REMEDIATION ACTION PLAN

B9 DEVELOPMENT
1891 BOTANY ROAD
MATRAVILLE NSW 2036

Prepared for: AMCOR PACKAGING (AUSTRALASIA) PTY LTD

FEBRUARY 2008

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MATRAVILLE NSW 2036

DATED: FEBRUARY 2008

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TABLE OF CONTENTS

1. EXECUTIVE SUMMARY 1

2. INTRODUCTION 6

3. SCOPE OF WORK 9

4. SITE INFORMATION 10

4.1 SITE IDENTIFICATION 10
4.2 SITE INSPECTION AND SURROUNDING ENVIRONMENT 10
4.2.1 UNDERGROUND STORAGE TANKS (UST) AND ABOVE GROUND STORAGE TANKS (AST) 11
4.2.2 UTILITIES AND SERVICES 11
4.3 ENVIRONMENTAL SETTING 11
4.3.1 TOPOGRAPHY 11
4.3.2 DRAINAGE 11
4.3.3 REGIONAL GEOLOGY AND SOILS 11
4.3.4 HYDROGEOLOGY 12
4.3.5 METEOROLOGY 13

5. SUMMARY OF PREVIOUS SITE INVESTIGATIONS 14

5.1 HISTORIC INFORMATION 14
5.2 SAMPLING REGIME 15
5.3 LABORATORY RESULTS 18
5.3.1 DATA QUALITY ASSESSMENT 24
5.4 PREVIOUS INVESTIGATION CONCLUSIONS & RECOMMENDATIONS 26
5.4.1 AGC WOODWARD CLYDE (1999) 26
5.4.2 COFFEY GEOSCIENCES PTY LTD (2000) 26
5.4.3 GOLDER ASSOCIATES PTY LTD (2006) 27
5.4.4 ASSESSMENT OF OFF-SITE EFFECTS 28
5.4.5 ASSESSMENT OF CHEMICAL DEGRADATION 28
5.4.6 ASSESSMENT OF POSSIBLE EXPOSURE ROUTES TO HUMAN & ECOLOGICAL RECEPTORS 29

6. PROPOSED REMEDIAL STRATEGY 33

6.1 REMEDIATION GOALS 33
6.2 KEY STAKEHOLDERS 33
6.3 REMEDIATION OPTIONS 37
6.3.1 OPTION 1 – LEAVE CONTAMINATION UNDISTURBED 38
6.3.2 OPTION 2 – EXCAVATION AND OFF-SITE DISPOSAL OF SOILS 38
6.3.3 OPTION 3 – EXCAVATION AND ON-SITE CONTAINMENT OF SOILS 38
6.3.4 OPTION 4 - IN-SITU CONTAINMENT OF CONTAMINATION 39
6.4 RECOMMENDED REMEDIATION STRATEGY 39
6.5 SEQUENCE OF REMEDIATION 41
6.6 REMEDIATION CONTINGENCY PLAN 42

7. CONCLUSIONS AND RECOMMENDATIONS FOR ADDITIONAL ENVIRONMENTAL INVESTIGATION 43

7.1 CONCLUSIONS 43
7.2 RECOMMENDATIONS 46

8. WASTE CLASSIFICATION AND MANAGEMENT 48

8.1 FILL MATERIAL 48
8.2 NATURAL UNDERLYING SOILS 49
8.3 GROUNDWATER 49
8.4 SURFACE WATER 49
8.5 SOIL SAMPLE COLLECTION 49
8.6 STOCKPILE MANAGEMENT 50

9. VALIDATION WORKS 51

9.1 VALIDATION METHODOLOGY 51
9.2 SITE VALIDATION ACCEPTANCE CRITERIA 52
9.3 IMPORTATION OF FILL MATERIAL 53
9.4 VALIDATION REPORTING 54

10. FIELD & LABORATORY QA/QC 56

10.1 FIELD WORK PREPARATION 56
10.2 STANDARD SOIL SAMPLING PROCEDURE 56
10.3 FIELD WORK QA 56
10.4 FIELD BLIND DUPLICATES 57
10.5 RINSATE BLANKS 57
10.6 INTER-LABORATORY DUPLICATES 57
10.7 TRIP BLANKS 57
10.8 LABORATORY QA/QC 58

11. SUPERVISION AND MANAGEMENT 59

11.1 SERVICE LOCATION 59
11.2 PRE-WORK SITE PREPARATION 59
11.3 EXCAVATION STABILISATION 60
11.4 ACCESS AND DECONTAMINATION PROCEDURES 60
11.5 UNEXPECTED FIND PROTOCOL 61
11.5.1 CHEMICAL & ASBESTOS CONTAMINATION 61
11.5.2 UNDERGROUND STORAGE TANKS (UST) 61

12. OCCUPATIONAL HEALTH AND SAFETY 63

12.1 PERSONNEL HYGIENE 63
12.2 GENERAL SITE SAFETY 64
12.3 WORK PRACTICES 64
12.4 MACHINERY AND VEHICLE PRACTICES 64
12.5 DECONTAMINATION PROCEDURES 65
12.6 EMERGENCY PROCEDURES 65

13. ENVIRONMENTAL PROTECTION MEASURES 66

13.1 SEDIMENT AND RUNOFF CONTROL 66
13.2 RUNOFF 66
13.3 DUST & AIRBORNE MATERIAL CONTROL 66
13.4 ODOUR CONTROL 68
13.5 NOISE & VIBRATION CONTROL 68

13.5.1 NOISE CRITERIA 68
13.5.2 VIBRATION CRITERIA 69
13.5.3 NOISE & VIBRATION CONTROL MEASURES 69

14 LIMITATIONS 70

15 REFERENCES 71

LIST OF FIGURES

FIGURE 1 SITE LOCALITY MAP
FIGURE 2 SITE LAYOUT AND SAMPLING LOCATIONS
FIGURE 3 SITE LAYOUT AERIAL PHOTOGRAPH
FIGURE 4 SOIL CONTAMINATION LOCATIONS
FIGURE 5 GROUNDWATER ASSESSMENT LOCATIONS & EXCEEDENCES

LIST OF APPENDICES

APPENDIX A: TABULATED ANALYTICAL RESULTS
Table 1: Analytical results in soils: Asbestos
Table 2: Analytical results in soils: Heavy Metals and pH
Table 3: Analytical results in soils: PAH
Table 4: Analytical results in soils: TPH, BTEX
Table 5: Analytical results in soils: OCP, OPP
Table 6: Analytical results in soils: Phenol, Cyanide and PCB
Table 7: Analytical results in soils: SVOC
Table 8: Analytical results in soils: EOX, Ammonia
Table 9: Analytical results in soils: VOC
Table 10: Analytical results in soils: TCLP
Table 11: Analytical results in groundwater: Metals
Table 12: Analytical results in groundwater: PAH
Table 13: Analytical results in groundwater: TPH, BTEX
Table 14: Analytical results in groundwater: OCP, OPP
Table 15: Analytical results in groundwater: Phenols, PCB
Table 16: Analytical results in groundwater: VOC
Table 17: Analytical results in groundwater: SVOC
Table 18: Analytical results in groundwater: Miscellaneous

APPENDIX B: TEST BOREHOLE LOGS

1. EXECUTIVE SUMMARY

Environmental Monitoring Services (EMS) was commissioned by Amcor Packaging (Australasia) Pty Ltd to prepare a Remedial Action Plan (RAP) for 1891 Botany Road, Matraville, NSW (the Site). The RAP has been prepared to satisfy NSW Department of Environment and Climate Change (DECC) requirements. The RAP has been prepared in accordance with our fee proposal dated 20th March 2007 (EMS ref: S06 2739), as accepted by Amcor on 30th March 2007 (Amcor ref: DHS 002226).

It is understood that the Site is proposed for commercial/industrial redevelopment (referred to at Amcor as the "B9 Development"), which is to include demolition and removal of disused infrastructure in the south western quarter of the Site and a new paper machine and associated infrastructure (including buildings and product store areas) are to be installed.

The objectives of the RAP are to make recommendations relating to:-

- The classification and removal of soils, located within the boundary of the Amcor B9 Development, found to have contamination concentrations that exceed the adopted Site assessment criteria;
- The validation of material to remain onsite as part of the commercial/industrial re-development; and
- The validation of material to be imported onto the Site as part of the commercial/industrial re-development.

The scope of work undertaken by EMS to complete this RAP included the following:-

- Desktop review of previous environmental investigations undertaken at the site;
- Details of requirements for collection and targeted laboratory analysis of soil samples from the Site in order to establish waste classification in accordance with the NSW EPA (1999) *Environmental Guidelines: Assessment, Classification & Management of Liquid & Non-Liquid Wastes*;
- Basic occupational, health and safety requirements for Site workers during remediation works;
- Preliminary details for the excavation, classification, transportation and disposal of soil on Site;
- Details for the validation of excavation pits to ensure that material remaining on Site is suitable for the proposed commercial/industrial redevelopment with reference to the
  - NEPC, National Environment Protection (Assessment of Site Contamination) Measure (1999), *Health based investigation levels (HIL) for commercial/industrial*; and
  - NSW EPA (1994) *Contaminated Sites: Guidelines for Assessing Service Station Sites, Threshold values for sensitive site use*;
- Details for the reporting on the validation in accordance with appropriate NSW EPA guidelines and SEPP 55.

In summary, the findings of previous soil investigations identified the following soil sampling points which exceeded the adopted site assessment criteria:-

Sampling Location & Depth	Analyte	Results *
BH1/1.5-2.0 *	Asbestos	Chrysotile detected
BH2/0.0-0.5 *	Asbestos	Chrysotile detected
BH4/0.1-0.5	Asbestos	Chrysotile detected
BH13/0.0-0.1	Asbestos	Chrysotile detected
BH13/2.0-3.0	Asbestos	Chrysotile detected
BH118/0.2-0.5	Asbestos	Chrysotile detected
BH125/0.0-0.2	Asbestos	Chrysotile detected
BH133/2.1-2.4	Asbestos	Chrysotile detected

* Site assessment criteria: No asbestos fibres detected in the representative Site investigation samples collected, based on the sampling regime.

Sampling Location & Depth	Analyte	Detected Concentration (mg/kg)	Assessment Criteria (mg/kg)
BH13/2.0-3.0	Copper	7,380	5,000
BH13/2.0-3.0	Lead	2,710	1,500
BH14/1.5-2.0 *	Lead	1,660	1,500
B9/4.0-4.6	Copper	6,250	5,000
BH125/2.5	Lead	4,000	1,500
BH132/0.1-0.3	Lead	1,600	1,500
B9/4.0-4.6	TPH C_{10}-C_{36}	1,457	1,000
BH102/0.5-1.0	TPH C_{10}-C_{36}	4,010	1,000
BH108/0.8-1.7	TPH C_{10}-C_{36}	4,500	1,000
BH123/1.0-1.3	TPH C_{10}-C_{36}	1,910	1,000
BH125/2.0	TPH C_{10}-C_{36}	1,950	1,000
BH125/2.5	TPH C_{10}-C_{36}	1,250	1,000
BH116/0.2-0.5	Benzene	3.5	1
BH116/0.2-0.5	Toluene	4.7	1.4
BH116/0.2-0.5	Ethyl benzene	4.6	3.1
BH116/0.2-0.5	Xylene	14.4	14

A statistical analysis was carried out on the results of all Site chemical contaminants that have an adopted site assessment criteria. The statistical analysis included the mean, minimum, maximum, standard deviation and 95% upper confidence level (UCL) of the detected concentration values. This analysis is summarised in the table below:-

Analyte	Mean	Standard Deviation	Min	Max	95% UCL	Assessment Criteria	Distribution	Method
Arsenic	3.776	6.415	0.5	54	4.76	500	Neither	Proc D
Cadmium	1.428	5.471	0.5	54	2.27	100	Neither	Proc D
Chromium	16.487	77.234	0.5	817	14.41	60%	Lognormal	Proc G
Copper	197.105	927.090	0.5	7380	338.63	5000	Lognormal	Proc G

Analyte	Mean	Standard Deviation	Min	Max	95% UCL	Assessment Criteria	Distribution	Method
Lead	156.319	504.851	0.5	4000	412.67	1500	Lognormal	Proc G
Mercury	0.882	2.663	0.05	23	1.29	75	Neither	Proc D
Nickel	15.625	31.121	0.5	211	25.03	3000	Lognormal	Proc G
Silver	0.131	0.398	0.05	2	0.27	15	Neither	Proc D
Zinc	190.909	633.310	0.05	6130	1200.84	35000	Neither	Proc G
Benzo(a)pyrene	0.126	0.274	0.05	2	0.17	5	Neither	Proc D
Total PAHs	1.499	30.84	0.05	27.6	2.01	100	Neither	Proc D
TPH C6-C9	12.5	12.5	12.5	12.5	12.5	65	n/a	n/a
TPH C10-C36	289.011	670.125	105	4500	404.01	1000	Neither	Proc D
Benzene	0.532	0.309	0.5	3.5	0.59	1	Neither	Proc D
Toluene	0.545	0.433	0.5	4.7	0.62	1.4	Neither	Proc D
Ethyl benzene	0.544	0.423	0.5	4.6	0.62	3.1	Neither	Proc D
Xylene	1.143	1.382	1	14.4	1.38	14	Neither	Proc D
Aldrin/Dieldrin	0.25	n/a	0.25	0.25	0.25	50	n/a	n/a
Chlordane	0.25	n/a	0.25	0.25	0.25	250	n/a	n/a
DDD/DDE/DDT	0.25	n/a	0.25	0.25	0.25	1000	n/a	n/a
Heptachlor	0.25	n/a	0.25	0.25	0.25	50	n/a	n/a
PCB	0.3	n/a	0.3	0.3	0.3	50	n/a	n/a
Phenol	2.5	n/a	2.5	2.5	2.5	42500	n/a	n/a

N.B. When statistical tests (D-Agostino or W-Test) state that a data set is neither normally or log-normally distributed, the value which is greater of the Procedure D and Procedure G calculations is presented

It is noted that the standard deviation of the TPH C_{10}-C_{36} statistical analysis is greater than 50% of the adopted Site assessment criteria value. This prevents the 95% UCL statistic value being used to justify selected elevated concentrations of TPH C_{10}-C_{36} as being suitable to remain on site. However, as there are currently a minimum of two sampling locations that have TPH C_{10}-C_{36} concentrations of greater than 250% of the adopted Site assessment criteria, it is expected that remediation and validation sampling at these locations will assist in reducing the standard deviation to less than 50% of the adopted Site assessment criteria value, subsequently increasing the validity of the 95% UCL value.

Previous reports for the Site have included groundwater as part of their investigation scope. A number of conclusions were reached regarding elevated concentrations of selected contaminants, however, some of these conclusions were based on assessment against superseded water quality guidelines (ANZECC (1992) *Australian Water Quality Guidelines for Fresh and Marine Waters*) and in some instances, assessment against freshwater guidelines. It has been noted that assessment of all results should be against ANZECC (2000) trigger values for the protection of 95% of marine species, given that impacted groundwater from the Site would flow into Botany Bay, which is a marine environment.

It is considered that due to variations in time over when the each set of the existing groundwater monitoring wells on Site were sampled and the fact that screening of more than one soil stratigraphy (fill and natural material) during some well construction has taken place, the results obtained may not be an accurate representation of groundwater conditions on the Site. It has also been considered that additional monitoring wells at both the up-gradient and

down-gradient boundaries of the B9 Development will assist in confirming that groundwater moving onto the Site and groundwater leaving the Site is not unacceptably impacted. A summary of the additional groundwater investigation requirements for the Site is detailed further in Section 7 of this RAP. It is considered that it would be more appropriate to establish requirements for groundwater remediation/validation (if any), once the results of the additional groundwater investigation requirements are available. Subsequently, this RAP does not address any specific remediation or validation of groundwater.

In summary, previous groundwater investigations have identified the following contaminants exceeding the Site assessment criteria:-

Contaminant	Elevated Concentration Ranges	Assessment Criteria
Arsenic	0.0035mg/L	0.0023mg/L
Chromium	0.028mg/L	0.274mg/L
Copper	0.002mg/L to 0.004mg/L	0.0013mg/L
Lead	0.008mg/L	0.0044mg/L
Zinc	0.018mg/L to 0.524mg/L	0.015mg/L
TPH C_{10}-C_{36}	2313ug/L to 4358ug/L	600 ug/L
pH	6.31 – 7.33	8.0-8.4
Nitrite and Nitrate as N	2.8mg/L to 6.3mg/L	0.7mg/L
Total Nitrogen as N	7.7mg/L to 125mg/L	0.12mg/L
Phosphorus as P	1.32mg/L to 10.1mg/L	0.025mg/L

The report prepared by Woodward Clyde (1999) noted that groundwater near the northern boundary of the Site (up gradient) was found to contain “elevated concentrations” of lead, zinc, phosphorus and total organic carbon while at the southern boundary, only phosphorus was detected at elevated concentrations, indicating that the Site did not appear to be contributing to heavy metal loads in groundwater.

The report prepared by Golder Associates (2006) identified that volatile and semi-volatile organic compounds (VOC & SVOC), known to be contaminants of concern at the nearby Botany Industrial Park, were not present in detectable concentrations in groundwater migrating onto and off the Site. It is noted that the Amcor Site is generally located hydraulically cross-gradient from the Botany Industrial Park.

A number of remediation options were developed for the Site. After assessment of each of the proposed options, EMS recommends that those soils exceeding the adopted Site assessment criteria are excavated and removed off-site for disposal. This recommendation is based on providing the Site with a comprehensive remediation strategy that:-

- Eliminates on-going maintenance and management costs; and

- Does not place restrictions on future land use.

This recommendation is also considered the most conservative and complete approach, that removes all material assessed to be unsuitable for the proposed land use from the Site.

2. INTRODUCTION

Environmental Monitoring Services (EMS) was commissioned by Amcor Packaging (Australasia) Pty Ltd to prepare a Remedial Action Plan (RAP) for 1891 Botany Road, Matraville, NSW (the Site). The RAP has been prepared to satisfy NSW Department of Environment and Climate Change (DECC) requirements. The RAP has been prepared in accordance with our fee proposal dated 20th Match 2007 (EMS ref: S06 2739), as accepted by Amcor on 30th March 2007 (Amcor ref: DHS 002226).

It is understood that the Site is proposed for commercial/industrial redevelopment (referred to at Amcor as the "B9 Development"), which is to include demolition and removal of disused infrastructure in the south western quarter of the Site and a new paper machine and associated infrastructure (including buildings and product store areas) are to be installed. It is also understood that the relocation of services including a 33kV electrical substation is also required. Subsequently the:-

- NEPC, National Environment Protection (Assessment of Site Contamination) Measure (1999), *Health based investigation levels (HIL) for commercial/industrial;* and
- NSW EPA (1994) *Contaminated Sites: Guidelines for Assessing Service Station Sites, threshold values for sensitive site use* criteria have been adopted for this site.

This RAP details the necessary procedures for the remediation of asbestos and chemically contaminated soils. Details of site characteristics, summary of previous environmental investigations, and the work required to render the Site suitable for the proposed commercial/industrial re-development, are detailed in this report.

It is noted that Amcor require a staged remediation approach to be implemented to facilitate the logistics of the proposed development at the Site. Subsequently, Amcor has divided the Site into seven (7) distinct parcels of land (refer Figure 2). The intent of this division is to enable additional investigation, remediation and validation works (as required) to be carried out on a defined land parcel, so that a Clearance Instruction can be issued by the Site Auditor for that parcel of land, that would enable construction works to commence in that area prior to the issue of a Site Audit Statement for the entire Site.

The parcels of land have been individually numbered (refer Figure 2). The numbers represent the order sequence that land parcel Clearance Instructions are required in order to match the logistics of the overall B9 Development.

It is considered that due to variations in time over when the each set of the existing groundwater monitoring wells on Site were sampled and the fact that screening of more than one soil stratigraphy (fill and natural material) during some well construction, the results obtained may not be an accurate representation of groundwater conditions on the Site. It has also been considered that additional monitoring wells at both the up-gradient and down-gradient boundaries of the B9 Development will assist in confirming that groundwater moving onto the Site and groundwater leaving the Site is not unacceptably impacted. A summary of the additional groundwater investigation requirements for the Site is detailed further in Section 7 of this RAP. It is considered that it would be more appropriate to establish

requirements for groundwater remediation/validation (if any), once the results of the additional groundwater investigation requirements are available. Subsequently, this RAP does not address any specific remediation or validation of groundwater. Refer to Section 5 of this RAP for further information regarding the current understanding of groundwater contamination on the Site.

