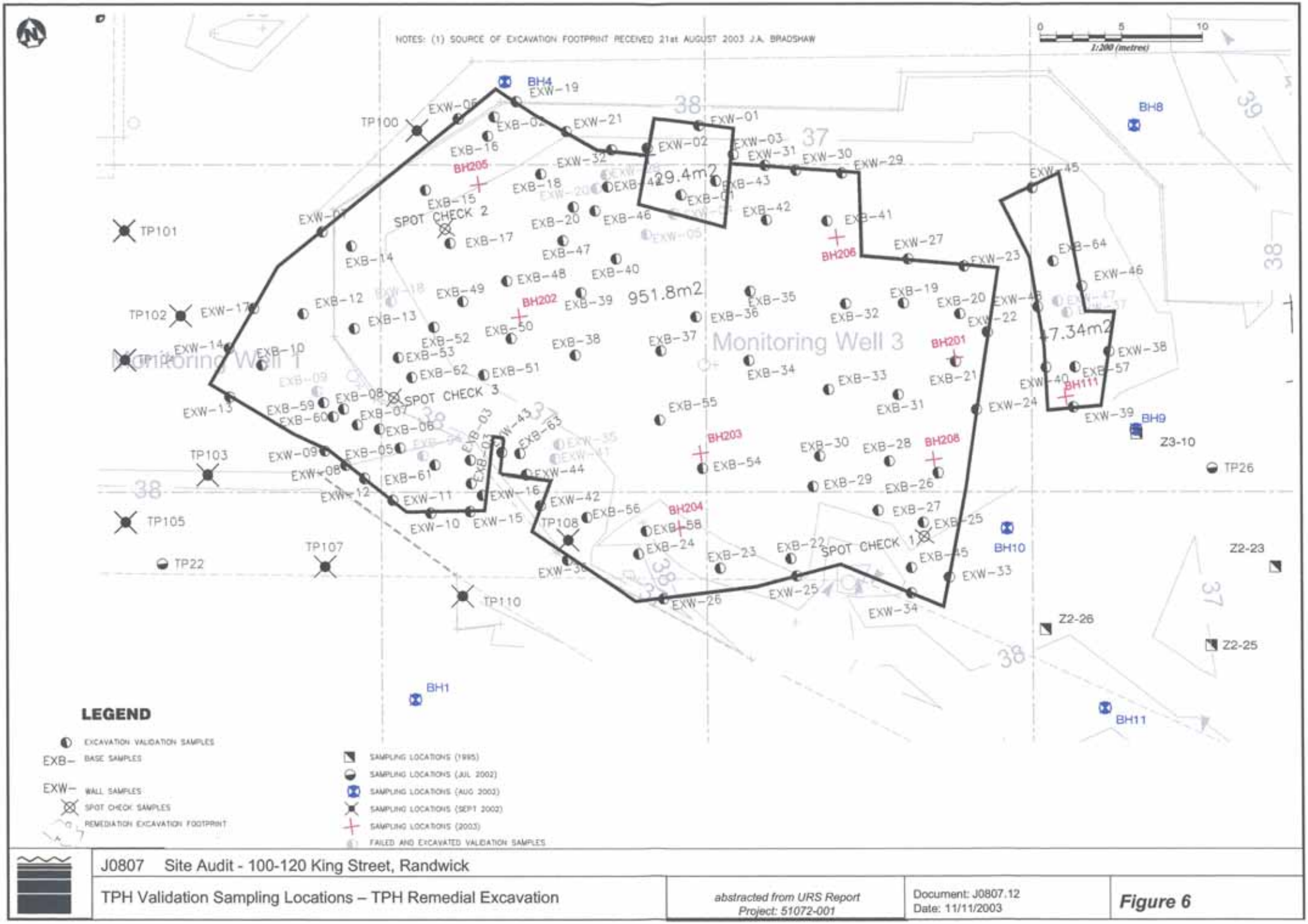
J0807: Site Audit – 100-120 King Street, Randwick

Lead Delineation Sampling Locations

abstracted from URS Report Project: 51072-001

Document: J0807.12
Date: 11/11/2003
Rev: 1 Author: JDM

Figure 5



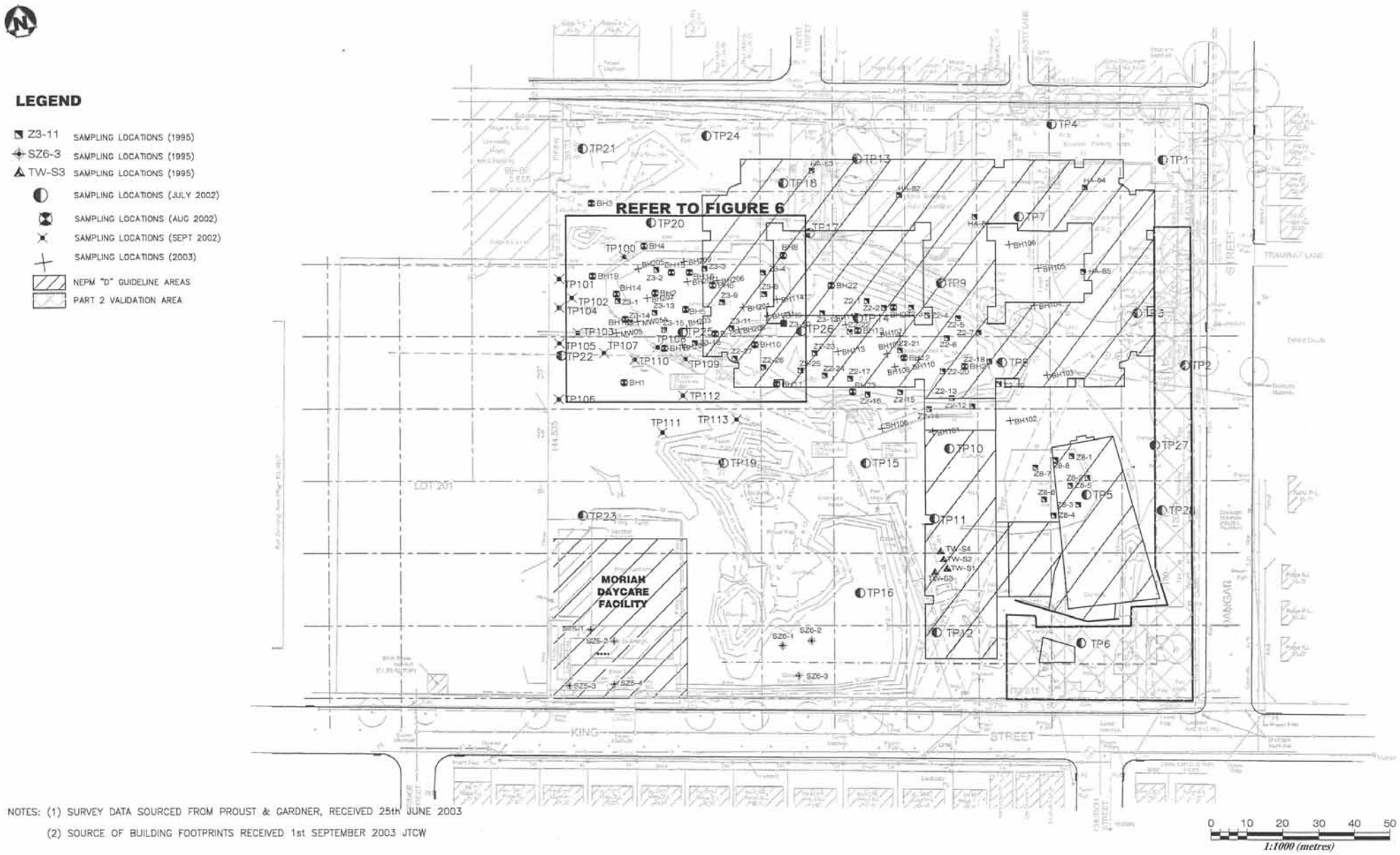
J0807 Site Audit - 100-120 King Street, Randwick

TPH Validation Sampling Locations – TPH Remedial Excavation

abstracted from URS Report
Project: 51072-001

Document: J0807.12
Date: 11/11/2003

Figure 6



NOTES: (1) SURVEY DATA SOURCED FROM PROUST & GARDNER, RECEIVED 25th JUNE 2003

(2) SOURCE OF BUILDING FOOTPRINTS RECEIVED 1st SEPTEMBER 2003 JTCW

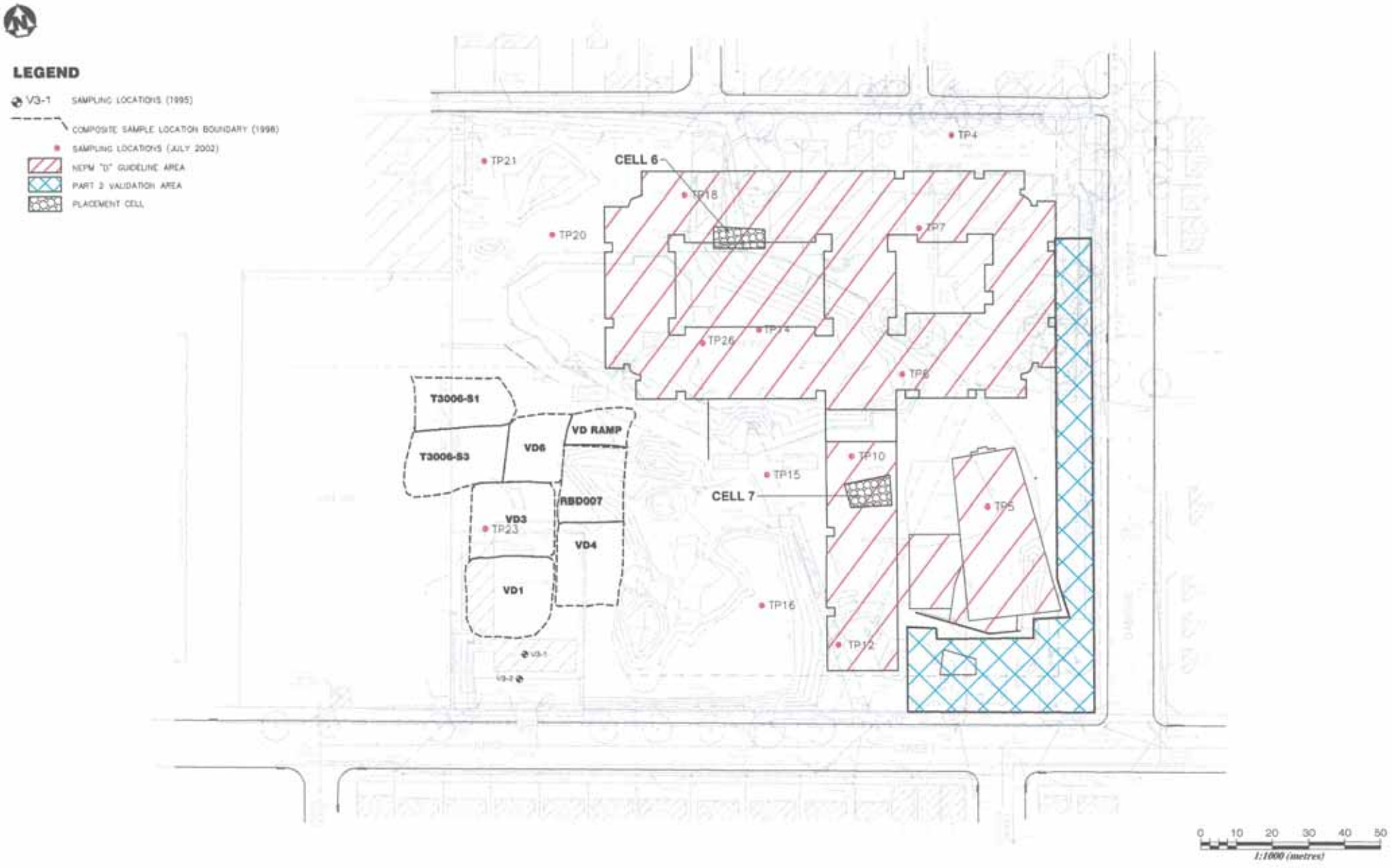
J0807 Site Audit - 100-120 King Street, Randwick

TPH Validation Sampling Locations – Balance of Site

abstracted from URS Report
Project: 51072-001

Document: J0807.12
Date: 11/11/2003
Rev: 1 Author: JDM

Figure 7



NOTES: (1) SURVEY DATA SOURCED FROM PROUST & GARDINER, RECEIVED 25th JUNE 2003
(2) SOURCE OF BUILDING FOOTPRINTS RECEIVED 1st SEPTEMBER 2003 JTCW

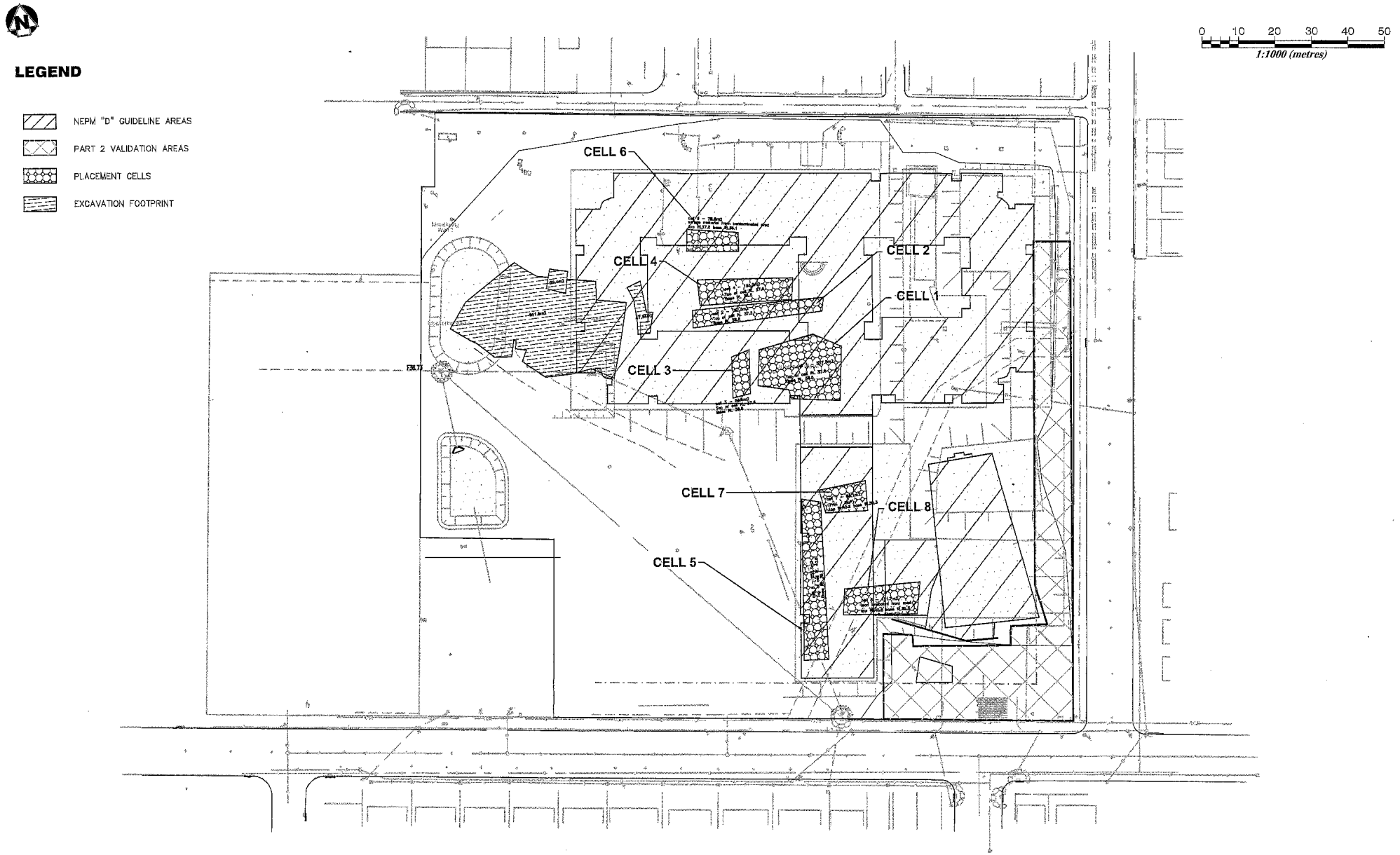
J0807: Site Audit – 100-120 King Street, Randwick

PAH Validation Sampling Locations

abstracted from URS Report Project: 51072-001

Document: J0807.12
Date: 11/11/2003
Rev: 1 Author: JDM

Figure 8



NOTES: (1) SOURCE OF BULK EARTHWORKS DRAWING RECEIVED 8th AUGUST 2003 TTW
(2) SOURCE OF BUILDING FOOTPRINTS RECEIVED 1st SEPTEMBER 2003 JTCW)
(3) SOURCE OF EXCAVATION FOOTPRINT RECEIVED 21st AUGUST 2003 J.A. BRADSHAW
(4) SOURCE OF CELL PLACEMENTS RECEIVED 26th AUGUST & 12th SEPTEMBER 2003, J.A. BRADSHAW

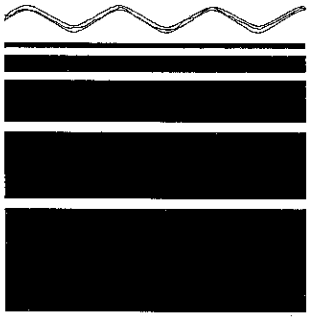
J0807: Site Audit – 100-120 King Street, Randwick

Location of Placement Cells

abstracted from URS Report Project: 51072-001

Document: J0807.12
Date: 11/11/2003
Rev: 1 Author: JDM

Figure 9



APPENDIX A

Contaminant Groups

Individual Species Making up Contaminant Groups

POLYCYCLIC AROMATIC HYDROCARBONS

Naphthalene
Acenaphthylene
Acenaphthene
Fluorene
Phenanthrene
Anthracene
Fluoranthene
Pyrene
Benz(a)anthracene
Chrysene
Benzo(b) & (k) fluoranthene
Benzo(a)pyrene
Indeno(1,2,3-cd)pyrene
Dibenz(a,h)anthracene
Benzo(g,h,i)perylene

TOTAL PETROLEUM HYDROCARBONS

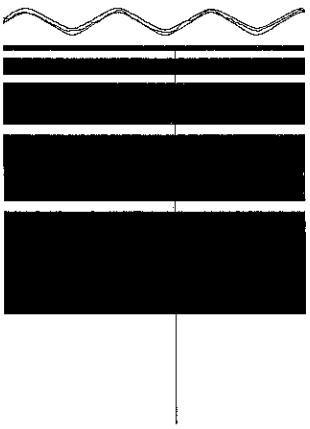
C_6 - C_9 Fraction
C_{10} - C_{14} Fraction
C_{15} - C_{28} Fraction
C_{29} - C_{36} Fraction

MONOCYCLIC AROMATIC HYDROCARBONS

Benzene
Toluene
Ethylbenzene
meta- & para-Xylene
ortho-Xylene

HEAVY METALS

Arsenic (As)
Cadmium (Cd)
Chromium (Cr)
Copper (Cu)
Lead (Pb)
Mercury (Hg)
Nickel (Ni)
Zinc (Zn)



APPENDIX B

Communications with the Auditor

C. M. Jewell & Associates Pty Ltd
Water and Environmental Management
A.B.N. 54 056 283 295

fax transmission

P.O. Box 10, Wentworth Falls, NSW 2782, Australia
1/13 Kalinda Road, Bullaburra, NSW 2784, Australia

Phone (02) 4759 3251 **Email postie@cm-jewell.com.au** **Fax (02) 4759 3257**
(International +61 247 59 3251) **(International +61 247 59 3257)**

Ref: J0807.13	Date: 14 October, 2003	Time: 9:55
To: URS Australia Pty Ltd	FAXED 8822	c.c.
Attention: Fran Mitchell		Attention:
Fax No. 8925 5555	From: Chris Jewell	Fax No.
Original to follow: No		Total pages including cover: 2

Subject: **Lot 202 King Street, Randwick**

Fran,

I have carried out a review of your Remediation Validation Report for Part 1 of Lot 202 King Street Randwick. I have some comments and have noted several issues which require clarification. These are as follows:

1. In the validation of the TPH remediation area it is noted that the areas around validation sampling locations, containing concentrations of TPH exceeding the assessment criteria, were re-excavated. Were these areas revalidated?
2. Could you please show on a figure, the locations of surface validation samples SS-01 to SS-08 which were collected once all remedial works at the TPH remedial area were completed the surface of the area was scraped.
3. In the validation report it is noted that:

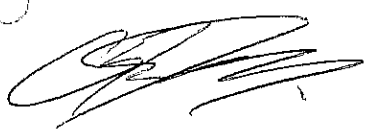
   Clean material was stockpiled adjacent to the excavation and sampled. At times during the excavation period, due to a lack of alternative backfill being readily available, this clean stockpiled material was reused as backfill prior to the receipt of laboratory results. Records were kept of the placement of this material in the event that the analytical results indicated that the material did not meet the Remediation Guideline. If the material exceeded the Remediation Guideline it was subsequently re-excavated and sent for off-site disposal.

   Was the excavation re-validated when these backfill materials were re-excavated?
4. URS note that, in the remedial excavation around TP207, the wall samples were collected at depths between 1 and 1.5 meters yet the highest lead concentration in TP207 was at a depth of 0.5 and 0.6 metres. Please comment
5. It was noted during sampling and analysis of material for the purpose of VENM classification, RES identified some stockpiled and in situ material that contained lead in concentrations that were not within the assessment criteria for open space use. The samples representing this material included 41.3 level S1, 41.3 level S2 (960 mg/kg lead), 41.3 level S3, 41.3 level S4, and Road 2-05 (960 mg/kg lead). The material was subsequently buried beneath the proposed building footprints. Was validation sampling carried on the areas from where the materials were excavated? Please

comment on the heterogeneity of lead within this material as the original analysis of sample 41.3 Level S2 Dup contained 11.3 g/kg of lead.

6. Please indicate the fate of the stockpile from which sample LSP-04 was collected.
7. During sampling and analysis of material for the purpose of VENM classification, RES identified some stockpiled and in situ material that contained PAH in concentrations that were not within the assessment criteria for open space use. What samples represent the VENM material? Was validation undertaken for the areas from where the material was excavated?
8. There appears to be some discrepancies between the PAH validation samples shown in Tables 20 and 21 and the samples located in the NEPM D guideline area as shown on Figure 7. Please update the figure and tables and show all validation samples on the figure where appropriate.
9. Please forward the disposal documentation for Appendix Q.
10. The location of test pit TP204 does not appear to be shown on any figures.
11. Section 6.5.2 of the report notes a further two rounds of drilling and sampling was conducted in August 2003 to further delineate the extent of hydrocarbon impact and assess the areas requiring remediation. Should the sampling dates be April 2003?
12. In Section 6.5.2 (sub-section Concrete Stockpile Segregation) it is noted that URS and Hibbs visited the site on 3 February 2002. Should the date be 2003?
13. No details have been provided for the groundwater sampling carried out on 9 May 2003. Please comment.
14. Please provide the co-efficient of variation and indicate the procedure (method) used to calculate the 95% UCL in Table 23.
15. Could you please provide electronic copies of your figures so that I may adapt them for use in the SSAR.
16. Please provide all sampling and analysis data and disposal documentation (Kurnell landfill etc) that relates to the VENM material exported off the site?

For and on behalf of
C. M. JEWELL & ASSOCIATES PTY LTD



CHRIS JEWELL

URS

3 November 2003
Project No. 51072-001

CM Jewell & Associates Pty Ltd
PO Box 10,
Wentworth Falls, NSW, 2782

DOCUMENT CONTROL		
Control No:	10422	
Date received:	4.11.03	
Job No:	0807	
Routing:	CMJ	
	JDM	
	FILE	

Attention: Chris Jewell
NSW EPA Site Auditor

Dear Chris,

Subject: Lot 202 King St
Part 1 Remediation Validation
Response to Auditor's Queries

1. **In the validation of the TPH remediation area it is noted that the areas around validation sampling locations, containing concentrations of TPH exceeding the assessment criteria, were re-excavated. Were these areas re-validated?**

Yes. Clean materials were typically backfilled in the remediation excavations prior to the receipt of analytical validation data. This was undertaken as the excavations were generally unstable when left open. In cases where the original validation samples exceeded the remediation guideline values, the reinstated backfill was excavated (including clean placed material) and loaded to the contaminated stockpile. The underlying material was subsequently excavated to remove the material represented by the failed sample. Similarly, this excavated material was loaded to the contaminated stockpile and validation sampling was repeated on the established surface. Examples of where this occurred included EXB-59 (replaced failed sample EXB-09) and EXB-61 (replaced failed sample EXB-04). Refer Table 2 (for failed/excavated samples) and Figure 5a illustrates the failed/excavated samples as a 'ghosted' grey sample identification point.

URS Australia Pty Ltd (ABN 46 000 691 690)
Level 3, 116 Miller Street
North Sydney, NSW 2060 Australia
Tel: 61 2 8925 5500
Fax: 61 2 8925 5555

2. Could you please show on a figure, the locations of surface validation samples SS-01 to SS-08 which were collected once all remedial works at the TPH remedial area were completed the surface of the area was scraped.

The attached cad file 059.dwg illustrates the location of these surface samples. This figure will be included in the revised validation report.

3. In the validation report it is noted that:

"Clean material was stockpiled adjacent to the excavation and sampled. At times during the excavation period, due to a lack of alternative backfill being readily available, this clean stockpiled material was reused as backfill prior to the receipt of laboratory results. Records were kept of the placement of this material in the event that the analytical results indicated that the material did not meet the Remediation Guideline. If the material exceeded the Remediation Guideline it was subsequently re-excavated and sent for off-site disposal."

Was the excavation re-validated when these backfill material materials were re-excavated?

Yes - The underlying excavation surface was subsequently re-validated following the removal of the impacted backfill. The only location where the backfill was originally suspected as being 'clean' and then subsequently found to exceed the remediation guideline value was for original backfill sample identification CSP-11. Once the material represented by CSP-11 had been re-excavated, the base of the excavation was re-validated by collection of sample EXB-60.

4. URS note that, in the remedial excavation around TP207, the wall samples were collected at depths between 1 and 1.5 metres yet the highest lead concentration in TP207 was at a depth of 0.5 and 0.6 metres. Please comment.

Observations made during the remediation excavation of investigation location TP207 indicated that the wall surfaces from 0.3 m to 1.7 m comprised a heterogenous profile of sand fill material, containing some brick, concrete and PVC fragments. The validation samples (as presented in **Table 10**) were collected from between 1.0 and 1.5 m bgl. In consideration of the visual heterogeneity of the wall profile, it was considered appropriate that a representative sample of the wall material would comprise a composite sample collected across the depth of 1 to 1.5 mbgl. It is, however, recognised that the depth where the highest concentration was detected was at 0.5 m bgl and that this depth was not sampled in the validation sampling. However,

it is not considered that this is an issue of concern on the basis that the nature of the fill profile was visually heterogenous.

5. It was noted during sampling and analysis of material for the purpose of VENM classification, RES identified some stockpiled and in situ material that contained lead in concentrations that were not within the assessment criteria for open space use. The samples representing this material included 41.3 level S1, 41.3 level S2 (960 mg/kg lead), 41.3 level S3, 41.3 level S4 and Road 2-05 (960 mg/kg). The material was subsequently buried beneath the proposed building footprints. Was validation sampling carried on the areas from where the materials were excavated?

Material represented by samples "41.3 level S1", "41.3 level S2", "41.3 level S3", "41.3 level S4" comprised a single stockpile, excavated from the site material requiring removal to establish the building pad level of BE41.3. This material was relocated and replaced as Cell 5 (refer Figure 6). The location of building pad level BE41.3 is illustrated on the bulk earthworks drawing provided as **Appendix S.** The stockpiled material was sourced from the building pad BE41.3 in the north-eastern section of the site at a depth of approximately 2.0 – 3.0 m below the original ground level. No validation of the underlying surface was completed, as the concentrations satisfied the NEPM HIL-D guideline value, with the exception of field duplicate 41.3 Level S2 Dup. The landuse of the underlying surface, representing the building pad level of BE41.3, will be for the main nursing home building and therefore is within the NEPM HIL-D guideline area.

The source area of the stockpiled material appeared to be natural sand at this depth and it is suspected that the elevated lead concentrations are a result of cross contamination from overlying historic fill materials. The suspected source of contamination is from a layer of fill along the northern batter of building pad BE41.3 and along the northern section of the batter between building pads BE44.6 and BE41.3.

For further background on this sampling and results, please refer to the earlier correspondence (URS to CM Jewell, 26 August 2003).

With regard to samples Road2-0.5, URS requested that RES collect further samples at the base of the excavation should RES/JA Bradshaw wish to export underlying material as VENM. The sampling was not requested for validation purposes and as such, was not included in the Validation Report (18 September 2003). The data collected in this sampling are samples Road2a and Road 2b, both collected at 1 mbgl as analysed in Labmark laboratory batch no. 015415. The analytical result for each of these samples was a lead concentration of <2 mg/kg. Appendix X has been compiled as a tabulation of the VENM assessment data provided by RES/JA Bradshaw.

5b. Please comment on the heterogeneity of lead within this material as the original analysis of sample 41.3 Level S2 Dup contained 11.3 g/kg of lead.

A discussion of the variability of results between the primary analysis (by Labmark) of sample "41.3 Level S2 Dup" and its interlaboratory duplicate (by ALS) and associated laboratory check samples (by ALS) is provided in Section B1.2.4 of **Appendix B** of the Part 1 validation report.

There were no visual indicators of lead impact in the excavations undertaken. The likely source of the lead impact is considered to be associated with the historic operations of the bus or tram depot. Paint workshops were located on the property and it is possible that the impact is associated with waste paint or paint stripping residues. However, no paint flakes were observed in the test pits completed. Another possible source is from handling of lead acid batteries. This source is considered more likely as it is consistent with the absence of visual indicators.