No underground storage tanks were located on the site during the Site investigations carried out to date, however, there are a number of above ground storage tanks (AST) still present along the southern boundary of the Site (refer to Figure 2). It is proposed that these tanks will be removed as part of the re-development works.

This RAP makes recommendations relating to:-

- Classification and removal of soils found to have contamination concentrations that exceed the adopted Site assessment criteria;
- Validation of material to remain onsite as part of the commercial/industrial re-development; and
- Validation of material to be imported onto the Site as part of the commercial/industrial re-development.

EMS considers that these remedial activities do not meet any of the Category 1 criteria detailed in Section 4.4.1 of the Department of Urban Affairs and Planning (1998) *Managing land contamination: Planning Guidelines SEPP 55 Remediation of land*. Subsequently, EMS considers that these remedial activities constitute Category 2 works and therefore, no development consent is required from the local planning authority. However, the local planning authority has up to 30 days to consider this RAP and verify the works are not Category 1.

The report includes details on the following:-

- A summary of the previous environmental investigations undertaken at the Site;
- Assessment of the analytical results (to date) with reference to appropriate DECC and NEPC guidelines;
- Recommendations on remedial works and procedures required;
- An outline of the validation methodology and validation requirements for the site;
- Basic occupational, health and safety (OH&S) procedures and environmental protection measures to be incorporated with the proposed Site remedial works program; and
- Necessary approvals to be obtained from the relevant regulatory authorities.

The RAP has been developed based on available standards and guidelines prepared by the relevant authorities and the results of the following investigations and documents:-

- AGC Woodward Clyde Pty Ltd (1999) *Preliminary Soil and Groundwater Investigations – Western End of Botany Mill* (nil reference number)

- Coffey Geosciences Pty Ltd (2000) *Proposed Botany Paper Mill, Matraville, NSW, Geotechnical and Environmental Investigation* (ref: S20466/1-AS)

- Golder Associates Pty Ltd (2006) *Environmental and Geotechnical Investigation, Fibre Packaging Plant, Matraville, New South Wales* (ref: 06623026/004)

- WSP Environmental (2007) *Interim Audit Advice, Botany Paper Mill at 1891 Botany Road, Matraville, NSW* (ref: 7005 L01)

3. SCOPE OF WORK

The scope of works undertaken for the purposes of this RAP involved the following procedures:

- Desktop review of previous environmental investigations undertaken at the site;
- Details of requirements for collection and targeted laboratory analysis of soil samples from the Site in order to establish waste classification in accordance with the NSW EPA (1999) *Environmental Guidelines: Assessment, Classification & Management of Liquid & Non-Liquid Wastes*;
- Basic occupational, health and safety requirements for Site workers during remediation works;
- Preliminary details for the excavation, classification, transportation and disposal of soil on Site;
- Details for the validation of excavation pits to ensure that material remaining on Site is suitable for the proposed commercial/industrial redevelopment with reference to the:-
  - NEPC, National Environment Protection (Assessment of Site Contamination) Measure (1999), *Health based investigation levels (HIL) for commercial/industrial* ; and
  - NSW EPA (1994) *Contaminated Sites: Guidelines for Assessing Service Station Sites, Threshold values for sensitive site use*; and
- Details for the reporting on the validation in accordance with appropriate NSW EPA guidelines and SEPP 55.

4. SITE INFORMATION

4.1 SITE IDENTIFICATION

The RAP applies to the property located at 1891 Botany Road, Matraville, NSW (the Site). The Site is located within the Amcor Fibre Packaging facility. The Site has been operating as a paper mill for more than one hundred (100) years.

The project area is irregularly shaped with the following approximate dimensions:-

- Northern boundary – 200 metres;
- Eastern boundary – 190 metres;
- Western boundary – 230 metres; and
- Southern boundary – 290 metres.

The area of the Site that this RAP is the subject of has been estimated at approximately 48,000m^2. This area has not been formally surveyed. The area calculation is based on manually scaled measurements performed on Figure 2 in Golder Associates Pty Ltd (2006).

The general land-use in all surrounding directions consists of mixed commercial, industrial and residential areas. The site is bounded by:-

- Sheencote Street to the north;
- Boiler house and turbine room to the east;
- McCauley Street west, and
- Botany Road to the south.

For the purposes of legal identification, the site is a portion of Lot 1 DP772737, as nominated by the NSW Department of Lands Spatial Information Exchange website (www.maps.nsw.gov.au).

A site locality map is provided as Figure 1. An aerial photograph is provided as Figure 3.

4.2 SITE INSPECTION AND SURROUNDING ENVIRONMENT

The Site is located within the Amcor Fibre Packaging facility at 1891 Botany Road, Matraville. The Site generally slopes down towards Botany Road in the south west. The Site includes disused mill buildings, asphalt roadways, a tank farm, open space and associated infrastructure.

There are no open water bodies currently on the Site, however, there is evidence to suggest the presence of three (3) former settlement ponds along the southern (Botany Road) boundary of the Site. These ponds have been backfilled and landscaped. An aerial photograph review suggests that these ponds were filled and landscaped prior to 1961.

4.2.1 Underground Storage Tanks (UST) and Above Ground Storage Tanks (AST)

There was no evidence in previous investigations to suggest the presence of UST's on the Site. There is visual evidence confirming the presence of AST's on the Site along the southern boundary. It would appear that these tanks are used for a range of purposes including water storage, waste paper clarifying, and caustic soda storage. Some of these tanks appear to have been made redundant.

4.2.2 Utilities and Services

Service easements represent potential pathways for the migration of contaminants, as they are typically located within trenches backfilled with relatively permeable or poorly backfilled material. It is noted that the permeability of the backfill may not be of significance on this Site, given that the Site is located in a marine sand geological environment, which is itself highly permeable. No registered easements were identified in any of the previous investigations carried out for the Site. Anecdotal evidence from Amcor has indicated that various services do transect the Site, however, surrounding infrastructure appears to have prevented any targeted investigation in these areas.

4.3 ENVIRONMENTAL SETTING

The following is a summary of the environmental setting review undertaken during previous investigations. Additional observations by EMS have been added where appropriate.

4.3.1 Topography

Topographic information obtained from the 1:25,000 Botany Bay Topographic Sheet 9130-3-S (1987) indicates the Site is situated less than ten (10) metres above sea level (mAHD). The land rises gently towards the north and north east, away from Botany Road.

4.3.2 Drainage

The majority of rainfall at the Site would be expected to run off the roof of the buildings and flow off site via kerbside and sub surface drainage systems. The nearest surface water body is Botany Bay located approximately 500m south west of the subject site.

4.3.3 Regional Geology and Soils

Reference to the NSW Department of Mineral Resources (1983) *Geological Survey of NSW, Sydney 1:100,000 Geological Series Sheet* indicates that the Site is located on Quaternary medium to fine grain "marine" sand with podsols in a transgressive dune environment.

The 1:100,000 Sydney Soil Landscape Series Sheet 9130 (1983) indicates that the Site is located on disturbed terrain. This soil landscape is described as turfed fill areas commonly

capped with up to 40cm of sandy loam or up to 60cm of compacted clay over fill or waste materials. The uppermost natural soils comprise deep podzols (group of zonal soils where the surface material has a high organic content followed by a light grey, leached layer which is in turn followed by a layer rich in accumulated iron and aluminium) over two metres deep on dunes and also podzol or humus podzol intergrades on swales.

The Department of Land and Water Conservation (1997) *Acid Sulfate Soil Risk Map (Botany Bay 1:25,000) Edition Two* indicates that the Site is located in an area of low probability of occurrence of acid sulfate soil (ASS) materials within the soil profile. The environment of deposition has generally not been suitable for the formation of acid sulfate soil materials. Soil materials are often Pleistocene in age. ASS materials, if present, are sporadic and may be buried by alluvium or windblown sediments. The depth to acid sulfate soil materials would be between one (1) and three (3) metres below the ground surface. Typical landform types for the area are elevated alluvial plains and levees dominated by fluvial sediments. The plains and dunes are dominated by aeolian soils, along with Pleistocene plains and, Lacustrine and alluvial bottom sediments.

While there were sulfidic odours identified at a number of sampling locations on the Site, previous investigations did not identify any visible indicators of ASS such as pale yellow mottles and coatings of jarosite were not observed during the current and previous investigations.

4.3.4 Hydrogeology

Previous site investigation work indicates that:-

- the Site is located on a system of unconfined and semi-confined aquifers that are referred to as the Botany aquifer;
- the average hydraulic gradient in areas of the aquifer near Botany Bay is approximately 1:250 for the shallow horizons and approximately 1:350 for the deeper horizons;
- the regional groundwater flow direction for both the shallow and deep groundwater horizons is in a south to south west direction and discharges into Botany Bay;

More specifically, previous investigations found the following:-

Woodward Clyde (1999) concluded that the elevation of the groundwater varied from 4.0 to 4.3m (AHD) in the north to 1.6-2.1m (AHD) in the south, and that hydraulic gradient of groundwater on the Site was within the approximate range of 1:120 to 1:150. It was considered that groundwater flow was from north to south.

Golder Associates Pty Ltd (2006) concluded that the elevation of the groundwater varied from 2.67m (AHD) to 1.05m (AHD). There was not statement made regarding hydraulic gradient of the groundwater, however the report did indicate that groundwater flow was from the north to the south.

It is considered that the variation in groundwater elevation between the two reports is considered normal, most likely a result of seasonal fluctuations and rainfall.

Specific detail regarding the current understanding of groundwater quality is presented in Section 5.3 of this RAP.

4.3.5 Meteorology

A review of the Australian Government Bureau of Meteorology (BOM) website was carried out to identify meteorological data specific to the Amcor Site. The nearest climatological station to the Site is at Sydney Airport, located approximately 5km to the north west of the Site.

A summary of data available from this station is provided below:-

Element	Monthly Mean Maximum	Monthly Mean Minimum	Annual Mean Total
Temperature (^{o}C)	26.3	7.0	16.65
Rainfall (mm)	117.2	61.7	1087.5
Relative Humidity (%)	74	49	63
Windspeed (km/h)	25.1	12.4	17.7

Source: www.bom.gov.au

5. SUMMARY OF PREVIOUS SITE INVESTIGATIONS

A number of investigations have previously been conducted at the Site:-

- AGC Woodward Clyde Pty Ltd (1999) *Preliminary Soil and Groundwater Investigations – Western End of Botany Mill* (nil reference number)
- Coffey Geosciences Pty Ltd (2000) *Proposed Botany Paper Mill, Matraville, NSW, Geotechnical and Environmental Investigation* (ref: S20466/1-AS)
- Golder Associates Pty Ltd (2006) Environmental and Geotechnical Investigation, Fibre Packaging Plant, Matraville, New South Wales (ref: 06623026/004)

The following represents a summary of those investigations.

5.1 HISTORIC INFORMATION

Amcor has advised that paper making operations on the Site commenced with construction of No. 1 machine in 1901 by Federal Paper Mills. A further seven (7) paper making machines were added over the next 70 years. Six of the machines were then decommissioned and two (Number 7 and Number 8) remain operating on the eastern side of the property (outside the area of the Site).

Historical aerial photographs indicate that the southern part of the Site along Botany Road, once contained large settlement ponds for the storage and/or treatment of liquid waste from the Site. These ponds have since been back filled to their current land form.

Paper making operations are no longer carried out on the Site of the proposed redevelopment, with demolition of some buildings and significant portions of plant and equipment removed. Waste water treatment and the supply of electricity still occur on the Site.

Historical evidence suggests that Bunnerong Power Station used to be located to the west of the Site.

The following potentially contaminating activities and contaminants of concern were identified in previous investigations:-

Potentially contaminating activity	Potential contaminant
Operation of the settlement ponds	Organic waste and nutrients
Biocide treatments of waste water	Mercury
Deposition of boiler ash and use of metals across the Site	Heavy Metals
Bleaching processes	Chlorinated Organic

Potentially contaminating activity	Potential contaminant
	Compounds
Deposition of boiler ash as fill on the Site	Polycyclic aromatic hydrocarbons
Storage of fuels in potential underground tanks	Petroleum hydrocarbons and BTEX
Use of asbestos in insulating materials and wall cladding	Asbestos
Electrical transformers	PCB

It was also noted that additional contaminants were also analysed for, including ammonia, phenols, volatile organic compounds (VOC) and speciated volatile organic compounds (SVOC). The potential for on Site activities to impact on the underlying soils is considered to be medium.

5.2 SAMPLING REGIME

The area of the Site that this RAP is the subject of has been estimated at approximately 48,000m^2. This area has not been formally surveyed. The area calculation is based on manually scaled measurements performed on Figure 2 in Golder Associates Pty Ltd (2006).

Past investigation sampling at 1891 Botany Road, Matraville has resulted in the establishment of sixty (60) sampling points (some of which had groundwater monitoring wells installed in them). Fifty two (52) of the sampling points are within the proposed development area. It is noted however that the scope of this RAP is limited to soils only and not groundwater.

See Figure 2 for sampling locations on the Site.

The soil investigation methodology utilised at the site was primarily a targeted sampling system due to the significant amounts of infrastructure present on the Site, combined with the well known history of past Site uses.

Boreholes were established using a combination of push tube, rotary auger and wash bore drilling rigs.

Soils penetrated during the investigations were described in accordance with the Unified Soil Classification System, with features such as staining, odours and other indications of contamination being noted. This information was recorded on the field borehole logs completed for each sampling location (refer Appendix B).

The previous investigations indicated that no evidence was found to suggest widespread contamination at the Site. It was noted that, due to the sampling regime utilised, there was still potential for pockets of contamination to exist in between sampling locations.

The subsurface strata profile of the sampling locations may be generalised as follows:

- **Fill sands & clays** – up to 1.4 metres below ground level of "clean clayey, silt sand fill" in the northern and central parts of the Site. The southern part of the Site identified "mixed ash fill" down to a depth of 3 metres to 4.5 metres below ground level; and

- **Natural sands** – identified as natural (Botany) sands.

For a Site covering an approximate area of 48,000^2, the NSW EPA (1995) Sampling Design Guidelines recommend a minimum of fifty four (54) sampling points. The previous investigations resulted in fifty two (52) sampling points being located within the Site. It is noted that the limited sampling regime was based on a well known Site history and significant amounts of infrastructure being present on the Site.

Soil moisture/groundwater was detected at the following locations:-

- AGC Woodward Clyde (1999)

Sampling Location	Depth of Moisture/Groundwater (below ground level)
BH1	3.96m
BH2	2.5m
BH3	2.7m
BH4	2.5m
BH6	2.7m
BH7	2.05m
BH8	2.7m
BH9	2.5m
BH10	2.7m
BH11	1.8m
BH12	3.7m
BH12a	1.64m
BH13	3.6m
BH14	1.57m
BH15	2.5m
BH16	3.5m

- Coffey Geosciences Pty Ltd (2000)

Sampling Location	Depth of Moisture/Groundwater (below ground level)
B6	2.25m
B9	3.4m

- Golder Associates Pty Ltd (2006)

Sampling Location	Depth of Moisture/Groundwater (below ground level)
BH113	4.0m
BH117	1.6m
BH121	1.1ml
BH122	3.0m
BH123	1.2m
BH124	4.5m
BH125	3.9m
BH126	3.9m
BH129	1.0m
BH130	2.0m
BH131	4.9m
BH132	4.3m
BH133	6.0m
BH134	2.7m
BH136	4.3m
BH137	3.0m
BH138	2.4m

The following odours were identified during previous environmental investigations on the Site.

- AGC Woodward Clyde (1999)

Borehole & Depth	Odour Description	PID (ppm)
BH14/4.5	Slight organic	4.5

- Coffey Geosciences Pty Ltd (2000)
  - No odours noted

- Golder Associates Pty Ltd (2006)

Borehole & Depth	Odour Description	PID (ppm)
BH117/0.06	Mild phenol	10.6
BH117/1.5	Sulfidic	Not recorded
BH117/1.6	Sulfidic	5
BH117/3.4	Strong sulfidic	4.2
BH117/3.9	Mild sulfidic	Not recorded
BH123/1.0	Sulfidic	5.2

Borehole & Depth	Odour Description	PID (ppm)
BH123/2.0	Sulfidic	0.8
BH123/2.7	Sulfidic	Not recorded
BH125/0.0	Organic	Not recorded
BH125/4.6	Organic	Not recorded
BH125/10.0	Organic	Not recorded
BH129/3.3	Sulfidic	2.6
BH130/2.0	Sulfidic	5.4
BH131/5.9	Sulfidic	Not recorded
BH132/0.9	Sulfidic	6.7
BH132/4.3	Mild sulfidic	Not recorded
BH132/6.2	Sulfidic	Not recorded
BH133/3.1	Sulfidic	2.9
BH133/6.0	Strong sulfidic	Not recorded
BH134/2.5	Sulfidic	Not recorded
BH134/3.8	Sulfidic	Not recorded
BH134/4.0	Sulfidic	Not recorded
BH136/0.2	Strong	Not recorded

It is noted that none of the previous investigations carried out at the Site included evidence to suggest the carrying out of field screening on samples displaying sulfidic odours (to determine the possibility of potential ASS materials being present.

5.3 LABORATORY RESULTS

At the time of the contamination assessment, the soil laboratory results were compared with the NEPC, National Environment Protection (Assessment of Site Contamination) Measure (1999), *Health based investigation levels (HIL) for commercial or industrial land use*, (1999) and the NSW EPA (1994) *Contaminated Sites: Guidelines for Assessing Service Station Sites, Threshold values for sensitive site use.*

These values were selected based on the proposed redevelopment for the Site being industrial in nature.

Laboratory analysis undertaken on soil samples (fill and natural) included

- Metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel, zinc and silver);
- Polycyclic aromatic hydrocarbons (PAH);
- Total petroleum hydrocarbons (TPH C_6-C_{36});
- Monocyclic aromatic hydrocarbons: benzene, toluene, ethyl benzene and xylene (BTEX);
- Organochlorine and organophosphorus pesticides (OCP and OPP);
- Volatile organic compounds (VOC);
- Speciated volatile organic compounds (SVOC);
- Halogenated organic compounds (EOX);
- Polychlorinated biphenyls (PCB);
- pH;

- Ammonia;
- Phenols; and
- Asbestos.

Tabulated laboratory results are presented in Appendix A. It is noted that the tables presented are not copies of the originals in the previous environmental investigations, but rather a compilation of all the relevant data to simplify the data interpretation process;

- Heavy metal analysis returned six (6) concentrations above the adopted Site assessment criteria. These exceedances are summarised as follows:-

Sample	Analyte	Concentration (mg/kg)	Assessment Criteria (mg/kg)
BH13/2.0-3.0	Copper	7,380	5,000
BH13/2.0-3.0	Lead	2,710	1,500
BH14/1.5-2.0 *	Lead	1,660	1,500
B9/4.0-4.6	Copper	6,250	5,000
BH125/2.5	Lead	4,000	1,500
BH132/0.1-0.3	Lead	1,600	1,500

* This sampling location is located outside of the proposed re-development Site.

- Polycyclic aromatic hydrocarbon (PAH) analysis all returned concentrations below the adopted Site assessment criteria;

- Total petroleum hydrocarbon (TPH) C_6-C_9 analysis all returned concentrations below the adopted Site assessment criteria;

- Total petroleum hydrocarbon (TPH) C_{10}-C_{36} analysis returned six (6) concentrations above the adopted Site assessment criteria. These exceedances are summarised as follows:-

Sample	Analyte	Concentration (mg/kg)	Assessment Criteria (mg/kg)
B9/4.0-4.6	TPH C_{10}-C_{36}	1,457	1,000
BH102/0.5-1.0	TPH C_{10}-C_{36}	4,010	1,000
BH108/0.8-1.7	TPH C_{10}-C_{36}	4,500	1,000
BH123/1.0-1.3	TPH C_{10}-C_{36}	1,910	1,000
BH125/2.0	TPH C_{10}-C_{36}	1,950	1,000
BH125/2.5	TPH C_{10}-C_{36}	1,250	1,000

- Benzene, toluene, ethyl benzene & xylene (BTEX) analysis returned one (1) concentration above the adopted Site assessment criteria. These exceedances are summarised as follows:-

Sample	Analyte	Concentration (mg/kg)	Assessment Criteria (mg/kg)

BH116/0.2-0.5	Benzene	3.5	1
BH116/0.2-0.5	Toluene	4.7	1.4
BH116/0.2-0.5	Ethyl benzene	4.6	3.1
BH116/0.2-0.5	Xylene	14.4	14

- Organochlorine and Organophosphorus Pesticides (OCP & OPP) analysis returned concentrations below the adopted Site assessment criteria;
- Polychlorinated Biphenyl (PCB) and Phenol analysis returned concentrations below the adopted Site assessment criteria;
- Speciated volatile organic compound (SVOC) analysis returned concentrations below the adopted Site assessment criteria;
- There were no adopted Site assessment criteria for halogenated organic compounds (EOX). However it was noted that the highest detected concentration of EOX (0.3mg/kg) at sampling location BH7/0.5-1.0 was equal to the "target value" in the Dutch (2000) Intervention Guidelines. The "target value" indicates the level at which there is a sustainable soils quality.
- Ammonia analysis returned concentrations below laboratory detection limits (there were no adopted assessment criteria available for ammonia).
- Volatile organic compound (VOC) analysis returned concentrations below the adopted Site assessment criteria;
- Asbestos analysis returned eight (8) detectable concentrations of asbestos fibres. These detections are summarised as follows:-

Sample	Result
BH1/1.5-2.0 *	Chrysotile asbestos detected
BH2/0.0-0.5 *	Chrysotile asbestos detected
BH4/0.1-0.5	Chrysotile asbestos detected
BH13/0.0-1.0	Chrysotile asbestos detected
BH13/2.0-3.0	Chrysotile asbestos detected
BH118/0.2-0.5	Chrysotile asbestos detected
BH125/0.0-0.2	Chrysotile asbestos detected
BH133/2.1-2.4	Chrysotile asbestos detected

* This sampling location is located outside of the proposed re-development Site.