6. Please indicate the fate of the stockpile from which sample LSP-04 was collected.

A stockpile of fill material excavated from the northern section of BE41.3 was sampled by URS (samples LSP-03 and LSP-04) and the result for one of the samples (2200 mg /kg for LSP-04) indicate that this material does not meet the NEPM 'D' Guideline.

As communicated in earlier correspondence (URS to CM Jewell, 26 August 2003), this material was not addressed within the Part 1 remediation works. Material represented by LSP-03 and LSP-04 was relocated to the Part 2 area and subsequently replaced as impacted fill in the dedicated cell placement area constructed as part of the Part 2 remediation works. Details of these works will be reported in full in the Part 2 Validation Report (under preparation).

For further background on this sampling and results, please refer to the earlier correspondence (URS to CM Jewell, 26 August 2003).

7. During sampling and analysis of material for the purpose of VENM classification, RES identified some stockpiled and in situ material that contained PAH in concentrations that were not within the assessment criteria for open space use. What samples represent the VENM material? Was validation undertaken for the areas from where the material was excavated?

The analytical data collected by RES for the intended purpose of VENM classification illustrated that the material was not VENM. Some discussion of this is made in Section 6.10.3 of the report. Following receipt of these results and inspection of the stockpile by URS, exportation of the stockpile as VENM was rejected and it was decided to retain the

material on-site. As such, these samples are not related to characterisation of the VENM exported off-site. Assessment details of the exported VENM is addressed in Question 16.

Two discrete samples were collected from RES from a volume of approximately 800 m^3 of material which was excavated from the batter area between the building pads of BE41.3 and BE38.1 (refer **Appendix S**) and placed in stockpile. The samples are "38-41.2 S1 Front" and "38-41.3 S1 Back" as analysed in Labmark batch no.015187.

Analytical PAH results for these samples are provided in the following table:

Sample	B(a)P (mg/kg)	Total PAHs (mg/kg)
38-41.2 S1 Front	<LOR	<LOR
38-41.3 S1 Back	6.2	61.2

Note: <LOR denotes no detection above the laboratory limit of reporting

In response to these results, URS completed sampling of the stockpile in 4 sectors, to establish if the PAH concentrations were consistent throughout the 800 m^3 volume. Sampling of the stockpile is represented by samples LSP-05 through to LSP-12 inclusive, while samples LSP-11 and LSP-12 are relevant to the sector of the stockpile where the RES sample "38-41.3 S1 Back" was collected.

Sample ID	Lab/Batch	B(a)P	total PAHs
LSP-05	SGS/ 24520	<LOR	<LOR
LSP-06	SGS/ 24520	<LOR	<LOR
LSP-07	SGS/ 24520	0.09	0.93
LSP-08	SGS/ 24520	0.2	3.4
LSP-09	SGS/ 24520	<LOR	<LOR
LSP-10	SGS/ 24520	<LOR	<LOR
LSP-11	SGS/ 24520	<LOR	<LOR
LSP-12	SGS/ 24520	<LOR	<LOR

Based on these results and considering the RES results, the 95% UCL of the data set representing the entire stockpile was calculated to be 2.7 mg/kg (BaP) and 25.8 mg/kg (total PAHs). The highest result for the "38-41.3 S1 Back" was less than 250% of the

NEPM HIL-D guideline. However, a conservative approach was taken to extract the sector of the stockpile represented by "38-41.3 S1 Back" from the balance of the stockpile. The material represented by "38-41.3 S1 Back" was replaced under a building footprint, in the placement location, Cell 7 (illustrated on **Figure 7**). The balance of the material was replaced as Cell 6, similarly under a future building footprint, although URS did not consider this necessary, as the result satisfied the NEPM HIL-E open space guideline value.

No validation sampling was undertaken on the excavation surface from which the stockpile was sourced. This was considered unnecessary as the isolated detection of elevated PAHs in the stockpile, was assumed to be associated with the small quantity of fill material which had been inadvertently mixed with the underlying VENM during the excavation. Non natural fill material, including bricks and some steel, was observed by URS in minor quantities within the 800 m^3 stockpile. The stockpile otherwise comprised natural virgin excavated white sands.

The majority of the residual surface from where the material was excavated was finished as a batter between building pads BE41.3 and BE38.1. This batter comprised a natural white sand profile. As such, it was not considered necessary to validate the surface for PAHs as the source of the PAHs was assumed to be associated with the fill materials. In addition, the residual surface of the excavation underlies the main building footprint and as such, there is minimal access to soil in this location on the site.

8. There appears to be some discrepancies between the PAH validation samples shown in Tables 20 and 21 and the samples located in the NEPM D guideline area as shown on Figure 7. Please update the figure and tables and show all validation samples on the figure where appropriate.

URS has reviewed **Figure 7** and **Tables 20** and **21** and established that there is an inconsistency between **Table 20** and **Figure 7** with respect to the location of TP10. TP10 was not illustrated on **Figure 7** and as such, the Figure has been revised.

However, the following background is provided on the compilation of the Figure and Tables which may assist in the interpretation.

Figure 7 illustrates investigation/validation locations relevant to PAH analysis. This investigation was undertaken prior to the bulk earthworks program, however it was intended that this data would be utilised for validation purposes. This strategy was communicated in e-mail correspondence earlier this year
(C. Vernon, 21 May 2003).

As part of the bulk earthworks program, materials were moved around the site to form the building platforms as per the earthworks construction drawing included as

Appendix S. A summary of the materials movements was discussed in the Validation Report (refer Section 6.15).

For assessment purposes, materials excavated from areas underlying building footprints and subsequently relocated elsewhere on the site have been conservatively assumed to have been relocated to open space areas. However, the investigation locations representing these materials are depicted in their original locations at the time of the investigation. For example, materials surrounding TP8, although originally located in an area covered by a future building footprint, were excavated to form building pad BE41.3. As such, data from TP8 has been assumed to be part of the open space NEPM HIL-E data set on the basis that the material may have been relocated to an open space area. However, Figure 7 records the original location of the investigation location.

To summarise the destination of the data, Tables 20 and 21 include a column outlining the current location of the material in consideration of the bulk earthworks program.

9. Please forward the disposal documentation for Appendix Q.

Landfill disposal documentation for the disposal of materials assumed to be impacted with asbestos are included with **Appendix Q.** These materials were transported and disposed of as Solid Waste at Penrith Waste Services.

10. The location of test pit TP204 does not appear to be shown on any figures.

Testpit TP204 was undertaken in the Part 2 validation area, to be reported on shortly. TP204 was completed in July 2003 at the former location of TP02. TP02 represents the location of TP204.

11. Section 6.5.2 of the report notes a further two rounds of drilling and sampling was conducted in August 2003 to further delicate the extent of hydrocarbon impact and assess the areas requiring remedaition. Should the sampling dates be April 2003?

Yes, the dates should be April 2003. This will be corrected in the report revision.

12. In Section 6.5.2 (sub-section Concrete Stockpile Segregation) it is noted that URS and Hibbs visited the site on 3 February 2002. Should the date be 2003?

Yes, the date should be 3 February 2003. This will be corrected in the report revision.

13. No details have been provided for the groundwater sampling carried out on 9 May 2003. Please comment.

Sampling of wells MW05 and MW05a was completed on 9 May 2003 prior to the commencement of the hydrocarbon remediation works. Other wells proposed for sampling in this event included MW3 and MW4. MW1 had been destroyed at an earlier time by vehicle movements. Monitoring well MW05a had been installed to replicate MW1. Monitoring wells MW3 and MW4 could not be sampled on 9 May due to the flooding of the excavation area.

The monitoring event included:

- Measurement of the height of the water table at each of the monitoring wells using a water level probe;
- Purging and sampling of each of the two monitoring wells;
- Measurement of field water quality parameters including temperature, dissolved oxygen, electrical conductivity and redox potential; and
- Laboratory analysis of the groundwater samples for the identified contaminants of concern; TPH (total petroleum hydrocarbons) and BTEX (benzene, toluene, ethylbenzene and xylene).

Table 22a provides a summary of the field water quality parameters. Parameters were relatively consistent over the sampling events. In addition, the groundwater level at MW05 and MW05a measured in May 2003 was substantially higher than that previously measured at nearby MW1 (now destroyed) in August and December 2002. This water level rise is attributed to the flooding of the excavation area.

14. Please provide the co-efficient of variation and indicate the procedure (method) used to calculate the 95% UCL in Table 23.

The 95% UCL calculations were completed using the statistical procedures, either Procedure D or G as documented in the NSW EPA 1995 guideline, "Contaminated Sites: Sampling Design Guidelines", indicated in Table 23. An exception to this is the 95% UCL calculation for the NEPM HIL-D area for lead concentrations. The coefficient of variation for this data set is 1.63 and the 95% UCL concentration estimated by the NSW EPA "Procedure G" for log-normal distributions was 9510.9 mg/kg, which exceeds the remediation guideline value. However, this result appears biased given the calculated 95% UCL concentration exceeds the maximum individual sample concentration. The US EPA approach to the estimation of the 95% UCL (US EPA, 1997[1]) was calculated as a 95% UCL of 483.2 mg/kg, by using the non-parametric Jacknifed mean method. This

[1] United States Environmental Protection Agency (1997), *The Lognormal Distribution in Environmental Distributions.*

result appears to be a more accurate estimation of the 95% UCL given the range of the lead concentrations within the data set.

15. Could you please provide electronic copies of your figures so that I may adapt them for use in the SSAR.

These drawings have been provided by e-mail in PDF format on 31 October 2003.

16. Please provide all sampling and analysis data and disposal documentation (Kurnell landfill etc) that relates to the VENM material exported off the site?

Appendix X has been created to include a tabulation of the VENM assessment data provided by RES/JA Bradshaw. Data relevant to material originally proposed as VENM and then subsequently rejected as such is also included in the table. These samples, collected by RES, include "41.3 Level samples" (Labmark batch no. 014981), "Road 2 samples" (Labmark batch no. 15068), "38.1-41.3 samples" (Labmark batch no. 015187).

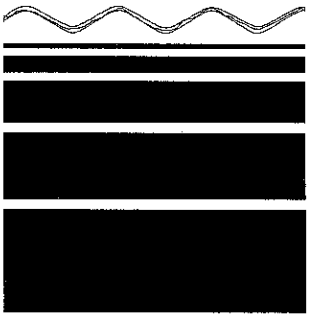
Disposal documentation in the form of landfill weighbridge receipts were not provided by JA Bradshaw for the disposal of the VENM material. URS understands that this documentation was unavailable as the material was accepted as VENM filling material. Some material was accepted by Besmaw Pty Ltd at Lot 2 DP559 922 Captain Cook Dr, Kurnell Penilsula. A secondary destination for the disposal of the VENM material was to a holding depot owned by JA Bradshaw in St Peters. Letters detailing the acceptance of the material at each of these locations are included with **Appendix X.**

Yours sincerely,
URS AUSTRALIA PTY LTD

Fran Mitchell
Project Manager

Martin Howell
Project Director

Enclosures:
Table 22a Field Water Quality Parameters – Groundwater Sampling
Table 23 Analytical Validation Data – Statistical Summary
Appendix Q – Cardinal Demolitions Asbestos Disposal Documentation
Appendix X – Analytical Data for Soil samples representing VENM excavated at King St, Randwick
Appendix X Disposal Documentation (Holt Group 7 May 2003, JA Bradshaw 12 May 2003)
Figure 7 PAHs Validation Sample Locations



APPENDIX C

Information Relied Upon by the Auditor

TABLE 1 - 1995 Historical Data

COC ID	Sample Depth	Laboratory	Batch	Date of Sampling	Pb mg/kg	TPH mg/kg	BTEX mg/kg	PAH mg/kg	Benzo(a) mg/kg	OC/OPs mg/kg	PCBs mg/kg	VHCs mg/kg
			Guideline/HIL 'D'		1200	1000		80	4			
V3-1	0-0.15	AGAL	N95/035203	1995	11	--	--	<LOR	<LOR	--	--	--
V3-2	0-0.15	AGAL	N95/035204	1995	120	--	--	6.3	0.5	--	--	--
		Enviromet	9606041									
Z2-M1	0-0.15	Enviromet	9505153	1995	5	--	--	--	--	--	--	--
Z2-M2	0-0.15	Enviromet	9505153	1995	77	--	--	--	--	--	--	--
Z2-M6	0-0.15	Enviromet	9505196	1995	41	--	--	--	--	--	--	--
Z2-M7	0-0.15	Enviromet	9506018	1995	4	--	--	--	--	--	--	--
Z2-M8	0-0.15	Enviromet	9506018	1995	9	--	--	--	--	--	--	--
Z2-M9	0-0.15	Enviromet	9506018	1995	14	--	--	--	--	--	--	--
Z2-M11	0-0.15	Enviromet	9506025	1995	<LOR	--	--	--	--	--	--	--
NE-M1	0-0.15	Enviromet	9506018	1995	83	--	--	--	--	--	--	--
Z7-1	0-0.5	Enviromet	9505153	1995	<LOR	--	--	--	--	--	--	--
Z7-2	0-0.5	Enviromet	9505153	1995	<LOR	--	--	--	--	--	--	--
Z7-3	0-0.5	Enviromet	9505153	1995	<LOR	--	--	--	--	--	--	--
Z7-4	0-0.5	Enviromet	9505153	1995	6	--	--	--	--	--	--	--
Z7-5	0-0.5	Enviromet	9505153	1995	<LOR	--	--	--	--	--	--	--
Z7-6	0-0.15	Enviromet	9505153	1995	6	--	--	--	--	--	--	--
		AGAL	N95/031688									
Z7-7	0-0.15	Enviromet	9505153	1995	<LOR	--	--	--	--	--	--	--
Z7-8	0-0.15	Enviromet	9505153	1995	5	--	--	--	--	--	--	--
PS-12	0.15-0.3	Enviromet	9506025	1995	15	--	--	--	--	--	--	--
PS-13	0.15-0.3	Enviromet	9506025	1995	<LOR	--	--	--	--	--	--	--
PS-14	0.15-0.3	Enviromet	9506025	1995	<LOR	--	--	--	--	--	--	--
PS-15	0.15-0.3	Enviromet	9506025	1995	14	--	--	--	--	--	--	--
Pest-1	0-0.15	Amdel	9505849	1995	--	--	--	--	--	ND	ND	--
Pest-3	0-0.15	Amdel	9505849	1995	--	--	--	--	--	ND	ND	--
Pest-4	0-0.15	Amdel	9505849	1995	--	--	--	--	--	ND	ND	--
Pest-5	0-0.15	Amdel	9505849	1995	--	--	--	--	--	ND	ND	--
TW-S1	0-1.5	Amdel	9505849	1995	--	ND	ND	--	--	--	--	ND
TW-S2	0-1.5	Amdel	9505849	1995	--	ND	ND	--	--	--	--	ND
TW-S3	0-1.5	Amdel	9505849	1995	--	ND	ND	--	--	--	--	ND
TW-S4	0-1.5	Amdel	9505849	1995	--	ND	ND	--	--	--	--	ND
Z8-1	2.7-2.9	Amdel	9505802	1995	--	ND	ND	--	--	--	--	--
Z8-2	2.7-2.9	Amdel	9505802	1995	--	ND	ND	--	--	--	--	--
Z8-3	2.7-2.9	Amdel	9505802	1995	--	ND	ND	--	--	--	--	--
Z8-4	2.7-2.9	Amdel	9505802	1995	--	ND	ND	--	--	--	--	--
Z8-5	5.5-5.7	Amdel	9505815	1995	--	ND	ND	--	--	--	--	--
Z8-6	2.7-2.9	Amdel	9505802	1995	--	ND	ND	--	--	--	--	--
		AGAL	N95/032612									
Z8-7	2.7-2.9	Amdel	9505815	1995	--	ND	ND	--	--	--	--	--
Z8-8	2.7-2.9	Amdel	9505815	1995	--	ND	ND	--	--	--	--	--
SZ-61	1.0-1.2	Amdel	9502353	1995	--	ND	--	--	--	--	--	--
SZ-62	0.5-0.7	Amdel	9502353	1995	--	900	--	--	--	--	--	--

Prepared By RSM
Checked By Dodz

TABLE 1 - 1995 Historical Data

COC ID	Sample Depth	Laboratory	Batch	Date of Sampling	Pb mg/kg	TPH mg/kg	BTEX mg/kg	PAH mg/kg	Benzo(a) mg/kg	OC/OPs mg/kg	PCBs mg/kg	VHCs mg/kg
				Guideline/HIL 'D'	1200	1000		80	4			
SZ-53	0.5-0.7	Amdel	9502353	1995	–	ND	–	–	–	–	–	–
SZ-51	1.5-1.7	Amdel	9502353	1995	–	ND	–	–	–	–	–	–
SZ-52	3.0-3.2	Amdel	9502353	1995	–	ND	–	–	–	–	–	–
SZ-53	1.5-1.7	Amdel	9502353	1995	–	ND	–	–	–	–	–	–
SZ-54	1.5-1.7	Amdel	9502353	1995	–	ND 700	–	–	–	–	–	–
Z2-1	2.2-2.4	Amdel	9505659	1995	–	8 ND	ND	–	–	–	–	–
Z2-2	2.2-2.4	Amdel	9505659	1995	–	4 ND	ND	–	–	–	–	–
Z2-3	2.2-2.4	Amdel	9505659	1995	–	4 ND	ND	–	–	–	–	–
Z2-4	2.2-2.4	Amdel	9505659	1995	–	14 ND	ND	–	–	–	–	–
Z2-5	2.2-2.4	Amdel	9505659	1995	–	10 ND	ND	–	–	–	–	–
Z2-6	4.5-4.7	Amdel	9505659	1995	–	7 ND	ND	–	–	–	–	–
Z2-7	2.2-2.4	Amdel	9505727	1995	–	ND	ND	–	–	–	–	–
Z2-12	2.2-2.4	Amdel	9505668	1995	–	ND	ND	–	–	–	–	–
Z2-13	2.2-2.4	Amdel	9505668	1995	–	ND	ND	–	–	–	–	–
Z2-14	2.2-2.4	Amdel	9505668	1995	–	ND	ND	–	–	–	–	–
Z2-15	2.2-2.4	Amdel	9505668	1995	–	ND	ND	–	–	–	–	–
Z2-16	2.2-2.4	Amdel	9505668	1995	–	ND	ND	–	–	–	–	–
Z2-17	2.2-2.4	Amdel	9505668	1995	–	ND	ND	–	–	–	–	–
Z2-18	2.2-2.4	Amdel	9505727	1995	–	ND	ND	–	–	–	–	–
Z2-19	2.2-2.4	Amdel	9505727	1995	–	ND	ND	–	–	–	–	–
Z2-20	4.5-4.7	Amdel	9505777	1995	–	ND	ND	–	–	–	–	–
Z2-21	4.5-4.7	Amdel	9505777	1995	–	ND	ND	–	–	–	–	–
Z2-22	4.5-4.7	Amdel	9505777	1995	–	510	ND	–	–	–	–	–
Z2-23	4.5-4.7	Amdel	9505777	1995	–	ND	ND	–	–	–	–	–
Z2-24	2.2-2.4	Amdel	9505777	1995	–	ND	ND	–	–	–	–	–
Z2-25	2.2-2.4	Amdel	9505777	1995	–	ND	ND	–	–	–	–	–
Z2-26	2.2-2.4	Amdel	9505777	1995	–	ND	ND	–	–	–	–	–
Z2-27	2.2-2.4	Amdel	9505815	1995	–	ND	ND	–	–	–	–	–
		AGAL	N95/032613									
Z3-1	1.5-1.7	Amdel	9503656	1995	–	ND	ND	–	–	–	–	–
Z3-2	1.5-1.7	Amdel	9503656	1995	–	ND	ND	–	–	–	–	–
Z3-3	1.5-1.7	Amdel	9503656	1995	–	ND	ND	–	–	–	–	–
Z3-4	1.5-1.7	Amdel	9503656	1995	–	ND	ND	–	–	–	–	–
Z3-8	3.0-3.2	Amdel	9505802	1995	–	1300	ND	–	–	–	–	–
Z3-9	3.0-3.2	Amdel	9505802	1995	–	400	ND	–	–	–	–	–
Z3-10	3.0-3.2	Amdel	9505802	1995	–	360	ND	–	–	–	–	–
Z3-11	3.0-3.2	Amdel	9505802	1995	–	ND	ND	–	–	–	–	–
Z3-12	3.0-3.2	Amdel	9505849	1995	–	ND	ND	–	–	–	–	–
	3.0-3.2	AGAL	N95/032831									
Z3-13	3.0-3.2	Amdel	9505802	1995	–	520	ND	–	–	–	–	–
Z3-14	1.5-1.7	Amdel	9505802	1995	–	ND	ND	–	–	–	–	–
Z3-15	3.0-3.2	Amdel	9505802	1995	–	ND	ND	–	–	–	–	–
Z3-16	1.5-1.7	Amdel	9505802	1995	–	ND	ND	–	–	–	–	–
HA81	0.8-1.0	Amdel	9503299		–	ND	ND	–	–	–	–	–
HA82	0.8-1.0	Amdel	9503299		–	ND	ND	–	–	–	–	–
HA83	0.8-1.0	Amdel	9503299		–	ND	ND	–	–	–	–	–

Prepared By RSM
Checked By DdJ2

TABLE 1 - 1995 Historical Data

COC ID	Sample Depth	Laboratory	Batch	Date of Sampling	Pb mg/kg	TPH mg/kg	BTEX mg/kg	PAH mg/kg	Benzo(a) mg/kg	OC/OPs mg/kg	PCBs mg/kg	VHCs mg/kg
			Guideline/HIL 'D'		1200	1000		80	4			
HA84	0.8-1.0	Amdel	9503388		--	ND	ND	--	--	--	--	--
HA85	0.8-1.0	Amdel	9503299		--	ND	ND	--	--	--	--	--

NOTES
(1) ND denotes not detected
(2) '-' denotes not analysed
(3) <LOR denotes less than laboratory limit of reporting

Prepared By RSM
Checked By Dod 2

TABLE 2 - 1998 Historical Data

COC ID	Sample Depth	Laboratory	Batch	Date of Sampling	Pb mg/kg	TPH mg/kg	BTEX mg/kg	PAH mg/kg	Benzo(a) mg/kg	OC/OPs mg/kg	PCBs mg/kg	VHCs mg/kg	Cyanide mg/kg	Sulphate mg/kg	Phenols mg/kg
			Guideline/HIL 'D'		1200	1000		80	4				1000	2000	
RBD001	0-0.15	ALS	ES10697	2-06-98	40	–	–	12.85	1	–	–	–	ND	1140	ND
RBD002	0-0.15	ALS	ES10697	2-06-98	105	–	–	16.45	1.3	–	–	–	ND	119	ND
RBD003	0-0.15	ALS	ES10697	2-06-98	175	–	–	40.05	3.3	–	–	–	ND	205	ND
T3006-S1	0-0.15	ALS	ES11195	30-06-98	84	–	–	<LOR	<LOR	–	–	–	ND	32	ND
T3006-S3	0-0.15	ALS	ES11195	30-06-98	140	–	–	7.5	<LOR	–	–	–	ND	21	ND
VD1	0-0.15	ALS	ES11357	15-07-98	33	–	–	<LOR	<LOR	–	–	–	ND	11	ND
VD3	0-0.15	ALS	ES11357	15-07-98	159	–	–	8.85	0.5	–	–	–	ND	21	ND
VD4	0-0.15	ALS	ES11357	15-07-98	196	–	–	21.2	1.3	–	–	–	ND	32	ND
VD6	0-0.15	ALS	ES11357	15-07-98	26	–	–	<LOR	<LOR	–	–	–	ND	37	ND
RBD007	0-0.15	ALS	ES11304	8-07-98	232	–	–	6.3	<LOR	–	–	–	ND	44	ND
VD-Ramp	0-0.15	ALS	ES11357	15-07-98	4	–	–	<LOR	<LOR	–	–	–	ND	15	ND

NOTES
(1) ND denotes not detected
(2) '-' denotes not analysed
(3) <LOR denotes less than laboratory limit of reporting

Prepared By RSM
Checked By DodZ

TABLE 3 - 2002 Residual Inorganic Analytical Data

(concentrations in mg/kg)

	Health Investigation Levels			Sample ID	TP25_1.3-1.5	TP26_1.3-1.5	TP14_1.3-1.5	DUP01	TP25_0.5-0.7	TP26_0.3-0.5	TP14_0.3-0.5	TP18_0.3-0.5	DUP02
				Batch Number	ES34682-0	ES34682-0	ES34682-0	ES34682-0	ES34735-0	ES34735-0	ES34735-0	ES34735-0	ES34736-0
	NEPM HIL 'A'	NEPM HIL 'D'	NEPM HIL 'E'	LOR									
Arsenic	100	400	200	1	1	2	2	1	1	1	<LOR	<LOR	<LOR
Cadmium	20	80	40	1	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
Chromium	100	400	200	1	3	3	2	2	3	2	2	5	2
Copper	1000	4000	2000	1	75	17	8	9	69	9	6	1	<LOR
Nickel	600	2400	600	1	2	1	1	2	2	2	1	2	2
Lead	300	1200	600	1	113	164	59	55	79	67	39	39	2
Zinc	7000	28000	14000	1	33	58	26	28	26	31	15	9	5
Mercury	15	60	30	0.1	0.1	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR

NOTES
(1) <LOR denotes less than the laboratory limit of reporting
(2) N/A denotes not analysed

Prepared By IAP
Checked by Tod

TABLE 3 - 2002 Residual Inorganic Analytical Data

(concentrations in mg/kg)

	Health Investigation Levels			Sample ID	TP15_0.3-0.5	TP15_1.3-1.5	DUP04	TP20_0.3-0.5	TP22_0.3-0.5	TP22_1.3-1.5	TP23_1.3-1.5	DUP03	TP16_0.2-0.4
				Batch Number	ES34736-0	ES34736-0	ES34736-0	ES34736-0	ES34736-0	ES34736-0	ES34736-0	EB47571-0	ES34741-0
	NEPM HIL 'A'	NEPM HIL 'D'	NEPM HIL 'E'	LOR									
Arsenic	100	400	200	1	<LOR	2	<LOR	<LOR	<LOR	<LOR	<LOR	7	2
Cadmium	20	80	40	1	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
Chromium	100	400	200	1	1	4	1	<LOR	2	1	1	2	3
Copper	1000	4000	2000	1	5	<LOR	4	<LOR	3	<LOR	<LOR	1	85
Nickel	600	2400	600	1	<LOR	2	1	<LOR	1	2	<LOR	2	3
Lead	300	1200	600	1	30	5	28	2	50	2	1	2	88
Zinc	7000	28000	14000	1	23	1	16	<LOR	15	<LOR	<LOR	4	218
Mercury	15	60	30	0.1	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR

NOTES
(1) <LOR denotes less than the laboratory limit of reporting
(2) N/A denotes not analysed

Prepared By IAP
Checked by Dodz

TABLE 3 - 2002 Residual Inorganic Analytical Data

(concentrations in mg/kg)

	Health Investigation Levels			Sample ID	TP02_0.2-0.4	TP04_0.3-0.5	TP04_1.3-1.5	DUP06	TP5_1.3-1.5	DUP10	TP12_0.3-0.5	TP8_0.3-0.5	TP8_1.3-1.5
				Batch Number	ES34741-0	ES34741-0	ES34741-0	ES34741-0	ES34741-0	ES34741-0	ES34741-0	ES34761-0	ES34761-0
	NEPM HIL 'A'	NEPM HIL 'D'	NEPM HIL 'E'	LOR									
Arsenic	100	400	200	1	2	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
Cadmium	20	80	40	1	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
Chromium	100	400	200	1	7	1	<LOR	<LOR	<LOR	<LOR	1	<LOR	<LOR
Copper	1000	4000	2000	1	74	4	<LOR	<LOR	<LOR	<LOR	7	1	<LOR
Nickel	600	2400	600	1	2	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
Lead	300	1200	600	1	1880	17	<LOR	<LOR	1	2	44	3	<LOR
Zinc	7000	28000	14000	1	433	99	<LOR	<LOR	<LOR	<LOR	45	6	<LOR
Mercury	15	60	30	0.1	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR

NOTES
(1) <LOR denotes less than the laboratory limit of reporting
(2) N/A denotes not analysed

Prepared By EAP
Checked by Dad 2

TABLE 3 - 2002 Residual Inorganic Analytical Data

(concentrations in mg/kg)

	Health Investigation Levels			Sample ID	DUP12	DUP13	DUP14
				Batch Number	ES34761-0	ES34761-0	ES34761-0
	NEPM HIL 'A'	NEPM HIL 'D'	NEPM HIL 'E'	LOR			
Arsenic	100	400	200	1	<LOR	<LOR	<LOR
Cadmium	20	80	40	1	<LOR	<LOR	<LOR
Chromium	100	400	200	1	<LOR	<LOR	<LOR
Copper	1000	4000	2000	1	<LOR	<LOR	<LOR
Nickel	600	2400	600	1	<LOR	<LOR	<LOR
Lead	300	1200	600	1	2	<LOR	<LOR
Zinc	7000	28000	14000	1	4	1	<LOR
Mercury	15	60	30	0.1	<LOR	<LOR	<LOR

NOTES
(1) <LOR denotes less than the laboratory limit of reporting
(2) N/A denotes not analysed

Prepared By IAP
Checked by Pod 2

TABLE 4 - 2002 Residual TPH/BTEX Analytical Data

(concentrations in mg/kg)

	Guideline	Sample ID	TP25_1.3-1.5	TP26_1.3-1.5	TP14_1.3-1.5	DUP01	TP25_0.5-0.7	TP26_0.3-0.5	TP26_2.9-3.0	TP14_0.3-0.5	TP14_2.4-2.6	TP18_0.3-0.5
		Batch Number	ES34682-1	ES34682-1	ES34682-1	ES34682-1	ES34735-1	ES34735-1	ES34735-1	ES34735-1	ES34735-1	ES34736-1
		LOR										
C6 - C9 Fraction	65	2	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	N/A
C10 - C14 Fraction		50	254	113	142	116	<LOR	<LOR	259	<LOR	159	N/A
C15 - C28 Fraction		100	1110	564	501	583	316	169	694	<LOR	611	N/A
C29 - C36 Fraction		100	352	162	<LOR	134	132	<LOR	<LOR	<LOR	<LOR	N/A
C10-C36 Total	1000		1716	839	643	833	448	169	953	<LOR	770	<LOR
Benzene		0.2	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	N/A
Toluene		0.2	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	N/A
Chlorobenzene		0.2	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	N/A
Ethylbenzene		0.2	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	N/A
meta- & para-Xylene		0.2	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	N/A
ortho-Xylene		0.2	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	N/A

NOTES
(1) <LOR denotes less than the laboratory limit of reporting
(2) N/A denotes not analysed

Prepared By IAP
Checked by PDH2

TABLE 4 - 2002 Residual TPH/BTEX Analytical Data

(concentrations in mg/kg)

	Guideline	Sample ID	DUP02	TP15_0.3-0.5	TP15_1.3-1.5	DUP04	TP24_0.3-0.5	TP22_0.3-0.5	TP22_1.3-1.5	TP23_1.3-1.5	TP21_0.3-0.5	DUP03
		Batch Number	ES34736-1	ES34736-1	ES34736-1	ES34736-1	ES34736-1	ES34736-1	ES34736-1	ES34736-1	ES34736-1	EB47571-1
		LOR										
C6 - C9 Fraction	65	2	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
C10 - C14 Fraction		50	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
C15 - C28 Fraction		100	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
C29 - C36 Fraction		100	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
C10-C36 Total	1000		<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
Benzene		0.2	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
Toluene		0.2	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
Chlorobenzene		0.2	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
Ethylbenzene		0.2	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
meta- & para-Xylene		0.2	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
ortho-Xylene		0.2	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR

NOTES
(1) <LOR denotes less than the laboratory limit of reporting
(2) N/A denotes not analysed

Prepared By IAP
Checked by Pdz

TABLE 4 - 2002 Residual TPH/BTEX Analytical Data

(concentrations in mg/kg)

	Guideline	Sample ID	TP01_1.3-1.5	TP03_0.3-0.5	TP09_1.3-1.5	DUP05	DUP07	TP6_1.3-1.5	TP8_1.3-1.5	DUP13	DUP14	BH8_3.7-3.9
		Batch Number	ES34741-1	ES34741-1	ES34741-1	ES34741-1	ES34741-1	ES34741-1	ES34761-1	ES34761-1	ES34761-1	ES35296-0
		LOR										
C6 - C9 Fraction	65	2	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<20
C10 - C14 Fraction		50	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
C15 - C28 Fraction		100	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
C29 - C36 Fraction		100	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
C10-C36 Total	1000		<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
Benzene		0.2	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
Toluene		0.2	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
Chlorobenzene		0.2	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
Ethylbenzene		0.2	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
meta- & para-Xylene		0.2	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
ortho-Xylene		0.2	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR

NOTES
(1) <LOR denotes less than the laboratory limit of reporting
(2) N/A denotes not analysed

Prepared By FAP
Checked by Dodz

TABLE 4 - 2002 Residual TPH/BTEX Analytical Data

(concentrations in mg/kg)

	Guideline	Sample ID	BH17_0.4-0.7	BH1_2.3-2.5	BH3_1.0-1.2	BH3_3.0-3.2	DUP06	BH20_2.0-2.2	BH10_1.0-1.2	DUP12	BH11_1.0-1.2	BH12_2.2-2.3
		Batch Number	ES35296-0	ES35296-0	ES35296-0	ES35296-0	ES35296-0	ES35296-0	ES35296-0	ES35296-0	ES35296-0	ES35296-0
		LOR										
C6 - C9 Fraction	65	2	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
C10 - C14 Fraction		50	<LOR	<LOR	<LOR	<LOR	<LOR	305	196	193	125	137
C15 - C28 Fraction		100	<LOR	<LOR	<LOR	<LOR	<LOR	824	620	596	582	328
C29 - C36 Fraction		100	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
C10-C36 Total	1000		<LOR	<LOR	<LOR	<LOR	<LOR	1129	816	789	707	465
Benzene		0.2	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
Toluene		0.2	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
Chlorobenzene		0.2	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
Ethylbenzene		0.2	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
meta- & para-Xylene		0.2	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
ortho-Xylene		0.2	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR

NOTES

(1) <LOR denotes less than the laboratory limit of reporting

(2) N/A denotes not analysed

Prepared By IAP

Checked by DoA2

TABLE 4 - 2002 Residual TPH/BTEX Analytical Data

(concentrations in mg/kg)

	Guideline	Sample ID	BH21_1.7	BH22_2.5-2.7	BH13_0.8-1.3	BH9_2.0-2.2	BH2_2.5-2.7	DUP09	DUP10	BH14_2.0-2.2	BH15_1.3-1.5	BH16_1.0-1.2
		Batch Number	ES35296-0	ES35296-0	ES35296-0	ES35296-0	ES35296-0	ES35296-0	ES35296-0	ES35296-0	ES35296-0	ES35296-0
		LOR										
C6 - C9 Fraction	65	2	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
C10 - C14 Fraction		50	<LOR	140	<LOR	95	1170	930	1800	414	110	<LOR
C15 - C28 Fraction		100	<LOR	502	130	350	2810	2460	3820	1360	906	578
C29 - C36 Fraction		100	<LOR	<LOR	<LOR	<LOR	154	134	213	<LOR	304	217
C10-C36 Total	1000		<LOR	642	130	445	4134	3524	5833	1774	1320	795
Benzene		0.2	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
Toluene		0.2	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
Chlorobenzene		0.2	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
Ethylbenzene		0.2	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
meta- & para-Xylene		0.2	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
ortho-Xylene		0.2	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR

NOTES

(1) <LOR denotes less than the laboratory limit of reporting

(2) N/A denotes not analysed

Prepared By IAP

Checked by Dodge

TABLE 4 - 2002 Residual TPH/BTEX Analytical Data

(concentrations in mg/kg)

	Guideline	Sample ID	BH5_1.8-2.0	DUP07	BH18_3.3-3.5	BH4_3.2-3.4	BH23_1.3-1.5	BH24_0.8-1.0	TP100 2.0-2.2	TP101 3.0-3.2	TP102 1.0-1.2	TP103 3.5-3.7
		Batch Number	ES35296-0	ES35296-0	ES5298-0	ES5298-0	ES35293-0	ES35293-0	ES35360-0	ES35360-0	ES35360-0	ES35360-0
		LOR										
C6 - C9 Fraction	65	2	<20	<20	13	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
C10 - C14 Fraction		50	1550	3550	4240	<LOR	<LOR	94	<LOR	<LOR	<LOR	<LOR
C15 - C28 Fraction		100	3050	6910	8690	<LOR	134	512	<LOR	<LOR	<LOR	<LOR
C29 - C36 Fraction		100	151	335	284	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
C10-C36 Total	1000		4751	10795	13227	<LOR	134	606	<LOR	<LOR	<LOR	<LOR
Benzene		0.2	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	N/A	N/A	N/A	N/A
Toluene		0.2	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	N/A	N/A	N/A	N/A
Chlorobenzene		0.2	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	N/A	N/A	N/A	N/A
Ethylbenzene		0.2	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	N/A	N/A	N/A	N/A
meta- & para-Xylene		0.2	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	N/A	N/A	N/A	N/A
ortho-Xylene		0.2	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	N/A	N/A	N/A	N/A

NOTES
(1) <LOR denotes less than the laboratory limit of reporting
(2) N/A denotes not analysed

Prepared By F AP
Checked by Dodz

TABLE 4 - 2002 Residual TPH/BTEX Analytical Data

(concentrations in mg/kg)

	Guideline	Sample ID	TP104 1.0-1.2	TP104 3.5-3.7	TP105 3.0-3.2	DUP103	TP106 3.0-3.2	TP107 3.5-3.7	TP108 3.5-3.7	TP109 3.0-3.2	DUP107	DUP108
		Batch Number	ES35360-0	ES35360-0	ES35360-0	ES35360-0	ES35360-0	ES35360-0	ES35360-0	ES35561-0	ES35561-0	ES35561-0
		LOR										
C6 - C9 Fraction	65	2	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
C10 - C14 Fraction		50	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
C15 - C28 Fraction		100	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
C29 - C36 Fraction		100	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
C10-C36 Total	1000		<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
Benzene		0.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Toluene		0.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chlorobenzene		0.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ethylbenzene		0.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
meta- & para-Xylene		0.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
ortho-Xylene		0.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

NOTES
(1) <LOR denotes less than the laboratory limit of reporting
(2) N/A denotes not analysed

Prepared By IAP
Checked by Dod

TABLE 4 - 2002 Residual TPH/BTEX Analytical Data

(concentrations in mg/kg)

	Guideline	Sample ID	TP110 3.0-3.2	TP111 2.0-2.2	TP112 3.0-3.2	TP113 2.0-2.2	TP113 3.0-3.2
		Batch Number	ES35561-0	ES35561-0	ES35561-0	ES35561-0	ES35561-0
		LOR					
C6 - C9 Fraction	65	2	<LOR	<LOR	<LOR	<LOR	<LOR
C10 - C14 Fraction		50	<LOR	<LOR	<LOR	<LOR	<LOR
C15 - C28 Fraction		100	<LOR	<LOR	<LOR	<LOR	<LOR
C29 - C36 Fraction		100	<LOR	<LOR	<LOR	<LOR	<LOR
C10-C36 Total	1000		<LOR	<LOR	<LOR	<LOR	<LOR
Benzene		0.2	N/A	N/A	N/A	N/A	N/A
Toluene		0.2	N/A	N/A	N/A	N/A	N/A
Chlorobenzene		0.2	N/A	N/A	N/A	N/A	N/A
Ethylbenzene		0.2	N/A	N/A	N/A	N/A	N/A
meta- & para-Xylene		0.2	N/A	N/A	N/A	N/A	N/A
ortho-Xylene		0.2	N/A	N/A	N/A	N/A	N/A

NOTES
(1) <LOR denotes less than the laboratory limit of reporting
(2) N/A denotes not analysed

Prepared By IAP
Checked by Dodz

TABLE 5 - 2002 Residual PAH Analytical Data

(concentrations in mg/kg)

	Health Investigation Levels			Sample ID	TP25_1.3-1.5	TP26_1.3-1.5	TP14_1.3-1.5	DUP01	TP25_0.5-0.7	TP26_0.3-0.5	TP14_0.3-0.5	TP18_0.3-0.5	TP15_0.3-0.5	TP15_1.3-1.5
				Batch Numbe	ES34682-2	ES34682-2	ES34682-2	ES34682-2	ES34735-2	ES34735-2	ES34735-2	ES34735-2	ES34736-2	ES34736-2
	NEPM HIL 'A'	NEPM HIL 'D'	NEPM HIL 'E'	LOR										
Naphthalene				0.5	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
Acenaphthylene				0.5	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
Acenaphthene				0.5	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
Fluorene				0.5	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
Phenanthrene				0.5	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
Anthracene				0.5	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
Fluoranthene				0.5	<LOR	0.6	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
Pyrene				0.5	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
Benz(a)anthracene				0.5	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
Chrysene				0.5	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
Benzo(b)fluoranthene				0.5	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
Benzo(k)fluoranthene				0.5	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
Benzo(a)pyrene	1	4	2	0.5	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
Indeno(1.2.3.cd)pyrene				0.5	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
Dibenz(a.h)anthracene				0.5	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
Benzo(g.h.i)perylene				0.5	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
Total	20	80	40		<LOR	0.6	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR

NOTES

(1) <LOR denotes less than the laboratory limit of reporting

(2) N/A denotes not analysed

Prepared By TAP

Checked by Dod 7

TABLE 5 - 2002 Residual PAH Analytical Data

(concentrations in mg/kg)

	Health Investigation Levels			Sample ID	DUP04	TP20_0.3-0.5	TP23_1.3-1.5	TP21_0.3-0.5	TP16_0.2-0.4	TP02_0.2-0.4	TP04_0.3-0.5	TP04_1.3-1.5	TP07_0.3-0.5	DUP06
				Batch Numbe	ES34736-2	ES34736-2	ES34736-2	ES34736-2	ES34741-2	ES34741-2	ES34741-2	ES34741-2	ES34741-2	ES34741-2
	NEPM HIL 'A'	NEPM HIL 'D'	NEPM HIL 'E'	LOR										
Naphthalene				0.5	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
Acenaphthylene				0.5	<LOR	<LOR	<LOR	<LOR	0.8	<LOR	<LOR	<LOR	<LOR	<LOR
Acenaphthene				0.5	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
Fluorene				0.5	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
Phenanthrene				0.5	<LOR	<LOR	<LOR	<LOR	2.8	<LOR	<LOR	<LOR	0.6	<LOR
Anthracene				0.5	<LOR	<LOR	<LOR	<LOR	1	<LOR	<LOR	<LOR	<LOR	<LOR
Fluoranthene				0.5	0.5	<LOR	<LOR	<LOR	6.2	1.2	<LOR	<LOR	1.1	<LOR
Pyrene				0.5	0.7	<LOR	<LOR	<LOR	7.1	1.6	<LOR	<LOR	1.3	<LOR
Benz(a)anthracene				0.5	<LOR	<LOR	<LOR	<LOR	3	0.6	<LOR	<LOR	<LOR	<LOR
Chrysene				0.5	<LOR	<LOR	<LOR	<LOR	3.7	0.9	<LOR	<LOR	0.6	<LOR
Benzo(b)fluoranthene				0.5	<LOR	<LOR	<LOR	<LOR	4	1.1	<LOR	<LOR	0.7	<LOR
Benzo(k)fluoranthene				0.5	<LOR	<LOR	<LOR	<LOR	2	0.6	<LOR	<LOR	<LOR	<LOR
Benzo(a)pyrene	1	4	2	0.5	<LOR	<LOR	<LOR	<LOR	3.7	0.9	<LOR	<LOR	0.6	<LOR
Indeno(1.2.3.cd)pyrene				0.5	<LOR	<LOR	<LOR	<LOR	2.1	0.6	<LOR	<LOR	<LOR	<LOR
Dibenz(a.h)anthracene				0.5	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
Benzo(g.h.i)perylene				0.5	<LOR	<LOR	<LOR	<LOR	2.3	0.7	<LOR	<LOR	<LOR	<LOR
Total	20	80	40		1.2	<LOR	<LOR	<LOR	38.7	8.2	<LOR	<LOR	4.9	<LOR

NOTES

(1) <LOR denotes less than the laboratory limit of reporting

(2) N/A denotes not analysed

Prepared By IAP

Checked by Dodz

TABLE 5 - 2002 Residual PAH Analytical Data

(concentrations in mg/kg)

	Health Investigation Levels			Sample ID	TP5_1.3-1.5	TP6_1.3-1.5	DUP10	DUP09	TP12_0.3-0.5	TP10_0.3-0.5	TP8_0.3-0.5	DUP12
				Batch Numbe	ES34741-2	ES34741-2	ES34741-2	ES34741-2	ES34741-2	ES34761-2	ES34761-2	ES34761-2
	NEPM HIL 'A'	NEPM HIL 'D'	NEPM HIL 'E'	LOR								
Naphthalene				0.5	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
Acenaphthylene				0.5	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
Acenaphthene				0.5	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
Fluorene				0.5	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
Phenanthrene				0.5	<LOR	<LOR	<LOR	0.7	<LOR	<LOR	<LOR	<LOR
Anthracene				0.5	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
Fluoranthene				0.5	<LOR	<LOR	<LOR	1.3	<LOR	<LOR	<LOR	<LOR
Pyrene				0.5	<LOR	<LOR	<LOR	1.6	<LOR	<LOR	<LOR	<LOR
Benz(a)anthracene				0.5	<LOR	<LOR	<LOR	0.5	<LOR	<LOR	<LOR	<LOR
Chrysene				0.5	<LOR	<LOR	<LOR	0.8	<LOR	<LOR	<LOR	<LOR
Benzo(b)fluoranthene				0.5	<LOR	<LOR	<LOR	0.9	<LOR	<LOR	<LOR	<LOR
Benzo(k)fluoranthene				0.5	<LOR	<LOR	<LOR	0.5	<LOR	<LOR	<LOR	<LOR
Benzo(a)pyrene	1	4	2	0.5	<LOR	<LOR	<LOR	0.8	<LOR	<LOR	<LOR	<LOR
Indeno(1.2.3.cd)pyrene				0.5	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
Dibenz(a.h)anthracene				0.5	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
Benzo(g.h.i)perylene				0.5	<LOR	<LOR	<LOR	0.6	<LOR	<LOR	<LOR	<LOR
Total	20	80	40		<LOR	<LOR	<LOR	7.7	<LOR	<LOR	<LOR	<LOR

NOTES
(1) <LOR denotes less than the laboratory limit of reporting
(2) N/A denotes not analysed

Prepared By IAP
Checked by DdZ

TABLE 6 - Residual Asbestos Analytical Data

	TP19_0.3-0.5	DUP02	TP17_0.3-0.5	TP20_0.3-0.5	TP22_0.3-0.5	TP22_1.3-1.5	TP23_0.3-0.5	TP21_0.3-0.5
	ES34736	ES34736	ES34736	ES34736	ES34736	ES34736	ES34736	ES34736
Sample Description	Mixture of sand, fragments of plaster and debris	Mixture of sand, fragments of plaster and debris	Mixture of sand, stones, fragments of plaster and bitumin and debris	Mixture of sand, stones, fragments of plaster and debris	Mixture of sand, sotnes and debris	Mixture od sand, stones, fragments of plaster and debris	Mixture of sand, stones, fragments of plaster and debris	Mixture of sand, stones and debris
Asbestos Result	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected

Prepared By IAP
Checked by Dodz

TABLE 6 - Residual Asbestos Analytical Data

	DUP03	TP23_0.3-0.5	TP01_0.3-0.5	TP03_0.3-0.5	TP09_0.3-0.5	TP09_0.3-0.5	TP13_0.2-0.4
	EB47571	ES34741	ES34741	ES34741	ES34741	ES34741	ES34741
Sample Description	Soil	Mixture of sand, stones, fragments of plaster and bitumin and debris	Mixture of sandy soil, stones, fragments of plaster and bitumin and debris	Mixture of sandy soil, stones, fragments of plaster and debris	Mixture of sandy soil, stones, plant matter, fragments of plaster and bitumin and debris	Mixture of sand, stones, framents of plaster and debris	Mixture of sandy soil, stones, fragments of plaster and bitumin and debris
Asbestos Result	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected

Prepared By IAP
Checked by Dodz

TABLE 6 - Residual Asbestos Analytical Data

	DUP07	DUP08	TP27_0.3-0.5	TP28_0.3-0.5	TP5_0.3-0.5	TP11_0.3-0.5
	ES34741	ES34741	ES34741	ES34741	ES34741	ES34761
Sample Description	Mixture of sandy soil, stones, fragments of plaster and bitumin and debris	Soil	Mixture of sand, stones, fragments of bitumin and debris	Mixture of sandy soil, stones, plant matter, fragments of plaster, brick and bitumin and debris	Mixture of sandy soil, stones, fragments of plaster and debris	Mixture of sand, stones and debris
Asbestos Result	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected

Prepared By IAP
Checked by Dadz

TABLE 7 - 2002 Stockpile Inorganic Analytical Data

(concentrations in mg/kg)

	Health Investigation Levels			Sample ID	SP1	SP2	SP3	SP4	SP5	SP6	SP7	SP11-9	SP10	DUP15	DUP17	DUP11	DUP16
				Batch	ES34762-0	ES34762-0	ES34762-0	ES34762-0	ES34762-0	ES34762-0	ES34762-0	ES34762-0	ES34762-0	ES34762-0	ES34762-0	EB47653-0	EB47654-0
	NEPM HIL 'A'	NEPM HIL 'D'	NEPM HIL 'E'	LOR													
Arsenic	100	400	200	1	7	<LOR	2	<LOR	2	2	<LOR	<LOR	<LOR	1	1	1	3
Cadmium	20	80	40	1	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<1	<1
Chromium	100	400	200	1	11	3	3	3	3	3	4	2	3	3	3	3	3
Copper	1000	4000	2000	1	229	26	28	4	16	12	78	6	9	12	19	13	53
Nickel	600	2400	600	1	11	3	2	1	2	1	2	1	1	1	2	1	3
Lead	300	1200	600	1	278	749	69	37	141	120	128	45	54	71	218	74	204
Zinc	7000	28000	14000	1	272	285	121	23	67	44	39	20	26	115	70	52	363
Mercury	15	60	30	0.1	0.2	<LOR	0.2	<LOR	<LOR	<LOR	0.1	<LOR	<LOR	0.2	0.1	<0.1	0.5

NOTES
(1) <LOR denotes less than the laboratory limit of reporting
(2) N/A denotes not analysed

Prepared By TMP
Checked By Dodz

TABLE 8 - 2002 Stockpile TPH/BTEX Analytical Data

(concentrations in mg/kg)

	Criteria	Sample ID	SP1	SP2	SP3	SP4	SP5	SP6	SP7	SP11-9	SP10	DUP15	DUP17	DUP08	DUP16
		Batch	ES34762-1	ES34762-1	ES34762-1	ES34762-1	ES34762-1	ES34762-1	ES34762-1	ES34762-1	ES34762-1	ES34762-1	ES34762-1	EB47653-1	EB47654-1
		LOR													
C6 - C9 Fraction	65	2	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
C10 - C14 Fraction		50	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	201
C15 - C28 Fraction		100	232	<LOR	102	<LOR	<LOR	134	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
C29 - C36 Fraction		100	168	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	201
C10-C36 Total	1000		400	<LOR	102	<LOR	<LOR	134	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	
Benzene		0.2	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<0.2	<0.2
Toluene		0.2	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<0.2	<0.2
Chlorobenzene		0.2	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<0.2	<0.2
Ethylbenzene		0.2	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<0.2	<0.2
meta- & para-Xylene		0.2	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<0.2	<0.2
ortho-Xylene		0.2	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<0.2	<0.2
BTEX Total															

NOTES

(1) <LOR denotes less than the laboratory limit of reporting

(2) N/A denotes not analysed

Prepared By IAP

Checked By Dodz

TABLE 9 - 2002 Stockpile PAH Analytical Data

(concentrations in mg/kg)

	Health Investigation Levels			Sample ID	SP1	SP2	SP3	SP4	SP5	SP6	SP7	SP11-9
				Batch	ES34762-2	ES34762-2	ES34762-2	ES34762-2	ES34762-2	ES34762-2	ES34762-2	ES34762-2
	NEPM HIL 'A'	NEPM HIL 'D'	NEPM HIL 'E'	LOR								
Naphthalene				0.5	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
Acenaphthylene				0.5	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
Acenaphthene				0.5	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
Fluorene				0.5	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
Phenanthrene				0.5	1.4	<LOR	0.5	<LOR	<LOR	4.9	<LOR	<LOR
Anthracene				0.5	0.6	<LOR	<LOR	<LOR	<LOR	1.6	<LOR	<LOR
Fluoranthene				0.5	3.4	<LOR	1.2	<LOR	0.9	3.4	<LOR	<LOR
Pyrene				0.5	3.8	<LOR	1.4	<LOR	1	3.2	<LOR	<LOR
Benz(a)anthracene				0.5	1.7	<LOR	0.6	<LOR	0.5	1.5	<LOR	<LOR
Chrysene				0.5	2	<LOR	0.8	<LOR	0.6	1.6	<LOR	<LOR
Benzo(b)fluoranthene				0.5	3.1	<LOR	1.1	<LOR	0.8	1.7	<LOR	<LOR
Benzo(k)fluoranthene				0.5	1	<LOR	<LOR	<LOR	<LOR	0.6	<LOR	<LOR
Benzo(a)pyrene	1	4	2	0.5	2	<LOR	0.9	<LOR	0.6	1.1	<LOR	<LOR
Indeno(1.2.3.cd)pyrene				0.5	1.1	<LOR	0.6	<LOR	<LOR	<LOR	<LOR	<LOR
Dibenz(a.h)anthracene				0.5	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR	<LOR
Benzo(g.h.i)perylene				0.5	1.2	<LOR	0.5	<LOR	<LOR	<LOR	<LOR	<LOR
Total	20	80	40		21.3	<LOR	7.6	<LOR	4.4	19.6	<LOR	<LOR

NOTES
(1) <LOR denotes less than the laboratory limit of reporting
(2) N/A denotes not analysed

Prepared By FAP
Checked By Dwd2

TABLE 9 - 2002 Stockpile PAH Analytical Data

(concentrations in mg/kg)

	Health Investigation Levels			Sample ID	SP10	DUP15	DUP17	DUP11	DUP16
				Batch	ES34762-2	ES34762-2	ES34762-2	EB47653-2	EB47654-2
	NEPM HIL 'A'	NEPM HIL 'D'	NEPM HIL 'E'	LOR					
Naphthalene				0.5	<LOR	<LOR	<LOR	<LOR	<LOR
Acenaphthylene				0.5	<LOR	<LOR	<LOR	<LOR	<LOR
Acenaphthene				0.5	<LOR	<LOR	<LOR	<LOR	<LOR
Fluorene				0.5	<LOR	<LOR	<LOR	<LOR	3.4
Phenanthrene				0.5	<LOR	<LOR	<LOR	<LOR	0.7
Anthracene				0.5	<LOR	0.7	<LOR	<LOR	3
Fluoranthene				0.5	<LOR	0.8	<LOR	<LOR	3.7
Pyrene				0.5	<LOR	<LOR	<LOR	<LOR	1.5
Benz(a)anthracene				0.5	<LOR	<LOR	<LOR	<LOR	1.6
Chrysene				0.5	<LOR	0.5	<LOR	<LOR	3
Benzo(b)fluoranthene				0.5	<LOR	<LOR	<LOR	<LOR	3
Benzo(k)fluoranthene				0.5	<LOR	<LOR	<LOR	<LOR	1.8
Benzo(a)pyrene	1	4	2	0.5	<LOR	<LOR	<LOR	<LOR	1
Indeno(1.2.3.cd)pyrene				0.5	<LOR	<LOR	<LOR	<LOR	<LOR
Dibenz(a.h)anthracene				0.5	<LOR	<LOR	<LOR	<LOR	1.2
Benzo(g.h.i)perylene					<LOR	2	<LOR	<LOR	23.9
Total	20	80	40						

NOTES
(1) <LOR denotes less than the laboratory limit of reporting
(2) N/A denotes not analysed

Prepared By IAP
Checked By Dodz

TABLE 10 - 2002 Stockpile Asbestos Analytical Data

	DUP14	SP1	SP2	SP3	SP4	SP5	SP6	SP7	SP11-9
		ES34762	ES34762	ES34762	ES34762	ES34762	ES34762	ES34762	ES34762
Asbestos		Chrysotile	ND	ND	ND	ND	ND	ND	ND

NOTES
(1) NDdenotes not detected

Prepared By EAP
Checked By Dodz

TABLE 10 - 2002 Stockpile Asbestos Analytical Data

	SP10	DUP15	DUP17	DUP16	FD01	SP1A	SP1B	SP1C	SP1D
	ES34762	ES34762	ES34762	EB47654	ES34978	ES34978	ES34978	ES34978	ES34978
Asbestos	ND	ND	ND	ND	ND	ND	ND	ND	ND

NOTES
(1) NDdenc

Prepared By IAP
Checked By Dodz

5.0 Inspection Findings

The following section details the site inspection findings of the site.

Table 1: Asbestos Inspection Findings of the Site – Lot 202, Former Randwick Bus Depot

Lot 202 of the former Randwick Bus Depot was divided into the eight (8) areas. The site plan contained in Appendix 2 shows the location of these areas.

AREA	DESCRIPTION OF AREA	ASBESTOS INSPECTION FINDINGS
Area 1	**SE Section of the site** – the eastern section of this area has long sparse to thick grasses. There is a large stockpile located in the SE corner, which comprises mostly large concrete pieces. The ground surface of the site access road to the south is predominately crushed building rubble material. The site access road to the north is covered with a concrete slab surface. Long, sparse to thick grasses restricted visual access to the area located near the mid western side.	Many small AC fragments were noted on the ground surface along the eastern side of this area (i.e. between coordinates A3 and A5) with light building rubble. Refer to Sample No. S2807-01 in Appendix 1.
Area 2	**Mid Southern Section of the site** – the area is predominately covered with a concrete ground slab. There are several small stockpiles, which appear to comprise mostly sandy soil and have a light grass cover and light vegetation. There is a small building located on the mid western side and appears to have been constructed post 1980.	No asbestos or AC fragments were noted on the ground surface and the surface of the stockpiles.
Area 3	**NE Section of the site** – there is a building, which occupies a large portion of this area. The ground surface of the area north of the building is predominately bitumen. Grass areas to the east and west of the building restricted visual access. The building in this area appears to have been constructed post 1980.	No asbestos or AC fragments were noted on the ground surface.
Area 4	**Mid Northern Section of the site** – there is a building, which occupies a large portion of this area. Long, thick grasses restricted visual access surrounding the building to the north, west and east. The ground surface of the area south of the building is predominately bitumen.	Several small AC fragments were noted on the concrete stairs and landing to the three southern entrances and also immediately south of this building (which has a bitumen ground surface). Refer to Sample No. S2807-04 in Appendix 1. Several small AC fragments were noted on the timber flooring in a localised area (i.e. NE corner) inside

AREA	DESCRIPTION OF AREA	ASBESTOS INSPECTION FINDINGS
		the building. Refer to Sample No. S2807-05 in Appendix 1. Note: These AC fragments were removed by Hibbs & Associates. 2 AC downpipe sections (with a total of 5 metres) were noted on the grassed area immediately NW of the building. Refer to Sample No. S2807-06 in Appendix 1. Note: The roof and eaves lining on the building in this area has been removed and is suspected to have been AC sheeting.
Area 5	**NW Section of the site** – concrete ground surface. A large stockpile located in the eastern section of this area comprises mostly bricks and large concrete pieces. A small stockpile in the far SW corner appears to be mostly sandy soil with a grass cover and light vegetation. There is a building located on the eastern side of this area. Long, thick grasses and low-height vegetation restricted visual access on the northern embankment.	At least 10 small AC fragments were noted on the surface of the small far SW stockpile (fringe SW corner of small stockpile only). Refer to Sample No. S2807-07 in Appendix 1. 3 small AC fragments were noted on the concrete ground immediately west of the building. Refer to Sample No. S2807-07 in Appendix 1. Note: The roof and eaves lining on the building in this area has been removed and is suspected to have been AC sheeting.
Area 6	**Mid Western Section of the site** – mostly earth ground surface with very light, sparse grass cover. The northern section is covered with a concrete ground slab. Part of a large stockpile, which is also present in Area 7 comprises mostly large concrete pieces, some large brick sections and sandy soil / earth material.	No asbestos or AC fragments were noted on the ground surface.
Area 7	**SW Section of the site** – several large stockpiles mostly comprising large concrete pieces, large brick sections, sandy soil / earth material and other construction materials (eg; rail lines sections, metal pipes). Concrete ground surface noted in the SW and SE corners of this area. Long, thick grasses and low-height vegetation restricted visual access particularly on the top portion of most stockpiles and the eastern embankment.	No asbestos or AC fragments were noted on the ground surface and the surface of the stockpiles.
Area 8	**Near the centre of the site** - large excavated area. Areas of long, thick grasses, reeds and low-height vegetation restricted visual access.	No asbestos or AC fragments were noted on the ground surface.