A statistical analysis was carried out on the results of all Site chemical contaminants that have an adopted site assessment criteria. The statistical analysis included the mean, minimum, maximum, standard deviation and 95% upper confidence level (UCL) of the detected concentration values. This analysis is summarised in the table below:-

Analyte	Mean	Standard Deviation	Min	Max	95% UCL	Assessment Criteria	Distribution	Method
Arsenic	3.776	6.415	0.5	54	4.76	500	Neither	Proc D
Cadmium	1.428	5.471	0.5	54	2.27	100	Neither	Proc D
Chromium	16.487	77.234	0.5	817	14.41	60%	Lognormal	Proc G
Copper	197.105	927.090	0.5	7380	338.63	5000	Lognormal	Proc G
Lead	156.319	504.851	0.5	4000	412.67	1500	Lognormal	Proc G
Mercury	0.882	2.663	0.05	23	1.29	75	Neither	Proc D
Nickel	15.625	31.121	0.5	211	25.03	3000	Lognormal	Proc G
Silver	0.131	0.398	0.05	2	0.27	15	Neither	Proc D
Zinc	190.909	633.310	0.05	6130	1200.84	35000	Neither	Proc G
Benzo(a)pyrene	0.126	0.274	0.05	2	0.17	5	Neither	Proc D
Total PAHs	1.499	30.84	0.05	27.6	2.01	100	Neither	Proc D
TPH C6-C9	12.5	12.5	12.5	12.5	12.5	65	n/a	n/a
TPH C10-C36	289.011	670.125	105	4500	404.01	1000	Neither	Proc D
Benzene	0.532	0.309	0.5	3.5	0.59	1	Neither	Proc D
Toluene	0.545	0.433	0.5	4.7	0.62	1.4	Neither	Proc D
Ethyl benzene	0.544	0.423	0.5	4.6	0.62	3.1	Neither	Proc D
Xylene	1.143	1.382	1	14.4	1.38	14	Neither	Proc D
Aldrin/Dieldrin	0.25	n/a	0.25	0.25	0.25	50	n/a	n/a
Chlordane	0.25	n/a	0.25	0.25	0.25	250	n/a	n/a
DDD/DDE/DDT	0.25	n/a	0.25	0.25	0.25	1000	n/a	n/a
Heptachlor	0.25	n/a	0.25	0.25	0.25	50	n/a	n/a
PCB	0.3	n/a	0.3	0.3	0.3	50	n/a	n/a
Phenol	2.5	n/a	2.5	2.5	2.5	42500	n/a	n/a

N.B. When statistical tests (D-Agostino or W-Test) state that a data set is neither normally or log-normally distributed, the value which is greater of the Procedure D and Procedure G calculations is presented

It is noted that the standard deviation of the TPH C_{10}-C_{36} statistical analysis is greater than 50% of the adopted Site assessment criteria value. This prevents the 95% UCL statistic value being used to justify selected elevated concentrations of TPH C_{10}-C_{36} as being suitable to remain on site. However, as there are currently a minimum of two sampling locations that have TPH C_{10}-C_{36} concentrations of greater than 250% of the adopted Site assessment criteria, it is expected that remediation and validation sampling at these locations will assist in reducing the standard deviation to less than 50% of the adopted Site assessment criteria value, subsequently increasing the validity of the 95% UCL value.

To evaluate the risk posed by potential groundwater contaminants to human health and the environment, concentration levels have been compared to environmental investigation levels taken from the following sources:

- Australian & New Zealand Environment & Conservation Council (ANZECC) Guidelines for Fresh & Marine Water Quality 2000
- Dutch Intervention Guidelines 2000

It is noted that previous investigations carried out on the Site used a combination of superseded versions of these guidelines as well as comparisons with freshwater guidelines.

EMS considers that assessment against current guidelines is more appropriate in order to establish a more accurate understanding of groundwater quality on the Site. The relatively conservative and ecologically protective ANZECC marine water criteria (95% of species protected) have been adopted as the site investigation and acceptance criteria for the ("site criteria"). The marine water criteria have been selected based on the down gradient receiving body of water being Botany Bay (a marine environment) located to the south of the Site.

Selected laboratory analysis undertaken on groundwater samples included:-

- Metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel, zinc and silver);
- Polycyclic aromatic hydrocarbons (PAH);
- Total petroleum hydrocarbons (TPH C_6-C_{36});
- Monocyclic aromatic hydrocarbons: benzene, toluene, ethyl benzene and xylene (BTEX);
- Organochlorine and organophosphorus pesticides (OCP and OPP);
- Volatile organic compounds (VOC);
- Speciated volatile organic compounds (SVOC);
- Polychlorinated biphenyls (PCB);
- Phenols
- pH;
- Electrical conductivity;
- Nitrite and Nitrate as N;
- Total Kjeldahl Nitrogen as N;
- Total Nitrogen as N;
- Phosphorus as P;
- Sulphide & Sulphate;
- Biochemical Oxygen Demand (BOD);
- Total Organic Carbon (TOC); and
- Volatile Acids as Acetic Acid.

Tabulated laboratory results are presented in Appendix A. It is noted that the tables presented are not copies of the originals in the previous environmental investigations, but rather a compilation of all the relevant data to simplify the data interpretation process.

In summary, previous groundwater investigations have identified the following contaminants exceeding the Site assessment criteria:-

Contaminant	Elevated Concentration Ranges	Assessment Criteria
Arsenic	0.0035mg/L	0.0023mg/L
Chromium	0.028mg/L	0.274mg/L
Copper	0.002mg/L to 0.004mg/L	0.0013mg/L
Lead	0.008mg/L	0.0044mg/L
Zinc	0.018mg/L to 0.524mg/L	0.015mg/L
TPH C_{10}-C_{36}	2313ug/L to 4358ug/L	600 ug/L
pH	6.31 – 7.33	8.0-8.4

Contaminant	Elevated Concentration Ranges	Assessment Criteria
Nitrite and Nitrate as N	2.8mg/L to 6.3mg/L	0.7mg/L
Total Nitrogen as N	7.7mg/L to 125mg/L	0.12mg/L
Phosphorus as P	1.32mg/L to 10.1mg/L	0.025mg/L

Further detail regarding groundwater monitoring well locations and their contamination status can be found in Figure 5.

The report prepared by Woodward Clyde (1999) noted following:-

- *The groundwater near the northern boundary of the Site (the up gradient side of the Site) contains elevated concentrations above the ANZECC criteria for the protection of marine ecosystems of lead, zinc, phosphorus and total organic carbon.*

- *The groundwater near the southern boundary of the site contains variably elevated concentrations above the ANZECC criteria for the protection of marine ecosystems for phosphorus.*

- *The groundwater in bore BH12 on the southern boundary of the site also contains weakly elevated concentrations of some parameters characteristic of the impact of organic matter on groundwater. This area reportedly contained ponds used for storage of waste water from paper making processes.*

It is noted that these conclusions were based on assessment that have since been superseded. Assessment has been carried out on past results against current Site criteria with similar results, including elevated concentrations of arsenic, copper and zinc near the southern boundary.

The report prepared by Golder Associates (2006) identified that volatile and semi-volatile organic compounds (VOC & SVOC), known to be contaminants of concern at the nearby Botany Industrial Park, were not present in detectable concentrations in groundwater migrating onto and off the Site. It is noted that the Amcor Site is generally located hydraulically cross-gradient from the Botany Industrial Park.

The Golder Associates (2006) report also noted that heavy metal concentrations in three of the four samples collected were generally below the adopted Site assessment criteria with the exception of three (3) samples reporting elevated chromium concentrations and one (1) sample reporting elevated zinc concentrations. The elevated concentrations of chromium were detected in both up-gradient and down-gradient wells on the Site. Subsequently, it was not possible to identify a source point on the Site and it was suggested that this may just be the natural chemistry of the aquifer.

5.3.1 Data Quality Assessment

In the preparation of this RAP, soil data from three (3) separate investigations was utilised. The following presents an assessment of the quality of the soil data utilised.

AGC Woodward Clyde (1999) reported that:-

- *soil samples BH12/2.0-3.0, BH13/2.0-3.0 and BH14/1.5-2.0 showed low precision for various metal analytes. This variability is probably due to sample heterogeneity;*
- *the 2,4,6-Tribromophenol surrogate was not determined in soil sample BH6/0.9-1.5 due to matrix effects. This was confirmed by re-extraction and re-analysis; and*
- *the lead spike recovery for BH1/1.4-2.0 was not determined due to background levels of this analyte.*

It is noted that sampling location BH14 and BH1 are outside of the proposed redevelopment area.

AGC Woodward Clyde (1999) also reported that:-

> *The soil samples from the areas of fill material demonstrated high relative percentage difference (RPD) between the sample and sample duplicates, during the analyses. However, the laboratory checks showed low RPDs indicating that the differences were likely to be due to sample heterogeneity rather than laboratory error. The soils samples from areas of natural ground generally contained low RPDs and hence, demonstrated sample heterogeneity.*

Coffey Geosciences Pty Ltd (2000) reported that:-

> *RPDs for zinc (99%) and nickel (95%) were above control limits. This is most likely due to the heterogeneity of the fill material. As heavy metal concentrations in fill do not demonstrate good repeatabilities, the heavy metal results of fill should be considered approximate.*

It is noted that the “control limit” for heavy metal RPDs is $\pm$50%

Coffey Geosciences Pty Ltd (2000) also reported that an adequate number of trip blanks were not collected during their investigation works and provided the following comment:-

> *No trip blank was analysed. However, as BTEX and C6-C9 were not detected in any of the samples analysed, this is not considered to affect the usability of the data.*

Coffey Geosciences Pty Ltd (2000) also reported that:-

The laboratory duplicate for B9/4.0-4.6 had RPDs well above control limits for heavy metals and in particular copper and zinc. This is most likely due to the heterogeneity of the fill material. As heavy metal concentrations in fill do not demonstrate good repeatabilities, the heavy metal, PAH and TPH results of fill should be considered approximate.

Golder Associates Pty Ltd (2006) reported that:-

The frequency of duplicates exceeds the required 10% (11.3%)

Of the 50 soil results that could be calculated, 23 RPD values were within the recommended Data Quality Objective (DQO) of 50%. This frequency is not considered acceptable for the purposes of these investigations. The samples which presented the most divergence from the DQOs were BH132/DUP1 for metals and BH102/DUP6 for metals and TPH. BH132/DUP1 came from an area of deep and heterogeneous fill that included ash, slag, gravel and wood pulp as well as clayey sands. It stands to reason that the heterogeneity of the fill should be reflected in the analytical results. BH102/DUP6 was derived from crushed sandstone fill and AMCOR have noted that the borehole is in the vicinity of a former garage which may have possessed an above ground storage tank. The unknown loacility from which the fill was derived coupled with past landuse in the area may account for the degree in variability of the RPDs.

With respect to wash blanks, Golder Associates Pty Ltd (2006) reported that:-

With the exception of a copper concentration of 0.01mg/L and all zinc results, the concentrations were below laboratory detection limits. Golder noted that zinc was present in all three wash blank samples and suspected that the results were not derived from insufficient field decontamination procedures but from inappropriate filtration of the rinsate water by the laboratory. Golder prepared a fourth rinsate blank simply by pouring the rinsate water directly from the bottle supplied by the laboratory into an appropriately preserved bottle for analysis of zinc (WB4). Again the zinc concentration exceeded the laboratory detection limits. This indicated that the field decontamination procedures were sufficient for the purposes of the project and that the exceedances of the laboratory detection limits for zinc were derived from inappropriate laboratory filtration procedures when generating the rinsate water.

Generally speaking, all three investigation reports indicated that holding times, sample preservation, reporting limits and recoveries were all within the requirements of standard quality controls for investigations of this nature.

Based on the above assessment, EMS considers that the available data is suitable for the preparation of this RAP.

As no decisions in this RAP pertain to the status of groundwater and/or any groundwater remediation, an assessment of groundwater data quality has not been carried out.

5.4 PREVIOUS INVESTIGATION CONCLUSIONS & RECOMMENDATIONS

5.4.1 AGC Woodward Clyde (1999)

The conclusions (directly related to soil contamination) in this report were:-

- *Most of the subject area (except the southern part of the subject area) of the site investigated contains a layer of clean fill to a depth of up to 1.4 metres (m) overlying natural sand. There is no evidence of significant broad scale contamination of soils within this area of the site. However, there is potential for pockets of contamination which have not been detected in this preliminary investigation;*

- *In the southern part of the subject area, mixed sand and ash fill was identified to a depth of up to 4.5m, in an area believed to have been former liquid waste ponds filled with ash from Bunnerong Power Station. Concentrations of lead and copper in some soil samples from this fill were above the National Environment Health Forum (NEHF 1996) "F" guidelines for industrial sites;*

- *The results of the assessment to date have not indicated the presence of contamination which is likely to present a significant risk of harm to human health or the environment;*

5.4.2 Coffey Geosciences Pty Ltd (2000)

The conclusions (directly related to soil contamination) in the report were:-

- *Taking into account that some ash was observed in the fill in the southern part of the site and that both Coffey and Woodward Clyde investigations revealed the presence of heavy metal contamination in the fill above threshold concentrations, it is considered likely that at least some of the fill material in the southern part of the site may be unsuitable from a contamination perspective to be reused on site. Further testing is required to delineate the extent of contaminated fill in this area;*

- *Taking into account that both Coffey and Woodward Clyde did not detect significant concentrations of contaminants in the fill in the central and northern parts of the site, it is likely that the majority of fill material in these areas would be suitable to be reused on site, with respect to contamination;*

- *However it is important to note that at this stage, only a limited amount of testing has been undertaken from the fill material, and additional sampling and analysis will be required to confirm the above conclusion;*

- *Trace levels of asbestos fibres were detected in five samples collected across the site by Woodward Clyde. It is recommended that further testing for asbestos be undertaken to assess the extent of asbestos in soils at the Site;*

- *The current field investigations revealed that the fill material at the Site is underlain by dune sands;*

- *Seven samples were collected across the Site from the dune sand underlying the fill material. TPH C_6-C_9, BTEX and PAH were not detected in any of the samples collected from the natural sand. Heavy metals were detected in all samples at levels which can be considered background concentrations and well below the threshold concentrations. TPH C_{10}-C_{36} was detected in one of the sand samples analysed, at a concentration well below the threshold concentration;*

- *Based on the above, it is considered likely that the natural dune sand underlying the fill material on the Site will be suitable for reuse on Site, with respect to contamination;*

- *However, it is important to note that at this stage only a limited amount of testing has been undertaken from the dune sand and additional sampling and analysis will be required to confirm the above conclusion.*

5.4.3 Golder Associates Pty Ltd (2006)

The conclusions (directly related to soil contamination) in the report were:-

- *The results of the environmental soil investigation indicate the soil and fill materials present on the subject site generally satisfy the adopted Site criteria for commercial and industrial land use. Only a small number of samples showed contaminant levels which exceed the criteria and four samples contained analytes at concentrations exceeding 250% of the site criteria value;*

- *It is apparent that one small area towards the north of the site (in the vicinity of BH102 and BH108) requires remedial work prior to redevelopment of the site. This small area contains elevated concentrations of hydrocarbons, primarily in the C_{15}-C_{36} range which indicates that leakage or spillage of diesel fuel or oil has occurred here. It is recommended that once the concrete slab in this area has been removed, the soil be excavated under supervision and probably treated by simple land farming techniques to reduce the TPH concentrations to acceptable levels. The material could then be re-used on site;*

- *It also appears that some other localised areas of hydrocarbon contamination may be present, including BTEX or volatile hydrocarbons at BH116. After the buildings and concrete slabs are demolished and removed, it is recommended that the ground surface in this area be closely inspected for visual or olfactory evidence of hydrocarbon contamination and if necessary, soil testing and possibly minor remediation (as above) be carried out;*

- *Once these areas have been addressed and any necessary remediation carried out, only one sample result showing an exceedance of 250% of the Site criteria will remain, this being the value for lead (4000 mg/kg) at 2.5m depth at BH125, in the area of the proposed paper machine. This result only marginally exceeds 250% times the site criteria (3750 mg/kg) and overall is not considered significant;*

- *Asbestos fibres have been found in samples from five locations, primarily in the southern part of the Site. The asbestos traces were found in various fill materials, at depths ranging from 0 to 2 metres. However, most of the fill materials tested did not contain asbestos. Particular health and safety precautions and special procedures will apply to Site works in one area and long term management controls should be implemented for part of the Site.*

5.4.4 Assessment of Off-Site Effects

The extent of soil and groundwater contamination has been discussed in earlier sections of this RAP. However, as further site investigation work is required both on soils and groundwater to delineate the extent of identified soil contamination and confirm the nature and extent of any current groundwater contamination both entering the Site and leaving the Site, it would not be appropriate to assess any potential off-site effects without that data.

In the interim however, there has been minor heavy metal Toxicity Characteristic Leachate Procedure (TCLP) analysis carried out Site soils (refer Table 10 attached) which all returned TCLP concentrations below laboratory detection limits. This suggests a limitation on the propensity for the tested contaminants to vertically leach from the Site soils into deeper soil stratigraphies. This also suggests a limitation on these contaminants entering adjacent groundwater aquifers and migrating off Site to adjoining properties.

As there has been no extensive leachability analysis carried out on the copper and lead concentrations detected in the Site soils, it is not possible to confirm whether these heavy metals may leach into deeper soil stratigraphies or enter adjacent groundwater aquifers and migrate off site.

TPH C_{10}-C_{36} and BTEX are also contaminants that have been detected at elevated concentrations in soils on the Site. These detections in the north and south of the Site appear to be associated with past land use and possibly imported fill material. There have been elevated TPH C_{10}-C_{36} detections (but not BTEX) in groundwater at the south of the Site. As groundwater is known to flow towards the south on the Site, there is a risk that the TPH C_{10}-C_{36} is migrating off the Site. Once again, additional investigation works on the Site will assist in further assessing this risk.

5.4.5 Assessment of Chemical Degradation

Tabulated below is an assessment of degradation for the elevated contaminants found in the on-site soils:-

Contaminant	Degradation Assessment
Lead	Lead does not break down in the environment. Lead compounds are changed by sunlight, air, and water. Given that the elevated lead concentrations are located in sub-surface soils, it is expected that compound changes would be limited to impact by air in the soil and water impacting the lead from both natural aquifers and percolation of surface waters.
Copper	Copper does not break down in the environment. Lead compounds are changed by air and water. Given that the elevated copper concentrations are located in sub-surface soils, it is expected that compound changes would be limited to impact by air in the soil and water impacting the lead from both natural aquifers and percolation of surface waters.
Total Petroleum Hydrocarbons (TPH)	Some TPH does break down in the environment (natural attenuation) as a result of weathering, including evaporisation, leaching through solution and entrainment, chemical oxidation and microbial degradation.
Benzene	Benzene does break down in the environment (natural attenuation) as a result of weathering, including evaporisation, leaching through solution and entrainment, chemical oxidation and microbial degradation.
Toluene	Toluene does break down in the environment (natural attenuation) as a result of weathering, including evaporisation, leaching through solution and entrainment, chemical oxidation and microbial degradation.
Ethyl benzene	Ethyl benzene does break down in the environment (natural attenuation) as a result of weathering, including evaporisation, leaching through solution and entrainment, chemical oxidation and microbial degradation.
Xylene	Xylene does break down in the environment (natural attenuation) as a result of weathering, including evaporisation, leaching through solution and entrainment, chemical oxidation and microbial degradation.