Table 1
TPH Analytical Results
Historical Samples

Laboratory	Batch No	Sample ID	Sample Date	QC Sample ID / Batch No.	Total TPH C10-C36	Total BTEX
				LOR	220	6
Amdel	9503299	HA81	1995		ND	ND
Amdel	9503299	HA82	1995		ND	ND
Amdel	9503299	HA83	1995		ND	ND
Amdel	9503388	HA84	1995		ND	ND
Amdel	9503299	HA85	1995		ND	ND
Amdel	9502353	SZ-51	1995		ND	N/A
Amdel	9502353	SZ-52	1995		ND	N/A
Amdel	9502353	SZ-53	1995		ND	N/A
Amdel	9502353	SZ-54	1995		700	N/A
Amdel	9502353	SZ-61	1995		ND	N/A
Amdel	9502353	SZ-62	1995		900	N/A
Amdel	9502353	SZ-63	1995		ND	N/A
Amdel	9505849	TW-S1	1995		ND	ND
Amdel	9505849	TW-S2	1995		ND	ND
Amdel	9505849	TW-S3	1995		ND	ND
Amdel	9505849	TW-S4	1995		ND	ND
Amdel	9505659	Z2-1	1995		ND	ND
Amdel	9505668	Z2-12	1995		ND	ND
Amdel	9505668	Z2-13	1995		ND	ND
Amdel	9505668	Z2-14	1995		ND	ND
Amdel	9505668	Z2-15	1995		ND	ND
Amdel	9505668	Z2-16	1995		ND	ND
Amdel	9505668	Z2-17	1995		ND	ND
Amdel	9505727	Z2-18	1995		ND	ND
Amdel	9505727	Z2-19	1995		ND	ND
Amdel	9505659	Z2-2	1995		ND	ND
Amdel	9505777	Z2-20	1995		ND	ND
Amdel	9505777	Z2-21	1995		ND	ND
Amdel	9505777	Z2-22	1995		510	ND

Prepared by: LMW (URS)
Checked by: FMM (URS)

Table 1
TPH Analytical Results
Historical Samples

Laboratory	Batch No	Sample ID	Sample Date	QC Sample ID / Batch No.	Total TPH C10-C36	Total BTEX
Amdel	9505777	Z2-23	1995		ND	ND
Amdel	9505777	Z2-24	1995		ND	ND
Amdel	9505777	Z2-25	1995		ND	ND
Amdel	9505777	Z2-26	1995		ND	ND
Amdel	9505659	Z2-3	1995		ND	ND
Amdel	9505659	Z2-4	1995		ND	ND
Amdel	9505659	Z2-5	1995		ND	ND
Amdel	9505659	Z2-6	1995		ND	ND
Amdel	9505727	Z2-7	1995		ND	ND
Amdel	9505802	Z3-8	1995		1300	ND
Amdel	9505802	Z3-10	1995		360	ND
Amdel	9505849	Z3-12	1995	AGAL N95/032831	ND	ND
Amdel	9505802	Z8-1	1995		ND	ND
Amdel	9505802	Z8-2	1995		ND	ND
Amdel	9505802	Z8-3	1995		ND	ND
Amdel	9505802	Z8-4	1995		ND	ND
Amdel	9505815	Z8-5	1995		ND	ND
Amdel	9505802	Z8-6	1995	AGAL N95/032612	ND	ND
Amdel	9505815	Z8-7	1995		ND	ND
Amdel	9505815	Z8-8	1995		ND	ND

Notes:

LOR	Analytical Laboratory Limit of Reporting
ND	Not detected above LOR
N/A	Not analysed

Prepared by: LMW (URS)
Checked by: FMM (URS)

Table 2
TPH Analytical Results
Failed or Excavated Samples

Laboratory	Batch No	SampleType	Sample ID	Sample Date	QC Sample ID	C6-C9	C10-C14	C15-C28	C29-C36	Total C10-C36
					LOR	2	50	100	100	
ALS	ES40876	Wall Sample	EXW-04	7-07-03		5	520	1710	153	2383
ALS	ES40876	Wall Sample	EXW-05	7-07-03		<2	518	1490	<100	2008
ALS	ES40905	Clean Stockpile	CSP-07	8-07-03		<2	510	2210	<100	2720
ALS	ES40905	Clean Stockpile	CSP-08	8-07-03		<2	51	204	<100	255
ALS	ES40905	Base Sample	EXB-04	8-07-03		<2	521	1210	<100	1731
ALS	ES40959	Clean Backfill	CSP-11	9-07-03		<2	698	1520	<100	2218
ALS	ES40959	Base Sample	EXB-09	9-07-03		<2	332	1300	112	1744
ALS	ES41009	Wall Sample	EXW-18	10-07-03		<2	<50	<100	<100	ND
Labmark	No.014769	Suspect Stockpile	SSP-01	10-07-03	QC05 / QC06	<10	970	4300	170	5440
Labmark	No.014769	Suspect Stockpile	SSP-02	10-07-03		<10	150	660	<100	810
Labmark	No.014769	Suspect Stockpile	SSP-03	10-07-03		<10	400	1560	<100	1960
Labmark	No.014769	Suspect Stockpile	SSP-04	10-07-03		<10	330	1640	<100	1970
Labmark	No.014769	Suspect Stockpile	SSP-05	10-07-03		<10	100	410	<100	510
Labmark	No.014769	Suspect Stockpile	SSP-06	10-07-03		<10	560	1750	<100	2310
Labmark	No.014769	Suspect Stockpile	SSP-07	10-07-03		<10	350	1150	<100	1500
Labmark	No.014778	Suspect Stockpile	SSP-08	10-07-03		<10	190	900	<100	1090
Labmark	No.014778	Suspect Stockpile	SSP-09	10-07-03		<10	170	780	<100	950
Labmark	No.014778	Suspect Stockpile	SSP-10	10-07-03		<10	<50	410	<100	410
ALS	ES41007	Wall Sample	EXW-20	12-07-03		<2	117	909	192	1218
ALS	ES41124	Wall Sample	EXW-28	21-07-03	QC19 / QC20	<2	1780	6470	320	8570
ALS	ES41274	Wall Sample	EXW-35	28-07-03		<2	<50	146	<100	146
ALS	ES41300	Wall Sample	EXW-37	28-07-03		<2	<50	260	<100	260
ALS	ES41300	Wall Sample	EXW-41	28-07-03		<2	1040	2050	<100	3090
ALS	ES41436	Wall Sample	EXW-47	4-08-03		<2	<50	<100	<100	ND
ALS	ES39386	Delineation Validation	BH209_1.0-1.4	24-04-03		<2	<50	341	150	491
ALS	ES39386	Delineation Validation	BH209_1.5-1.9	24-04-03		<2	<50	116	<100	116
ALS	ES39386	Delineation Validation	BH209_2.0-2.4	24-04-03		<2	<50	<100	<100	ND
ALS	ES39386	Delineation Validation	BH209_2.5-2.9	24-04-03		<2	<50	<100	<100	ND
ALS	ES39375	Delineation Validation	BH207_1.5-1.9	23-04-03		<2	113	400	<100	513
ALS	ES39375	Delineation Validation	BH207_2.2-2.6	23-04-03		<2	<50	<100	<100	ND
ALS	ES39375	Delineation Validation	BH207_2.8-3.2	23-04-03		<2	<50	<100	<100	ND
ALS	ES39375	Delineation Validation	BH208_0.5-0.9	23-04-03		<2	<50	139	<100	139
ALS	ES39375	Delineation Validation	BH208_1.0-1.4	23-04-03		<2	1210	3820	444	5474
ALS	ES39375	Delineation Validation	BH208_1.5-1.9	23-04-03		<2	170	449	<100	619
ALS	ES39375	Delineation Validation	BH114_1.0-1.4	23-04-03		<2	<50	221	<100	221
ALS	ES39375	Delineation Validation	BH114_1.5-1.9	23-04-03		<2	<50	<100	<100	ND
ALS	ES39375	Delineation Validation	BH114_2.0-2.4	23-04-03		<2	<50	<100	<100	ND
ALS	ES39352	Delineation Validation	BH202_2.0-2.4	17-04-03		<2	<50	404	194	598
ALS	ES39352	Delineation Validation	BH203_0.5-0.9	17-04-03		<2	74	370	<100	444
ALS	ES39352	Delineation Validation	BH203_1.0-1.4	17-04-03		<2	98	381	<100	479
ALS	ES39352	Delineation Validation	BH203_2.5-2.9	17-04-03		<2	441	991	<100	1432
ALS	ES39352	Delineation Validation	BH204_0.5-0.9	17-04-03		<2	<50	<100	<100	ND
ALS	ES39352	Delineation Validation	BH204_1.0-1.4	17-04-03		<2	97	398	<100	495
ALS	ES39352	Delineation Validation	BH204_2.0-2.4	17-04-03	DUP10	<2	<50	<100	<100	ND
ALS	ES39352	Delineation Validation	BH204_2.5-2.9	17-04-03		<2	<50	<100	<100	ND
ALS	ES39352	Delineation Validation	BH205_1.9-2.3	22-04-03		<2	<50	787	279	1066
ALS	ES39352	Delineation Validation	BH205_2.5-2.9	22-04-03		<2	<50	183	<100	183

Table 2
TPH Analytical Results
Failed or Excavated Samples

Laboratory	Batch No.	SampleType	Sample ID	Sample Date	QC Sample ID	C6-C9	C10-C14	C15-C28	C29-C36	Total C10-C36
					LOR	2	50	100	100	
ALS	ES39352	Delineation Validation	BH206_1.0-1.4	22-04-03		<2	<50	138	<100	138
ALS	ES39352	Delineation Validation	BH206_1.5-1.9	22-04-03		<2	<50	<100	<100	ND
ALS	ES39352	Delineation Validation	BH206_2.5-2.9	22-04-03	DUP13	<2	<50	<100	<100	ND
ALS	ES39307	Delineation Validation	BH111_2.5-2.9	16-04-03		<2	<50	<100	<100	ND
ALS	ES39307	Delineation Validation	BH111_0.5-1.4	16-04-03		<2	72	366	<100	438
ALS	ES39307	Delineation Validation	BH111_1.5-1.9	16-04-03		<2	<50	147	<100	147
ALS	ES39307	Delineation Validation	BH111_2.0-2.4	16-04-03		<2	<50	<100	<100	ND
ALS	ES39307	Delineation Validation	BH201_0.5-0.9	16-04-03		<2	78	461	299	838
ALS	ES39307	Delineation Validation	BH201_1.0-1.4	16-04-03	DUP06	<2	113	526	<100	639
ALS	ES39307	Delineation Validation	BH201_1.5-1.9	16-04-03		<2	90	360	<100	450
ALS	ES39307	Delineation Validation	BH201_2.0-2.4	16-04-03		<2	<50	109	<100	109
ALS	ES39307	Delineation Validation	BH201_2.5-2.9	16-04-03	DUP07	<2	<50	<100	<100	ND
ALS	ES39306	Delineation Validation	MW05_1.0-1.4	15-04-03		<2	<50	<100	<100	ND
ALS	ES39306	Delineation Validation	MW05_2.5-2.9	15-04-03		<2	<50	<100	<100	ND
ALS	ES39306	Delineation Validation	MW05A_1.7-2.1	15-04-03		<2	<50	<100	<100	ND
ALS	ES39306	Delineation Validation	MW05A_2.3-2.7	15-04-03		<2	325	952	<100	1277
ALS	ES35296	Delineation Validation	BH14_2.0-2.2	28-08-02		<20	414	1360	<LOR	1774
ALS	ES35296	Delineation Validation	BH15_1.3-1.5	28-08-02		<20	110	906	304	1320
ALS	ES35296	Delineation Validation	BH16_1.0-1.2	28-08-02		<20	<LOR	578	217	795
ALS	ES35296	Delineation Validation	BH17_0.4-0.7	28-08-02		<20	<LOR	<LOR	<LOR	ND
ALS	ES35296	Delineation Validation	BH18_3.3-3.5	28-08-02		13	4240	8690	284	13214
ALS	ES35296	Delineation Validation	BH2_2.5-2.7	28-08-02		<20	1170	2810	154	4134
ALS	ES35296	Delineation Validation	BH20_2.0-2.2	28-08-02		<20	305	824	<LOR	1129
ALS	ES35296	Delineation Validation	BH5_1.8-2.0	28-08-02		<20	1550	3050	151	4751
ALS	ES35561	Delineation Validation	TP109 3.0-3.2	10-09-02		<LOR	<LOR	<LOR	<LOR	ND
ALS	ES34735	Delineation Validation	TP25_0.5-0.7	23-07-02		<LOR	<LOR	316	132	448
ALS	ES34682	Delineation Validation	TP25_1.3-1.5	23-07-02		<LOR	254	1110	352	1716

Notes:

LOR	Analytical Laboratory Limit of Reporting
ND	Not detected above LOR
N/A	Not analysed

Table 3
TPH/BTEX Analytical Results
Delineation Samples

Laboratory	Batch No	Sample ID	Sample Date	QC Sample ID	TPH C6-C9	TPH C10-C14	TPH C15-C28	TPH C29-C36	TPH Total C10-C36	Benzene	Toluene	Chlorobenzene	Ethylbenzene	Total Xylene
				LOR	2	50	100	100		0.2	0.2	0.2	0.2	
ALS	ES34735	TP14_0.3-0.5	23-07-02		<2	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES34682	TP14_1.3-1.5	23-07-02	DUP01	<2	116	583	134	833	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES34735	TP14_2.4-2.6	23-07-02		<2	159	611	<100	770	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES34736	TP15_0.3-0.5	23-07-02	DUP04	<2	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES34736	TP21_0.3-0.5	23-07-02		<2	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES34736	TP22_0.3-0.5	23-07-02		<2	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES34736	TP22_1.3-1.5	23-07-02	DUP02/DUP03	<2	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES34736	TP23_1.3-1.5	23-07-02		<2	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES34736	TP24_0.3-0.5	23-07-02		<2	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES34735	TP25_0.5-0.7	23-07-02		<2	<50	316	132	448	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES34682	TP25_1.3-1.5	23-07-02		<2	254	1110	352	1716	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES34735	TP26_0.3-0.5	23-07-02		<2	<50	169	<100	169	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES34682	TP26_1.3-1.5	23-07-02		<2	113	564	162	839	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES34735	TP26_2.9-3.0	23-07-02		<2	259	694	<100	953	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES34741	TP01_1.3-1.5	24-07-02	DUP05	<2	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES34741	TP03_0.3-0.5	24-07-02	DUP07/DUP08	<2	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES34741	TP06_1.3-1.5	24-07-02		<2	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES34761	TP08_1.3-1.5	24-07-02	DUP13/DUP14	<2	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES34741	TP09_1.3-1.5	24-07-02		<2	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES34736	TP15_1.3-1.5	24-07-02		<2	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES34762	SP1	25-07-02		<2	<50	232	168	400	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES34762	SP10	25-07-02		<2	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES34762	SP11-9	25-07-02		<2	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES34762	SP2	25-07-02		<2	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES34762	SP3	25-07-02	DUP15/DUP16	<2	<50	102	<100	102	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES34762	SP4	25-07-02		<2	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES34762	SP5	25-07-02		<2	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES34762	SP6	25-07-02		<2	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES34762	SP7	25-07-02	DUP17	<2	<50	134	<100	134	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES35296	BH01_2.3-2.5	27-08-02		<20	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES35298	BH04_3.2-3.4	27-08-02		<2	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES35296	BH08_3.7-3.9	27-08-02		<20	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES35296	BH03_1.0-1.2	28-08-02		<20	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES35296	BH03_3.0-3.2	28-08-02		<20	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES35296	BH09_2.0-2.2	28-08-02		<20	95	350	<100	445	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES35296	BH10_1.0-1.2	28-08-02	DUP12	<20	196	620	<100	816	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES35296	BH11_1.0-1.2	28-08-02	DUP13	<20	125	582	<100	707	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES35296	BH12_2.2-2.3	28-08-02		<20	137	328	<100	465	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES35296	BH13_0.8-1.3	28-08-02		<20	<50	130	<100	130	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES35296	BH14_2.0-2.2	28-08-02		<20	414	1360	<100	1774	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES35296	BH15_1.3-1.5	28-08-02		<20	110	906	304	1320	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES35296	BH16_1.0-1.2	28-08-02		<20	<50	578	217	795	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES35296	BH17_0.4-0.7	28-08-02		<20	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES35296	BH18_3.3-3.5	28-08-02		13	4240	8690	284	13214	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES35296	BH2_2.5-2.7	28-08-02		<20	1170	2810	154	4134	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES35296	BH20_2.0-2.2	28-08-02		<20	305	824	<100	1129	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES35296	BH21_1.7	28-08-02		<20	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND

Table 3
TPH/BTEX Analytical Results
Delineation Samples

Laboratory	Batch No	Sample ID	Sample Date	QC Sample ID	TPH C6-C9	TPH C10-C14	TPH C15-C28	TPH C29-C36	TPH Total C10-C36	Benzene	Toluene	Chlorobenzene	Ethylbenzene	Total Xylene
ALS	ES35296	BH22_2.5-2.7	28-08-02	DUP16	<20	140	502	<100	642	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES35293	BH23_1.3-1.5	28-08-02		<2	<50	134	<100	134	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES35293	BH24_0.8-1.0	28-08-02		<2	94	512	<100	606	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES35296	BH5_1.8-2.0	28-08-02		<20	1550	3050	151	4751	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES35360	TP1002.0-2.2	10-09-02		<2	<50	<100	<100	ND	N/A	N/A	N/A	N/A	N/A
ALS	ES35360	TP1013.0-3.2	10-09-02		<2	<50	<100	<100	ND	N/A	N/A	N/A	N/A	N/A
ALS	ES35360	TP1021.0-1.2	10-09-02		<2	<50	<100	<100	ND	N/A	N/A	N/A	N/A	N/A
ALS	ES35360	TP1033.5-3.7	10-09-02	DUP101/DUP102	<2	<50	<100	<100	ND	N/A	N/A	N/A	N/A	N/A
ALS	ES35360	TP1041.0-1.2	10-09-02		<2	<50	<100	<100	ND	N/A	N/A	N/A	N/A	N/A
ALS	ES35360	TP1043.5-3.7	10-09-02		<2	<50	<100	<100	ND	N/A	N/A	N/A	N/A	N/A
ALS	ES35360	TP1053.0-3.2	10-09-02	DUP103	<2	<50	<100	<100	ND	N/A	N/A	N/A	N/A	N/A
ALS	ES35360	TP1063.0-3.2	10-09-02		<2	<50	<100	<100	ND	N/A	N/A	N/A	N/A	N/A
ALS	ES35360	TP1073.5-3.7	10-09-02		<2	<50	<100	<100	ND	N/A	N/A	N/A	N/A	N/A
ALS	ES35360	TP1083.5-3.7	10-09-02	DUP106	<2	<50	<100	<100	ND	N/A	N/A	N/A	N/A	N/A
ALS	ES35561	TP1093.0-3.2	10-09-02		<2	<50	<100	<100	ND	N/A	N/A	N/A	N/A	N/A
ALS	ES35561	TP1103.0-3.2	10-09-02		<2	<50	<100	<100	ND	N/A	N/A	N/A	N/A	N/A
ALS	ES35561	TP1112.0-2.2	10-09-02		<2	<50	<100	<100	ND	N/A	N/A	N/A	N/A	N/A
ALS	ES35561	TP1123.0-3.2	10-09-02		<2	<50	<100	<100	ND	N/A	N/A	N/A	N/A	N/A
ALS	ES35561	TP1132.0-2.2	10-09-02		<2	<50	<100	<100	ND	N/A	N/A	N/A	N/A	N/A
ALS	ES35561	TP1133.0-3.2	10-09-02	DUP110/DUP111	<2	<50	<100	<100	ND	N/A	N/A	N/A	N/A	N/A
ALS	ES39306	BH100_4.5-4.9	12-04-03		<2	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39306	BH100_5.5-5.9	12-04-03		<2	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39306	BH101_2.8-3.2	12-04-03		<2	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39306	BH101_4.0-4.4	12-04-03	DUP01	<2	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39306	BH101_5.5-5.9	12-04-03		<2	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39306	BH102_2.8-3.2	12-04-03		<2	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39306	BH102_4.2-4.6	12-04-03	DUP02	<2	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39306	BH102_5.2-5.3	12-04-03		<2	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39306	BH103_2.8-3.2	12-04-03		<2	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39306	BH103_4.3-4.7	12-04-03		<2	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39306	BH103_5.7-5.8	12-04-03		<2	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39306	BH104_2.8-3.2	12-04-03		<2	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39306	BH104_4.3-4.7	12-04-03	DUP03	<2	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39306	BH104_5.9-6.1	12-04-03		<2	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39306	BH105_2.8-3.2	12-04-03		<2	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39306	BH105_4.3-4.7	12-04-03		<2	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39306	BH105_5.8-6.2	12-04-03		<2	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39306	BH106_2.5-2.9	14-04-03	DUP04	<2	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39306	BH106_4.0-4.4	14-04-03		<2	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39306	BH106_5.5-5.9	14-04-03		<2	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39306	BH106_6.2-6.6	14-04-03		<2	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39306	BH107_0.5-0.9	15-04-03		<2	82	397	<100	479	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39306	BH107_1.0-1.4	15-04-03		<2	101	519	<100	620	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39306	BH107_1.5-1.8	15-04-03		<2	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39306	MW05_1.0-1.4	15-04-03		<2	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39306	MW05_2.5-2.9	15-04-03		<2	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND

Table 3
TPH/BTEX Analytical Results
Delineation Samples

Laboratory	Batch No.	Sample ID	Sample Date	QC Sample ID	TPH C6-C9	TPH C10-C14	TPH C15-C28	TPH C29-C36	TPH Total C10-C36	Benzene	Toluene	Chlorobenzene	Ethylbenzene	Total Xylene
ALS	ES39306	MW05A_1.7-2.1	15-04-03		<2	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39306	MW05A_2.3-2.7	15-04-03		<2	325	952	<100	1277	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39306	BH108_0.5-0.9	16-04-03	DUP05	<2	62	395	<100	457	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39306	BH108_1.0-1.4	16-04-03		<2	106	511	<100	617	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39306	BH108_1.6-1.8	16-04-03		<2	53	240	<100	293	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39306	BH109_0.5-0.9	16-04-03		<2	<50	272	<100	272	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39306	BH109_1.0-1.4	16-04-03		<2	105	538	107	750	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39306	BH109_1.5-1.9	16-04-03		<2	150	569	<100	719	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39306	BH109_2.0-2.3	16-04-03		<2	56	180	<100	236	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39306	BH110_0.5-0.9	16-04-03		<2	<50	377	<100	377	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39306	BH110_1.0-1.4	16-04-03		<2	115	490	<100	605	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39306	BH110_1.5-1.9	16-04-03		<2	<50	223	<100	223	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39306	BH110_1.9-2.0	16-04-03		<2	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39307	BH111_0.5-1.4	16-04-03		<2	72	366	<100	438	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39307	BH111_1.5-1.9	16-04-03		<2	<50	147	<100	147	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39307	BH111_2.0-2.4	16-04-03		<2	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39307	BH111_2.5-2.9	16-04-03		<2	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39307	BH111_3.0-3.4	16-04-03		<2	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39307	BH201_0.5-0.9	16-04-03		<2	78	461	299	838	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39307	BH201_1.0-1.4	16-04-03	DUP06	<2	113	526	<100	639	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39307	BH201_1.5-1.9	16-04-03		<2	90	360	<100	450	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39307	BH201_2.0-2.4	16-04-03		<2	<50	109	<100	109	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39307	BH201_2.5-2.9	16-04-03	DUP07	<2	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39307	BH201_3.0-3.4	16-04-03		<2	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39307	BH201_3.5-3.9	16-04-03		<2	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39352	BH202_2.0-2.4	17-04-03		<2	<50	404	194	598	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39352	BH202_3.5-3.9	17-04-03		<2	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39352	BH202_4.0-4.4	17-04-03		<2	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39352	BH203_0.5-0.9	17-04-03		<2	74	370	<100	444	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39352	BH203_1.0-1.4	17-04-03		<2	98	381	<100	479	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39352	BH203_2.5-2.9	17-04-03		<2	441	991	<100	1432	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39352	BH203_3.0-3.4	17-04-03	DUP09	<2	<50	117	<100	117	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39352	BH203_3.5-3.9	17-04-03		<2	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39352	BH204_0.5-0.9	17-04-03		<2	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39352	BH204_1.0-1.4	17-04-03		<2	97	398	<100	495	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39352	BH204_2.0-2.4	17-04-03	DUP10	<2	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39352	BH204_2.5-2.9	17-04-03		<2	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39352	BH204_3.0-3.4	17-04-03		<2	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39352	BH112_1.0-1.4	22-04-03	DUP11	<2	<50	159	<100	159	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39352	BH112_1.5-1.9	22-04-03		<2	<50	169	<100	169	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39352	BH112_2.0-2.2	22-04-03		<2	<50	127	<100	127	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39352	BH113_0.7-1.1	22-04-03		<2	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39352	BH113_1.2-1.6	22-04-03	DUP12	<2	<50	133	<100	133	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39352	BH205_1.9-2.3	22-04-03		<2	<50	787	279	1066	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39352	BH205_2.5-2.9	22-04-03		<2	<50	183	<100	183	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39352	BH205_3.0-3.4	22-04-03		<2	<50	226	<100	226	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39352	BH205_3.5-3.9	22-04-03		<2	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39352	BH206_1.0-1.4	22-04-03		<2	<50	138	<100	138	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39352	BH206_1.5-1.9	22-04-03		<2	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39352	BH206_2.5-2.9	22-04-03	DUP13	<2	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39352	BH206_3.0-3.4	22-04-03		<2	<50	<100	<100	ND	<0.2	<0.2	<0.2	<0.2	ND
ALS	ES39375	BH114_1.0-1.4	23-04-03		<2	<50	221	<100	221	N/A	N/A	N/A	N/A	N/A

Table 3
TPH/BTEX Analytical Results
Delineation Samples

Laboratory	Batch No	Sample ID	Sample Date	QC Sample ID	TPH C6-C9	TPH C10-C14	TPH C15-C28	TPH C29-C36	TPH Total C10-C36	Benzene	Toluene	Chlorobenzene	Ethylbenzene	Total Xylene
ALS	ES39375	BH114_1.5-1.9	23-04-03		<2	<50	<100	<100	ND	N/A	N/A	N/A	N/A	N/A
ALS	ES39375	BH114_2.0-2.4	23-04-03		<2	<50	<100	<100	ND	N/A	N/A	N/A	N/A	N/A
ALS	ES39375	BH207_1.5-1.9	23-04-03		<2	113	400	<100	513	N/A	N/A	N/A	N/A	N/A
ALS	ES39375	BH207_2.2-2.6	23-04-03		<2	<50	<100	<100	ND	N/A	N/A	N/A	N/A	N/A
ALS	ES39375	BH207_2.8-3.2	23-04-03		<2	<50	<100	<100	ND	N/A	N/A	N/A	N/A	N/A
ALS	ES39375	BH208_0.5-0.9	23-04-03		<2	<50	139	<100	139	N/A	N/A	N/A	N/A	N/A
ALS	ES39375	BH208_1.0-1.4	23-04-03		<2	1210	3820	444	5474	N/A	N/A	N/A	N/A	N/A
ALS	ES39375	BH208_1.5-1.9	23-04-03		<2	170	449	<100	619	N/A	N/A	N/A	N/A	N/A
ALS	ES39375	BH208_3.0-3.3	23-04-03		<2	<50	<100	<100	ND	N/A	N/A	N/A	N/A	N/A
ALS	ES39386	BH209_1.0-1.4	24-04-03		<2	<50	341	150	491	N/A	N/A	N/A	N/A	N/A
ALS	ES39386	BH209_1.5-1.9	24-04-03		<2	<50	116	<100	116	N/A	N/A	N/A	N/A	N/A
ALS	ES39386	BH209_2.0-2.4	24-04-03		<2	<50	<100	<100	ND	N/A	N/A	N/A	N/A	N/A
ALS	ES39386	BH209_2.5-2.9	24-04-03		<2	<50	<100	<100	ND	N/A	N/A	N/A	N/A	N/A

Notes:
LOR Analytical Laboratory Limit of Reporting
ND Not detected above LOR
N/A Not analysed