Source: Agency for Toxic Substances and Disease Registry at www. atsdr.cdc.gov

5.4.6 Assessment of Possible Exposure Routes To Human & Ecological Receptors

The human receptors considered in this assessment are the people working on the Site as well as people working adjacent to the Site.

The ecological receptors considered in this assessment are the flora located on the Site and the marine ecosystem of Botany Bay located 400m to the south west of the Site.

EMS considers that should elevated concentrations of chemical contamination in soil/groundwater be left on Site, there would be four (4) exposure routes that could lead to impact on human health:-

Exposure Route	Assessment
■ Outdoor and, to a lesser extent, indoor dust inhalation by human receptors	The risk of dust inhalation impacting human health is considered to be low to medium. Elevated concentrations of copper, lead, TPH C_{10}-C_{36} and BTEX were only located in subsurface soils, and in some instances beneath a concrete slab, minimising the opportunity for chemically contaminated dusts to become airborne. Detected concentrations of asbestos were located in surficial soils as well as below the surface It is noted that most of the time, any type of asbestos fibre in the sub surface soil is intrinsically damp, and therefore has minimal propensity for becoming airborne where it can be possibly harmful to long term human health. However, during previous investigations, asbestos was identified in surficial soils at two locations within the Site, which increases the risk of its propensity to become airborne. A similar increase in risk would apply during any excavation/construction works occurring on the Site, should sub-surface soils be disturbed and brought to the surface.
■ Dermal contact; and	The risk of dermal contact impacting human health is considered to be low. The identified elevated chemical concentrations in the soil (copper, lead, TPH C_{10}-C_{36} and BTEX) are not located immediately on the surface, while a number of locations are currently covered with a concrete slab currently forming an effective barrier between the contamination and humans. Dermal contact with asbestos fibres (without any respiratory contact) is not known to have an impact on human health.
■ Soil/groundwater ingestion by human receptors	The risk of soil ingestion impacting human health is considered to be low. The identified elevated chemical concentrations in the soil (copper, lead, TPH C_{10}-C_{36} and BTEX) are not located immediately on the

Exposure Route	Assessment
	surface, while a number of locations are currently covered with a concrete slab currently forming an effective barrier between the contamination and humans. The risk of groundwater ingestion impacting human health is considered to be negligible. Groundwater was measured at 1.57m below existing ground level. Ingestion of asbestos fibres (without any respiratory contact) is not known to have an impact on human health.
■ Soil/groundwater ingestion by ecological receptors	The risk of soil ingestion impacting ecological health is considered to be low. Much of the Site is covered with concrete slab, minimising any opportunities for flora to become established in these areas. While there were detected concentrations of contaminants found to exceed the adopted Site assessment acceptance criteria as well as the Interim Urban Ecological Investigation Levels as detailed in NEPC (1999), there was no visual indication of plant dieback or plant stress in those areas of the Site where flora had become established (e.g. southern boundary). The risk of groundwater ingestion impacting ecological health cannot be accurately assessed at this time. Again, while flora on the Site may have root systems that extend into the groundwater table, there are no visual indicators to suggest phytotoxic impacts (e.g. plant dieback or stress). As there is minimal data supporting the potential for migration of contaminated groundwater off the Site (e.g. to Botany Bay), additional groundwater investigation has been recommended. This will assist in further assessment of ecological groundwater ingestion as an exposure route. This assessment may prove to be inconclusive given the extensive landuse (and history of land disturbance) between the Site and Botany Bay (shipping container stevedoring facility and numerous commercial/industrial facilities). Ingestion of asbestos fibres (without any respiratory contact) is not known to have an impact on ecological health.

These soil exposure routes for the identified chemical and asbestos contamination located on the Site can be minimised by implementing the remediation recommendations as detailed in Section 6.4 of this RAP.

6. PROPOSED REMEDIAL STRATEGY

6.1 REMEDIATION GOALS

The goals for the remediation works that are to be undertaken at the Site are:-

- Remediate areas containing unacceptable levels of contamination such that all human and ecological risks are reduced to levels that comply with the proposed commercial/industrial land use, as specified by the DECC;
- Develop and implement appropriate control measures to ensure remediation works are carried out in an environmentally acceptable manner;
- Develop and implement appropriate OH&S control measures to ensure remediation works are carried out in a manner that minimises risk to the health and safety of Site workers and the public; and
- Validate the Site in accordance with DECC requirements.

6.2 KEY STAKEHOLDERS

The following stakeholders shall be involved in the project:-

Site Owner	Amcor Fibre Packaging Jacob Chretien – Technical Manager Ph: 02 9695 3555 Fax: 02 666 3048
Role	▪ Demonstrate the land is or can be made suitable for the proposed use
Responsibilities	▪ Commission contractors and consultants as necessary for the required works
Documents	▪ Development applications and notifications to local planning authorities ▪ Remediation Action Plans (RAP) to local planning authorities ▪ Site Validation Reports (SVR) to Site Auditor

Project Manager	*Company to be confirmed* *Representative to be confirmed* *Ph: to be confirmed* *Fax: to be confirmed*
Role	▪ Liaise and co-ordinate remediation in a safe and controlled manner
Responsibilities	▪ Engage specialist services as required. ▪ Liaise with regulatory authorities as required
Documents	▪ Register of all documentation relevant to planning/remediation issues for the Site

Environmental Consultant	Environmental Monitoring Services Pty Limited Craig Cowper Ph: 02 9699 1100 Fax: 02 9699 1055
Role	▪ Carry out additional Site assessments as necessary ▪ Develop a remediation strategy ▪ Validate the remediation works
Responsibilities	▪ Undertake investigations and validation of the Site in a staged manner that renders the Site suitable for the proposed use ▪ Undertake works in accordance with agreed scope, relevant guidelines and accepted industry practice ▪ Supervision of remediation works
Documents	▪ Additional Contamination assessment reports to Site owner ▪ Remediation Action Plans (RAP) to Site owner ▪ Site Validation Reports (SVR) and Waste Classification Reports to Site owner

Occupational Hygienist	Environmental Monitoring Services Pty Limited Robert Johnson Ph: 02 9699 1100 Fax: 02 9699 1055
Role	▪ Validate the remediation with respect to asbestos contamination

Responsibilities	■ Undertake validation of the Site that renders the Site suitable for the proposed use ■ Undertake works in accordance with agreed scope, relevant guidelines and accepted industry practice ■ Supervision of remediation works
Documents	■ Site Validation Reports (SVR) to Site owner ■ Clearance Instructions to Site owner

Remediation Contractor	*Company to be confirmed* *Representative to be confirmed* *Ph: to be confirmed* *Fax: to be confirmed*
Role	■ Implement the remediation
Responsibilities	■ Undertake the remediation of the Site in a staged manner that renders the Site suitable for the proposed use ■ Undertake works in accordance with agreed scope, relevant guidelines and accepted industry practice ■ Prepare and implement a Site Management Plan (SMP) that ensures protection of the environment and the health and safety of all Site users during remedial and validation works ■ Maintain appropriate licences and approvals for the remediation of contaminated soils (including but not limited to friable asbestos removal)
Documents	■ Site Management Plan (SMP) to Site owner ■ Safe Work Method Statements to Site Owner

Waste Transporter	*Company to be confirmed* *Representative to be confirmed* *Ph: to be confirmed* *Fax: to be confirmed*
Role	■ Transfer material to recycling centres ■ Transfer waste to disposal or storage locations

Responsibilities	■ Transport waste in accordance with NSW EPA (1999) *Environmental Guidelines: Assessment, Classification & Management of Liquid & Non-Liquid Wastes* ■ Maintain appropriate licences and approvals for the transport of contaminated soils (including but not limited to asbestos contaminated soils)
Documents	■ Daily register of vehicle and waste movements to Site owner

Waste Receiving Contractor	Dependent on classification of waste *Company to be confirmed* *Representative to be confirmed* *Ph: to be confirmed* *Fax: to be confirmed*
Role	■ Recycling and/or disposal of wastes
Responsibilities	■ Maintain appropriate licences and approvals to receive waste ■ Store waste (pending treatment) or dispose of waste in accordance with the requirements of NSW EPA (1999) *Environmental Guidelines: Assessment, Classification & Management of Liquid & Non-Liquid Wastes*
Documents	■ Daily register of vehicle and waste movements to Site owner

Site Auditor	WSP Environmental Mr Rod Harwood Ph: 02 9763 3555 Fax: 02 9748 4636
Role	■ Independent review of any or all stages of the Site assessment, remediation and validation processes.
Responsibilities	■ Notify the DECC on being requested to perform a statutory site audit ■ Comment or verify information provided by the Site owner in relation to site assessment, remediation or validation ■ Adherence to relevant standards, procedures and guidelines ■ Maintain appropriate DECC contaminated land auditor accreditation
Documents	■ Site audit statements and summary audit reports to Site owner, DECC and local planning authorities

Planning Authority	NSW Department of Planning (DoP) Ph: 02 9228 6111 Fax: 02 9228 6455
Role	▪ Manage contaminated sites that do not pose a significant risk of harm to human health and/or the environment through land use planning process
Responsibilities	▪ Contribute to defining the scope of the Site audit statement ▪ Assess the suitability of the RAP in addressing environmental concerns at the Site ▪ Determine whether appropriate issues are covered in the development control plan
Documents	▪ Endorsement of the RAP under SEPP 55 – Remediation of Land
Environmental Regulator	NSW Department of Environment & Climate Change (DECC) Ph: 02 9995 5000 Fax: 9995 5999
Role	▪ Licensing the management of classified, scheduled and hazardous wastes ▪ Administer the policies, guidelines and criteria the site audit must satisfy
Responsibilities	▪ Develop policies and regulations for use by site auditors ▪ Develop guidelines to advise site auditors, contaminated land consultants, local government and the community on contaminated site assessment and remediation
Documents	Endorsement of the RAP under SEPP 55 – Remediation of Land

6.3 REMEDIATION OPTIONS

Site remedial works are required under the Department of Urban Affairs and Planning's SEPP 55 to ensure the proposed redevelopment proceeds in a manner that minimises potential risk to human health and the environment. There are four (4) remediation options that have been identified for implementation at the Site. These are as follows:-

- Option 1 – Leave the contamination undisturbed;

- Option 2 – Excavation and off-site disposal of soils in excess of the adopted Site assessment criteria;
- Option 3 – Excavation and on-site containment of soils in excess of the adopted Site assessment criteria; and
- Option 4 – Insitu containment of contamination with low permeability barriers including capping.

6.3.1 Option 1 – Leave Contamination Undisturbed

Pursuing this option would compromise demolition and construction works required for the proposed redevelopment on the Site.

This option is not considered to be suitable due to the proposed excavation and filling activities required for the proposed construction works.

6.3.2 Option 2 – Excavation and Off-Site Disposal of Soils

As part of the excavation works for demolition and construction on the Site, contaminated soils may be removed and disposed of following classification in accordance with NSW EPA (1999) *Environmental Guidelines: Assessment, Classification and Management of Liquid and Non-Liquid Wastes*.

The advantages of utilising this option include the potential for eliminating any ongoing maintenance of the land, as well as unrestricted land use following remediation and validation.

The disadvantages of utilising this option include the elevated costs of waste transport and disposal and the potential for medium to large areas of the Site to be disturbed.

6.3.3 Option 3 – Excavation and On-Site Containment of Soils

As part of the excavation works for demolition and construction on the Site, contaminated soils may be buried on Site at depth in a purpose built containment cell.

The advantage of utilising this option is reduced waste transport and disposal costs.

The disadvantages of utilising this option include the dedication of land for burial of waste (and the associated design and approval costs for the containment cell) and potentially restricted land use in its vicinity. Ongoing management and maintenance of any containment cells would be required. A human health risk assessment for contaminated soils to remain on the Site and an approval from the Site Auditor would be required prior to commencement. A notification would also be recorded on the Environmental Planning and Assessment Act Section 149 Planning Certificate for the Site (which may adversely affect future value and use of the Site).

6.3.4 Option 4 - In-situ Containment of Contamination

Pursuing this option would involve the capping of identified areas (where contamination exceeds the adopted site assessment criteria) with a suitable capping system and the construction of a cut-off wall around the contamination to prevent any future groundwater contamination. This option could be completed in-situ, involving a number of containment cells constructed around each of the identified contaminated locations, without disturbing the affected soils. Extensive delineation sampling would be required to identify and confirm the outer perimeter of each contamination location.

The advantage of utilising this option is reduced waste transport and disposal costs.

The disadvantages of utilising this option include the dedication of land for burial of waste (and the associated design and approval costs for the containment cells) and potentially restricted land use in its vicinity. This option may also impact on the proposed excavation and filling activities required for the proposed construction works. Ongoing management and maintenance of any containment cells would be required. A human health risk assessment for contaminated soils to remain on the Site and an approval from the Site Auditor would be required prior to commencement. A notification would also be recorded on the Environmental Planning and Assessment Act Section 149 Planning Certificate for the Site (which may adversely affect future value and use of the Site).

6.4 RECOMMENDED REMEDIATION STRATEGY

The above options and associated costs/benefits are tabulated below. The financial values are rough estimates only (final waste classifications and appointment of a remediation contractor will impact on these costs). No allowances have made for re-remediation works or validation sampling and reporting.

Option	Cost	Benefit
1. Leave contamination undisturbed	▪ Nil financial cost, but would also prevent proposed re-development works from occurring.	▪ Nil financial costs.
2. Excavation and off-site disposal of soils (approximately 1,610m^3)	▪ Excavation/disposal - $150K ▪ Medium to large areas of disturbance on the Site	▪ Nil ongoing maintenance of the land; and ▪ Unrestricted land use following remediation and validation.
3. Excavation and on-site containment of soils (approximately 1,610m^3)	▪ Excavation - $70K ▪ Cell Design/Approval - $20K ▪ Cell construction - $100K ▪ Ongoing Management - $3K p.a. ▪ Land value loss due to restricted use – not determinable ▪ Medium to large areas of disturbance on the Site	▪ Reduced transport/landfill charges

Option	Cost	Benefit
4. In-situ containment of contamination (11 locations)	▪ Delineation sampling - $50K ▪ Cell Design/Approval - $30K ▪ Cell construction - $200K ▪ Ongoing Management - $5K p.a. ▪ Land $ value loss due to restricted land use – not determinable ▪ Adverse logistical impact on redevelopment works	▪ No excavation costs ▪ No transport/landfill costs ▪ Reduced land disturbance

After assessment of each of the proposed options, it is recommended that Option 2 be adopted at the Site.

This recommendation is based on providing the Site with a comprehensive remediation strategy that:-

- Eliminates on-going maintenance and management costs; and
- Does not place restrictions on future land use.

This recommendation is also considered the most conservative and complete approach, that removes all material assessed to be unsuitable for the proposed land use from the Site.

The proposed remediation of the Site will be conducted in accordance with all statutory requirements, including the provisions of the following Acts and Regulations where appropriate:-

- Managing Land Contamination: Planning Guidelines SEPP 55 Remediation of Land (1998)
- Contaminated Land Management Act (1998)
- Environmental Planning and Assessment Act (1979)
- Waste Minimisation and Management Act (1995)
- Protection of the Environment Operations Act (1997)
- Clean Waters Act (1970)
- Clean Air Act (1961)
- Pollution Control Act (1970)
- Noise Control Act (1975)
- Construction Safety Act (1912)
- Occupational Health & Safety Act (2000)

The Contractor shall have in place a Site Management Plan (SMP) to facilitate compliance with the above.

The remediation approach proposed comprises:

- Notification of the proposed remediation works to local Council and/or the relevant consent authority;

- Removal of the identified chemically and asbestos contaminated soils which exceed the adopted Site assessment criteria;
- Validation of the resulting excavations;
- Disposal of excavated material off-site following waste classification;
- Backfilling excavations with clean validated fill material (any material to be imported onto Site must comply with the adopted Site assessment criteria and be certified as Virgin Excavated Natural Material (VENM) through inspection, sampling and analysis); and
- Notification of remediation completion to local Council and/or the relevant consent authority.

6.5 SEQUENCE OF REMEDIATION

Specific procedure detail for the remediation of contaminated soils shall be the responsibility of the remediation contractor and will depend upon the equipment used and the overall sequence of removal.

It shall be the Contractor's responsibility to develop a safe work method statement and to implement appropriate risk management controls to enable personnel carrying out the remediation to work in a safe environment. This RAP does not relieve contractors of their responsibility for the occupational health and safety (OH&S) of their employees, sub-contractors and visitors, nor their responsibility for preventing contamination of areas outside the remediation work area.

This RAP sets out the minimum standards and guidelines for remediation which will need to be used in preparing individual safe work method statements for each remediation location.

The proposed remediation methodology consists of the following sequence of events:-

- Mark the location of the boreholes where soils have been assessed as containing contaminant concentrations that exceed the adopted Site assessment criteria (refer Section 5.3 and Figure 4 of this RAP);
- Excavate the soil at each borehole location and stockpile the soil in the immediate vicinity of each borehole (refer to Section 8 of this RAP for further stockpile management details). It is recommended that the initial excavation should be in a five (5) metre radius and extend to a depth of at least 0.2 metres below the maximum depth of identified contamination (refer to Section 11 for work area preparation prior to excavation). Based on these vertical and horizontal extents of excavation and the currently known locations of contaminant concentrations exceeding the adopted Site assessment criteria, it has been estimated that 1,610m3 of soil will require disposal;
- Collect validation samples from the base and walls of the formed excavation at each borehole location, to confirm the remaining material meets the adopted Site assessment

criteria, with respect to the specific contaminants of concern at each borehole (refer to Section 9 of this RAP for validation details);

- Collect samples from the stockpiled material for the purposes of waste classification, to enable the transport and disposal of the material to an appropriately licensed DECC waste facility (refer to Section 8 of this RAP waste classification for details); and

- Backfill the excavation with clean validated fill material.

6.6 REMEDIATION CONTINGENCY PLAN

In the event that the recommended remediation strategy above is inadequate, then the following remediation contingency plan will be adopted:-

- Option 3 - Excavation and on-site containment of soils.

This option is the next preferred option for the following reasons:-

Selection of Option 1 would prohibit the land from being established as suitable for its intended use, subsequently preventing the re-development from progressing;

Selection of Option 4 is the most costly of all the identified options and would also prohibit the re-development from progressing. A significant portion of the Site requiring remediation is located in the area to be redeveloped (which includes extensive excavation and construction works). In-situ containment cells will impact the logistics of this excavation and construction work.

7. CONCLUSIONS AND RECOMMENDATIONS FOR ADDITIONAL ENVIRONMENTAL INVESTIGATION

7.1 CONCLUSIONS

The main conclusions of this RAP are based on assumptions made regarding the accuracy data and information presented in previous Site investigation reports. It has also been assumed that no other Site investigation reports exist for the redevelopment Site, other than those referenced in this RAP

The conclusions may be summarised as follows:

The Site is located at Amcor Packaging (Australasia) Pty Ltd facility at 1891 Botany Road, Matraville.

Three (3) investigations have been carried out on the Site's history, including intrusive soil sampling and establishment of groundwater monitoring wells.

The Site is located on Quaternary medium to fine grain "marine" sand with podsols in a transgressive dune environment. The Site geology is overlain with disturbed terrain soils.

Extensive laboratory analysis undertaken on soil samples (fill and natural) included:-

- Heavy Metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel, zinc and silver);
- Polycyclic aromatic hydrocarbons (PAH);
- Total petroleum hydrocarbons (TPH C_6-C_{36});
- Monocyclic aromatic hydrocarbons: benzene, toluene, ethyl benzene and xylene (BTEX);
- Organochlorine and organophosphorus pesticides (OCP and OPP);
- Volatile organic compounds (VOC);
- Speciated volatile organic compounds (SVOC);
- Halogenated organic compounds (EOX);
- Polychlorinated biphenyls (PCB);
- pH;
- Ammonia;
- Phenols; and
- Asbestos.