Table 4
Lead Analytical Delineation Results -
NEPM 'D' Guideline Area

Laboratory	Batch No	Sample ID	Sample Date	QC Sample ID / Laboratory Batch No.	Lead (mg/kg)	Location
				LOR	1 / 5*	
ALS	ES34735	TP14_0.3-0.5	23-07-02		39	Insitu [2]
ALS	ES34682	TP14_1.3-1.5	23-07-02	DUP01	59	Insitu [2]
ALS	ES34735	TP26_0.3-0.5	23-07-02		67	Insitu [2]
ALS	ES34682	TP26_1.3-1.5	23-07-02		164	Insitu [2]
ALS	ES34741	TP05_1.3-1.5	24-07-02	DUP10 / DUP11	2	Insitu [2]
ALS	ES41189	TP207_0.5-0.6	23-07-03		6460	Excavated
ALS	ES41189	TP207_1.0-1.1	23-07-03	QC02 / QC03	1900	Excavated
ALS	ES41189	TP207_2.0-2.1	23-07-03		1	Insitu [2]
ALS	ES41189	TP208_0.5-0.6	23-07-03		672	Insitu [2]
ALS	ES41189	TP208_1.0-1.1	23-07-03		466	Insitu [2]
ALS	ES41189	TP208_2.0-2.1	23-07-03		2	Insitu [2]
ALS	ES41189	TP209_0.5-0.6	23-07-03		562	Insitu [2]
ALS	ES41189	TP209_1.0-1.1	23-07-03	QC04	85	Insitu [2]
ALS	ES41189	TP209_2.0-2.1	23-07-03		<1	Insitu [2]
ALS	ES41346	TP301_0.5-0.6	31-07-03		569	Insitu [2]
ALS	ES41346	TP301_1.0-1.1	31-07-03		297	Insitu [2]
ALS	ES41346	TP301_1.5-1.6	31-07-03	QC34 / QC35	24	Insitu [2]
ALS	ES41346	TP302_0.5-0.6	31-07-03		2810	Insitu [2]
ALS	ES41346	TP302_1.0-1.1	31-07-03		506	Insitu [2]
ALS	ES41346	TP302_1.5-1.6	31-07-03		2	Insitu [2]
ALS	ES41346	TP303_0.5-0.6	31-07-03		323	Insitu [2]
ALS	ES41346	TP303_1.0-1.1	31-07-03	QC33	1780	Insitu [2]
ALS	ES41346	TP303_1.5-1.6	31-07-03		11	Insitu [2]
ALS	ES41463	TP311_0.5-0.6	31-07-03		250	Insitu [2]
ALS	ES41463	TP311_1.0-1.1	31-07-03		32	Insitu [2]
ALS	ES41463	TP312_0.5-0.6	31-07-03		1	Insitu [2]
ALS	ES41463	TP312_1.0-1.1	31-07-03		<1	Insitu [2]
ALS	ES41463	TP313_0.5-0.6	31-07-03		<1	Insitu [2]
ALS	ES41463	TP313_1.0-1.1	31-07-03		<1	Insitu [2]

Notes:
LOR Analytical Laboratory Limit of Reporting
* Historical LOR
1 Relocated - Material relocated to beneath building footprints or hard paved areas
2 Insitu - Material remains insitu at respective location marked on plans at current time
3 Stockpile - Samples collected from stockpiled material, replaced on-site

5

Prepared by: LMW (URS)
Checked by: FMM (URS)

Table 5
Lead Analytical Delineation Results -
NEPM 'E' Guideline Area

Laboratory	Batch No.	Sample ID	Sample Date	QC Sample ID / Laboratory Batch No.	Lead (mg/kg)	Location
				LOR	1 / 5*	
Enviromet	9506018	NE-M1	1995		83	Relocated [1]
Enviromet	9506025	PS-12	1995		15	Insitu [2]
Enviromet	9506025	PS-13	1995		<5	Relocated [1]
Enviromet	9506025	PS-14	1995		<5	Relocated [1]
Enviromet	9506025	PS-15	1995		14	Relocated [1]
AGAL	N95/035203	V3-1	1995		11	Insitu [2]
AGAL	N95/035204	V3-2	1995	Enviromet 9606041	120	Insitu [2]
Enviromet	9505153	Z2-M1	1995		5	Relocated [1]
Enviromet	9506025	Z2-M11	1995		<5	Relocated [1]
Enviromet	9505153	Z2-M2	1995		77	Relocated [1]
Enviromet	9505196	Z2-M6	1995		41	Relocated [1]
Enviromet	9506018	Z2-M7	1995		4	Relocated [1]
Enviromet	9506018	Z2-M9	1995		14	Relocated [1]
Enviromet	9505153	Z7-1	1995		<5	Relocated [1]
Enviromet	9505153	Z7-5	1995		<5	Relocated [1]
Enviromet	9505153	Z7-6	1995	AGAL N95/031688	6	Relocated [1]
Enviromet	9505153	Z7-7	1995		<5	Relocated [1]
ALS	ES11195	T3006-S1	30-06-98		84	Relocated [1]
ALS	ES11195	T3006-S3	30-06-98		140	Relocated [1]
ALS	ES11304	RBD007	8-07-98		232	Relocated [1]
ALS	ES11357	VD Ramp	15-07-98		4	Relocated [1]
ALS	ES11357	VD1	15-07-98		33	Relocated [1]
ALS	ES11357	VD3	15-07-98		159	Relocated [1]
ALS	ES11357	VD4	15-07-98		196	Relocated [1]
ALS	ES11357	VD6	15-07-98		26	Relocated [1]
ALS	ES34736	TP15_0.3-0.5	23-07-02	DUP04	30	Insitu [2]
ALS	ES34736	TP15_1.3-1.5	23-07-02		5	Insitu [2]
ALS	ES34735	TP18_0.3-0.5	23-07-02		39	Relocated [1]

Prepared by: LMW (URS)
Checked by: FMM (URS)

Table 5
Lead Analytical Delineation Results -
NEPM 'E' Guideline Area

Laboratory	Batch No	Sample ID	Sample Date	QC Sample ID / Laboratory Batch No.	Lead (mg/kg)	Location
				LOR	1 / 5*	
ALS	ES34736	TP20_0.3-0.5	23-07-02		2	Relocated [1]
ALS	ES34736	TP22_0.3-0.5	23-07-02		50	Relocated [1]
ALS	ES34736	TP22_1.3-1.5	23-07-02	DUP02 / DUP03	2	Relocated [1]
ALS	ES34736	TP23_1.3-1.5	23-07-02		1	Relocated [1]
ALS	ES34741	TP04_0.3-0.5	24-07-02		17	Insitu [2]
ALS	ES34741	TP04_1.3-1.5	24-07-02	DUP06	<1	Insitu [2]
ALS	ES34761	TP08_0.3-0.5	24-07-02	DUP12	3	Relocated [1]
ALS	ES34761	TP08_1.3-1.5	24-07-02	DUP13 / DUP14	<1	Relocated [1]
ALS	ES34741	TP12_0.3-0.5	24-07-02		44	Relocated [1]
ALS	ES34741	TP16_0.2-0.4	24-07-02		88	Insitu [2]
ALS	ES34762	SP1	25-07-02		278	Stockpile [3]
ALS	ES34762	SP10	25-07-02		54	Stockpile [3]
ALS	ES34762	SP11-9	25-07-02		45	Stockpile [3]
ALS	ES34762	SP2	25-07-02		749	Stockpile [3]
ALS	ES34762	SP3	25-07-02	DUP15 / DUP16	204	Stockpile [3]
ALS	ES34762	SP4	25-07-02		37	Stockpile [3]
ALS	ES34762	SP5	25-07-02		141	Stockpile [3]
ALS	ES34762	SP6	25-07-02		120	Stockpile [3]
ALS	ES34762	SP7	25-07-02	DUP17	218	Stockpile [3]
ALS	ES41189	TP210_0.5-0.6	23-07-03		202	Insitu [2]
ALS	ES41189	TP210_1.0-1.1	23-07-03		155	Insitu [2]
ALS	ES41189	TP210_2.1-2.2	23-07-03		<1	Insitu [2]
ALS	ES41189	TP211_0.5-0.6	23-07-03	QC05 / QC06	536	Insitu [2]
ALS	ES41189	TP211_1.0-1.1	23-07-03		9	Insitu [2]
ALS	ES41189	TP211_2.0-2.1	23-07-03		1	Insitu [2]
ALS	ES41346	TP304_0.5-0.6	31-07-03		417	Insitu [2]
ALS	ES41346	TP304_1.0-1.1	31-07-03		192	Insitu [2]
ALS	ES41346	TP304_1.5-1.6	31-07-03		3	Insitu [2]
ALS	ES41346	TP306_0.5-0.6	31-07-03		542	Insitu [2]

Prepared by: LMW (URS)
Checked by: FMM (URS)

Table 5
Lead Analytical Delineation Results -
NEPM 'E' Guideline Area

Laboratory	Batch No	Sample ID	Sample Date	QC Sample ID / Laboratory Batch No.	Lead (mg/kg)	Location
				LOR	1 / 5*	
ALS	ES41346	TP306_1.0-1.1	31-07-03		122	Insitu [2]
ALS	ES41346	TP306_1.5-1.6	31-07-03		3	Insitu [2]
ALS	ES41346	TP307_0.5-0.6	31-07-03		46	Insitu [2]
ALS	ES41346	TP307_1.0-1.1	31-07-03		250	Insitu [2]
ALS	ES41346	TP307_1.5-1.6	31-07-03	QC31 / QC32	5	Insitu [2]

Notes

LOR Analytical Laboratory Limit of Reporting

1 Relocated - Samples collected prior to Bulk Earthworks program and material likely to have been relocated. Assumed to have been relocated to open space area

2 Insitu - Material remains insitu at respective location marked on plans at current time

3 Stockpile - Samples collected from stockpiled material, replaced on-site

Prepared by: LMW (URS)
Checked by: FMM (URS)

Table 6
PAH Analytical Delineation Results
NEPM 'D' Guideline Area

Laboratory	Batch No	Sample ID	Sample Date	QC Sample ID	Benzo(a) pyrene	Total PAHs	Location
				LOR	0.5		
ALS	ES34735	TP14_0.3-0.5	23-07-02		<0.5	ND	Insitu [2]
ALS	ES34682	TP14_1.3-1.5	23-07-02	DUP01	<0.5	ND	Insitu [2]
ALS	ES34735	TP26_0.3-0.5	23-07-02		<0.5	ND	Insitu [2]
ALS	ES34682	TP26_1.3-1.5	23-07-02		<0.5	0.6	Insitu [2]
ALS	ES34741	TP05_1.3-1.5	24-07-02	DUP10 / DUP11	<0.5	ND	Insitu [2]

Notes
1 Relocated - Material relocated to beneath building footprints or hard paved areas
2 Insitu - Material remains insitu at respective location marked on plans at current time
3 Stockpile - Samples collected from stockpiled material, replaced on-site

Prepared by: LMW (URS)
Checked by: FMM (URS)

7

Table 7
PAH Analytical Delineation Results
NEPM 'E' Guideline Area

Laboratory	Batch No	Sample ID	Sample Date	QC Sample ID	Benzo(a)pyrene	Total PAHs	Location
				LOR	0.5		
AGAL	N95/035203	V3-1	1995		<0.5	ND	Insitu [2]
AGAL	N95/035204	V3-2	1995		0.5	6.3	Insitu [2]
ALS	ES11195	T3006-S1	30-06-98		<0.5	ND	Relocated [1]
ALS	ES11195	T3006-S3	30-06-98		<0.5	7.5	Relocated [1]
ALS	ES11304	RBD007	8-07-98		<0.5	6.3	Relocated [1]
ALS	ES11357	VD Ramp	15-07-98		<0.5	ND	Relocated [1]
ALS	ES11357	VD1	15-07-98		<0.5	ND	Relocated [1]
ALS	ES11357	VD3	15-07-98		0.5	8.85	Relocated [1]
ALS	ES11357	VD4	15-07-98		1.3	21.2	Relocated [1]
ALS	ES11357	VD6	15-07-98		<0.5	ND	Relocated [1]
ALS	ES34736	TP15_0.3-0.5	23-07-02		<0.5	ND	Insitu [2]
ALS	ES34736	TP15_1.3-1.5	23-07-02		<0.5	ND	Insitu [2]
ALS	ES34735	TP18_0.3-0.5	23-07-02		<0.5	ND	Relocated [1]
ALS	ES34736	TP20_0.3-0.5	23-07-02		<0.5	ND	Relocated [1]
ALS	ES34736	TP21_0.3-0.5	23-07-02		<0.5	ND	Relocated [1]
ALS	ES34736	TP23_1.3-1.5	23-07-02		<0.5	ND	Relocated [1]
ALS	ES34741	TP04_0.3-0.5	24-07-02		<0.5	ND	Insitu [2]
ALS	ES34741	TP04_1.3-1.5	24-07-02	DUP06	<0.5	ND	Insitu [2]
ALS	ES34741	TP07_0.3-0.5	24-07-02		0.6	4.9	Relocated [1]
ALS	ES34761	TP08_0.3-0.5	24-07-02		<0.5	ND	Relocated [1]
ALS	ES34741	TP12_0.3-0.5	24-07-02		<0.5	ND	Relocated [1]
ALS	ES34741	TP16_0.2-0.4	24-07-02		3.7	38.7	Insitu [2]
ALS	ES34762	SP1	25-07-02		2	21.3	Stockpile [3]
ALS	ES34762	SP10	25-07-02		<0.5	ND	Stockpile [3]
ALS	ES34762	SP11-9	25-07-02		<0.5	ND	Stockpile [3]
ALS	ES34762	SP2	25-07-02		<0.5	ND	Stockpile [3]
ALS	ES34762	SP3	25-07-02	DUP15 / DUP16	1.8	23.9	Stockpile [3]

Prepared by: LMW (URS)
Checked by: FMM (URS)

Table 7
PAH Analytical Delineation Results
NEPM 'E' Guideline Area

Laboratory	Batch No	Sample ID	Sample Date	QC Sample ID	Benzo(a)pyrene	Total PAHs	Location
				LOR	0.5		
ALS	ES34762	SP4	25-07-02		<0.5	ND	Stockpile [3]
ALS	ES34762	SP5	25-07-02		0.6	4.4	Stockpile [3]
ALS	ES34762	SP6	25-07-02		1.1	19.6	Stockpile [3]
ALS	ES34762	SP7	25-07-02	DUP17	<0.5	ND	Stockpile [3]
ALS	ES34761	TP10_0.3-0.5	25-07-02		<0.5	ND	Relocated [1]

Notes

1 Relocated - Samples collected prior to Bulk Earthworks program and material likely to have been relocated. Assumed to have been relocated to open space area
2 Insitu - Material remains insitu at respective location marked on plans at current time
3 Stockpile - Samples collected from stockpiled material, replaced on-site

Table 8
TPH Analytical Results
Excavation Validation Samples

Laboratory	Batch No	Sample Type	Sample ID	Sample Date	QC Sample ID	C6 - C9	C10 - C14	C15 - C28	C29 - C36	Total C10-C36
					LOR	2	50	100	100	
ALS	ES40876	Base Sample	EXB-01	7-07-03		<2	<50	<100	<100	ND
ALS	ES40876	Wall Sample	EXW-01	7-07-03		<2	<50	<100	<100	ND
ALS	ES40876	Wall Sample	EXW-02	7-07-03		<2	<50	<100	<100	ND
ALS	ES40876	Wall Sample	EXW-03	7-07-03		<2	96	655	153	904
ALS	ES40905	Base Sample	EXB-02	7-07-03		<2	<50	<100	<100	ND
ALS	ES40905	Wall Sample	EXW-06	7-07-03		<2	<50	<100	<100	ND
ALS	ES40905	Wall Sample	EXW-07	7-07-03		<2	<50	139	<100	139
ALS	ES40905	Wall Sample	EXW-08	7-07-03		<2	<50	<100	<100	ND
ALS	ES40905	Base Sample	EXB-03	8-07-03	QC04	<2	<50	273	<100	273
ALS	ES40905	Base Sample	EXB-05	8-07-03		<2	89	253	<100	342
ALS	ES40905	Wall Sample	EXW-10	8-07-03		<2	<50	<100	<100	ND
ALS	ES40905	Wall Sample	EXW-11	8-07-03		<2	<50	<100	<100	ND
ALS	ES40905	Wall Sample	EXW-12	8-07-03		<2	<50	<100	<100	ND
ALS	ES40959	Base Sample	EXB-08	9-07-03		<2	<50	<100	<100	ND
ALS	ES40959	Base Sample	EXB-10	9-07-03		<2	53	136	<100	189
ALS	ES40959	Base Sample	EXB-11	9-07-03		<2	<50	<100	<100	ND
ALS	ES40959	Base Sample	EXB-12	9-07-03		<2	<50	<100	<100	ND
ALS	ES40959	Wall Sample	EXW-13	9-07-03		<2	<50	<100	<100	ND
ALS	ES40959	Wall Sample	EXW-14	9-07-03		<2	<50	<100	<100	ND
ALS	ES40959	Wall Sample	EXW-15	9-07-03		<2	<50	<100	<100	ND
ALS	ES40959	Wall Sample	EXW-16	9-07-03		<2	<50	<100	<100	ND
Labmark	No.014762	Base Sample	EXB-06	9-07-03		<10	60	350	<100	410
Labmark	No.014762	Base Sample	EXB-07	9-07-03		<10	<50	180	<100	180
Labmark	No.014762	Wall Sample	EXW-09	9-07-03	QC01 / QC02	<10	<50	<100	<100	ND
ALS	ES40959	Wall Sample	EXW-17	10-07-03		<2	<50	<100	<100	ND
ALS	ES41009	Base Sample	EXB-13	10-07-03		<2	<50	<100	<100	ND
ALS	ES41007	Base Sample	EXB-18	12-07-03		<2	<50	<100	<100	ND
ALS	ES41007	Wall Sample	EXW-21	12-07-03		<2	<50	<100	<100	ND
ALS	ES41009	Base Sample	EXB-14	12-07-03		<2	<50	<100	<100	ND
ALS	ES41009	Base Sample	EXB-15	12-07-03		<2	<50	<100	<100	ND
ALS	ES41009	Base Sample	EXB-16	12-07-03		<2	<50	<100	<100	ND
ALS	ES41009	Base Sample	EXB-17	12-07-03		<2	100	745	128	973
ALS	ES41009	Wall Sample	EXW-19	12-07-03		<2	<50	<100	<100	ND
ALS	ES41007	Base Sample	EXB-19	14-07-03		<2	<50	<100	<100	ND
ALS	ES41007	Base Sample	EXB-20	14-07-03		<2	<50	<100	<100	ND
ALS	ES41007	Wall Sample	EXW-22	14-07-03	QC07 / QC08 ✓	<2	<50	<100	<100	ND
ALS	ES41007	Wall Sample	EXW-23	14-07-03		<2	<50	<100	<100	ND
ALS	ES41028	Base Sample	EXB-21	14-07-03		<2	<50	<100	<100	ND
ALS	ES41028	Base Sample	EXB-22	14-07-03		<2	<50	<100	<100	ND
ALS	ES41028	Base Sample	EXB-23	14-07-03		<2	<50	<100	<100	ND
ALS	ES41028	Base Sample	EXB-24	14-07-03		<2	<50	<100	<100	ND
ALS	ES41028	Wall Sample	EXW-24	14-07-03		<2	<50	<100	<100	ND
ALS	ES41028	Wall Sample	EXW-25	14-07-03		<2	<50	<100	<100	ND

Table 8
TPH Analytical Results
Excavation Validation Samples

Laboratory	Batch No	Sample Type	Sample ID	Sample Date	QC Sample ID	C6 - C9	C10 - C14	C15 - C28	C29 - C36	Total C10-C36
ALS	ES41028	Wall Sample	EXW-26	14-07-03	QC13	<2	<50	<100	<100	ND
ALS	ES41049	Base Sample	EXB-25	15-07-03	QC14	<2	60	239	<100	299
ALS	ES41049	Base Sample	EXB-26	15-07-03		<2	<50	<100	<100	ND
ALS	ES41049	Wall Sample	EXW-27	15-07-03		<2	214	606	<100	820
ALS	ES41075	Base Sample	EXB-27	17-07-03		<2	<50	<100	<100	ND
ALS	ES41075	Base Sample	EXB-28	17-07-03		<2	<50	<100	<100	ND
ALS	ES41075	Base Sample	EXB-29	17-07-03	QC15 / QC16	<2	<50	240	<100	240
ALS	ES41075	Base Sample	EXB-30	17-07-03		<2	<50	<100	<100	ND
ALS	ES41100	Base Sample	EXB-31	17-07-03		<2	<50	<100	<100	ND
ALS	ES41100	Base Sample	EXB-32	18-07-03		<2	<50	<100	<100	ND
ALS	ES41100	Base Sample	EXB-33	18-07-03		<2	<50	<100	<100	ND
ALS	ES41100	Base Sample	EXB-34	18-07-03		<2	<50	<100	<100	ND
ALS	ES41100	Base Sample	EXB-35	18-07-03		<2	<50	<100	<100	ND
ALS	ES41124	Base Sample	EXB-36	19-07-03		<2	<50	<100	<100	ND
ALS	ES41124	Base Sample	EXB-37	19-07-03		<2	<50	<100	<100	ND
ALS	ES41124	Base Sample	EXB-38	21-07-03		<2	<50	<100	<100	ND
ALS	ES41152	Base Sample	EXB-39	21-07-03		<2	<50	<100	<100	ND
ALS	ES41152	Base Sample	EXB-40	21-07-03		<2	<50	<100	<100	ND
ALS	ES41152	Base Sample	EXB-41	22-07-03		<2	<50	<100	<100	ND
ALS	ES41152	Base Sample	EXB-42	22-07-03		<2	<50	<100	<100	ND
ALS	ES41152	Base Sample	EXB-43	22-07-03		<2	<50	<100	<100	ND
ALS	ES41152	Wall Sample	EXW-29	22-07-03		<2	<50	204	<100	204
ALS	ES41152	Wall Sample	EXW-30	22-07-03		<2	<50	<100	<100	ND
ALS	ES41152	Wall Sample	EXW-31	22-07-03		<2	<50	<100	<100	ND
ALS	ES41192	Base Sample	EXB-44	22-07-03		<2	<50	<100	<100	ND
ALS	ES41192	Wall Sample	EXW-32	22-07-03		<2	<50	<100	<100	ND
ALS	ES41215	Base Sample	EXB-45	24-07-03		<2	<50	<100	<100	ND
ALS	ES41215	Base Sample	EXB-46	24-07-03		<2	<50	<100	<100	ND
ALS	ES41215	Base Sample	EXB-47	24-07-03		<2	<50	<100	<100	ND
ALS	ES41215	Base Sample	EXB-48	24-07-03	QC21	<2	<50	<100	<100	ND
ALS	ES41215	Wall Sample	EXW-33	24-07-03		<2	77	389	<100	466
ALS	ES41215	Wall Sample	EXW-34	24-07-03		<2	<50	<100	<100	ND
ALS	ES41244	Base Sample	EXB-49	24-07-03		<2	<50	<100	<100	ND
ALS	ES41244	Base Sample	EXB-50	24-07-03		<2	<50	155	<100	155
ALS	ES41244	Base Sample	EXB-51	24-07-03		<2	<50	<100	<100	ND
ALS	ES41244	Base Sample	EXB-52	25-07-03		<2	<50	338	133	471
ALS	ES41244	Base Sample	EXB-53	25-07-03		<2	<50	<100	<100	ND
ALS	ES41244	Base Sample	EXB-54	25-07-03	QC24 / QC25	<2	<50	<100	<100	ND
ALS	ES41274	Base Sample	EXB-55	28-07-03	QC26	<2	<50	<100	<100	ND
ALS	ES41300	Base Sample	EXB-56	28-07-03		<2	<50	135	<100	135
ALS	ES41300	Base Sample	EXB-57	28-07-03		<2	<50	<100	<100	ND
ALS	ES41300	Base Sample	EXB-58	28-07-03		<2	63	249	<100	312
ALS	ES41300	Wall Sample	EXW-36	28-07-03		<2	<50	<100	<100	ND
ALS	ES41300	Wall Sample	EXW-38	28-07-03		<2	<50	256	<100	256

Table 8
TPH Analytical Results
Excavation Validation Samples

Laboratory	Batch No	Sample Type	Sample ID	Sample Date	QC Sample ID	C6 - C9	C10 - C14	C15 - C28	C29 - C36	Total C10-C36
ALS	ES41300	Wall Sample	EXW-39	28-07-03		<2	<50	154	<100	154
ALS	ES41300	Wall Sample	EXW-40	28-07-03		<2	108	406	<100	514
ALS	ES41300	Wall Sample	EXW-42	28-07-03		<2	<50	<100	<100	ND
ALS	ES41301	Base Sample	EXB-59	29-07-03		<2	<50	<100	<100	ND
ALS	ES41301	Base Sample	EXB-60	29-07-03		<2	221	744	109	1074
ALS	ES41301	Base Sample	EXB-61	29-07-03		<2	<50	<100	<100	ND
ALS	ES41325	Base Sample	EXB-62	29-07-03		<2	169	596	<100	765
ALS	ES41325	Spot Check	SCB-01	29-07-03		<2	<50	<100	<100	ND
ALS	ES41325	Spot Check	SCB-02	29-07-03	QC29 / QC30	<2	<50	<100	<100	ND
ALS	ES41325	Spot Check	SCW-01	29-07-03		<2	<50	<100	<100	ND
ALS	ES41325	Spot Check	SCW-02	29-07-03		<2	<50	<100	<100	ND
ALS	ES41325	Spot Check	SCW-03	29-07-03		<2	<50	<100	<100	ND
ALS	ES41325	Spot Check	SCW-04	29-07-03		<2	<50	<100	<100	ND
ALS	ES41436	Base Sample	EXB-63	4-08-03		<2	<50	<100	<100	ND
ALS	ES41436	Base Sample	EXB-64	4-08-03		<2	<50	<100	<100	ND
ALS	ES41436	Wall Sample	EXW-43	4-08-03		<2	169	512	<100	681
ALS	ES41436	Wall Sample	EXW-44	4-08-03		<2	<50	<100	<100	ND
ALS	ES41436	Wall Sample	EXW-45	4-08-03		<2	144	475	<100	619
ALS	ES41436	Wall Sample	EXW-46	4-08-03		<2	<50	292	<100	292
ALS	ES41436	Wall Sample	EXW-48	4-08-03		<2	<50	152	<100	152
ALS	ES41436	Spot Check	SCB-03	4-08-03		<2	<50	<100	<100	ND
ALS	ES41436	Spot Check	SCW-05	4-08-03		<2	<50	<100	<100	ND
ALS	ES41436	Spot Check	SCW-06	4-08-03		<2	<50	<100	<100	ND
ALS	ES51573	ScrapedSurface	SS-01	12-08-03		<2	<50	289	142	431
ALS	ES51573	ScrapedSurface	SS-02	12-08-03		<2	<50	206	<100	206
ALS	ES51573	ScrapedSurface	SS-03	12-08-03	QC41	<2	<50	252	<100	252
ALS	ES51573	ScrapedSurface	SS-04	12-08-03		<2	<50	<100	<100	ND
ALS	ES51573	ScrapedSurface	SS-05	12-08-03		<2	<50	<100	<100	ND
ALS	ES51573	ScrapedSurface	SS-06	12-08-03		<2	<50	<100	<100	ND
ALS	ES51573	ScrapedSurface	SS-07	12-08-03		<2	<50	<100	<100	ND
ALS	ES51573	ScrapedSurface	SS-08	12-08-03	QC42	<2	<50	<100	<100	ND

Notes:

LOR	Analytical Laboratory Limit of Reporting
ND	Not detected above LOR
N/A	Not analysed

Table 9
TPH Analytical Results
Backfill Validation Samples

Laboratory	Batch No	Sample Type	Sample ID	Sample Date	QC Sample ID	C6 - C9	C10 - C14	C15 - C28	C29 - C36	Total C10-C36
					LOR	2	50	100	100	
ALS	ES40905	Clean Stockpile	CSP-01	7-07-03		<2	<50	137	<100	137
ALS	ES40905	Clean Stockpile	CSP-02	7-07-03		<2	<50	321	<100	321
ALS	ES40905	Clean Stockpile	CSP-03	7-07-03		<2	<50	<100	<100	ND
ALS	ES40905	Clean Stockpile	CSP-04	7-07-03		<2	<50	247	<100	247
ALS	ES40905	Clean Stockpile	CSP-05	7-07-03		<2	<50	319	<100	319
ALS	ES40905	Clean Stockpile	CSP-06	8-07-03	QC03	<2	<50	255	131	386
ALS	ES40959	Clean Stockpile	CSP-09	9-07-03		<2	<50	<100	<100	ND
ALS	ES40959	Clean Stockpile	CSP-10	9-07-03		<2	<50	<100	<100	ND
ALS	ES40959	Clean Stockpile	CSP-12	9-07-03		<2	<50	<100	<100	ND
ALS	ES41009	Clean Stockpile	CSP-13	12-07-03		<2	87	573	<100	660
ALS	ES41007	Clean Stockpile	CSP-14	14-07-03		<2	<50	<100	<100	ND
ALS	ES41028	Clean Stockpile	CSP-15	14-07-03	QC09	<2	<50	<100	<100	ND
ALS	ES41049	Clean Stockpile	CSP-16	15-07-03		<2	51	213	<100	264
ALS	ES41075	Clean Stockpile	CSP-17	17-07-03		<2	<50	102	<100	102
ALS	ES41100	Clean Stockpile	CSP-18	18-07-03	QC17 / QC18	<2	<50	<100	<100	ND
ALS	ES41100	Clean Stockpile	CSP-19	18-07-03		<2	<50	<100	<100	ND
ALS	ES41152	Clean Stockpile	CSP-20	21-07-03		<2	<50	236	<100	236
ALS	ES41152	Clean Stockpile	CSP-21	22-07-03		<2	<50	103	<100	103
ALS	ES41152	Clean Stockpile	CSP-22	22-07-03		<2	62	395	<100	457
ALS	ES41215	Clean Stockpile	CSP-23	24-07-03		<2	<50	<100	<100	ND
ALS	ES41215	Clean Stockpile	CSP-24	24-07-03		<2	<50	<100	<100	ND
ALS	ES41215	Clean Stockpile	CSP-25	24-07-03		<2	<50	207	<100	207
ALS	ES41215	Clean Stockpile	CSP-26	24-07-03		<2	<50	<100	<100	ND
ALS	ES41244	Clean Stockpile	CSP-27	24-07-03		<2	<50	133	<100	133
ALS	ES41244	Clean Stockpile	CSP-28	24-07-03	QC22 / QC23	<2	158	748	<100	906
ALS	ES41244	Clean Stockpile	CSP-29	25-07-03		<2	<50	<100	<100	ND
ALS	ES41274	Clean Stockpile	CSP-30	28-07-03		<2	<50	<100	<100	ND
ALS	ES41300	Clean Stockpile	CSP-31	28-07-03		<2	<50	271	<100	271
ALS	ES41301	Suspect Stockpile	SSP-11	29-07-03	QC27 / QC28	<2	58	362	<100	420
ALS	ES41301	Suspect Stockpile	SSP-12	29-07-03		<2	<50	166	<100	166
ALS	ES41301	Suspect Stockpile	SSP-13	29-07-03		<2	86	294	<100	380
ALS	ES41301	Suspect Stockpile	SSP-14	29-07-03		<2	79	277	<100	356
ALS	ES41301	Suspect Stockpile	SSP-15	29-07-03		<2	<50	184	<100	184
ALS	ES41301	Suspect Stockpile	SSP-16	29-07-03		<2	<50	115	<100	115
ALS	ES41325	Clean Stockpile	CSP-32	30-07-03		<2	174	574	<100	748
ALS	ES41325	Clean Stockpile	CSP-33	30-07-03		<2	128	404	<100	532
ALS	ES41325	Suspect Stockpile	SSP-17	30-07-03		<2	<50	<100	<100	ND

Prepared by: LMW (URS)
Checked by: FMM (URS)

Table 9
TPH Analytical Results
Backfill Validation Samples

Laboratory	Batch No	Sample Type	Sample ID	Sample Date	QC Sample ID	C6 - C9	C10 - C14	C15 - C28	C29 - C36	Total C10-C36
ALS	ES41325	Suspect Stockpile	SSP-18	30-07-03		<2	<50	309	<100	309
ALS	ES41462	Clean Stockpile	CSP-34	5-08-03	QC40	<2	<50	185	<100	185
ALS	ES41462	Suspect Stockpile	SSP-19	5-08-03		<2	<50	<100	<100	ND
ALS	ES41462	Suspect Stockpile	SSP-20	5-08-03		<2	<50	134	<100	134

Notes:

LOR	Analytical Laboratory Limit of Reporting
ND	Not detected above LOR
N/A	Not analysed

Table 17
TPH Analytical Results
Validation Samples - Balance of Site

Laboratory	Batch No	Sample ID	Sample Date	QC Sample ID / Laboratory Batch No.	TPH C6-C9	TPH C10-C14	TPH C15-C28	TPH C29-C36	TPH Total C10-C36
Amdel	9505815	Z8-5	1995		–	–	–	–	ND
Amdel	9505802	Z8-6	1995	AGAL N95/032612	–	–	–	–	ND
Amdel	9505815	Z8-7	1995		–	–	–	–	ND
Amdel	9505815	Z8-8	1995		–	–	–	–	ND
ALS	ES34735	TP14_0.3-0.5	23-07-02		<2	<50	<100	<100	ND
ALS	ES34682	TP14_1.3-1.5	23-07-02	DUP01	<2	116	583	134	833
ALS	ES34735	TP14_2.4-2.6	23-07-02		<2	159	611	<100	770
ALS	ES34736	TP15_0.3-0.5	23-07-02		<2	<50	<100	<100	ND
ALS	ES34736	TP21_0.3-0.5	23-07-02		<2	<50	<100	<100	ND
ALS	ES34736	TP23_1.3-1.5	23-07-02		<2	<50	<100	<100	ND
ALS	ES34736	TP24_0.3-0.5	23-07-02		<2	<50	<100	<100	ND
ALS	ES34741	TP01_1.3-1.5	24-07-02	DUP05	<2	<50	<100	<100	ND
ALS	ES34741	TP03_0.3-0.5	24-07-02	DUP07 / DUP08	<2	<50	<100	<100	ND
ALS	ES34741	TP06_1.3-1.5	24-07-02		<2	<50	<100	<100	ND
ALS	ES34761	TP08_1.3-1.5	24-07-02	DUP13 / DUP14	<2	<50	<100	<100	ND
ALS	ES34741	TP09_1.3-1.5	24-07-02		<2	<50	<100	<100	ND
ALS	ES34736	TP15_1.3-1.5	24-07-02		<2	<50	<100	<100	ND
ALS	ES34762	SP1	25-07-02		<2	<50	232	168	400
ALS	ES34762	SP10	25-07-02		<2	<50	<100	<100	ND
ALS	ES34762	SP11-9	25-07-02		<2	<50	<100	<100	ND
ALS	ES34762	SP2	25-07-02		<2	<50	<100	<100	ND
ALS	ES34762	SP3	25-07-02	DUP15 / DUP16	<2	<50	102	<100	102
ALS	ES34762	SP4	25-07-02		<2	<50	<100	<100	ND
ALS	ES34762	SP5	25-07-02		<2	<50	<100	<100	ND
ALS	ES34762	SP6	25-07-02		<2	<50	<100	<100	ND
ALS	ES34762	SP7	25-07-02	DUP17	<2	<50	134	<100	134
ALS	ES35296	BH03_1.0-1.2	28-08-02		<20	<50	<100	<100	ND
ALS	ES35296	BH03_3.0-3.2	28-08-02		<20	<50	<100	<100	ND
ALS	ES35296	BH12_2.2-2.3	28-08-02		<20	137	328	<100	465
ALS	ES35296	BH13_0.8-1.3	28-08-02		<20	<50	130	<100	130
ALS	ES35296	BH21_1.7	28-08-02		<20	<50	<100	<100	ND
ALS	ES35296	BH22_2.5-2.7	28-08-02		<20	140	502	<100	642
ALS	ES35293	BH23_1.3-1.5	28-08-02		<2	<50	134	<100	134
ALS	ES35293	BH24_0.8-1.0	28-08-02		<2	94	512	<100	606
ALS	ES35360	TP106 3.0-3.2	10-09-02		<2	<50	<100	<100	ND
ALS	ES35561	TP111 2.0-2.2	10-09-02		<2	<50	<100	<100	ND
ALS	ES35561	TP112 3.0-3.2	10-09-02		<2	<50	<100	<100	ND
ALS	ES35561	TP113 2.0-2.2	10-09-02		<2	<50	<100	<100	ND
ALS	ES35561	TP113 3.0-3.2	10-09-02	DUP110 / DUP111	<2	<50	<100	<100	ND
ALS	ES39306	BH100_4.5-4.9	12-04-03		<2	<50	<100	<100	ND
ALS	ES39306	BH100_5.5-5.9	12-04-03		<2	<50	<100	<100	ND
ALS	ES39306	BH101_2.8-3.2	12-04-03		<2	<50	<100	<100	ND

Table 17
TPH Analytical Results
Validation Samples - Balance of Site

Laboratory	Batch No	Sample ID	Sample Date	QC Sample ID / Laboratory Batch No.	TPH C6-C9	TPH C10-C14	TPH C15-C28	TPH C29-C36	TPH Total C10-C36
				LOR	2	50	100	100	
Amdel	9503299	HA81	1995		--	--	--	--	ND
Amdel	9503299	HA82	1995		--	--	--	--	ND
Amdel	9503299	HA83	1995		--	--	--	--	ND
Amdel	9503388	HA84	1995		--	--	--	--	ND
Amdel	9503299	HA85	1995		--	--	--	--	ND
Amdel	9502353	SZ-51	1995		--	--	--	--	ND
Amdel	9502353	SZ-52	1995		--	--	--	--	ND
Amdel	9502353	SZ-53	1995		--	--	--	--	ND
Amdel	9502353	SZ-54	1995		--	--	--	--	700
Amdel	9502353	SZ-61	1995		--	--	--	--	ND
Amdel	9502353	SZ-62	1995		--	--	--	--	900
Amdel	9502353	SZ-63	1995		--	--	--	--	ND
Amdel	9505849	TW-S1	1995		--	--	--	--	ND
Amdel	9505849	TW-S2	1995		--	--	--	--	ND
Amdel	9505849	TW-S3	1995		--	--	--	--	ND
Amdel	9505849	TW-S4	1995		--	--	--	--	ND
Amdel	9505659	Z2-1	1995		--	--	--	--	ND
Amdel	9505668	Z2-12	1995		--	--	--	--	ND
Amdel	9505668	Z2-13	1995		--	--	--	--	ND
Amdel	9505668	Z2-14	1995		--	--	--	--	ND
Amdel	9505668	Z2-15	1995		--	--	--	--	ND
Amdel	9505668	Z2-16	1995		--	--	--	--	ND
Amdel	9505668	Z2-17	1995		--	--	--	--	ND
Amdel	9505727	Z2-18	1995		--	--	--	--	ND
Amdel	9505727	Z2-19	1995		--	--	--	--	ND
Amdel	9505659	Z2-2	1995		--	--	--	--	ND
Amdel	9505777	Z2-20	1995		--	--	--	--	ND
Amdel	9505777	Z2-21	1995		--	--	--	--	ND
Amdel	9505777	Z2-22	1995		--	--	--	--	510
Amdel	9505777	Z2-24	1995		--	--	--	--	ND
Amdel	9505659	Z2-3	1995		--	--	--	--	ND
Amdel	9505659	Z2-4	1995		--	--	--	--	ND
Amdel	9505659	Z2-5	1995		--	--	--	--	ND
Amdel	9505659	Z2-6	1995		--	--	--	--	ND
Amdel	9505727	Z2-7	1995		--	--	--	--	ND
Amdel	9505849	Z3-12	1995	AGAL N95/032831	--	--	--	--	ND
Amdel	9505802	Z8-1	1995		--	--	--	--	ND
Amdel	9505802	Z8-2	1995		--	--	--	--	ND
Amdel	9505802	Z8-3	1995		--	--	--	--	ND
Amdel	9505802	Z8-4	1995		--	--	--	--	ND

Table 16
TPH Analytical Results
Validation Samples - TPH Area

Laboratory	Batch No	Sample Type	Sample ID	Sample Date	QC Sample ID	C6 - C9	C10 - C14	C15 - C28	C29 - C36	Total C10-C36
ALS	ES41300	Wall Sample	EXW-36	28-07-03		<2	<50	<100	<100	ND
ALS	ES41300	Wall Sample	EXW-38	28-07-03		<2	<50	256	<100	256
ALS	ES41300	Wall Sample	EXW-39	28-07-03		<2	<50	154	<100	154
ALS	ES41300	Wall Sample	EXW-40	28-07-03		<2	108	406	<100	514
ALS	ES41300	Wall Sample	EXW-42	28-07-03		<2	<50	<100	<100	ND
ALS	ES41301	Base Sample	EXB-59	29-07-03		<2	<50	<100	<100	ND
ALS	ES41301	Base Sample	EXB-60	29-07-03		<2	221	744	109	1074
ALS	ES41301	Base Sample	EXB-61	29-07-03		<2	<50	<100	<100	ND
ALS	ES41325	Base Sample	EXB-62	29-07-03		<2	169	596	<100	765
ALS	ES41325	Spot Check	SCB-01	29-07-03		<2	<50	<100	<100	ND
ALS	ES41325	Spot Check	SCB-02	29-07-03	QC29 / QC30	<2	<50	<100	<100	ND
ALS	ES41325	Spot Check	SCW-01	29-07-03		<2	<50	<100	<100	ND
ALS	ES41325	Spot Check	SCW-02	29-07-03		<2	<50	<100	<100	ND
ALS	ES41325	Spot Check	SCW-03	29-07-03		<2	<50	<100	<100	ND
ALS	ES41325	Spot Check	SCW-04	29-07-03		<2	<50	<100	<100	ND
ALS	ES41436	Base Sample	EXB-63	4-08-03		<2	<50	<100	<100	ND
ALS	ES41436	Base Sample	EXB-64	4-08-03		<2	<50	<100	<100	ND
ALS	ES41436	Wall Sample	EXW-43	4-08-03		<2	169	512	<100	681
ALS	ES41436	Wall Sample	EXW-44	4-08-03		<2	<50	<100	<100	ND
ALS	ES41436	Wall Sample	EXW-45	4-08-03		<2	144	475	<100	619
ALS	ES41436	Wall Sample	EXW-46	4-08-03		<2	<50	292	<100	292
ALS	ES41436	Wall Sample	EXW-48	4-08-03		<2	<50	152	<100	152
ALS	ES41436	Spot Check	SCB-03	4-08-03		<2	<50	<100	<100	ND
ALS	ES41436	Spot Check	SCW-05	4-08-03		<2	<50	<100	<100	ND
ALS	ES41436	Spot Check	SCW-06	4-08-03		<2	<50	<100	<100	ND
ALS	ES51573	ScrapedSurface	SS-01	12-08-03		<2	<50	289	142	431
ALS	ES51573	ScrapedSurface	SS-02	12-08-03		<2	<50	206	<100	206
ALS	ES51573	ScrapedSurface	SS-03	12-08-03	QC41	<2	<50	252	<100	252
ALS	ES51573	ScrapedSurface	SS-04	12-08-03		<2	<50	<100	<100	ND
ALS	ES51573	ScrapedSurface	SS-05	12-08-03		<2	<50	<100	<100	ND
ALS	ES51573	ScrapedSurface	SS-06	12-08-03		<2	<50	<100	<100	ND
ALS	ES51573	ScrapedSurface	SS-07	12-08-03		<2	<50	<100	<100	ND
ALS	ES51573	ScrapedSurface	SS-08	12-08-03	QC42	<2	<50	<100	<100	ND

Notes:

LOR	Analytical Laboratory Limit of Reporting
ND	Not detected above LOR
N/A	Not analysed

Table 16
TPH Analytical Results
Validation Samples - TPH Area

Laboratory	Batch No	Sample Type	Sample ID	Sample Date	QC Sample ID	C6 - C9	C10 - C14	C15 - C28	C29 - C36	Total C10-C36
ALS	ES41049	Base Sample	EXB-25	15-07-03	QC14	<2	60	239	<100	299
ALS	ES41049	Base Sample	EXB-26	15-07-03		<2	<50	<100	<100	ND
ALS	ES41049	Wall Sample	EXW-27	15-07-03		<2	214	606	<100	820
ALS	ES41075	Base Sample	EXB-27	17-07-03		<2	<50	<100	<100	ND
ALS	ES41075	Base Sample	EXB-28	17-07-03		<2	<50	<100	<100	ND
ALS	ES41075	Base Sample	EXB-29	17-07-03	QC15 / QC16	<2	<50	240	<100	240
ALS	ES41075	Base Sample	EXB-30	17-07-03		<2	<50	<100	<100	ND
ALS	ES41100	Base Sample	EXB-31	17-07-03		<2	<50	<100	<100	ND
ALS	ES41100	Base Sample	EXB-32	18-07-03		<2	<50	<100	<100	ND
ALS	ES41100	Base Sample	EXB-33	18-07-03		<2	<50	<100	<100	ND
ALS	ES41100	Base Sample	EXB-34	18-07-03		<2	<50	<100	<100	ND
ALS	ES41100	Base Sample	EXB-35	18-07-03		<2	<50	<100	<100	ND
ALS	ES41124	Base Sample	EXB-36	19-07-03		<2	<50	<100	<100	ND
ALS	ES41124	Base Sample	EXB-37	19-07-03		<2	<50	<100	<100	ND
ALS	ES41124	Base Sample	EXB-38	21-07-03		<2	<50	<100	<100	ND
ALS	ES41152	Base Sample	EXB-39	21-07-03		<2	<50	<100	<100	ND
ALS	ES41152	Base Sample	EXB-40	21-07-03		<2	<50	<100	<100	ND
ALS	ES41152	Base Sample	EXB-41	22-07-03		<2	<50	<100	<100	ND
ALS	ES41152	Base Sample	EXB-42	22-07-03		<2	<50	<100	<100	ND
ALS	ES41152	Base Sample	EXB-43	22-07-03		<2	<50	<100	<100	ND
ALS	ES41192	Base Sample	EXB-44	22-07-03		<2	<50	<100	<100	ND
ALS	ES41152	Wall Sample	EXW-29	22-07-03		<2	<50	204	<100	204
ALS	ES41152	Wall Sample	EXW-30	22-07-03		<2	<50	<100	<100	ND
ALS	ES41152	Wall Sample	EXW-31	22-07-03		<2	<50	<100	<100	ND
ALS	ES41192	Wall Sample	EXW-32	22-07-03		<2	<50	<100	<100	ND
ALS	ES41215	Base Sample	EXB-45	24-07-03		<2	<50	<100	<100	ND
ALS	ES41215	Base Sample	EXB-46	24-07-03		<2	<50	<100	<100	ND
ALS	ES41215	Base Sample	EXB-47	24-07-03		<2	<50	<100	<100	ND
ALS	ES41215	Base Sample	EXB-48	24-07-03	QC21	<2	<50	<100	<100	ND
ALS	ES41244	Base Sample	EXB-49	24-07-03		<2	<50	<100	<100	ND
ALS	ES41244	Base Sample	EXB-50	24-07-03		<2	<50	155	<100	155
ALS	ES41244	Base Sample	EXB-51	24-07-03		<2	<50	<100	<100	ND
ALS	ES41215	Wall Sample	EXW-33	24-07-03		<2	77	389	<100	466
ALS	ES41215	Wall Sample	EXW-34	24-07-03		<2	<50	<100	<100	ND
ALS	ES41244	Base Sample	EXB-52	25-07-03		<2	<50	338	133	471
ALS	ES41244	Base Sample	EXB-53	25-07-03		<2	<50	<100	<100	ND
ALS	ES41244	Base Sample	EXB-54	25-07-03	QC24 / QC25	<2	<50	<100	<100	ND
ALS	ES41274	Base Sample	EXB-55	28-07-03	QC26	<2	<50	<100	<100	ND
ALS	ES41300	Base Sample	EXB-56	28-07-03		<2	<50	135	<100	135
ALS	ES41300	Base Sample	EXB-57	28-07-03		<2	<50	<100	<100	ND
ALS	ES41300	Base Sample	EXB-58	28-07-03		<2	63	249	<100	312

Table 16
TPH Analytical Results
Validation Samples - TPH Area

Laboratory	Batch No	Sample Type	Sample ID	Sample Date	QC Sample ID	C6 - C9	C10 - C14	C15 - C28	C29 - C36	Total C10-C36
ALS	ES40876	Wall Sample	EXW-01	7-07-03		<2	<50	<100	<100	ND
ALS	ES40876	Wall Sample	EXW-02	7-07-03		<2	<50	<100	<100	ND
ALS	ES40876	Wall Sample	EXW-03	7-07-03		<2	96	655	153	904
ALS	ES40905	Wall Sample	EXW-06	7-07-03		<2	<50	<100	<100	ND
ALS	ES40905	Wall Sample	EXW-07	7-07-03		<2	<50	139	<100	139
ALS	ES40905	Wall Sample	EXW-08	7-07-03		<2	<50	<100	<100	ND
ALS	ES40905	Base Sample	EXB-03	8-07-03	QC04	<2	<50	<100	<100	ND
ALS	ES40905	Base Sample	EXB-05	8-07-03		<2	89	253	<100	342
ALS	ES40905	Wall Sample	EXW-10	8-07-03		<2	<50	<100	<100	ND
ALS	ES40905	Wall Sample	EXW-11	8-07-03		<2	<50	<100	<100	ND
ALS	ES40905	Wall Sample	EXW-12	8-07-03		<2	<50	<100	<100	ND
Labmark	No.014762	Base Sample	EXB-06	9-07-03		<10	60	350	<100	410
Labmark	No.014762	Base Sample	EXB-07	9-07-03		<10	<50	180	<100	180
ALS	ES40959	Base Sample	EXB-08	9-07-03		<2	<50	<100	<100	ND
ALS	ES40959	Base Sample	EXB-10	9-07-03		<2	53	136	<100	189
ALS	ES40959	Base Sample	EXB-11	9-07-03		<2	<50	<100	<100	ND
ALS	ES40959	Base Sample	EXB-12	9-07-03		<2	<50	<100	<100	ND
Labmark	No.014762	Wall Sample	EXW-09	9-07-03	QC01 / QC02	<10	<50	<100	<100	ND
ALS	ES40959	Wall Sample	EXW-13	9-07-03		<2	<50	<100	<100	ND
ALS	ES40959	Wall Sample	EXW-14	9-07-03		<2	<50	<100	<100	ND
ALS	ES40959	Wall Sample	EXW-15	9-07-03		<2	<50	<100	<100	ND
ALS	ES40959	Wall Sample	EXW-16	9-07-03		<2	<50	<100	<100	ND
ALS	ES41009	Base Sample	EXB-13	10-07-03		<2	<50	<100	<100	ND
ALS	ES40959	Wall Sample	EXW-17	10-07-03		<2	<50	<100	<100	ND
ALS	ES41009	Base Sample	EXB-14	12-07-03		<2	<50	<100	<100	ND
ALS	ES41009	Base Sample	EXB-15	12-07-03		<2	<50	<100	<100	ND
ALS	ES41009	Base Sample	EXB-16	12-07-03		<2	<50	<100	<100	ND
ALS	ES41009	Base Sample	EXB-17	12-07-03		<2	100	745	128	973
ALS	ES41007	Base Sample	EXB-18	12-07-03		<2	<50	<100	<100	ND
ALS	ES41009	Wall Sample	EXW-19	12-07-03		<2	<50	<100	<100	ND
ALS	ES41007	Wall Sample	EXW-21	12-07-03		<2	<50	<100	<100	ND
ALS	ES41007	Base Sample	EXB-19	14-07-03		<2	<50	<100	<100	ND
ALS	ES41007	Base Sample	EXB-20	14-07-03		<2	<50	<100	<100	ND
ALS	ES41028	Base Sample	EXB-21	14-07-03		<2	<50	<100	<100	ND
ALS	ES41028	Base Sample	EXB-22	14-07-03		<2	<50	<100	<100	ND
ALS	ES41028	Base Sample	EXB-23	14-07-03		<2	<50	<100	<100	ND
ALS	ES41028	Base Sample	EXB-24	14-07-03		<2	<50	<100	<100	ND
ALS	ES41007	Wall Sample	EXW-22	14-07-03	QC07 / QC08	<2	<50	<100	<100	ND
ALS	ES41007	Wall Sample	EXW-23	14-07-03		<2	<50	<100	<100	ND
ALS	ES41028	Wall Sample	EXW-24	14-07-03		<2	<50	<100	<100	ND
ALS	ES41028	Wall Sample	EXW-25	14-07-03		<2	<50	<100	<100	ND
ALS	ES41028	Wall Sample	EXW-26	14-07-03	QC13	<2	<50	<100	<100	ND

Table 16
TPH Analytical Results
Validation Samples - TPH Area

Laboratory	Batch No	Sample Type	Sample ID	Sample Date	QC Sample ID	C6 - C9	C10 - C14	C15 - C28	C29 - C36	Total C10-C36
					LOR	2	50	100	100	
Amdel	9505777	Historic Validation	Z2-23	1995		–	–	–	–	ND
Amdel	9505777	Historic Validation	Z2-25	1995		–	–	–	–	ND
Amdel	9505777	Historic Validation	Z2-26	1995		–	–	–	–	ND
Amdel	9505802	Historic Validation	Z3-10	1995		–	–	–	–	360
ALS	ES34736	Delineation Validation	TP22_0.3-0.5	23-07-02		<2	<50	<100	<100	ND
ALS	ES34736	Delineation Validation	TP22_1.3-1.5	23-07-02	DUP02 / DUP03	<2	<50	<100	<100	ND
ALS	ES34735	Delineation Validation	TP26_0.3-0.5	23-07-02		<2	<50	169	<100	169
ALS	ES34682	Delineation Validation	TP26_1.3-1.5	23-07-02		<2	113	564	162	839
ALS	ES34735	Delineation Validation	TP26_2.9-3.0	23-07-02		<2	259	694	<100	953
ALS	ES35296	Delineation Validation	BH01_2.3-2.5	27-08-02		<20	<50	<100	<100	ND
ALS	ES35298	Delineation Validation	BH04_3.2-3.4	27-08-02		<2	<50	<100	<100	ND
ALS	ES35296	Delineation Validation	BH08_3.7-3.9	27-08-02		<20	<50	<100	<100	ND
ALS	ES35296	Delineation Validation	BH09_2.0-2.2	28-08-02		<20	95	350	<100	445
ALS	ES35296	Delineation Validation	BH10_1.0-1.2	28-08-02		<20	196	620	<100	816
ALS	ES35296	Delineation Validation	BH11_1.0-1.2	28-08-02	DUP13	<20	125	582	<100	707
ALS	ES35360	Delineation Validation	TP100 2.0-2.2	10-09-02		<2	<50	<100	<100	ND
ALS	ES35360	Delineation Validation	TP101 3.0-3.2	10-09-02		<2	<50	<100	<100	ND
ALS	ES35360	Delineation Validation	TP102_1.0-1.2	10-09-02		<2	<50	<100	<100	ND
ALS	ES35360	Delineation Validation	TP103 3.5-3.7	10-09-02	DUP101 / DUP102	<2	<50	<100	<100	ND
ALS	ES35360	Delineation Validation	TP104 1.0-1.2	10-09-02		<2	<50	<100	<100	ND
ALS	ES35360	Delineation Validation	TP104 3.5-3.7	10-09-02		<2	<50	<100	<100	ND
ALS	ES35360	Delineation Validation	TP105 3.0-3.2	10-09-02	DUP103	<2	<50	<100	<100	ND
ALS	ES35360	Delineation Validation	TP107 3.5-3.7	10-09-02		<2	<50	<100	<100	ND
ALS	ES35360	Delineation Validation	TP108 3.5-3.7	10-09-02	DUP106	<2	<50	<100	<100	ND
ALS	ES35561	Delineation Validation	TP110 3.0-3.2	10-09-02		<2	<50	<100	<100	ND
ALS	ES39307	Delineation Validation	BH111_3.0-3.4	16-04-03		<2	<50	<100	<100	ND
ALS	ES39307	Delineation Validation	BH201_3.0-3.4	16-04-03		<2	<50	<100	<100	ND
ALS	ES39307	Delineation Validation	BH201_3.5-3.9	16-04-03		<2	<50	<100	<100	ND
ALS	ES39352	Delineation Validation	BH202_3.5-3.9	17-04-03		<2	<50	<100	<100	ND
ALS	ES39352	Delineation Validation	BH202_4.0-4.4	17-04-03		<2	<50	<100	<100	ND
ALS	ES39352	Delineation Validation	BH203_3.0-3.4	17-04-03	DUP09	<2	<50	<100	<100	ND
ALS	ES39352	Delineation Validation	BH203_3.5-3.9	17-04-03		<2	<50	<100	<100	ND
ALS	ES39352	Delineation Validation	BH204_3.0-3.4	17-04-03		<2	<50	<100	<100	ND
ALS	ES39352	Delineation Validation	BH205_3.0-3.4	22-04-03		<2	<50	226	<100	226
ALS	ES39352	Delineation Validation	BH205_3.5-3.9	22-04-03		<2	<50	<100	<100	ND
ALS	ES39352	Delineation Validation	BH206_3.0-3.4	22-04-03		<2	<50	<100	<100	ND
ALS	ES39375	Delineation Validation	BH208_3.0-3.3	23-04-03		<2	<50	<100	<100	ND
ALS	ES40876	Base Sample	EXB-01	7-07-03		<2	<50	<100	<100	ND
ALS	ES40905	Base Sample	EXB-02	7-07-03		<2	<50	<100	<100	ND

Prepared by: LMW (URS)
Checked by: FMM (URS)

Table 15
Asbestos Validation Results

Laboratory	Batch No	Sample ID	Sample Date	QC Sample ID	Sample Description	Asbestos Result
ASET	2661 / 3625	SPA_03	18-03-03		Mixture of sandy soil, stones, fragments of plaster and bitumen and debris.	ND
ASET	2661 / 3625	SPA_04	18-03-03		Mixture of sandy soil, stones, plant matter, fragments of plaster and debris.	ND
ASET	2661 / 3625	SPA_05	18-03-03		Mixture of sandy soil, stones, plant matter, fragments of plaster and debris.	ND
ASET	2661 / 3625	SPA_06	18-03-03		Mixture of sandy soil, stones, plant matter, fragments of plaster and debris.	ND
ASET	2661 / 3625	SPA_07	18-03-03		Mixture of sandy soil, stones, plant matter, fragments of plaster, corroded metal and debris.	ND
ASET	2661 / 3625	SPA_08	18-03-03		Mixture of sandy soil, stones, plant matter, fragments of plaster and bitumen and debris.	ND
ASET	2661 / 3625	SPA_09	18-03-03		Mixture of sandy soil, stones, plant matter, fragments of plaster and bitumen and debris.	ND
ASET	2661 / 3625	SPA_10	18-03-03		Mixture of sandy soil, stones, plant matter, fragments of plaster and debris.	ND
ASET	2661 / 3625	SPA_11	18-03-03		Mixture of sandy soil, stones, plant matter, fragments of plaster and debris.	ND
ASET	2661 / 3625	SPA_12	18-03-03		Mixture of sandy soil, plant matter, fragments of plaster and debris.	ND
ASET	2661 / 3625	SPB_01	18-03-03		Mixture of sandy soil, stones, plant matter, fragments of plaster and debris,	ND
ASET	2661 / 3625	SPB_02	18-03-03		Mixture of sandy soil, stones, plant matter, fragments of plaster and debris.	ND
ASET	ES39497	SP-BASE 01	30-04-03		Mixture of sandy soil, stones, plant matter, fragments of plaster and brick and debris	ND
ASET	ES39497	SP-BASE 02	30-04-03		Mixture of sandy soil, stones and debris	ND
ASET	ES39497	SP-BASE 03	30-04-03		Mixture of sandy soil, stones, fragments of plaster and debris	ND
ASET	ES39497	SP-BASE 04	30-04-03		Mixture of sandy soil, stones, fragments of plaster and debris	ND