A number of soil samples returned detected concentrations of contamination that exceeded the adopted Site assessment criteria. These exceedences are tabulated below:-

Sampling Location & Depth	Analyte	Results *
BH1/1.5-2.0 *	Asbestos	Chrysotile detected
BH2/0.0-0.5 *	Asbestos	Chrysotile detected
BH4/0.1-0.5	Asbestos	Chrysotile detected
BH13/0.0-0.1	Asbestos	Chrysotile detected
BH13/2.0-3.0	Asbestos	Chrysotile detected

Sampling Location & Depth	Analyte	Results *
BH118/0.2-0.5	Asbestos	Chrysotile detected
BH125/0.0-0.2	Asbestos	Chrysotile detected
BH133/2.1-2.4	Asbestos	Chrysotile detected

* Site assessment criteria: No asbestos fibres detected in the representative Site investigation samples collected, based on the sampling regime.

Sampling Location & Depth	Analyte	Detected Concentration (mg/kg)	Assessment Criteria (mg/kg)
BH13/2.0-3.0	Copper	7,380	5,000
BH13/2.0-3.0	Lead	2,710	1,500
BH14/1.5-2.0 *	Lead	1,660	1,500
B9/4.0-4.6	Copper	6,250	5,000
BH125/2.5	Lead	4,000	1,500
BH132/0.1-0.3	Lead	1,600	1,500
B9/4.0-4.6	TPH C_{10}-C_{36}	1,457	1,000
BH102/0.5-1.0	TPH C_{10}-C_{36}	4,010	1,000
BH108/0.8-1.7	TPH C_{10}-C_{36}	4,500	1,000
BH123/1.0-1.3	TPH C_{10}-C_{36}	1,910	1,000
BH125/2.0	TPH C_{10}-C_{36}	1,950	1,000
BH125/2.5	TPH C_{10}-C_{36}	1,250	1,000
BH116/0.2-0.5	Benzene	3.5	1
BH116/0.2-0.5	Toluene	4.7	1.4
BH116/0.2-0.5	Ethyl benzene	4.6	3.1
BH116/0.2-0.5	Xylene	14.4	14

Nine (9) groundwater monitoring wells have been established on the site. Extensive laboratory analysis undertaken on groundwater samples included:-

- Metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel, zinc and silver);
- Polycyclic aromatic hydrocarbons (PAH);
- Total petroleum hydrocarbons (TPH C_6-C_{36});
- Monocyclic aromatic hydrocarbons: benzene, toluene, ethyl benzene and xylene (BTEX);
- Organochlorine and organophosphorus pesticides (OCP and OPP);
- Volatile organic compounds (VOC);
- Speciated volatile organic compounds (SVOC);
- Polychlorinated biphenyls (PCB);
- Phenols
- pH;
- Electrical conductivity;
- Nitrite and Nitrate as N;
- Total Kjeldahl Nitrogen as N;
- Total Nitrogen as N;
- Phosphorus as P;

- Sulphide & Sulphate;
- Biochemical Oxygen Demand (BOD);
- Total Organic Carbon (TOC); and
- Volatile Acids as Acetic Acid.

A number of groundwater samples returned detected concentrations of contamination that exceeded the adopted Site assessment criteria. These exceedences are tabulated below:-

Contaminant	Elevated Concentration Ranges	Assessment Criteria
Arsenic	0.0035mg/L	0.0023mg/L
Chromium	0.028mg/L	0.0274mg/L
Copper	0.002mg/L to 0.004mg/L	0.0013mg/L
Lead	0.008mg/L	0.0044mg/L
Zinc	0.018mg/L to 0.524mg/L	0.015mg/L
TPH C_{10}-C_{36}	2313ug/L to 4358ug/L	600 ug/L
pH	6.31 – 7.33	8.0-8.4
Nitrite and Nitrate as N	2.8mg/L to 6.3mg/L	0.7mg/L
Total Nitrogen as N	7.7mg/L to 125mg/L	0.12mg/L
Phosphorus as P	1.32mg/L to 10.1mg/L	0.025mg/L

There is currently insufficient data to accurately characterise the current groundwater conditions on the Site. Subsequently, the scope of remedial works detailed in this RAP is limited to soil until such time that additional groundwater investigation is carried out.

It has been concluded that the most appropriate soil remedial strategy for this Site is excavation of contaminated soils for off-site disposal. This strategy is based on:-

- the data contained in the three (3) previously conducted Site investigation reports
- the extent and nature of the identified contamination; and
- the extent and nature of the proposed re-development.

7.2 RECOMMENDATIONS

It has been proposed by the Site Auditor (Mr Rod Harwood of WSP Environmental) that the following additional environmental works are required at the Site, to further characterise onsite soils and groundwater:-

- Sampling around borehole location BH116 to improve delineation of the contamination exceedance identified at this location. It is anticipated that four (4) step out locations around this borehole would be sampled, in both the fill and natural materials, with analysis based on the findings of previous investigations;

- Sampling around borehole location B9 to improve delineation of the contamination exceedance identified at this location. It is anticipated that two (2) step out locations around this borehole would be sampled, in both the fill and natural materials, with analysis based on the findings of previous investigations;

- Sampling through the northern part of the Site beneath the disused paper mill building and under the waste paper storage area. It is anticipated that four (4) locations in this area would be sampled in both the fill and natural materials, with analysis based on the findings of previous investigations. This will assist in reducing the data gap for the Site and improve characterisation of the soils through this area;

- Sampling in the south of the Site within the central former settlement pond (particularly the fill material). It is anticipated that three (3) locations in this area would be sampled in both the fill and natural materials (particular focus on fill material), with analysis based on the findings of previous investigations. This will assist in reducing the data gap for the Site and improve characterisation of the soils through this area;

- Sampling in the centre of the Site, adjacent to the Coffey Geosciences (2000) CPT test P2 (south side of the disused felt store). It is anticipated that one (1) location in this area would be sampled in both the fill and natural materials, with analysis based on the findings of previous investigations. This will assist in reducing the data gap for the Site and improve characterisation of the soils through this area;

- An assessment of the Site after the removal of infrastructure (known to contain asbestos containing materials) for remaining asbestos fragments and fibres;

- Installation of one (1) additional groundwater monitoring well to the north of the redevelopment area. The well should be screened solely in natural material (not in fill) in order to be representative of the general groundwater quality. This will assist in confirming the groundwater quality moving onto the Site from upgradient;

- Installation of one (1) additional groundwater monitoring well along the southern boundary of the Site. The well should be screened solely in natural material (not in fill) in order to be representative of the general groundwater quality.This will assist in confirming groundwater quality downgradient of the impacted soils at sampling location B9; and

- Sampling and analysis of all available groundwater wells onsite at the same time. The wells to include are Woodward Clyde (1999) BH1, BH7, BH12, BH14, BH16 and Golder Associates (2006) BH135, BH136, BH137 and BH138, as well as the two new wells mentioned above. The analytical suite should be consistent with the findings of previous investigations and should include analysis for nutrients (nitrogen compounds including ammonia).

8. WASTE CLASSIFICATION AND MANAGEMENT

A waste classification report should be compiled for the Site in order to classify all soils (fill and natural) proposed for excavation and off site disposal.

Further soil sampling and laboratory analysis for heavy metals, PAH, TPH, BTEX, OCP, OPP, Phenol, Cyanide, PCB and Asbestos will be required for classification as set out in the NSW EPA (1999) *Environmental Guidelines: Assessment, Classification & Management of Liquid & Non-Liquid Wastes*. The guidelines provide for the off-site disposal classification of soils under the following categories:

- Inert;
- Solid;
- Industrial;
- Hazardous;
- Scheduled; and
- Asbestos contaminated.

Under the Protection of the Environment Operations Act 1997, the transportation of Schedule 1 Hazardous Waste is a scheduled activity and must be carried out by a transporter licensed by the DECC. This provision is unlikely to be required as investigations carried out to date at the Site have not identified any soils containing contaminant concentrations that would classify as Schedule 1 Hazardous Waste

Additional laboratory analysis will include *toxicity characteristic leaching procedure* (TCLP) tests where necessary, which estimates the potential for selected constituents to be released from a soil sample in an acidic leaching environment. Additional laboratory results should be combined with the results of previous Site investigation results.

It is recommended that the additional sampling and analysis be undertaken once the soil has been excavated to ensure a full visual inspection of the soils is achieved.

Soil disposal to landfill (or export for use as engineering fill at an alternative site) will be undertaken in accordance with the NSW EPA (1999) *Environmental Guidelines: Assessment, Classification & Management of Liquid & Non-Liquid Wastes*. All material will be transported by appropriately registered vehicles and all loading, transport, receipt and disposal of the waste material will be tracked via consignment notes by the Contractor.

8.1 FILL MATERIAL

For the disposal of excavated fill material from Site, representative samples of this material should be collected at a frequency of 1 per 250m^3 of soil (with a minimum of three samples). All samples shall be analysed for heavy metals, PAH, TPH, BTEX, OCP, OPP, Phenol, Cyanide, PCB and asbestos. An appropriate number of QA/QC samples (e.g. duplicates, rinsate blanks, trip blanks) shall also be collected.

8.2 NATURAL UNDERLYING SOILS

For the disposal of excavated natural material from Site, representative samples of this material should be collected at a frequency of 1 per 1000m^3 of soil (with a minimum of three samples). All samples shall be analysed for heavy metals, PAH, TPH, BTEX, OCP, OPP, Phenol, Cyanide, PCB and asbestos. An appropriate number of QA/QC samples (e.g. duplicates, rinsate blanks, trip blanks) shall also be collected.

The results of the laboratory analysis should be compared to the INERT WASTE criteria detailed in the NSW EPA (1999) *Environmental Guidelines: Assessment, Classification & Management of Liquid & Non-Liquid Wastes.* Should the results comply with the INERT WASTE criteria (it is noted that TCLP analysis may be required in order to confirm compliance) and a visual inspection indicate the soil is natural material, the soil may be classified as VENM and therefore suitable for removal from Site as VENM.

The source, volume and destination of excavated natural soils shall be tracked by the Contractor.

8.3 GROUNDWATER

It is possible that the groundwater table will be intercepted during excavation works.

In the event that dewatering activities are required, testing of the groundwater is recommended in order to comply with Sydney Water Trade Waste thresholds. A Trade Waste Agreement with Sydney Water would also be required.

8.4 SURFACE WATER

In the event that de-watering activities are required at the Site due to the ponding of surface waters within the excavation pit, it should be established if a Trade Waste agreement is required before water is released into the drainage network. This will require additional sampling and analysis. Alternatively, these soils may potentially be disposed of as liquid waste in accordance with NSW EPA (1999) *Environmental Guidelines: Assessment, Classification & Management of Liquid & Non-Liquid Wastes*.

8.5 SOIL SAMPLE COLLECTION

Sample collection from stockpiles shall be spatially representative of the material to be disposed of. The samples shall be obtained from at least 0.5m within the stockpile or at varying depths if the material is insitu (depths will be dependent on the proposed depth of excavation).

8.6 STOCKPILE MANAGEMENT

As materials are excavated, they shall be placed in well delineated, segregated and contained locations, and separately stockpiled on the basis of on-site observations and the contaminant exceedances detected.

Stockpiles of excavated materials shall be bunded with hay bales, sand bags or silt fencing and if required, covered and/or lined with impermeable plastic sheeting. All stockpiles containing asbestos waste must be covered.

The Contractor shall identify all stockpiles on a master register and Site plan and the register shall include the following minimum details:-

- Stockpile number;
- Stockpile location;
- Date stockpile was generated;
- Source of stockpile;
- Volume of stockpile;
- Material description;
- Waste classification;
- Details of any additional material added to an existing stockpile; and
- Stockpile removal date and stockpile removal destination.

9. VALIDATION WORKS

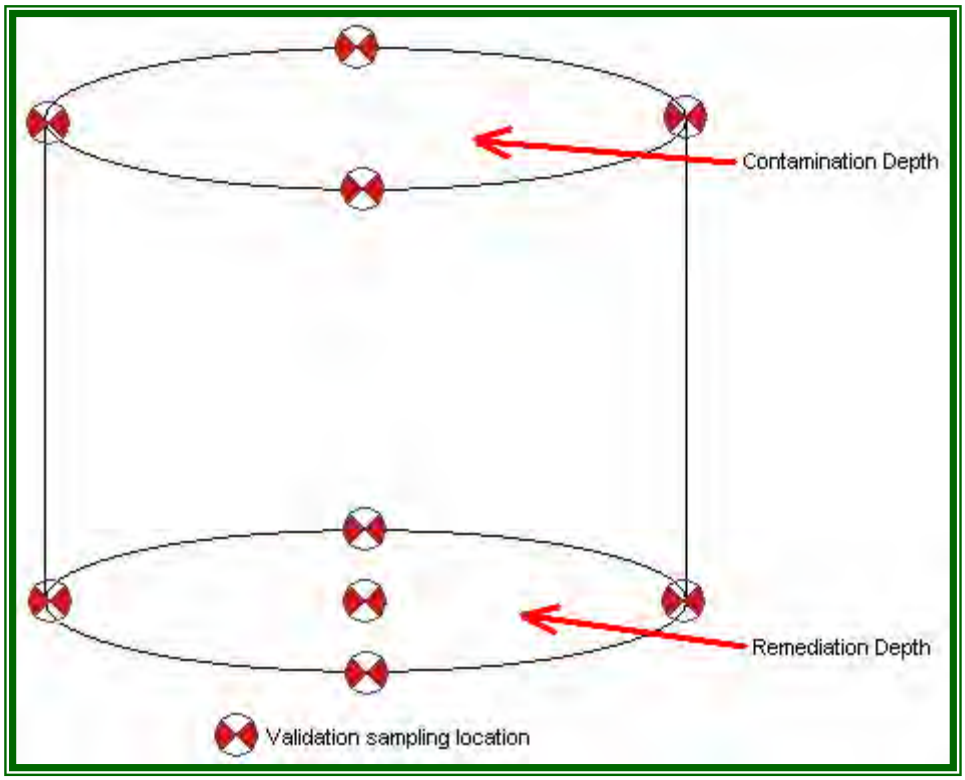
9.1 VALIDATION METHODOLOGY

Upon completion of the excavation works, a Site inspection and validation report should be issued for the Site. This should include testing of the residual soils within the remediation excavation by a suitably qualified environmental consultant, to demonstrate that the Site remediation goals have been successfully met.

As the remediation of the Site involves the excavation and assessment of certain identified areas, a qualified environmental consultant should be involved in all on-Site inspections of the remediation works.

It is recommended that nine (9) validation soil samples are collected from the residual soils within each remediation excavation. These samples shall be collected from the base (remediated surface) and walls (contamination depth) of the excavation, so that both the horizontal and vertical extents of identified contamination can be proven to have been successfully remediated. Should the initial excavation extend beyond a five (5) metre radius, then the Environmental Consultant shall use their professional judgment to determine if an increased sampling density is required to adequately validate the excavation.

The sampling structure within the excavation is detailed in the figure below.



The final surface of the excavated area shall be validated in accordance with NSW Environment Protection Authority (1995). *Contaminated Sites: Sampling Design Guidelines.*

9.2 SITE VALIDATION ACCEPTANCE CRITERIA

Validation samples will be laboratory analysed and the results will be compared against the NEPC, National Environment Protection (Assessment of Site Contamination) Measure (1999), *Health based investigation levels (HIL) for commercial/industrial land use* and the NSW EPA (1994) *Contaminated Sites: Guidelines for Assessing Service Station Sites, Threshold values for sensitive site use*. These criteria are detailed in the table below.

Substance	Validation Acceptance Criteria (mg/kg)
Arsenic	500
Cadmium	100
Chromium	60%
Copper	5,000
Lead	1,500
Mercury	75
Nickel	3,000
Zinc	35,000
Total Petroleum Hydrocarbons (TPH C_6-C_9)	65 *
Total Petroleum Hydrocarbons (TPH C_{10}-C_{36})	1,000 *
Benzene	1 *
Toluene	1.4 *
Ethyl benzene	3.1 *
Xylene	14 *
Benzo(a)pyrene	5
Polycyclic Aromatic Hydrocarbons (PAH)	100
Aldrin + Dieldrin (OCP)	50
Chlordane (OCP)	250
DDT + DDD + DDE (OCP)	1,000
Heptachlor (OCP)	50
Polychlorinated Biphenyl (PCB)	50
Cyanides	2,500
Total Phenolics (as Phenol)	42,500

Source: National Environment Protection Council (1999), *National Environment Protection (Assessment of Site Contamination) Measure, Schedule B(1), Table 5a, Column F, Commercial/Industrial: includes premises such as shops and offices as well as factories and industrial sites*
* NSW EPA (1994). *Contaminated Sites: Guidelines for Assessing Service Station Sites, Threshold Values for Sensitive Site Use*

No appropriate guidelines exist for assessing asbestos levels when undertaking soil contamination validation under DECC guidelines. Asbestos is not known to have a detrimental effect on the environment, and is therefore primarily considered to be a human health issue.

Currently in existence is the Canberra Enhealth Council (2005) *Guidelines for the Management of Asbestos in the Non-occupational Environment*. The objective of this document is to ensure that the risk of exposure to asbestos fibres that may be entrained into the air is minimal.

A guideline of 0.001% by weight of asbestos fibres in soil (when the fibres are present in asbestos cement sheeting products) is discussed in the Enhealth document. This guideline has not yet been officially adopted in NSW. It is also noted that asbestos identified at the Amcor site included friable fibres of Chrysotile asbestos, not found in a bonded matrix.

In the absence of appropriate guidelines, the asbestos validation criteria that has been adopted for the Site is “no asbestos fibres detected in the representative Site validation samples collected, based on the sampling regime”.

It should be noted that this approach is ultra conservative. Most of the time, any type of asbestos fibre in the sub surface soil is intrinsically damp, and therefore has minimal propensity for becoming airborne where it can be possibly harmful to long term human health.

Soils complying with the adopted site validation acceptance criteria will be considered suitable for the proposed Site re-development.

In the event that the validation samples do not comply with the adopted Site validation criteria, then additional excavation and validation will be conducted until the residual soils comply with the validation criteria.

The findings of the validation testing will be documented in a Site Validation Report to demonstrate that the remedial works have been successfully completed. This report will demonstrate that material remaining onsite meets the appropriate NEPC and DECC guidelines for the proposed commercial/industrial re-development. This report will be required to be submitted to the Site Auditor for review.

9.3 IMPORTATION OF FILL MATERIAL

In the event that fill material is to be imported onsite, appropriate sampling and analysis will need to be undertaken to ensure that the materials comply with the NEPC and DECC guidelines for the proposed commercial/industrial development and be certified as Virgin Excavated Natural Material (VENM).

A visual inspection of the proposed import material shall be carried out. Spatially representative samples of the proposed import material shall be collected at a frequency of 1 per 1000m^3 of soil (with a minimum of three samples). All samples shall be analysed for heavy metals, PAH, TPH, BTEX, OCP, OPP, Phenol, Cyanide, PCB and asbestos. An appropriate number of QA/QC samples (e.g. duplicates, rinsate blanks, trip blanks) shall also be collected.

The results of the laboratory analysis shall be compared to the INERT WASTE criteria detailed in the NSW EPA (1999) *Environmental Guidelines: Assessment, Classification & Management of Liquid & Non-Liquid Wastes.* Should the results comply with the INERT WASTE criteria (it is noted that TCLP analysis may be required in order to confirm compliance) and the visual inspection indicate the soil is natural material, the soil may be classified as VENM and therefore suitable for importation to Site.

The VENM classification reports shall be forwarded to the Site Auditor for review and issue of a Clearance Instruction, prior to importing the soil onto Site.

The source, volume and destination of the imported VENM material shall be tracked by the Contractor.

9.4 VALIDATION REPORTING

As discussed in Section 2 of this RAP (and represented in Figure 2), it is proposed that a staged remediation approach is required to facilitate the logistics of the proposed redevelopment at the Site. Subsequently the Site has been divided into seven (7) distinct parcels of land.

At the completion of remediation activities in each parcel, a Recommendation To Validate (RTV) will be prepared for each of the subject parcels. The intent of the RTV is to provide the NSW DECC accredited Site Auditor with sufficient validation data for each parcel to enable the Site Auditor to issue a Clearance Instruction. The issue of a Clearance Instruction would enable infrastructure works in that parcel to commence prior to the Site Audit Statement (SAS) being issued.

The RTV shall include the following information:-

- Introduction
- Summary of asbestos and chemical contamination
- Summary of remedial activities occurring in the parcel
- Recommendations
- Soil sampling location plans, tabulated laboratory results and laboratory transcripts

At the completion of remediation of all land parcels, a validation report shall be prepared by a suitably qualified environmental consultant in accordance with the NSW Environment Protection Authority (1997) *Guidelines for Consultants Reporting on Contaminated Sites*, the Department of Urban Affairs & Planning (1998) *Managing Land Contamination, Planning Guidelines: SEPP 55 – Remediation of Land* and other relevant guidance documentation.