ND - No detection

Table 15
Asbestos Validation Results

Laboratory	Batch No	Sample ID	Sample Date	QC Sample ID	Sample Description	Asbestos Result
ASET	ES34762	SP11-9	25-07-02		Mixture of sandy soil, fragments of plaster and debris.	ND
ASET	ES34762	SP2	25-07-02		Mixture of sandy soil, fragments of plaster and debris.	ND
ASET	ES34762	SP3	25-07-02	DUP15 / DUP16	Mixture of sandy soil, stones, fragments of plaster and bitumen and debris.	ND
ASET	ES34762	SP4	25-07-02		Mixture of sandy soil, stones and debris.	ND
ASET	ES34762	SP5	25-07-02	DUP17	Mixture of sandy soil, stones, fragments of plaster and bitumen and debris.	ND
ASET	ES34762	SP6	25-07-02		Mixture of sandy soil, stones, fragments of plaster and debris.	ND
ASET	ES34762	SP7	25-07-02		Mixture of sandy soil, stones, plant matter and debris.	ND
ASET	ES34761	TP11_0.3-0.5	25-07-02		Mixture of sand, stones and debris	ND
ASET	ES34978	SP1A	8-08-02	FD01	Mixture of sandy soil, stones, plant matter, fragments of plaster and debris.	ND
ASET	ES34978	SP1B	8-08-02		Mixture of sandy soil, stones, plant matter, fragments of plaster and debris.	ND
ASET	ES34978	SP1C	8-08-02		Mixture of sandy soil, stones, plant matter, fragments of plaster and cement and debris.	ND
ASET	ES34978	SP1D	8-08-02		Mixture of sandy soil, stones, plant matter, fragments of plaster and debris.	ND
ASET	ES37609	AS-Z1-01	7-01-03		Mixture of sand, stones and debris	ND
ASET	ES37609	AS-Z1-02	7-01-03		Mixture of sand, stone, plant matter and debris	ND
ASET	ES37609	AS-Z1-03	7-01-03	DUP01	Mixture of sand, stones and debris	ND
ASET	ES37609	AS-Z1-04	7-01-03		Mixture of sand, stones and debris	ND
ASET	2661 / 3625	SPA_01	18-03-03		Mixture of sandy soil, stones, plant matter, fragments of plaster and debris.	ND
ASET	2661 / 3625	SPA_02	18-03-03		Mixture of sandy soil, stones, plant matter, fragments of plaster and bitumen and debris.	ND

ND - No detection

Table 15
Asbestos Validation Results

Laboratory	Batch No	Sample ID	Sample Date	QC Sample ID	Sample Description	Asbestos Result
ASET	ES34736	TP17_0.3-0.5	23-07-02		Mixture of sand, stones, fragments of plaster and bitumen and debris	ND
ASET	ES34736	TP19_0.3-0.5	23-07-02		Mixture of sand, fragments of plaster and debris	ND
ASET	ES34736	TP20_0.3-0.5	23-07-02		Mixture of sand, stones, fragments of plaster and debris	ND
ASET	ES34736	TP21_0.3-0.5	23-07-02		Mixture of sand, stones and debris	ND
ASET	ES34736	TP22_0.3-0.5	23-07-02		Mixture of sand, stones and debris	ND
ASET	ES34736	TP22_1.3-1.5	23-07-02	DUP02 / DUP03	Mixture of sand, stones, fragments of plaster and debris	ND
ASET	ES34736	TP23_0.3-0.5	23-07-02		Mixture of sand, stones, fragments of plaster and debris	ND
ASET	ES34741	TP27_0.3-0.5	23-07-02		Mixture of sand, stones, fragments of bitumen and debris	ND
ASET	ES34741	TP01_0.3-0.5	24-07-02		Mixture of sandy soil, stones, fragments of plaster and bitumen and debris	ND
ASET	ES34741	TP03_0.3-0.5	24-07-02	DUP07 / DUP08	Mixture of sandy soil, stones, fragments of plaster and debris	ND
ASET	ES34741	TP05_0.3-0.5	24-07-02		Mixture of sandy soil, stones, fragments of plaster and debris	ND
ASET	ES34741	TP09_0.3-0.5	24-07-02		Mixture of sandy soil, stones, plant matter, fragments of plaster and bitumen and debris	ND
ASET	ES34741	TP13_0.2-0.4	24-07-02		Mixture of sandy soil, stones, fragments of plaster and bitumen and debris	ND
ASET	ES34741	TP28_0.3-0.5	24-07-02		Mixture of sandy soil, stones, plant matter, fragments of plaster, brick and bitumen and debris	ND
ASET	ES34762	SP1	25-07-02		Mixture of sandy soil, stones, fragments of plaster and bitumen, plant matter and debris.	Chrysotile Asbestos Detected
ASET	ES34762	SP10	25-07-02		Mixture of sandy soil, fragments of plaster and debris.	ND

ND - No detection

Table 14
Reused Backfill
PAH Validation
NEPM 'E' Guideline Areas

Laboratory	Batch No	Sample ID	Sample Date	QC Sample ID	Benzo(a) pyrene	Total PAHs	Location
				LOR	0.5		
Labmark	No.015187	38-41.3 S1Front	19-08-03		<0.5	ND	Stockpile [3]
SGS	24520	LSP-05	26-08-03	LSP-DUP01	<0.05	ND	Stockpile [3]
SGS	24520	LSP-06	26-08-03		<0.05	ND	Stockpile [3]
SGS	24520	LSP-07	26-08-03		0.09	0.93	Stockpile [3]
SGS	24520	LSP-08	26-08-03		0.2	3.4	Stockpile [3]
SGS	24520	LSP-09	26-08-03		<0.05	ND	Stockpile [3]
SGS	24520	LSP-10	26-08-03		<0.05	ND	Stockpile [3]

Notes

1 Relocated - Samples collected prior to Bulk Earthworks program and material likely to have been relocated. Assumed to have been relocated to open space area
2 Insitu - Material remains insitu at respective location marked on plans at current time
3 Stockpile - Samples collected from stockpiled material, replaced on-site

Table 13
Reused Backfill
PAH Validation
NEPM 'D'Guideline Areas

Laboratory	Batch No	Sample ID	Sample Date	QC Sample ID	Benzo(a) pyrene	Total PAHs	Location
				LOR	0.5		
Labmark	No.014981	41.3 Level S1	31-07-03		<0.5	ND	Stockpile [3]
Labmark	No.014981	41.3 Level S2	31-07-03	41.3 Level S2 DUP	<0.5	2.2	Stockpile [3]
Labmark	No.014981	41.3 Level S3	31-07-03		<0.5	ND	Stockpile [3]
Labmark	No.014981	41.3 Level S4	31-07-03		<0.5	ND	Stockpile [3]
Labmark	No.015068	Road2_0.5	7-08-03	Road2_0.5 DUP	<0.5	1.2	Relocated [1]
Labmark	No.015187	38-41.2 S2Back	19-08-03		6.2	61.2	Stockpile [3]
SGS	24520	LSP-11	26-08-03		<0.05	ND	Stockpile [3]
SGS	24520	LSP-12	26-08-03		<0.05	ND	Stockpile [3]

Notes

1 Relocated - Material relocated to beneath building footprints or hard paved areas
2 Insitu - Material remains insitu at respective location marked on plans at current time
3 Stockpile - Samples collected from stockpiled material, replaced on-site

Prepared by: LMW (URS)
Checked by: FMM (URS)

Table 12
Reused Backfill
Lead Validation
NEPM 'E' Guideline Areas

Laboratory	Batch No	Sample ID	Sample Date	QC Sample ID / Laboratory Batch No.	Lead (mg/kg)	Location
				LOR	1 / 5*	
ALS	ES41573	LSP-01	31-07-03		213	Stockpile [3]
ALS	ES41573	LSP-02	31-07-03		102	Stockpile [3]
Labmark	No.015187	38-41.3 S1Front	19-08-03		60	Stockpile [3]
SGS	24520	LSP-05	26-08-03	LSP-DUP01	200	Stockpile [3]
SGS	24520	LSP-06	26-08-03		4	Stockpile [3]
SGS	24520	LSP-07	26-08-03		290	Stockpile [3]
SGS	24520	LSP-08	26-08-03		23	Stockpile [3]
SGS	24520	LSP-09	26-08-03		88	Stockpile [3]
SGS	24520	LSP-10	26-08-03		45	Stockpile [3]

Notes

LOR	Analytical Laboratory Limit of Reporting
1	likely to have been relocated. Assumed to have been relocated to open space.
2	Insitu - Material remains insitu at respective location marked on plans at current time
3	Stockpile - Samples collected from stockpiled material, replaced on-site

Table 11
Reused Backfill
Lead Validation
NEPM 'D' Guideline Areas

Laboratory	Batch No	Sample ID	Sample Date	QC Sample ID / Laboratory Batch No.	Lead (mg/kg)	Location
				LOR	1 / 5*	
Labmark	No.014981	41.3 Level S1	31-07-03		44	Stockpile [3]
Labmark	No.014981	41.3 Level S2	31-07-03	41.3 Level S2 DUP	960	Stockpile [3]
Labmark	No.014981	41.3 Level S3	31-07-03		170	Stockpile [3]
Labmark	No.014981	41.3 Level S4	31-07-03		210	Stockpile [3]
Labmark	No.015068	Road2_0.5	7-08-03	Road2_0.5 DUP	960	Relocated [1]
Labmark	No.015187	38-41.2 S2Back	19-08-03		24	Stockpile [3]
SGS	24520	LSP-11	26-08-03		130	Stockpile [3]
SGS	24520	LSP-12	26-08-03		13	Stockpile [3]

Notes:

LOR Analytical Laboratory Limit of Reporting

* Historical LOR

1 Relocated - Material relocated to beneath building footprints or hard paved areas

2 Insitu - Material remains insitu at respective location marked on plans at current time

3 Stockpile - Samples collected from stockpiled material, replaced on-site

Prepared by: LMW (URS)
Checked by: FMM (URS)

Table 10
Lead Remediation (TP207)
Validation Samples

Laboratory	Batch No	Sample ID	Sample Date	Lead (mg/kg)	Location
			LOR	1 / 5*	
ALS	ES41683	EXB-101	15-08-03	1	Insitu [2]
ALS	ES41683	EXW-101c	15-08-03	392	Insitu [2]
ALS	ES41683	EXW-102c	15-08-03	353	Insitu [2]
ALS	ES41683	EXW-103c	15-08-03	817	Insitu [2]
ALS	ES41683	EXW-104c	15-08-03	684	Insitu [2]

Notes:

LOR	Analytical Laboratory Limit of Reporting
*	Historical LOR
1	Relocated - Material relocated to beneath building footprints or hard paved areas
2	Insitu - Material remains insitu at respective location marked on plans at current time
3	Stockpile - Samples collected from stockpiled material, replaced on-site

Prepared by: LMW (URS)
Checked by: FMM (URS)

Table 17
TPH Analytical Results
Validation Samples - Balance of Site

Laboratory	Batch No	Sample ID	Sample Date	QC Sample ID / Laboratory Batch No.	TPH C6-C9	TPH C10-C14	TPH C15-C28	TPH C29-C36	TPH Total C10-C36
ALS	ES39306	BH101_4.0-4.4	12-04-03	DUP01	<2	<50	<100	<100	ND
ALS	ES39306	BH101_5.5-5.9	12-04-03		<2	<50	<100	<100	ND
ALS	ES39306	BH102_2.8-3.2	12-04-03		<2	<50	<100	<100	ND
ALS	ES39306	BH102_4.2-4.6	12-04-03	DUP02	<2	<50	<100	<100	ND
ALS	ES39306	BH102_5.2-5.3	12-04-03		<2	<50	<100	<100	ND
ALS	ES39306	BH103_2.8-3.2	12-04-03		<2	<50	<100	<100	ND
ALS	ES39306	BH103_4.3-4.7	12-04-03		<2	<50	<100	<100	ND
ALS	ES39306	BH103_5.7-5.8	12-04-03		<2	<50	<100	<100	ND
ALS	ES39306	BH104_2.8-3.2	12-04-03		<2	<50	<100	<100	ND
ALS	ES39306	BH104_4.3-4.7	12-04-03	DUP03	<2	<50	<100	<100	ND
ALS	ES39306	BH104_5.9-6.1	12-04-03		<2	<50	<100	<100	ND
ALS	ES39306	BH105_2.8-3.2	12-04-03		<2	<50	<100	<100	ND
ALS	ES39306	BH105_4.3-4.7	12-04-03		<2	<50	<100	<100	ND
ALS	ES39306	BH105_5.8-6.2	12-04-03		<2	<50	<100	<100	ND
ALS	ES39306	BH106_2.5-2.9	14-04-03	DUP04	<2	<50	<100	<100	ND
ALS	ES39306	BH106_4.0-4.4	14-04-03		<2	<50	<100	<100	ND
ALS	ES39306	BH106_5.5-5.9	14-04-03		<2	<50	<100	<100	ND
ALS	ES39306	BH106_6.2-6.6	14-04-03		<2	<50	<100	<100	ND
ALS	ES39306	BH107_0.5-0.9	15-04-03		<2	82	397	<100	479
ALS	ES39306	BH107_1.0-1.4	15-04-03		<2	101	519	<100	620
ALS	ES39306	BH107_1.5-1.8	15-04-03		<2	<50	<100	<100	ND
ALS	ES39306	BH108_0.5-0.9	16-04-03	DUP05	<2	62	395	<100	457
ALS	ES39306	BH108_1.0-1.4	16-04-03		<2	106	511	<100	617
ALS	ES39306	BH108_1.6-1.8	16-04-03		<2	53	240	<100	293
ALS	ES39306	BH109_0.5-0.9	16-04-03		<2	<50	272	<100	272
ALS	ES39306	BH109_1.0-1.4	16-04-03		<2	105	538	107	750
ALS	ES39306	BH109_1.5-1.9	16-04-03		<2	150	569	<100	719
ALS	ES39306	BH109_2.0-2.3	16-04-03		<2	56	180	<100	236
ALS	ES39306	BH110_0.5-0.9	16-04-03		<2	<50	377	<100	377
ALS	ES39306	BH110_1.0-1.4	16-04-03		<2	115	490	<100	605
ALS	ES39306	BH110_1.5-1.9	16-04-03		<2	<50	223	<100	223
ALS	ES39306	BH110_1.9-2.0	16-04-03		<2	<50	<100	<100	ND
ALS	ES39352	BH112_1.0-1.4	22-04-03	DUP11	<2	<50	159	<100	159
ALS	ES39352	BH112_1.5-1.9	22-04-03		<2	<50	169	<100	169
ALS	ES39352	BH112_2.0-2.2	22-04-03		<2	<50	127	<100	127
ALS	ES39352	BH113_0.7-1.1	22-04-03		<2	<50	<100	<100	ND
ALS	ES39352	BH113_1.2-1.6	22-04-03	DUP12	<2	<50	133	<100	133

Notes:
LOR Analytical Laboratory Limit of Reporting
ND Not detected above LOR
N/A Not analysed

Table 18
Lead Analytical Validation Results - NEPM 'D' Guideline Area

Laboratory	Batch No	Sample ID	Sample Date	QC Sample ID / Laboratory Batch No.	Lead (mg/kg)	Location
				LOR	1 / 5*	
ALS	ES34735	TP14_0.3-0.5	23-07-02		39	Insitu [2]
ALS	ES34682	TP14_1.3-1.5	23-07-02	DUP01	59	Insitu [2]
ALS	ES34735	TP26_0.3-0.5	23-07-02		67	Insitu [2]
ALS	ES34682	TP26_1.3-1.5	23-07-02		164	Insitu [2]
ALS	ES34741	TP05_1.3-1.5	24-07-02	DUP10 / DUP11	2	Insitu [2]
ALS	ES41189	TP207_2.0-2.1	23-07-03		1	Insitu [2]
ALS	ES41189	TP208_0.5-0.6	23-07-03		672	Insitu [2]
ALS	ES41189	TP208_1.0-1.1	23-07-03		466	Insitu [2]
ALS	ES41189	TP208_2.0-2.1	23-07-03		2	Insitu [2]
ALS	ES41189	TP209_0.5-0.6	23-07-03		562	Insitu [2]
ALS	ES41189	TP209_1.0-1.1	23-07-03	QC04	85	Insitu [2]
ALS	ES41189	TP209_2.0-2.1	23-07-03		<1	Insitu [2]
Labmark	No.014981	41.3 Level S1	31-07-03		44	Stockpile [3]
Labmark	No.014981	41.3 Level S2	31-07-03	41.3 Level S2 DUP	960	Stockpile [3]
Labmark	No.014981	41.3 Level S3	31-07-03		170	Stockpile [3]
Labmark	No.014981	41.3 Level S4	31-07-03		210	Stockpile [3]
ALS	ES41346	TP301_0.5-0.6	31-07-03		569	Insitu [2]
ALS	ES41346	TP301_1.0-1.1	31-07-03		297	Insitu [2]
ALS	ES41346	TP301_1.5-1.6	31-07-03	QC34 / QC35	24	Insitu [2]
ALS	ES41346	TP302_0.5-0.6	31-07-03		2810	Insitu [2]
ALS	ES41346	TP302_1.0-1.1	31-07-03		506	Insitu [2]
ALS	ES41346	TP302_1.5-1.6	31-07-03		2	Insitu [2]
ALS	ES41346	TP303_0.5-0.6	31-07-03		323	Insitu [2]
ALS	ES41346	TP303_1.0-1.1	31-07-03	QC33	1780	Insitu [2]
ALS	ES41346	TP303_1.5-1.6	31-07-03		11	Insitu [2]
ALS	ES41463	TP311_0.5-0.6	31-07-03		250	Insitu [2]
ALS	ES41463	TP311_1.0-1.1	31-07-03		32	Insitu [2]

Prepared by: _____ (URS)
Checked by: _____ (URS)

Table 18
Lead Analytical Validation Results - NEPM 'D' Guideline Area

Laboratory	Batch No	Sample ID	Sample Date	QC Sample ID / Laboratory Batch No.	Lead (mg/kg)	Location
				LOR	1 / 5*	
ALS	ES41463	TP312_0.5-0.6	31-07-03		1	Insitu [2]
ALS	ES41463	TP312_1.0-1.1	31-07-03		<1	Insitu [2]
ALS	ES41463	TP313_0.5-0.6	31-07-03		<1	Insitu [2]
ALS	ES41463	TP313_1.0-1.1	31-07-03		<1	Insitu [2]
Labmark	No.015068	Road2_0.5	7-08-03	Road2_0.5 DUP	960	Relocated [1]
ALS	ES41683	EXB-101	15-08-03		1	Insitu [2]
ALS	ES41683	EXW-101c	15-08-03		392	Insitu [2]
ALS	ES41683	EXW-102c	15-08-03		353	Insitu [2]
ALS	ES41683	EXW-103c	15-08-03		817	Insitu [2]
ALS	ES41683	EXW-104c	15-08-03		684	Insitu [2]
Labmark	No.015187	38-41.2 S2Back	19-08-03		24	Stockpile [3]
SGS	24520	LSP-11	26-08-03		130	Stockpile [3]
SGS	24520	LSP-12	26-08-03		13	Stockpile [3]

Notes:

LOR Analytical Laboratory Limit of Reporting

* Historical LOR

1 Relocated - Material relocated to beneath building footprints or hard paved areas

2 Insitu - Material remains insitu at respective location marked on plans at current time

3 Stockpile - Samples collected from stockpiled material, replaced on-site

Prepared by: _____ (URS)

Checked by: _____ (URS)

Table 19
Lead Analytical Validation Results
NEPM 'E' Guideline Areas

Laboratory	Batch No	Sample ID	Sample Date	QC Sample ID / Laboratory Batch No.	Lead (mg/kg)	Location
				LOR	1 / 5*	
Enviromet	9506018	NE-M1	1995		83	Relocated [1]
Enviromet	9506025	PS-12	1995		15	Insitu [2]
Enviromet	9506025	PS-13	1995		<5	Relocated [1]
Enviromet	9506025	PS-14	1995		<5	Relocated [1]
Enviromet	9506025	PS-15	1995		14	Relocated [1]
AGAL	N95/035203	V3-1	1995		11	Insitu [2]
AGAL	N95/035204	V3-2	1995	Enviromet 9606041	120	Insitu [2]
Enviromet	9505153	Z2-M1	1995		5	Relocated [1]
Enviromet	9506025	Z2-M11	1995		<5	Relocated [1]
Enviromet	9505153	Z2-M2	1995		77	Relocated [1]
Enviromet	9505196	Z2-M6	1995		41	Relocated [1]
Enviromet	9506018	Z2-M7	1995		4	Relocated [1]
Enviromet	9506018	Z2-M9	1995		14	Relocated [1]
Enviromet	9505153	Z7-1	1995		<5	Relocated [1]
Enviromet	9505153	Z7-5	1995		<5	Relocated [1]
Enviromet	9505153	Z7-6	1995	AGAL N95/031688	6	Relocated [1]
Enviromet	9505153	Z7-7	1995		<5	Relocated [1]
ALS	ES11195	T3006-S1	30-06-98		84	Relocated [1]
ALS	ES11195	T3006-S3	30-06-98		140	Relocated [1]
ALS	ES11304	RBD007	8-07-98		232	Relocated [1]
ALS	ES11357	VD Ramp	15-07-98		4	Relocated [1]
ALS	ES11357	VD1	15-07-98		33	Relocated [1]
ALS	ES11357	VD3	15-07-98		159	Relocated [1]
ALS	ES11357	VD4	15-07-98		196	Relocated [1]
ALS	ES11357	VD6	15-07-98		26	Relocated [1]
ALS	ES34736	TP15_0.3-0.5	23-07-02	DUP04	30	Insitu [2]
ALS	ES34736	TP15_1.3-1.5	23-07-02		5	Insitu [2]

Table 19
Lead Analytical Validation Results
NEPM 'E' Guideline Areas

Laboratory	Batch No	Sample ID	Sample Date	QC Sample ID / Laboratory Batch No.	Lead (mg/kg)	Location
				LOR	1 / 5*	
ALS	ES34735	TP18_0.3-0.5	23-07-02		39	Relocated [1]
ALS	ES34736	TP20_0.3-0.5	23-07-02		2	Relocated [1]
ALS	ES34736	TP22_0.3-0.5	23-07-02		50	Relocated [1]
ALS	ES34736	TP22_1.3-1.5	23-07-02	DUP02 / DUP03	2	Relocated [1]
ALS	ES34736	TP23_1.3-1.5	23-07-02		1	Relocated [1]
ALS	ES34741	TP04_0.3-0.5	24-07-02		17	Insitu [2]
ALS	ES34741	TP04_1.3-1.5	24-07-02	DUP06	<1	Insitu [2]
ALS	ES34761	TP08_0.3-0.5	24-07-02	DUP12	3	Relocated [1]
ALS	ES34761	TP08_1.3-1.5	24-07-02	DUP13 / DUP14	<1	Relocated [1]
ALS	ES34741	TP12_0.3-0.5	24-07-02		44	Relocated [1]
ALS	ES34741	TP16_0.2-0.4	24-07-02		88	Insitu [2]
ALS	ES34762	SP1	25-07-02		278	Stockpile [3]
ALS	ES34762	SP10	25-07-02		54	Stockpile [3]
ALS	ES34762	SP11-9	25-07-02		45	Stockpile [3]
ALS	ES34762	SP2	25-07-02		749	Stockpile [3]
ALS	ES34762	SP3	25-07-02	DUP15 / DUP16	204	Stockpile [3]
ALS	ES34762	SP4	25-07-02		37	Stockpile [3]
ALS	ES34762	SP5	25-07-02		141	Stockpile [3]
ALS	ES34762	SP6	25-07-02		120	Stockpile [3]
ALS	ES34762	SP7	25-07-02	DUP17	218	Stockpile [3]
ALS	ES41189	TP210_0.5-0.6	23-07-03		202	Insitu [2]
ALS	ES41189	TP210_1.0-1.1	23-07-03		155	Insitu [2]
ALS	ES41189	TP210_2.1-2.2	23-07-03		<1	Insitu [2]
ALS	ES41189	TP211_0.5-0.6	23-07-03	QC05 / QC06	536	Insitu [2]
ALS	ES41189	TP211_1.0-1.1	23-07-03		9	Insitu [2]
ALS	ES41189	TP211_2.0-2.1	23-07-03		1	Insitu [2]
ALS	ES41573	LSP-01	31-07-03		213	Stockpile [3]

Table 19
Lead Analytical Validation Results
NEPM 'E' Guideline Areas

Laboratory	Batch No	Sample ID	Sample Date	QC Sample ID / Laboratory Batch No.	Lead (mg/kg)	Location
				LOR	1 / 5*	
ALS	ES41573	LSP-02	31-07-03		102	Stockpile [3]
ALS	ES41346	TP304_0.5-0.6	31-07-03		417	Insitu [2]
ALS	ES41346	TP304_1.0-1.1	31-07-03		192	Insitu [2]
ALS	ES41346	TP304_1.5-1.6	31-07-03		3	Insitu [2]
ALS	ES41346	TP306_0.5-0.6	31-07-03		542	Insitu [2]
ALS	ES41346	TP306_1.0-1.1	31-07-03		122	Insitu [2]
ALS	ES41346	TP306_1.5-1.6	31-07-03		3	Insitu [2]
ALS	ES41346	TP307_0.5-0.6	31-07-03		46	Insitu [2]
ALS	ES41346	TP307_1.0-1.1	31-07-03		250	Insitu [2]
ALS	ES41346	TP307_1.5-1.6	31-07-03	QC31 / QC32	5	Insitu [2]
Labmark	No.015187	38-41.3 S1Front	19-08-03		60	Stockpile [3]
SGS	24520	LSP-05	26-08-03	LSP-DUP01	200	Stockpile [3]
SGS	24520	LSP-06	26-08-03		4	Stockpile [3]
SGS	24520	LSP-07	26-08-03		290	Stockpile [3]
SGS	24520	LSP-08	26-08-03		23	Stockpile [3]
SGS	24520	LSP-09	26-08-03		88	Stockpile [3]
SGS	24520	LSP-10	26-08-03		45	Stockpile [3]

Notes

LOR	Analytical Laboratory Limit of Reporting
1	Relocated - Samples collected prior to Bulk Earthworks program and material likely to have been relocated. Assumed to have been relocated to open space area
2	Insitu - Material remains insitu at respective location marked on plans at current time
3	Stockpile - Samples collected from stockpiled material, replaced on-site

Table 20
PAHs Analytical Validation Results - NEPM 'E' Guideline Areas

Laboratory	Batch No	Sample ID	Sample Date	QC Sample ID	Benzo(a)pyrene	Total PAHs	Location
				LOR	0.5		
AGAL	N95/035203	V3-1	1995		<0.5	ND	Insitu [2]
AGAL	N95/035204	V3-2	1995		0.5	6.3	Insitu [2]
ALS	ES11195	T3006-S1	30-06-98		<0.5	ND	Relocated [1]
ALS	ES11195	T3006-S3	30-06-98		<0.5	7.5	Relocated [1]
ALS	ES11304	RBD007	8-07-98		<0.5	6.3	Relocated [1]
ALS	ES11357	VD Ramp	15-07-98		<0.5	ND	Relocated [1]
ALS	ES11357	VD1	15-07-98		<0.5	ND	Relocated [1]
ALS	ES11357	VD3	15-07-98		0.5	8.85	Relocated [1]
ALS	ES11357	VD4	15-07-98		1.3	21.2	Relocated [1]
ALS	ES11357	VD6	15-07-98		<0.5	ND	Relocated [1]
ALS	ES34736	TP15_0.3-0.5	23-07-02		<0.5	ND	Insitu [2]
ALS	ES34736	TP15_1.3-1.5	23-07-02		<0.5	ND	Insitu [2]
ALS	ES34735	TP18_0.3-0.5	23-07-02		<0.5	ND	Relocated [1]
ALS	ES34736	TP20_0.3-0.5	23-07-02		<0.5	ND	Relocated [1]
ALS	ES34736	TP21_0.3-0.5	23-07-02		<0.5	ND	Relocated [1]
ALS	ES34736	TP23_1.3-1.5	23-07-02		<0.5	ND	Relocated [1]
ALS	ES34741	TP04_0.3-0.5	24-07-02		<0.5	ND	Insitu [2]
ALS	ES34741	TP04_1.3-1.5	24-07-02	DUP06	<0.5	ND	Insitu [2]
ALS	ES34741	TP07_0.3-0.5	24-07-02		0.6	4.9	Relocated [1]
ALS	ES34761	TP08_0.3-0.5	24-07-02		<0.5	ND	Relocated [1]
ALS	ES34741	TP12_0.3-0.5	24-07-02		<0.5	ND	Relocated [1]
ALS	ES34741	TP16_0.2-0.4	24-07-02		3.7	38.7	Insitu [2]
ALS	ES34762	SP1	25-07-02		2	21.3	Stockpile [3]
ALS	ES34762	SP10	25-07-02		<0.5	ND	Stockpile [3]
ALS	ES34762	SP11-9	25-07-02		<0.5	ND	Stockpile [3]
ALS	ES34762	SP2	25-07-02		<0.5	ND	Stockpile [3]