The validation report shall confirm that the Site has been remediated to a standard that is suitable for the proposed development and occupation, and that no related adverse human health and environmental effects have occurred or are likely to occur as a result of the works.

The validation report shall include a summary of information provided in previous investigation reports, particularly in relation to the materials that are remaining on Site.

The validation report shall also include the following:-

- Details of the total volume of contaminated materials removed from the Site;
- Detailed analytical results;
- Confirmation that any imported fill is clean; and
- Details on the final disposal destination and volumes of the materials received by landfills along with a correlation to the volumes removed from the Site.

10. FIELD & LABORATORY QA/QC

10.1 FIELD WORK PREPARATION

Sampling equipment required for each Site investigation includes the following:

- Notebook/indelible marker pens;
- Stainless steel sampling trowel;
- Three decontamination buckets;
- Deionised water and Decon 90 detergent;
- Sample containers/eskies/ice;
- Latex gloves
- Relevant personal protective equipment

10.2 STANDARD SOIL SAMPLING PROCEDURE

Samples shall be collected using a decontaminated stainless steel trowel and/or scooped directly into the laboratory prepared container or zip lock plastic bag, using a fresh pair of latex gloves. The soil sample shall be lightly packed into the container with any headspace minimised to avoid the loss of volatiles. The containers and bags shall then be labelled with a job number, date, identification number and depth interval (where applicable).

The sample containers and bags are stored in an ice-packed, insulated esky for transportation to the analytical laboratory under Chain of Custody protocol and a copy kept in the project file. All samples shall be transported to the laboratory with sufficient time to perform analysis within the specified holding period.

Soil samples shall be analysed on a discrete basis. Composite sampling and analysis methods shall not be utilised.

10.3 FIELD WORK QA

All fieldwork is undertaken in general accordance with relevant sampling design guidelines and standards. Field QA practices are applied to all stages of sample collection and preparation to ensure control over the field operations.

Field QA procedures for this project included:

- Documentation of field information;
- Environmental field measurements and testing;
- Decontamination procedures;
- Selection of suitable sample containers;
- Sample handling, preservation and documentation; and
- Quality control procedures.

All sampling equipment in contact with soils is decontaminated before and between sampling events to minimise the possibility of cross contamination between samples and thereby ensure sample integrity. The decontamination process includes the following procedure:

- Remove any soil with a brush in potable water;
- Decon 90 detergent and potable water wash;
- Potable water rinse;
- Distilled water spray; and
- Air dry.

All soil samples are transported to the selected laboratory with the Chain of Custody form recording the following information:

- Signatures of sender and receiving laboratory;
- Project reference;
- Date of sampling;
- Sample identifications;
- Name of sampler;
- Required test methods; and
- Matrix and container details.

10.4 FIELD BLIND DUPLICATES

Blind field duplicates are collected on an average frequency of one sample per ten samples collected (10%). The results of the two spilt samples are compared to assess the precision of the sampling protocol and to provide an indication of any variation in the sample source.

10.5 RINSATE BLANKS

Rinsate blanks are prepared in the field using empty bottles and the distilled water/potable water used for the cleaning of sampling equipment. They are a check on field decontamination procedures and sample device cleanliness. A rinsate blank shall be collected and analysed for each day of field work carried out.

10.6 INTER-LABORATORY DUPLICATES

Inter-laboratory testing is undertaken at a secondary laboratory in order to determine the accuracy of the primary laboratory. Inter-laboratory duplicates shall be collected on an average of one sample per twenty samples (5%).

10.7 TRIP BLANKS

Trip blanks are samples of organic free soil prepared by the lab and are a check on sample contamination originating from sample transport, shipping and Site conditions. They remain with the sample containers while in transit to the Site, during sampling and during the return

trip to the lab. At no time during these procedures are they opened. Upon return to the lab they are analysed, if needed, as any other field sample.

10.8 LABORATORY QA/QC

The primary and secondary laboratories shall be NATA registered for all analysis being carried out. All analysis shall be undertaken in accordance with the requirements of NEPC (1999).

A data validation process shall be used to assess the effectiveness of the overall analytical process and to assess the use of data. The laboratory analysis program shall allow for the following:-

- **Reagent/Method Blanks:** Sample free reagents carried through the preparation/extraction/digestion and analysed at the beginning of every sample batch analysis. For larger projects, a reagent blank is prepared and analysed with every 20 samples.

- **Duplicates:** A separate portion of a sample being analysed which is treated the same as the other samples in the batch. A duplicate is prepared at least every 20 samples.

- **Matrix Spike** Duplicates: Sample replicates spiked with identical concentrations of target analyte(s). The spiking occurs during the sample preparation and prior to the extraction/digestion procedure. They are used to document the precision and bias of a method in a given sample matrix. Where there is not enough sample available to prepare a spiked sample, another known soil/sand or water (or Milli-Q water) may be used. A duplicate spiked sample is prepared at least every 20 samples.

- **Surrogate Spike:** Added to a sample requiring analysis for organics (where relevant) prior to extraction. Used to determine the extraction efficiency. They are organic compounds which are similar to the target analyte(s) in chemical composition and behaviour in the analytical process, but which are not normally found in environmental samples.

- **Internal Standard:** Added to all samples requiring analysis for organics (where relevant) after the extraction process; the compounds serve to give a standard of retention time and response, which is invariant from run-to-run with the instruments.

- **Control Standards:** Prepared from a source independent of the calibration standards. At least one control standard is included in each run to confirm calibration validity.

- **Additional QC Samples:** A calibration standard and blank are run after every 20 samples of an instrumental analysis run to assess analytical drift.

- **Statistical Analysis of QC Data:** Quality control data is plotted on control charts using the APHA procedure with warning and control limits at 2 and 3 standard deviations respectively.

11. SUPERVISION AND MANAGEMENT

Supervision of the works should be carried out by experienced remediation personnel to ensure that all contaminated material is effectively removed from the Site and that the works are conducted in a manner that minimises potential risk to Site workers and the environment. The protocols nominated below are considered to be the minimal requirements for remediation to be carried out.

The remedial works supervisor will be responsible for the following:-

- Delineating between areas of fill material and natural soils, thereby minimising the volume of fill material to be excavated and removed from the Site;
- Implementation of required OH&S and environmental protection measures;
- Ensuring adequate housekeeping of areas associated with excavation works;
- Briefing all Site workers likely to be involved in excavation works;
- Identifying and implementing appropriate management procedures for any subsurface contaminants not previously identified during the course of the Site investigations;
- Maintaining appropriate records of the remedial excavation works; and
- Reporting to NSW Department of Planning, local Council and the DECC as required.

Furthermore, in the event that any additional areas of contamination exceeding the adopted site assessment criteria are identified during excavation works, a suitably qualified environmental consultant should be called onsite immediately in order to assess appropriate remedial and/or disposal options for any such material.

11.1 SERVICE LOCATION

Before the commencement of remedial activities, the Contractor shall ensure that all services such as power, water, gas and telecommunications cables have been located. A Site owner representative will be present during a planning Site meeting, and this representative will identify all Site services for the remediation contractor and environmental consultant. A professional service locating contractor and drawings provided by Dial Before You Dig should also be used to assist in service location.

11.2 PRE-WORK SITE PREPARATION

Amcor Site inductions will be conducted for all contractors/consultants involved in the set up of the work areas and subsequent remediation/validation activities.

Prior to commencement of remedial works, fencing will be erected around the perimeter of the work site. Warning signs will be erected, including mandatory signage for PPE (e.g. hard hats, steel cap boots, hi-visibility clothing and safety glasses) as well as remedial works signage (e.g. Warning, Remediation Exclusion Zone, No Entry). A sign displaying the contact details on which the Contractor may be contacted outside working hours (and the Site

facilitator if different to the Contractor) shall be displayed on the Site adjacent to the Site access. This sign shall be displayed throughout the duration of the remediation works.

Any run-off control measures will be installed and the routes for trucks in and out of the Site clearly marked. Stockpile areas will be positioned to minimise disruption to property operations and prevent possible contamination of clean areas with impacted material.

Remediation work area site inductions will also be conducted by the Contractor, following set up of the Site and prior to any remedial works commencing.

Owners and/or occupants of premises adjoining and across the road from the Site shall be notified at least two days prior to the commencement of remediation works by the Site owner.

11.3 EXCAVATION STABILISATION

No person without appropriate training (confined spaces) and authorisation from the Site manager is to enter an excavation assessed as being a confined space.

Clause 66, Chapter 4, Part 4.3, Division 9 of the NSW Occupational Health and Safety Regulation 2001 defines a confined space, in relation to a place of work as:-

- an enclosed or partially enclosed space that:
- is not intended or designed primarily as a place of work; and
- is at atmospheric pressure while persons are in it; and
- may have an atmosphere with potentially harmful contaminants, an unsafe level of oxygen or stored substances that may cause engulfment; and
- may (but need not) have restricted means of entry and exit.

Should excavations be carried out within the vicinity of existing buildings or other structures, a suitably qualified person (e.g. structural engineer) should be engaged prior to works being carried out, to assess the need for any additional controls required on Site.

Further information regarding excavations can be found in Workcover Authority of NSW (2000) *Code of Practice Excavation*.

11.4 ACCESS AND DECONTAMINATION PROCEDURES

Access to the Site will be limited to those staff that have appropriate training and have undergone all necessary Site inductions. The Site will be fenced which will further limit access by members of the public who may injure themselves or vandalise the works.

The undercarriage and wheels of vehicles (particularly trucks hauling waste material) will need to be washed down each time they leave the Site to prevent any material being tracked outside the Remediation Exclusion Zone.

11.5 UNEXPECTED FIND PROTOCOL

11.5.1 Chemical & Asbestos Contamination

Should asbestos or material suspected to be or contain asbestos material, or any other suspected contamination be found onsite, works should stop immediately. The affected area should be isolated with a minimum five (5) metre radius fence to minimise potential for disturbance to the affected soils.

A suitably qualified asbestos or environmental consultant should be engaged to assess the type and degree of contamination in the area of the unexpected find. This may include collection of samples for NATA accredited laboratory identification.

Upon confirmation of the presence of asbestos, the fenced off area should be sign posted at regular intervals around the boundary with appropriate regulatory “asbestos” and “no entry” signage. Dependent on the nature of the contamination, air monitoring may be required to determine if an airborne fibre exposure hazard exists.

A licensed asbestos contractor with the appropriate permits shall be engaged to remove all of the asbestos contaminated soils in accordance with NSW Occupational Health & Safety Regulations, NSW WorkCover Authority requirements, and appropriate Site Safe Work Method Statements (including the establishment of a suitable remediation exclusion zone, use of airborne fibre monitoring and use of appropriate cross contamination controls, dust controls and PPE). Soils contaminated with materials other than asbestos should be removed by a suitably qualified remediation contractor.

A suitably qualified environmental consultant shall collect soil validation samples (refer Section 9 of this RAP), from the walls at contamination depth and from the base at remediation depth of the excavation, for NATA accredited laboratory identification to ensure that the contaminated materials have been successfully removed.

Affected soils are to be disposed of in accordance with the NSW EPA (1999) Environmental Guidelines: Assessment, Classification & Management of Liquid & Non-Liquid Wastes.

11.5.2 Underground Storage Tanks (UST)

There are no known Underground Storage Tanks (UST) at the Site. However, in the event that bulk excavation works reveal the presence of one or several USTs, appropriate removal works should be conducted as per the requirements of the AIP Australian Institute of Petroleum, (CP22 - 1994) *Code of Practice for The Removal of Underground Petroleum Storage Tanks* and NSW Environment Protection Authority (1994) *Contaminated Sites: Guidelines for Assessing Service Station Sites.*

The code of practice outlines the following procedures:-

- Recommended environmental protection measures during tank removal works;

- Appropriate methods for entry into confined spaces;
- Safe removal methods for removal of product from the tanks; and
- Safe purging methods for in-situ tanks.

In the event that a UST is identified during excavation works, a qualified environmental consultant should be present onsite during removal. Inspection of the soils and screening for volatile organic compounds (VOC) will be required to be carried out during remedial excavations to detect any soils possessing elevated VOC concentrations or visual and/or olfactory signs of hydrocarbon contamination.

If any such contamination of subsurface material is encountered, the material will be segregated and characterised separately from all other soils proposed for removal from the Site.

Validation sampling and analysis should be undertaken at the base and walls of the excavation pit to ensure that any contamination associated with the former UST has been removed.

The UST shall be removed from Site and destroyed. The tank destruction contractor shall provide a certificate verifying that the tank has been destroyed.

12. OCCUPATIONAL HEALTH AND SAFETY

The following is a guide to managing occupational health & safety on the Site. Any additional or more stringent requirements that are established by the Contractor shall also be implemented.

All Site personnel should adopt appropriate levels of personal protective equipment (PPE). Access should be limited in remediation areas to people with the following personal protective clothing:

- Dust masks (as required);
- Steel capped boots (necessary for all onsite works);
- High visibility clothing (necessary for all onsite works);
- Hard hats (necessary for all onsite works)
- Safety glasses or goggles (necessary for all onsite works);
- Leather gloves (as required); and
- Earplugs and/or ear muffs (as required).

In the event that areas of contamination exceeding the adopted Site assessment criteria are uncovered during excavation works, the following additional precautions may also be required:

- Disposable overalls, gloves and booties;
- Either an approved disposable respirator or an approved half face respirator mask fitted with dust cartridges approved for appropriate volatiles; and
- Decontamination unit.

The following additional Site management measures will be implemented to ensure that soil is handled safely with appropriate protection for on-site workers:

- All Site workers involved in Site excavations should be advised of the associated hazards during excavation works;
- No smoking or consumption of food/drink will be permitted in remediation areas;
- In the event that an area of contamination is excavated, all workers will be required to decontaminate prior to eating or drinking;
- Access to the excavation areas of the Site will be limited to authorised personnel;
- The appropriate levels of personal protective clothing will be required to be worn;
- Personal protective clothing is to be segregated from personal clothing items; and
- No naked flames or smoking will be allowed in the remediation areas.

12.1 PERSONNEL HYGIENE

The following personal hygiene regulations should be observed by ALL personnel entering the Site, including workers, supervisors and visitors:

- appropriate protective clothing will be donned prior to entry to the work site;

- hands and faces should be washed prior to consumption of food, drink, smoking or going to the toilet;
- hand to mouth and hand to face contact should be avoided on Site; and
- should any skin contact be made with potentially contaminated material the affected area must be washed with cold soapy water immediately.

12.2 GENERAL SITE SAFETY

Safety measures will be undertaken for specific tasks such as excavation and truck manoeuvring. Safety requirements include:

- No person without appropriate training (confined spaces) and authorisation from the Site manager is to enter an excavation assessed as being a confined space. Confined space entry permits may be required;

- Trenches and other excavations more than 1.5m deep must be fenced. Excavation permits may be required. Further details regarding this are included in Workcover Authority of NSW (2000) *Code of Practice Excavation*;

- When backhoes or excavators are being operated, Site workers in the vicinity are to remain in the line of sight of the machine operator. No person is to walk underneath the arm and bucket of the excavator or to come near the bucket for an inspection or to collect a sample until the operator motions that it is safe to do so (N.B. the bucket must be at rest on the ground);

- If any excavations are being pumped dry for work, the water being pumped out should be sampled and laboratory tested to allow for appropriate disposal beforehand. A Trade Waste Agreement from Sydney Water may be required if discharging direct to sewer; and

- If welding or blow torch work of any kind is to be undertaken on Site, a safe area needs to be set aside. The area must be free of any toxic fumes or vapours that may explode in the presence of flames and heat, for example, no welding should take place in an area where soil is contaminated with benzene. Fire extinguishers will be required throughout the entire period of the work. Hot work permits may also be required.

12.3 WORK PRACTICES

All staff/clients/visitors must undergo an induction or safety briefing before entering the Site. Monitoring for volatile contaminants and dust will be carried out around the excavations by the Contractor, as required.

12.4 MACHINERY AND VEHICLE PRACTICES

Hard hats and high visibility vests will be worn in the vicinity of earthmoving machinery.

If dust or vapours become a problem, excavator and backhoe operators have two options:

- All windows must be in place on the machine and the cabin sealed from outside vehicle exhaust with the air conditioning off, unless carbon filters (and HEPA filters in the case of asbestos fibre hazards) are fitted to the air conditioning system; or

- Windows on the cabin can be left open if the operator wears a dust mask or a respirator and safety glasses at all times (except in the case of asbestos fibre hazards).

All material shall be covered while being transported.

All mobile plant/equipment and vehicles shall have an operational high visibility flashing light/beacon mounted on them.

12.5 DECONTAMINATION PROCEDURES

In the event that contaminated soil material is uncovered at the Site during excavation works, the following should be adhered to:-

- No contaminated material should leave the Site except in transit to an approved disposal destination or contained and sealed for further testing;
- All contaminated material shall be covered with a tarpaulin or similar cover for transportation;
- All vehicles and equipment that have been in contact with contaminated material will require decontamination on Site in a specially designated area from which all waste water and contaminated material will be collected; and
- The Site manager is to ensure that trucks entering and leaving the work area do not drive over contaminated material.

12.6 EMERGENCY PROCEDURES

As part of the safe work method statements, the Contractor shall provide an Environmental, Safety and Health plan detailing all safety and emergency procedures to be followed on the Site. These procedures should compliment those already present across the remainder of the Amcor facility (which isn't part of the Site).

In the event of encountering a potentially dangerous situation or the detection of any material suspected of posing a danger to onsite workers or the environment, works are to cease immediately and all workers on Site shall move to a safe area. The situation shall be reported to the Site manager for assessment and further action, which may include contacting the local fire brigade or paramedics on 000.

The Contractor shall ensure that an appropriate number of trained/qualified First Aiders are present on the Site during working hours and that first aid kit facilities are made available for use.

13. ENVIRONMENTAL PROTECTION MEASURES

Pollution control measures will be implemented as required to minimise potential environmental impact in the form of runoff, noise, odours and dust generated from the Site remediation works.

13.1 SEDIMENT AND RUNOFF CONTROL

Sediment and erosion control are important as it is an offence under NSW environmental legislation to place or expose any soil or waste in an area where it can be washed into any stormwater drain or waterway. Material will be stockpiled away from drains, and silt fencing, sandbags and/or hay bales will be used to prevent offsite sediment movement. Sealed covered bins may also be used for the purposes of stockpiling material.

To minimise the need to install stormwater detention ponds, earthworks (where possible) will be conducted from the most to least elevated areas. This will allow channelling of the surface waters within the Site to the lower areas which can act as temporary detention ponds.

Where necessary, tyres and under-bodies of trucks will be brushed or washed down in a designated area prior to leaving the Site.

13.2 RUNOFF

No surface runoff from the Site will be allowed to discharge directly to neighbouring properties or receiving stormwater culverts. Any potentially contaminated material should be placed on the up-gradient side of the excavation so that contaminated run-off waters can drain down toward the excavation.

Samples of any water suspected to be contaminated will be analysed to determine its manner of disposal in accordance with current NSW guidelines and Sydney Water Trade Waste requirements.

13.3 DUST & AIRBORNE MATERIAL CONTROL

As the proposed excavation work is limited on the Site, dust production is not likely to be an issue. However, control measures shall be utilised when dust levels exceed DECC requirements.

The following NSW DECC Criteria for Dust Fallout shall be utilised:-

Existing background dust fallout level ($g/m^2/month$)	Maximum acceptable increase over existing fallout levels ($g/m^2/month$)
2	2
3	1

Existing background dust fallout level ($g/m^2/month$)	Maximum acceptable increase over existing fallout levels ($g/m^2/month$)
4	0

Dust emission monitoring shall be undertaken during remediation activities, with measured levels being compared to the above criteria. Further information regarding monitoring can be found in

- AS 2922 Ambient Air – Guide for Siting of Sampling Equipment
- AS 3580.10.1-1991 Methods of Sampling Analysis of Ambient Air

Where unacceptable dust levels are being generated from open areas of the Site, the Contractor shall be instructed to cover any exposed or stockpiled materials. All stockpiles containing asbestos waste must be covered at all times.