Table 20
PAHs Analytical Validation Results -
NEPM 'E' Guideline Areas

Laboratory	Batch No	Sample ID	Sample Date	QC Sample ID	Benzo(a)pyrene	Total PAHs	Location
				LOR	0.5		
ALS	ES34762	SP3	25-07-02	DUP15 / DUP16	1.8	23.9	Stockpile [3]
ALS	ES34762	SP4	25-07-02		<0.5	ND	Stockpile [3]
ALS	ES34762	SP5	25-07-02		0.6	4.4	Stockpile [3]
ALS	ES34762	SP6	25-07-02		1.1	19.6	Stockpile [3]
ALS	ES34762	SP7	25-07-02	DUP17	<0.5	ND	Stockpile [3]
ALS	ES34761	TP10_0.3-0.5	25-07-02		<0.5	ND	Relocated [1]
Labmark	No.015187	38-41.3 S1Front	19-08-03		<0.5	ND	Stockpile [3]
SGS	24520	LSP-05	26-08-03	LSP-DUP01	<0.05	ND	Stockpile [3]
SGS	24520	LSP-06	26-08-03		<0.05	ND	Stockpile [3]
SGS	24520	LSP-07	26-08-03		0.09	0.93	Stockpile [3]
SGS	24520	LSP-08	26-08-03		0.2	3.4	Stockpile [3]
SGS	24520	LSP-09	26-08-03		<0.05	ND	Stockpile [3]
SGS	24520	LSP-10	26-08-03		<0.05	ND	Stockpile [3]

Notes

1	Relocated - Samples collected prior to Bulk Earthworks program and material likely to have been relocated. Assumed to have been relocated to open space area
2	Insitu - Material remains insitu at respective location marked on plans at current time
3	Stockpile - Samples collected from stockpiled material, replaced on-site

Table 21
PAHs Analytical Validation Results
NEPM 'D' Guideline Areas

Laboratory	Batch No	Sample ID	Sample Date	QC Sample ID	Benzo(a)pyrene	Total PAHs	Location
				LOR	0.5		
ALS	ES34735	TP14_0.3-0.5	23-07-02		<0.5	ND	Insitu [2]
ALS	ES34682	TP14_1.3-1.5	23-07-02	DUP01	<0.5	ND	Insitu [2]
ALS	ES34735	TP26_0.3-0.5	23-07-02		<0.5	ND	Insitu [2]
ALS	ES34682	TP26_1.3-1.5	23-07-02		<0.5	0.6	Insitu [2]
ALS	ES34741	TP05_1.3-1.5	24-07-02	DUP10 / DUP11	<0.5	ND	Insitu [2]
Labmark	No.014981	41.3 Level S1	31-07-03		<0.5	ND	Stockpile [3]
Labmark	No.014981	41.3 Level S2	31-07-03	41.3 Level S2 DUP	<0.5	2.2	Stockpile [3]
Labmark	No.014981	41.3 Level S3	31-07-03		<0.5	ND	Stockpile [3]
Labmark	No.014981	41.3 Level S4	31-07-03		<0.5	ND	Stockpile [3]
Labmark	No.015068	Road2_0.5	7-08-03	Road2_0.5 DUP	<0.5	1.2	Relocated [1]
Labmark	No.015187	38-41.2 S2Back	19-08-03		6.2	61.2	Stockpile [3]
SGS	24520	LSP-11	26-08-03		<0.05	ND	Stockpile [3]
SGS	24520	LSP-12	26-08-03		<0.05	ND	Stockpile [3]

Notes

1 Relocated - Material relocated to beneath building footprints or hard paved areas
2 Insitu - Material remains insitu at respective location marked on plans at current time
3 Stockpile - Samples collected from stockpiled material, replaced on-site

Table 22
Analytical Results - Groundwater Samples

		Analyte (ug/L)	TPH					BTEX							
		LOR	C6-C9 20	C10-C14 50	C14-C28 100	C29-C36 50	C10-C36 -	Benzene 1	Toluene 2	Chlorobenzene 2	Ethylbenzene 2	meta- & para-Xylene 2	ortho-Xylene 2	Total Xylene -
Sample Id	Date	Batch No.												
MW1	28-Aug-02	ES35294	43	17000	53200	2090	72290	<1	<2	<2	<2	<2	<2	ND
MW2	28-Aug-02	ES35294	<20	<50	<100	<50	ND	<1	<2	<2	<2	<2	<2	ND
MW3	28-Aug-02	ES35294	39	5830	21200	1590	28620	<1	<2	<2	<2	<2	<2	ND
MW4	28-Aug-02	ES35294	<20	4250	20700	937	25887	<1	<2	<2	<2	<2	<2	ND
MW01	03-Dec-02	ES37037	<20	5650	14900	896	21446	<1	<2	<2	<2	<2	<2	ND
MW02	03-Dec-02	ES37037	<20	<50	<100	<50	ND	<1	<2	<2	<2	<2	<2	ND
MW03	03-Dec-02	ES37037	<20	2770	17000	1800	21570	<1	<2	<2	<2	<2	<2	ND
MW04	03-Dec-02	ES37037	<20	1260	6410	1160	8830	<1	<2	<2	<2	<2	<2	ND
MW05	09-May-03	ES39706	<20	243	1800	224	2267	<1	<2	<2	<2	<2	<2	ND
MW05a	09-May-03	ES39706	<20	2680	9190	1160	13030	<1	<2	<2	<2	<2	<2	ND

Note: All results in ug/L unless otherwise stated
LOR Analytical Laboratory Limit of Reporting
ND Analyte not detected above LOR

Prepared By: URS)
Checked By: URS)

Table 22a
Field Water Quality Parameters -
Groundwater Sampling

Sample Id	Date Sampled	Top of Casing (mAHD)	Depth to SWL (mTOC) Prior to Purging	SWL (mAHD)	Field Water Quality Parameter				
					EC uS/cm	pH	T C	Redox Potential (Eh) mV	DO mg/L
MW1	28-Aug-02	38.74	3.26	35.48	248	6.69	15.5	177	2.13
MW2	28-Aug-02	38.72	3.32	35.4	240	6.06	17.1	431	5.77
MW3	28-Aug-02	37.73	1.94	35.79	465	6.71	14.1	260	4.99
MW4	28-Aug-02	38.71	2.15	36.56	830	6.92	13.6	159	2.54
MW01	3-Dec-02	38.74	3.669	35.071	21	6.85	26.2	119	3.27
MW02	3-Dec-02	38.72	3.716	35.004	6	5.78	25.3	394	5.15
MW03	3-Dec-02	37.73	2.319	35.411	792	6.68	24.2	142	3.75
MW04	3-Dec-02	38.71	2.51	36.2	592	6.72	26.2	133	1.10
MW05	9-May-03	39.050	2.900	36.15	90	-	18.3	-15	3.80
MW05a	9-May-03	37.600	1.400	36.2	150	-	18.5	-22	3.50

Table 23
Analytical Validation Data
Statistical Summary

Validation Data Set	Data Set	No. Samples	Mean	Maximum	Cv	Statistical Method	Distribution	95%UCL	Remediation Guideline Level	Remediation Guideline Level (max allowable)	Reference Remediation Guideline Level
Lead NEPM D Areas	refer Table 18	40	337.15	2810	1.62	US EPA Non-parametric Jacknife	Non-Parametric	483.0	1200	3000	NEPM HIL-D
Lead NEPM E Areas	refer Table 19	71	97.63	749	1.46	NSW EPA Procedure G	Log Normal	323.8	600	1500	NEPM HIL-E
Benzo(a)pyrene NEPM D Areas	refer Table 21	13	0.87	6.2	1.85	NSW EPA Procedure G	Log Normal	2.5	4	10	NEPM HIL-D
Benzo(a)pyrene NEPM E Areas	refer Table 20	39	0.63	3.7	1.01	NSW EPA Procedure D	Normal	0.8	2	5	NEPM HIL-E
Total PAHs NEPM D Areas	refer Table 21	13	8.65	61.2	1.84	NSW EPA Procedure G	Log Normal	19.2	80	200	NEPM HIL-D
Total PAHs NEPM E Areas	refer Table 20	39	7.79	38.7	0.93	NSW EPA Procedure D	Normal	9.8	40	100	NEPM HIL-E
TPH Validation - TPH Remediation Area	refer Table 16	155	295.42	1074	0.54	NSW EPA Procedure D	Normal	316.8	1000	2500	NSW EPA, 1994
TPH Validation - Balance of Site	refer Table 17	119	294.59	900	0.49	NSW EPA Procedure D	Normal	316.9	1000	2500	NSW EPA, 1994
TPH Backfill	refer Table 9	41	293.37	906	0.56	NSW EPA Procedure D	Normal	337.0	1000	2500	NSW EPA, 1994

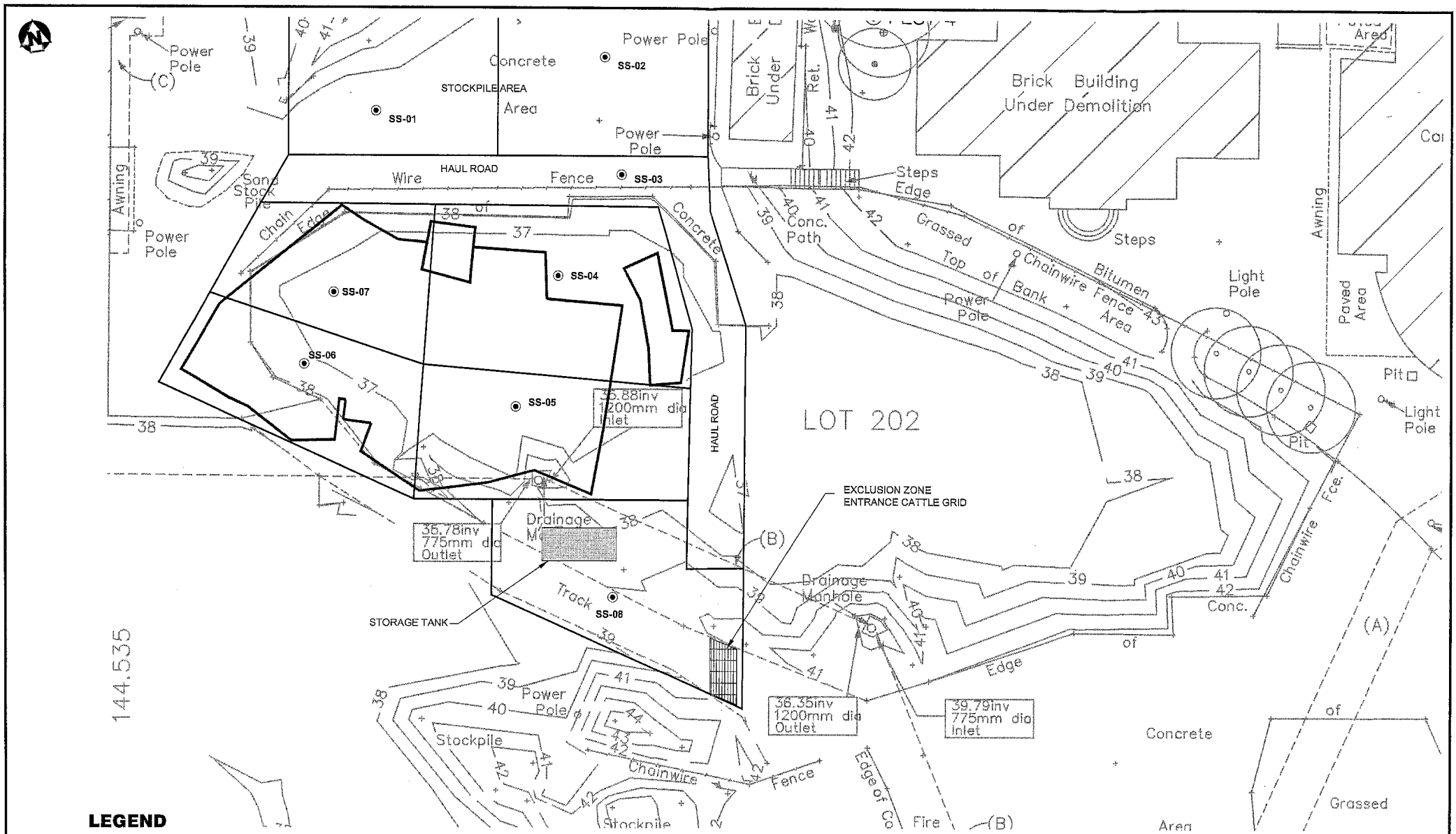
Appendix X - Analytical Data for Soil Samples Representing VENM excavated at King Street, Randwick

Lab Report	Sample ID/ Depth	location	Total TPH mg/kg	As mg/kg	Cd mg/kg	Cr mg/kg	Cu mg/kg	Pb mg/kg	Ni mg/kg	Zn mg/kg	Hg mg/kg	OCs mg/kg	PAHs mg/kg	B(a)P mg/kg	Status
JET1141	KS1	BE41.1 (0-1m)	nd	1.7	<0.5	3.5	<0.5	2.8	2	1.3	-	<0.1	<1	<0.5	
Apr-03	KS2	BE41.1 (0-1m)	nd	<0.5	<0.5	1.1	0.59	2.5	<0.5	1.8	-	<0.1	<1	<0.5	
	KS3	BE41.1 (0-1m)	nd	0.64	<0.5	1.8	<0.5	1.9	1.2	0.63	-	<0.1	<1	<0.5	
	Blank		nd	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.1	<1	<0.5	
JET1141	KS1	BE38.1(0-0.8m)	nd	<1	<1	1	<1	<1	<1	<1	<0.1	<0.1	<1	<0.5	
May-03	KS2	BE38.1(0-0.8m)	nd	1	<1	2	<1	1	<1	<1	<0.1	<0.1	<1	<0.5	
	KS3	BE38.1(0-0.8m)	nd	<1	<1	<1	<1	<1	<1	<1	<0.1	<0.1	<1	<0.5	
	Blank		nd	<1	<1	<1	<1	<1	<1	<1	<0.1	<0.1	<1	<0.5	
JET1141	KS1	BE38.1 (0.8 - 2m)	nd	<1	<1	<1	<1	<1	<1	<1	-	<0.1	<1	<0.5	
Jun-03	KS2	BE38.1 (0.8 - 2m)	nd	<1	<1	3	<1	6	<1	1	-	<0.1	<1	<0.5	
	KS3	BE38.1 (0.8 - 2m)	nd	<1	<1	3	4	65	<1	19	-	0.17	<1	<0.5	
	KS4	BE38.1 (0.8 - 2m)	nd	<1	<1	<1	2	4	<1	4	-	<0.1	<1	<0.5	
	Blank		nd	<1	<1	<1	<1	<1	<1	<1	-	<0.1	<1	<0.5	
LM 014687	SP7	BE38.1 (2 - 5m)	nd	<1	<0.1	1	<2	9	<1	5	<0.05	<0.2	1.7	<0.5	
	SP8	BE38.1 (2 - 5m)	nd	<1	<0.1	3	<2	4	<1	<5	0.05	<0.2	<1	<0.5	
	SP9	BE38.1 (2 - 5m)	nd	<1	<0.1	2	<2	10	<1	5	<0.05	<0.2	<1	<0.5	
	SP10	BE38.1 (2 - 5m)	nd	<1	<0.1	2	<2	9	<1	5	<0.05	<0.2	<1	<0.5	
	SP11	BE38.1 (2 - 5m)	nd	<1	<0.1	3	<2	4	<1	<5	<0.05	<0.2	<1	<0.5	
	SP12	BE38.1 (2 - 5m)	nd	<1	<0.1	2	<2	16	<1	6	<0.05	<0.2	<1	<0.5	
	SP13	BE38.1 (2 - 5m)	nd	<1	<0.1	<1	<2	<2	<1	<5	<0.05	<0.2	<1	<0.5	
	SP14	BE38.1 (2 - 5m)	nd	<1	<0.1	<1	<2	7	<1	<5	<0.05	<0.2	<1	<0.5	
	SP15	BE38.1 (2 - 5m)	nd	<1	<0.1	<1	<2	<2	<1	<5	<0.05	<0.2	<1	<0.5	
	SP16	BE38.1 (2 - 5m)	nd	<1	<0.1	<1	<2	7	<1	5	<0.05	<0.2	<1	<0.5	
LM 014981	*41.3 Level S1*	*BE41.3*	*nd*	*<1*	*<0.1*	*<1*	*6*	*44*	*<1*	*12*	*<0.05*	*<0.2*	*<1*	*<0.5*	Not VENM - Excavated and replaced at Cell 5
	41.3 Level S2	*BE41.3*	*nd*	*<1*	*<0.1*	*2*	*27*	*960*	*1*	*150*	*<0.05*	*<0.2*	*<1*	*<0.5*	Not VENM - Excavated and replaced at Cell 5
	41.3 Level S2 Dup	*BE41.3*	*nd*	*<1*	*<0.1*	*2*	*18*	*620*	*2*	*96*	*<0.05*	*<0.2*	*2.2*	*<0.5*	Not VENM - Excavated and replaced at Cell 5
	41.3 Level S3	*BE41.3*	*nd*	*<1*	*<0.1*	*1*	*12*	*170*	*1*	*54*	*<0.05*	*<0.2*	*<1*	*<0.5*	Not VENM - Excavated and replaced at Cell 5
	41.3 Level S4	*BE41.3*	*nd*	*<1*	*<0.1*	*1*	*10*	*210*	*<1*	*39*	*<0.05*	*<0.2*	*<1*	*<0.5*	Not VENM - Excavated and replaced at Cell 5
LM 015068	Road 1 (0.5m)	BE41.3 roadway	nd	<1	<0.1	<1	<2	2	<1	8	<0.05	<0.2	<1	<0.5	
	Road 1(1.5m)	BE41.3 roadway	nd	<1	<0.1	<1	<2	2	<1	<5	<0.05	<0.2	<1	<0.5	

	*Road 2 (0.5m) **	*BE41.3 roadway*	*nd*	*5*	*<0.1*	*2*	*22*	*960*	*<1*	*17*	*0.11*	*<0.2*	*1.2*	*<0.5*	Not VENM - Excavated and replaced at Cell 8
	*Road 2 (0.5m) Dup **	*Dup Road2 (0.5m)*	*nd*	*9*	*<0.1*	*2*	*26*	*690*	*1*	*31*	*0.16*	*<0.2*	*1.2*	*<0.5*	Not VENM - Excavated and replaced at Cell 8
LM015415	Road 2a (1.0 m)	BE41.3 roadway	NA	-	-	-	-	<2	-	-	-	-	-	-	
	Road 2b (1.0 m)	BE41.3 roadway	NA	-	-	-	-	<2	-	-	-	-	-	-	
LM 015187	41.3 S1 (0.5m)	BE41.3 insitu	nd	<1	<0.1	<1	3	9	<1	<5	<0.05	<0.2	<1	<0.5	
	41.3 S2 (0.5m)	BE41.3 insitu	nd	<1	<0.1	<1	10	11	<1	6	<0.05	<0.2	<1	<0.5	
	41.3 S3 (1.5m)	BE41.3 insitu	nd	<1	<0.1	<1	<2	<2	<1	<5	<0.05	<0.2	<1	<0.5	
	Road 3 (0-1m)	BE44.6 roadway	nd	<1	<0.1	<1	<2	<2	<1	<5	<0.05	<0.2	<1	<0.5	
	Road 3 (1-2m)	BE44.6 roadway	nd	<1	<0.1	2	<2	<2	<1	<5	<0.05	<0.2	<1	<0.5	
	DupV2	Dup2 Road 3 (1-2m)	nd	<1	<0.1	3	<2	<2	1	<5	<0.05	<0.2	<1	<0.5	
	TripV2	Trip2 Road 3 (1-2m)	awaiting results												
	*38-41.3 S1 Front **	*BE38-41.3 s/pile*	*nd*	*<1*	*<0.1*	*2*	*3*	*60*	*<1*	*13*	*<0.05*	*<0.2*	*<1*	*<0.5*	Not VENM - Excavated and replaced at Cell 6
	*38-41.3 S2 Back **	*BE38-41.3 s/pile*	*<100*	*<1*	*<0.1*	*2*	*2*	*24*	*<1*	*8*	*<0.05*	*<0.2*	*61.2*	*6.2*	Not VENM - Excavated and replaced at Cell 7
	44.6 SP1 0-1m	BE44.6 insitu	nd	<1	<0.1	<1	<2	5	<1	<5	<0.05	<0.2	<1	<0.5	
	44.6 SP1 1-2m	BE44.6 insitu	nd	<1	<0.1	1	<2	<2	<1	<5	<0.05	<0.2	<1	<0.5	
	44.6 SP2 0-1m	BE44.6 insitu	nd	<1	<0.1	1	<2	<2	<1	<5	<0.05	<0.2	<1	<0.5	
	DupV1	Dup1 BE44.6SP2 0-1m	nd	<1	<0.1	1	<2	<2	<1	<5	<0.05	<0.2	<1	<0.5	
	TripV1	Trip 1 BE44.6SP2 0-1m	awaiting results												
	44.6 SP2 1-2m	BE44.6 insitu	nd	<1	<0.1	2	<2	<2	<1	<5	<0.05	<0.2	<1	<0.5	
	41.1 SP1	BE41.1 s/pile 1	nd	<1	<0.1	1	<2	4	<1	<5	<0.05	<0.2	<1	<0.5	
	41.1 SP2	BE41.1 s/pile 2	nd	<1	<0.1	2	<2	2	<1	<5	<0.05	<0.2	<1	<0.5	

Notes:

	material not disposed as VENM, to be reused on-site under building slabs (Raod2 0.5m) or disposed offsite as Solid Waste (38-41.3 S1 and S2)
Dup	*Duplicate sample*
Trip	*Triplicate sample*
-	*not analysed*
ND	*not detected, below laboratory detection limit*



LEGEND

EXCAVATION FOOTPRINT

FINAL SURFACE SAMPLING AREAS

FINAL SURFACE SAMPLE LOCATIONS (2003)

NOTES: (1) SURVEY DATA SOURCED FROM PROUST & GARDNER, RECEIVED 25th JUNE 2003

(2) SOURCE OF EXCAVATION FOOTPRINT RECEIVED 21st AUGUST 2003 J.A. BRADSHAW

CLIENT: SIR MOSES MONTEFIORE JEWISH HOME

PROJECT: REMEDIATION VALIDATION, LOT 202 KING STREET RANDWICK

TITLE: TPH REMEDIATION EXCAVATION - FINAL SURFACE SAMPLING

A3

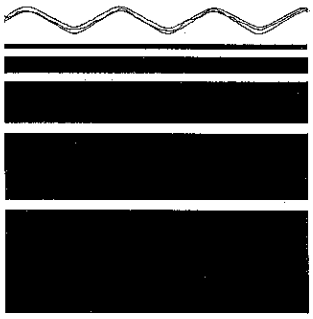
0 10 20

DESIGNED: FM | APPROVED:
DRAWN: RR/JT | DATE:
DATE: 27/10/03 | STATUS: DRAFT

PROJECT: 51072-001
CAD FILE: 059.DWG
REVISION: A

URS

FIGURE 1



APPENDIX D

QA/QC Information

10.0 LABORATORY

	Yes	No (Comment below)
1. Is the laboratory identified?	✓	
2. Was a NATA registered laboratory used?	✓	
3. Did the laboratory perform the requested tests?	✓	
4. Are laboratory methods identified?	✓	
5. Were all the laboratory methods adopted NATA endorsed?	✓	
6. Are any non-standard methods adequately justified and validated?	N/A	
7. Were the appropriate test procedures followed?	✓	
8. Are PQLs and MDLs for each analyte/matrix combination given?	✓	
9. Were the reporting limits satisfactory?	✓	
10. Was the NATA Seal on the reports?	✓	
11. Were the reports signed by an authorised person?	✓	
12. **Were laboratory reports satisfactory? Comment as required.**	✓	

COMMENTS:

11.0 FIELD QA/QC

1) Number of samples collected Soil: 41

Water: below

2) Number of days of sampling: Soil: see attached sheet

Water:

3) Number and type of QA/QC samples collected:

	SOIL			WATER		
	No.	Frequency	Criterion	No.	Frequency	Criterion
Field Duplicates		~10%	10%.			
Trip Blanks	8					
Wash Blanks	4					
Other (Field Blanks, Spiked Trip Blanks, etc.)	8					

4) Field Duplicates

a. Were an adequate number of field duplicates collected?

b. Were RPDs within control limits?
- Organics
- Metals/Inorganics

Control Limits		Yes	No (Comment Below)
		Yes	
Min	Max		
0	35-50%	Yes	

COMMENTS:

The frequency of collection and analysis of trip blanks, trip spikes, and rinsate blanks was low but adequate to assess sample handling, and potential cross contamination and loss of volatiles in field procedures.

Interlaboratory duplicates also analyzed at a frequency of 4%.

5) Trip Blanks

Yes	No (Comment Below)
✓	
✓	

a. Were an adequate number of trip blanks collected?
b. Were the trip blanks free of contaminants?
(If no, comment whether the contaminants present are also detected in the samples and whether they are common laboratory chemicals.)

COMMENTS:

No. of samples collected was adequate for assessing potential for cross contamination in the field

6) Wash Blanks

Yes	No (Comment Below)
✓	
✓	
✓	

a. Were an adequate number of wash blanks collected?
b. Were the wash blanks free of contaminants?
(If no, comment whether the contaminants present are also detected in the samples and whether they are common laboratory chemicals.)
7) Overview: Was field QA/QC satisfactory? Comment as necessary.

COMMENTS:

The number of samples collected was adequate for assessing decontamination procedures of the sampling equipment.

12.0 LABORATORY INTERNAL QUALITY CONTROL PROCEDURES

1) Type and Number of QA/QC Samples

	SOIL			WATER		
	No.	Frequency	Criterion	No.	Frequency	Criterion
Method Blanks/Reagent Blanks		1/batch	1/batch			
Matrix Spikes/Matrix Spike Duplicates		~18%	10%			
Standard/Certified Reference Material Analysis		~18%	10%			
Laboratory Duplicates		~15%	10%			
Surrogates where applicable.		100%	100%			

	Control Limits		Yes	No (Comment Below)
	Min	Max		
2) Were the method blanks/reagent blanks free of contamination?			✓	
3) Were the spike recoveries within control limits?			✓	
Organics	70%	130%	✓	
Metals/Inorganic	0	20%	✓	Generally ✓.
4) Were the RPDs of the laboratory duplicates within control limits?			✓	
5) Were the surrogate recoveries within control limits?	70 %	130%	✓	
6) Were the origin and batch number of certified reference material stated?			X	✓
7) Are all QC results provided?			✓	
8) **Was the overall standard of Laboratory QA/QC adequate? Comment below.**			/	

COMMENTS:

Overall standard of laboratory QA/QC was adequate.

12.6 Origin & batch no. not stated

13.0 DATA USABILITY

Are the field and laboratory analytical data provided of adequate quality for the purpose of this audit? Comment below as necessary.

Yes.

14.0 ASSESSMENT CRITERIA

	Required?	Present?	Adequate?	Comments
Assessment criteria discussed	✓	✓	✓	
Assessment criteria appropriate	✓	✓	✓	
Assessment criteria tabulated in text	✓	✓	✓	
Assessment criteria provided as appendix	X			
Assessment criteria appropriately referenced	✓	✓	✓	
Limitations of criteria stated and discussed	✓	✓	✓	

14.1 Evaluating land-use suitability

	Yes	No	Comments
Has the consultant followed the decision process for assessing urban redevelopment sites (pp 28-29 of the Auditor guidelines) when assessing the suitability for a particular land use?	✓		Yes

14.2 Soil Investigation Levels (SILs)

Has the consultant used SILs?	✓	✓	✓	
Have SILs been used appropriately and competently by the consultant?	✓	✓	✓	
If SILs have not been used, has the consultant undertaken a site-specific risk assessment?	X			

14.3 Petroleum hydrocarbons

Has the consultant used the threshold values published in the *Guidelines for Assessing Service Station Sites 1994*?	✓	✓	✓	
If the Service Station Guideline criteria have not been used, has the consultant undertaken a site specific risk assessment?	X			

C. M. Jewell & Associates Pty Ltd
Water and Environmental Management
ABN 54 056 283 295

Laboratory QA/QC

Job No. 2007 Job King St Randwick

Batch No. .....

Batch NO	Analyte	Total Number of Samples	Number of Primary Samples	Number of Field Duplicates	Method Blank	Lab Duplicates	MS/ MSD	LCS	Surrogate	Cc
39306	TPH/BTEX	44	39	5	3	6	6	6	✓ OK	✓
39307	TPH/BTEX	14	12	2	1	2	2	2	✓ OK	✓
39352	TPH/BTEX	32	27	5	2	4	4	4	✓ OK	✓
39375	TPH	10	10	0	1	2	2	2	✓ OK	✓
39386	TPH	4	4	0	1	0	2	2	✓	✓
40576	TPH	6	6	0	1	0	2	2	✓	✓
40905	TPH	20	18	2	1	2	2	2	✓	✓
* 40959	TPH	16	14 & 2*	0	1	2	2	2	✓	✓
41007	TPH	10	8	2	1	0	2	2	✓	✓ + RD
*41009	TPH	10	8 & 2*	0	1	2	2	2	✓	✓
41028	TPH	10	8	2	1	2	2	2	✓	✓
41049	TPH	5	4	1	1	0	2	2	✓	✓ +RD
* 41075	TPH	8	5 & 2*	1	1	0	2	2	✓	✓
* 41100	TPH	10	7 & 2*	1	1	2	2	2	✓	✓
41124	TPH	5	4	1	1	4	2	2	✓	✓
41152	TPH	11	11	0	1	2	2	2	✓	✓
41192	TPH	2	2	0	1	0	2	2	✓	✓
41215	TPH	11	10	1	1	2	2	2	✓	✓
* 41244	TPH	13	9 & 2*	2	1	4	2	2	✓	✓ RD
* 41274	TPH	6	3 & 2*	1	1	0	2	2	✓	✓ RD
41300	TPH	11	11	0	1	2	2	2	✓	✓
41301	TPH	10	9	1	1	2	2	2	✓	✓
41325	TPH	12	11	1	1	2	2	2	✓	✓
* 41436	TPH	13	11 & 2*	0	1	2	2	2	✓	✓
41462	TPH	4	3	1	1	0	2	2	✓	✓
* 41573	TPH	10	8 & 2*	0	1	2	2	2	✓	✓

* 1 trip spike and 1 trip spike control & Trip blank also included batch but analysed seperately → water

RB: Rinsate blanks