Where unacceptable dust levels are being generated from equipment, the Contractor shall be instructed to modify the operation of the equipment, modify the manner in which excavation is conducted at the Site and/or install additional dust suppression features on the equipment

The Contractor may also be instructed to:-

- Use different equipment which generates less dust
- Use equipment in more favourable weather conditions

The Contractor shall prevent all dust emissions from going beyond the Site boundary. The following control measures shall be used by the Contractor as required:-

- Hessian or open weave barriers located along Site boundary fencing;
- All vehicles transporting soil/waste material to be covered with a tarpaulin or similar;
- Using water sprays on unsealed or bare surfaces (particularly haul roads);
- Use of sweepers on sealed surfaces (concrete, asphalt etc).
- Using water sprays during excavation and on stockpiles;
- Processing, handling, moving and storing all materials on Site in a proper and efficient manner so as to minimise exposure;
- No processing of materials (e.g. screening, crushing) shall be undertaken on the Site;
- Traffic movement on Site shall be limited; and
- Protective groundcovers such as mulches, hydroseeding or “spray grass” at the completion of remediation and backfill works;

As there has been limited identification of asbestos fibres in the Site soils, any remedial excavation works at those locations shall be carried out under asbestos removal conditions. This will include establishment of an asbestos removal exclusion zone with fencing and signage, use of decontamination units and use of appropriate PPE (including respirators, coveralls and booties).

Licensed asbestos removal contractors shall be used for the remediation of these soils. Water sprays shall be used during excavation activities to minimise the risk of asbestos fibres becoming airborne. Soil shall be loaded into sealed bins/trucks for the purposes of

transport. All vehicles leaving the exclusion zone shall pass through a truck wash facility where vehicle wheels, tyres and under-bodies are washed down.

Personnel generally working within the Exclusion Zone but not directly involved in remediation (e.g. supervising hygienists) shall complete an appropriate Asbestos Awareness training course beforehand.

Airborne fibre monitoring (AFM) shall be carried out during all remedial excavation works.

13.4 ODOUR CONTROL

Odour generation shall be minimised by excavating and possibly loading of materials directly into haul vehicles, thereby reducing the volumes of material being stockpiled and reloaded.

Odour suppressors (e.g. straw) may be used.

Should excessive levels of volatile soil gas be generated during works, a calibrated photoionisation detection (PID) unit may be used for monitoring purposes. Should detected ambient levels reach 50ppm or more, works will be stopped until detected levels fall below 50ppm.

13.5 NOISE & VIBRATION CONTROL

Remediation work shall only be conducted between the following hours:-

Monday – Friday	0700hrs – 1800hrs
Saturday	0800hrs – 1300hrs
Sunday & Public Holidays	No work is permitted

13.5.1 Noise Criteria

Noise producing machinery and equipment will only be operated during working hours as advised/approved by local Council and/or DECC. If it is necessary to work outside these hours, special permission will be obtained from Council and local residents will be notified. Australian Standard *AS2436-1981 Guide to noise control on construction, maintenance and demolition sites* outlines guidelines for the minimisation of noise on construction and demolition sites and these should be followed at all times.

No “offensive noise” as defined under the *Protection of the Environment Operations Act 1997* shall be created during remediation works/activities.

All associated mechanical plant, equipment and the like used during remediation works/activities shall use all practical and reasonable noise attenuating devices and measures to minimise noise being transmitted from the Site.

All equipment and machinery shall be operated in an efficient manner to minimise the emission of noise.

13.5.2 Vibration Criteria

The use of any plant or machinery shall not cause vibrations to be felt or capable of being felt at any adjoining premises. Vibration emissions during remediation works/activities must not result in damage to nearby premises or result in an unreasonable loss of amenity to nearby residents. The relevant provisions of the Protection of the Environment Operations Act 1997 must be satisfied at all times.

13.5.3 Noise & Vibration Control Measures

Control measures may be implemented by the Contractor to prevent causing a nuisance to neighbouring properties. These measures may include:-

- All vehicles involved in the remediation works shall generally enter and leave the Site in accordance with Site access/egress controls as determined by the Contractor;
- Use of suitable construction techniques and methodologies;
- Selection of quieter equipment, use of acoustical enclosures, construction of suitably placed acoustic barriers or earthen walls and the fitting of “residential” class mufflers and noise reduction kits to earthmoving and excavation equipment;
- All materials handling equipment shall have noise attenuation measures that make the equipment suitable for use in urban areas and which comply with regulatory requirements, including encapsulation of engine chambers and fitting DECC approved silencers to all power operated plant;
- The use of reversing alarms shall be restricted, with all items of mobile plant and equipment fitted with audible reversing alarms to have the type which automatically adjusts output sound levels dependent on prevailing ambient noise levels; and
- In the event that any short-term high noise level operations are required for the remedial works that may affect neighbouring properties, the Contractor shall provide adequate notification to those properties, including the expected duration of the high noise level works.

14 LIMITATIONS

Environmental Monitoring Services have prepared this document and information herein specifically for the purposes of the client in accordance with general professional consulting standards. The findings of this document apply specifically to this project only and are based partially on advice provided by the client. The scope of works was conducted in accordance with the scope of the project brief only. The document may not contain sufficient information for the purposes of other than the client, and no other warranty is made as to the professional advice in this report.

The scope of the Site investigations upon which this report is based upon was restricted to a level of detail appropriate for the client's current objective. The investigations were not designed for the purpose of assessing all potential Site developments.

The conclusions presented in this report are based on conditions encountered in a limited number of investigation locations at the time of the Site assessment. Conditions may be encountered during subsequent Site investigations or during Site redevelopment that were not encountered during this investigation. Groundwater conditions may fluctuate with climatic conditions, isolated contaminants may be present in areas that were not subject to field sampling and contamination attributable to on-site and off-site sources may also migrate to areas, which were found to be free of contamination when initially sampled. No liability is assumed for Site conditions not encountered, visible or accessible during the course of our Site investigations.

Should variable Site conditions including previously unknown sources of contamination appear to exist, EMS reserves the right to review the findings of this investigation, with context to any additional Site information made available.

15 REFERENCES

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

ANZECC Australian & New Zealand Environment & Conservation Council and NHMRC National Health and Medical Research Council (1992) *Guidelines for the Assessment and Management of Contaminated Sites*

Canberra Enhealth Council (2005) *Guidelines for the Management of Asbestos in the Non-occupational Environment*

National Environment Protection Council (NEPC) (1999) *National Environment Protection (Assessment of Site contamination) Measure 1999*

NSW Department of Environment & Conservation (2006) *Guidelines for the Site Auditor Scheme 2nd Edition*

NSW Environment Protection Authority (1994) *Contaminated Sites: Guidelines for Assessing Service Station Sites*

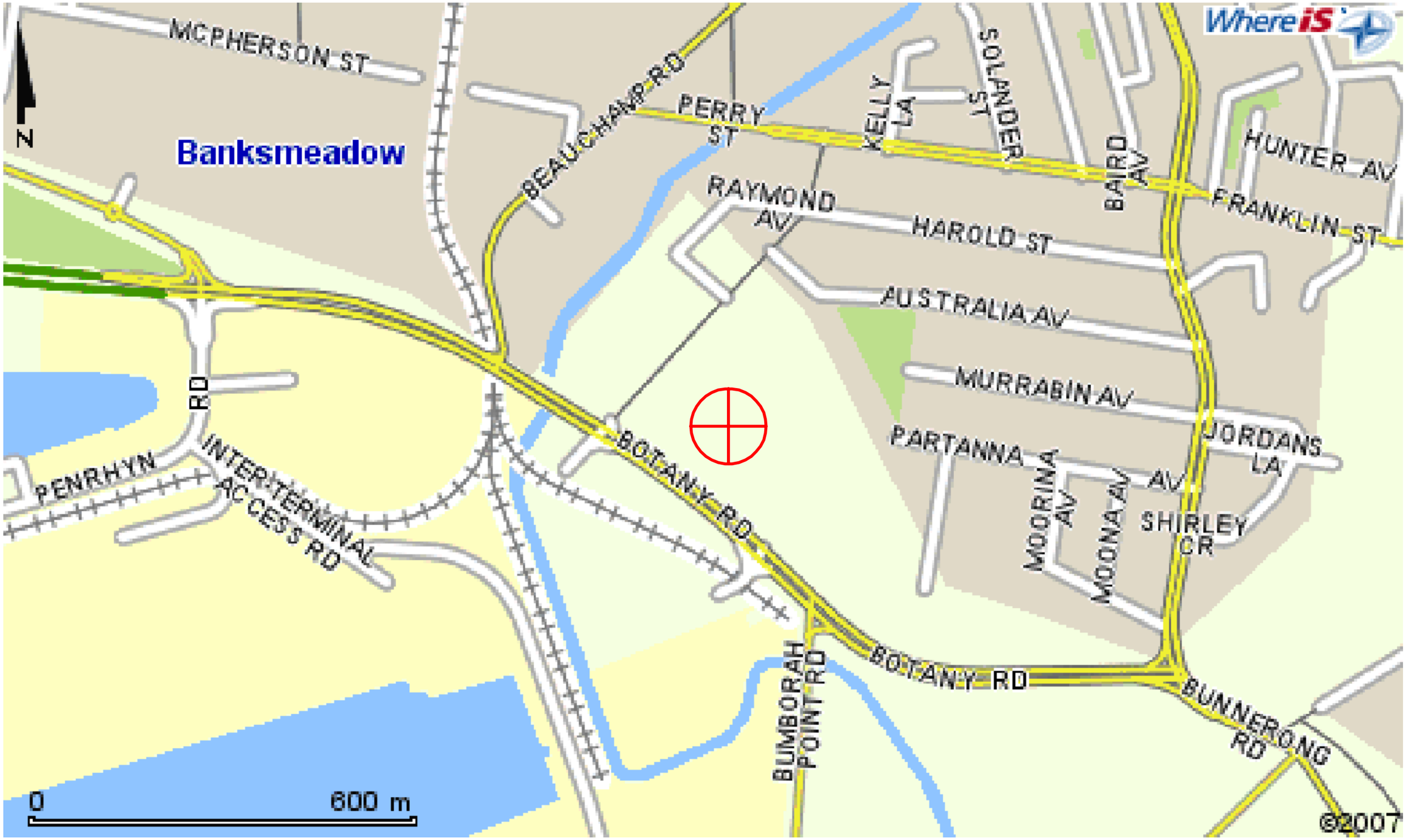
NSW Environment Protection Authority (1995) *Contaminated Sites: Sampling Design Guidelines*

NSW Environment Protection Authority (1997) *Guidelines for Consultants Reporting on Contaminated Sites*

Department of Urban Affairs and Planning (1998) *Managing Land Contamination, Planning Guidelines: SEPP 55 – Remediation of Land*

Workcover Authority of NSW (2000) *Code of Practice Excavation*

FIGURES



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Rev	Ammendments	Date	Chk
1	Adjust drawing to A3 page size	30/01	CAC

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Client: AMCOR

Project: B9 Development - Remediation Action Plan

Site: 1891 Botany Road, Matraville

Drawing Title: Fig 1 - Site Location

CAC (Drawn)	Checked	CAD
N.T.S. (Scale)	CAC (Approved)	01/02/08 (Date)
	C07 4193 (Job Number)	1 (Revision)
	C074193 Figure 1 Rev 1.vsd (File Name)	

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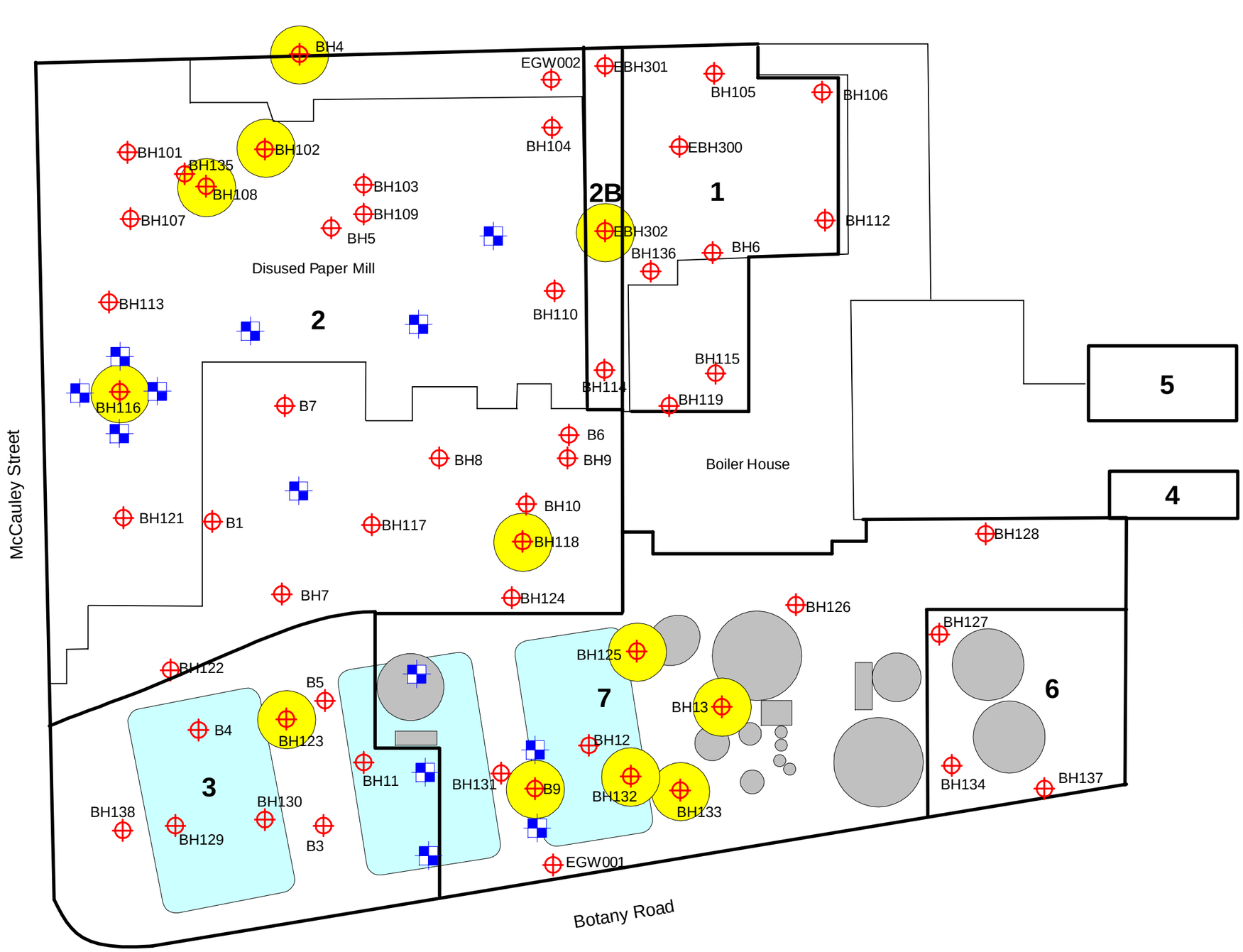

Borehole	Depth	Analyte	Concentration	Criteria
BH13	2.0-3.0	Copper	7,380	5,000
BH13	2.0-3.0	Lead	2,710	1,500
BH14 *	1.5-2.0	Lead	1,660	1,500
B9	4.0-4.6	Copper	6,250	5,000
B9	4.0-4.6	TPH C_{10}-C_{36}	1,457	1,000
BH102	0.5-1.0	TPH C_{10}-C_{36}	4,010	1,000
BH108	0.8-1.7	TPH C_{10}-C_{36}	4,500	1,000
BH116	0.2-0.5	Benzene	3.5	1
BH116	0.2-0.5	Toluene	4.7	1.4
BH116	0.2-0.5	Ethyl benzene	4.6	3.1
BH116	0.2-0.5	Xylene	14.4	14
BH123	1.0-1.3	TPH C_{10}-C_{36}	1,910	1,000
BH125	2.0	TPH C_{10}-C_{36}	1,950	1,000
BH125	2.5	TPH C_{10}-C_{36}	1,250	1,000
BH125	2.5	Lead	4,000	1,500
BH132	0.1-3.0	Lead	1,600	1,500

* This sampling location is located outside of the proposed re-development site

Borehole	Depth	Results
BH1 *	1.5-2.0	Chrysotile
BH2 *	0.0-0.5	Chrysotile
BH4	0.1-0.5	Chrysotile
BH13	0.0-0.1	Chrysotile
BH13	2.0-3.0	Chrysotile
BH118	0.2-0.5	Chrysotile
BH125	0.0-0.2	Chrysotile
BH133	2.1-2.4	Chrysotile

* This sampling location is located outside of the proposed re-development site

Refer to RAP Appendices for Tables 1 to 18, nominating sample depths.
Refer to RAP Appendices for borehole logs nominating borehole depths and soil descriptions.
Refer Amcor drawing S23391 (Rev A) for Parcel Boundaries.

Rev	Ammendments	Date	Chk
1	Addition of references to appendices for tables and borelogs	07/08	CAC
2	Addition of EBH300 & Area 2A& 2B	28/11	CAC
3	Delete 2A, addition of EGW001-003, EBH301-302, proposed drilling locations, contamination locations & BH110, realign Parcel boundaries.	16/01	CAC
4	Modify Woodward Clyde boreholes to BHX, BH107to BH7, contamination at B4 toBH4.	30/01	CAC

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Project: B9 Development - Remediation Action Plan

Site: 1891 Botany Road, Matraville

Drawing Title: Fig 2 - Borehole Locations

CAC (Drawn)	Checked	CAD
N.T.S. (Scale)	CAC (Approved)	30/01/08 (Date)
	C07 4193 (Job Number)	4 (Revision)
	C074193 Figure 2 Rev 4.vsd (File Name)	

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Rev	Ammendments	Date	Chk
1	Adjust drawing to A3 page size	30/01	CAC

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Client: AMCOR

Project: B9 Development - Remediation Action Plan

Site: 1891 Botany Road, Matraville

Drawing Title: Fig 3 - Site Aerial Photograph

CAC (Drawn)	Checked	CAD
N.T.S. (Scale)	CAC (Approved)	01/02/08 (Date)
	C07 4193 (Job Number)	1 (Revision)
	C074193 Figure 3 Rev 1.vsd (File Name)	

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Remediation Parcel Boundaries

5 Remediation Parcel Number

Old Settlement Ponds

BH128 Borehole Location & Number

Contamination location

Borehole	Depth	Analyte	Concentration	Criteria
BH13	2.0-3.0	Copper	7,380	5,000
BH13	2.0-3.0	Lead	2,710	1,500
BH14 *	1.5-2.0	Lead	1,660	1,500
B9	4.0-4.6	Copper	6,250	5,000
B9	4.0-4.6	TPH C_{10}-C_{36}	1,457	1,000
BH102	0.5-1.0	TPH C_{10}-C_{36}	4,010	1,000
BH108	0.8-1.7	TPH C_{10}-C_{36}	4,500	1,000
BH116	0.2-0.5	Benzene	3.5	1
BH116	0.2-0.5	Toluene	4.7	1.4
BH116	0.2-0.5	Ethyl benzene	4.6	3.1
BH116	0.2-0.5	Xylene	14.4	14
BH123	1.0-1.3	TPH C_{10}-C_{36}	1,910	1,000
BH125	2.0	TPH C_{10}-C_{36}	1,950	1,000
BH125	2.5	TPH C_{10}-C_{36}	1,250	1,000
BH125	2.5	Lead	4,000	1,500
BH132	0.1-3.0	Lead	1,600	1,500

* This sampling location is located outside of the proposed re-development site

Borehole	Depth	Results
BH1 *	1.5-2.0	Chrysotile
BH2 *	0.0-0.5	Chrysotile
BH4	0.1-0.5	Chrysotile
BH13	0.0-0.1	Chrysotile
BH13	2.0-3.0	Chrysotile
BH118	0.2-0.5	Chrysotile
BH125	0.0-0.2	Chrysotile
BH133	2.1-2.4	Chrysotile

* This sampling location is located outside of the proposed re-development site

Refer to RAP Appendices for Tables 1 to 18, nominating sample depths.
Refer to RAP Appendices for borehole logs nominating borehole depths and soil descriptions.
Refer Amcor drawing S23391 (Rev A) for Parcel Boundaries.

Rev	Ammendments	Date	Chk
1	Adjust drawing to A3 page size, amend locations as per Figure 2, Rev 4	30/10	CAC

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Client: AMCOR

Project: B9 Development - Remediation Action Plan

Site: 1891 Botany Road, Matraville

Drawing Title: Fig 4 - Soil Contamination Locations

CAC (Drawn)	Checked	CAD
N.T.S. (Scale)	CAC (Approved)	30/01/08 (Date)
	C07 4193 (Job Number)	1 (Revision)
	C074193 Figure 4 Rev 1.vsd (File Name)	

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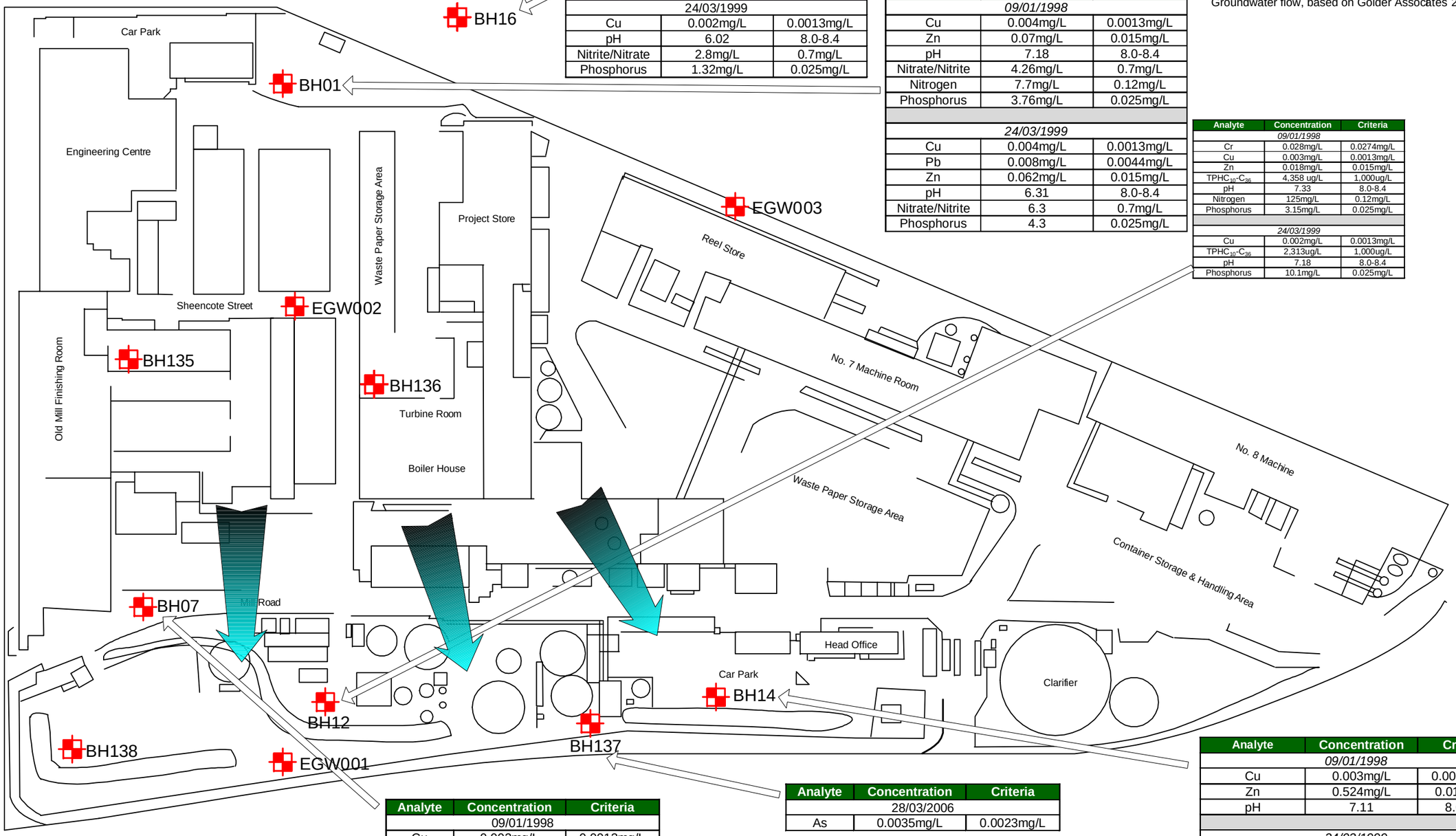

Analyte	Concentration	Criteria
24/03/1999		
Cu	0.002mg/L	0.0013mg/L
pH	6.02	8.0-8.4
Nitrite/Nitrate	2.8mg/L	0.7mg/L
Phosphorus	1.32mg/L	0.025mg/L

Analyte	Concentration	Criteria
09/01/1998		
Cu	0.004mg/L	0.0013mg/L
Zn	0.07mg/L	0.015mg/L
pH	7.18	8.0-8.4
Nitrate/Nitrite	4.26mg/L	0.7mg/L
Nitrogen	7.7mg/L	0.12mg/L
Phosphorus	3.76mg/L	0.025mg/L
24/03/1999		
Cu	0.004mg/L	0.0013mg/L
Pb	0.008mg/L	0.0044mg/L
Zn	0.062mg/L	0.015mg/L
pH	6.31	8.0-8.4
Nitrate/Nitrite	6.3	0.7mg/L
Phosphorus	4.3	0.025mg/L

Analyte	Concentration	Criteria
09/01/1998		
Cr	0.028mg/L	0.0274mg/L
Cu	0.003mg/L	0.0013mg/L
Zn	0.018mg/L	0.015mg/L
$TPHC_{10}$-C_{36}	4,358 ug/L	1,000ug/L
pH	7.33	8.0-8.4
Nitrogen	125mg/L	0.12mg/L
Phosphorus	3.15mg/L	0.025mg/L
24/03/1999		
Cu	0.002mg/L	0.0013mg/L
$TPHC_{10}$-C_{36}	2,313ug/L	1,000ug/L
pH	7.18	8.0-8.4
Phosphorus	10.1mg/L	0.025mg/L

Analyte	Concentration	Criteria
09/01/1998		
Cu	0.002mg/L	0.0013mg/L
pH	7.3	8.0-8.4

Analyte	Concentration	Criteria
28/03/2006		
As	0.0035mg/L	0.0023mg/L

Analyte	Concentration	Criteria
09/01/1998		
Cu	0.003mg/L	0.0013mg/L
Zn	0.524mg/L	0.015mg/L
pH	7.11	8.0-8.4
24/03/1999		
Cu	0.004mg/L	0.0013mg/L
pH	6.71	8.0-8.4
Phosphorus	4.79	0.025mg/L

BH16 Monitoring Well Location & Number

Rev	Ammendments	Date	Chk
1	Adjust drawing to A3 page size, amend locations as per Figure 2, Rev 4	30/10	CAC

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Client: AMCOR

Project: B9 Development - Groundwater Assessment

Site: 1891 Botany Road, Matraville

Drawing Title: Fig 5 - Groundwater Locations & Exceedences

CAC (Drawn)	Checked	CAD
N.T.S. (Scale)	CAC (Approved)	01/02/08 (Date)
	C07 4193 (Job Number)	1 (Revision)
	C074193 Figure 5 Rev 1.vsd (File Name)	

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APPENDIX A
TABULATED LABORATORY RESULTS

TABLE 1: ASBESTOS IN SOIL ANALYTICAL RESULTS

C07 4193
Site: 1891 Botany Road, Matraville
Client: Amcor Fibre Packaging

Sample ID	Depth (m)	Asbestos	Sample Date
BH1	0.5-1.0	No asbestos detected	28/08/1998
BH1	1.5-2.0	Chrysotile asbestos detected	28/08/1998
BH2	0.0-0.5	Chrysotile asbestos detected	13/08/1998
BH4	0.1-0.5	Chrysotile asbestos detected	13/08/1998
BH6	0.9-1.5	No asbestos detected	13/08/1998
BH7	0.5-1.0	No asbestos detected	28/08/1998
BH11	0.0-0.5	No asbestos detected	13/08/1998
BH11	2.0-3.0	No asbestos detected	13/08/1998
BH12	2.0-3.0	No asbestos detected	13/08/1998
BH12	4.0-4.5	No asbestos detected	13/08/1998
BH13	0.0-1.0	Chrysotile asbestos detected	13/08/1998
BH13	2.0-3.0	Chrysotile asbestos detected	13/08/1998
BH14	0.5-0.8	No asbestos detected	27/08/1998
BH14	1.5-2.0	No asbestos detected	27/08/1998
BH101	0.3-0.6	No asbestos detected	9/03/2006
BH103	0.15-0.3	No asbestos detected	9/03/2006
BH105	0.2-0.3	No asbestos detected	14/03/2006
BH106	0.4-0.7	No asbestos detected	14/03/2006
BH106	2.1-2.4	No asbestos detected	14/03/2006
BH107	0.5-0.7	No asbestos detected	9/03/2006
BH108	0.8-1.7	No asbestos detected	9/03/2006
BH109	0.2-0.25	No asbestos detected	9/03/2006
BH112	0.1-0.4	No asbestos detected	14/03/2006
BH114	0.6-1.0	No asbestos detected	10/03/2006

Sample ID	Depth (m)	Asbestos	Sample Date
BH115	0.8-1.2	No asbestos detected	14/03/2006
BH116	0.2-0.5	No asbestos detected	9/03/2006
BH117	0.06-0.3	No asbestos detected	8/03/2006
BH118	0.2-0.5	Chrysotile asbestos detected	10/03/2006
BH121	0.1-0.4	No asbestos detected	9/03/2006
BH121	2.6-3.1	No asbestos detected	9/03/2006
BH122	0.2	No asbestos detected	10/03/2006
BH123	0.2-0.5	No asbestos detected	10/03/2006
BH123	1.0-1.3	No asbestos detected	10/03/2006
BH124	0.2	No asbestos detected	8/03/2006
BH124	0.4-0.5	No asbestos detected	8/03/2006
BH125	0.0-0.2	Chrysotile asbestos detected	14/03/2006
BH126	0.25-0.55	No asbestos detected	7/03/2006
BH126	1.5	No asbestos detected	7/03/2006
BH127	0.2-0.4	No asbestos detected	10/03/2006
BH127	2.0-2.4	No asbestos detected	10/03/2006
BH129	0.6-1.2	No asbestos detected	8/03/2006
BH130	0.7-1.1	No asbestos detected	8/03/2006
BH130	2.0-2.4	No asbestos detected	8/03/2006
BH131	0.1-0.4	No asbestos detected	8/03/2006
BH131	2.1-2.4	No asbestos detected	8/03/2006
BH133	0.1-0.15	No asbestos detected	7/03/2006
BH133	2.1-2.4	Chrysotile asbestos detected	7/03/2006
BH134	0.3-0.5	No asbestos detected	10/03/2006
BH134	1.4-1.8	No asbestos detected	10/03/2006

Borehole	BH1	BH2	BH3	BH3	BH4	BH5	BH6	BH6	BH7	BH7	*PQL*	
Depth	1.5-2.0	0.0-0.5	0.0-0.5	1.0-2.0	0.1-0.5	0.2-0.9	0.9-1.5	2.0-3.0	0.5-1.0	2.0-2.5		
Date sampled	28-Aug-98	13-Aug-98	13-Aug-98	13-Aug-98	13-Aug-98	13-Aug-98	13-Aug-98	13-Aug-98	27-Aug-98	27-Aug-98		*(F)*
Description	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
Composite (if applicable)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a		
pH	7.0	9.0	7.2	7.1	8.6	9.8	10.4	8.5	7.7	7.5	*0.1*	
METALS												
Arsenic	2	3	4	nd	3	2	1	nd	1	nd	*4*	*500*
Cadmium	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*1*	*100*
Chromium	13	13	11	4	7	8	2	2	3	1	*1*	*60%*
Copper	101	17	632	27	12	24	5	nd	42	4	*1*	*5000*
Lead	310	47	234	41	19	66	3	nd	78	6	*1*	*1500*
Mercury	nd	0.1	0.3	0.2	nd	nd	nd	nd	1	0.4	*0.1*	*75*
Nickel	4	11	18	2	3	5	1	1	3	nd	*1*	*3000*
Silver	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*1*	
Zinc	169	476	731	100	27	78	15	nd	63	8	*1*	*35000*

NOTE:
All results sourced from AGC Woodward Clyde (1999), Coffey Geosciences Pty Ltd (2000), and Golder Associates Pty Ltd (2006)
All units in mg/kg unless otherwise stipulated
nd - not detected above the Practical Quantitation Limit (PQL)
nt - not tested
Sample identification denotes test borehole number and depth of sample
Shaded results exceed the following guidelines:
(F) NEPC Schedule B(1) Soil Investigation Levels Table 5-A
"Commercial/Industrial: includes premises such as shops and offices as well as factories and industrial sites."

Borehole	BH8	BH9	BH9	BH10	BH11	BH11	BH12	BH12	BH13	BH13	*PQL*	
Depth	0.0-1.0	0.0-1.0	1.0-2.0	0.0-0.7	0.0-0.5	2.0-3.0	2.0-3.0	4.0-4.5	0.0-1.0	2.0-3.0		
Date sampled	13-Aug-98	13-Aug-98	13-Aug-98	13-Aug-98	13-Aug-98	13-Aug-98	13-Aug-98	13-Aug-98	13-Aug-98	13-Aug-98		*(F)*
Description	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
Composite (if applicable)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a		
pH	7.7	9.9	9.2	11.8	8.9	7.3	8.2	7.3	8.6	8.0	*0.1*	
METALS												
Arsenic	1	nd	4	3	2	6	4	6	6	19	*1*	*500*
Cadmium	nd	nd	nd	nd	nd	nd	nd	nd	nd	7	*1*	*100*
Chromium	11	7	5	37	9	5	13	6	13	34	*1*	*60%*
Copper	27	17	8	36	57	37	203	50	39	**7380**	*1*	*5000*
Lead	61	32	3	90	67	64	133	81	32	**2710**	*1*	*1500*
Mercury	0.2	0.2	0.2	0.2	0.3	0.4	0.4	8.3	nd	3.4	*0.1*	*75*
Nickel	8	6	1	9	16	9	53	20	67	211	*1*	*3000*
Silver	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*1*	
Zinc	203	48	9	51	652	224	139	70	61	6130	*1*	*35000*

NOTE:
All results sourced from AGC Woodward Clyde (1999), Coffey Geosciences Pty Ltd (2000), and Golder Associates Pty Ltd (2006)
All units in mg/kg unless otherwise stipulated
nd - not detected above the Practical Quantitation Limit (PQL)
nt - not tested
Sample identification denotes test borehole number and depth of sample
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(F) NEPC Schedule B(1) Soil Investigation Levels Table 5-A
"Commercial/Industrial: includes premises such as shops and offices as well as factories and industrial sites."

Borehole	BH14	BH14	BH15	BH15		B3A	B3B	B3	B4A	B4	*PQL*	
Depth	0.5-0.8	1.5-2.0	0.0-0.5	1.0-2.0		0.5-0.6	0.5-0.6	2.5-2.95	0.4-0.5	1.0-1.45		
Date sampled	27-Aug-98	27-Aug-98	13-Aug-98	13-Aug-98		24-May-00	24-May-00	24-May-00	24-May-00	24-May-00		*(F)*
Description	Soil	Soil	Soil	Soil		Soil	Soil	Soil	Soil	Soil		
Composite (if applicable)	n/a	n/a	n/a	n/a		n/a	n/a	n/a	n/a	n/a		
pH	7.3	5.7	8.3	6.2		nt	nt	nt	nt	nt		
METALS												
Arsenic	2	15	1	nd		3	4	nd	3	nd	*1*	*500*
Cadmium	nd	9	nd	nd		nd	nd	nd	nd	nd	*1*	*100*
Chromium	3	33	1	3		6	6	1	5	1	*1*	*60%*
Copper	7	2790	4	1		21	35	nd	33	nd	*1*	*5000*
Lead	10	**1660**	4	2		27	49	1	18	1	*1*	*1500*
Mercury	nd	3.4	nd	0.1		0.2	0.1	nd	nd	nd	*0.1*	*75*
Nickel	14	113	1	1		60	55	nd	31	2	*1*	*3000*
Silver	nd	2	nd	nd		nt	nt	nt	nt	nt	*1*	
Zinc	8	1240	7	3		39	115	3	16	5	*1*	*35000*

NOTE:
All results sourced from AGC Woodward Clyde (1999), Coffey Geosciences Pty Ltd (2000), and Golder Associates Pty Ltd (2006)
All units in mg/kg unless otherwise stipulated
nd - not detected above the Practical Quantitation Limit (PQL)
nt - not tested
Sample identification denotes test borehole number and depth of sample
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(F) NEPC Schedule B(1) Soil Investigation Levels Table 5-A
"Commercial/Industrial: includes premises such as shops and offices as well as factories and industrial sites."

Borehole	B4	B5	B5	B6A	B6	B7	B8	B9	B9	B9	*PQL*	
Depth	2.5-3.0	1.5-1.95	4.0-5.0	0.3-0.4	2.4-2.85	2.5-2.95	3.9-4.35	1.0-1.45	4.0-4.6	7.0-7.45		
Date sampled	24-May-00	23-May-00	23-May-00	19-May-00	19-May-00	17-May-00	15-May-00	23-May-00	23-May-00	23-May-00		*(F)*
Description	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
Composite (if applicable)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a		
pH	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt		
METALS												
Arsenic	2	nd	nd	2	nd	nd	nd	nd	15	2	*1*	*500*
Cadmium	nd	nd	nd	nd	nd	nd	nd	nd	3	nd	*1*	*100*
Chromium	2	nd	nd	3	2	3	2	2	817	13	*1*	*60%*
Copper	11	1	4	15	2	2	2	1	**6250**	10	*1*	*5000*
Lead	9	2	4	21	2	nd	nd	3	904	15	*1*	*1500*
Mercury	nd	nd	nd	0.4	nd	nd	nd	nd	8.4	nd	*0.1*	*75*
Nickel	4	1	nd	4	2	3	3	1	22	4	*1*	*3000*
Silver	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	*1*	
Zinc	27	9	11	43	6	3	12	12	1930	5	*1*	*35000*

NOTE:
All results sourced from AGC Woodward Clyde (1999), Coffey Geosciences Pty Ltd (2000), and Golder Associates Pty Ltd (2006)
All units in mg/kg unless otherwise stipulated
nd - not detected above the Practical Quantitation Limit (PQL)
nt - not tested
Sample identification denotes test borehole number and depth of sample
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(F) NEPC Schedule B(1) Soil Investigation Levels Table 5-A
"Commercial/Industrial: includes premises such as shops and offices as well as factories and industrial sites."

Borehole		BH101	BH101	BH102	BH103	BH103	BH104	BH104	BH105	BH105	*PQL*	
Depth		0.3-0.6	1.4-1.6	0.5-1.0	0.15-0.3	1.9-2.4	0.2-0.6	0.7-1.2	0.2-0.3	0.7-0.8		
Date sampled		9-Mar-06	9-Mar-06	9-Mar-06	9-Mar-06	9-Mar-06	10-Mar-06	10-Mar-06	14-Mar-06	14-Mar-06		*(F)*
Description		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
Composite (if applicable)		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a		
pH		nt	nt	nt	nt	nt	nt	nt	nt	nt		
METALS												
Arsenic		4.7	nd	7.7	11	nd	nd	nd	nd	nd	*4*	*500*
Cadmium		nd	nd	nd	nd	nd	nd	nd	nd	nd	*1*	*100*
Chromium		1.2	1.8	16	12	2	4.7	nd	nd	nd	*1*	*60%*
Copper		52	nd	370	290	nd	56	nd	13	6.3	*1*	*5000*
Lead		100	5	560	530	nd	92	nd	10	5	*1*	*1500*
Mercury		0.22	nd	3.8	4.9	nd	2.1	nd	0.1	nd	*0.1*	*75*
Nickel		nd	nd	4	5	1	6	nd	nd	nd	*1*	*3000*
Silver		nt	nt	nt	nt	nt	nt	nt	nt	nt	*1*	
Zinc		39	9	180	400	1	53	nd	38	27	*1*	*35000*

NOTE:
All results sourced from AGC Woodward Clyde (1999), Coffey Geosciences Pty Ltd (2000), and Golder Associates Pty Ltd (2006)
All units in mg/kg unless otherwise stipulated
nd - not detected above the Practical Quantitation Limit (PQL)
nt - not tested
Sample identification denotes test borehole number and depth of sample
Shaded results exceed the following guidelines:
(F) NEPC Schedule B(1) Soil Investigation Levels Table 5-A
"Commercial/Industrial: includes premises such as shops and offices as well as factories and industrial sites."

Borehole	BH106	BH106	BH107	BH107	BH108	BH109	BH110	BH110	BH111	BH111	*PQL*	
Depth	0.4-0.7	0.7-1.0	0.5-0.7	1.9-2.4	0.8-1.7	0.2-0.25	0.5-0.8	1.3-1.6	0.1-0.4	0.9-1.2		
Date sampled	14-Mar-06	14-Mar-06	9-Mar-06	9-Mar-06	9-Mar-06	9-Mar-06	10-Mar-06	10-Mar-06	14-Mar-06	14-Mar-06		*(F)*
Description	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
Composite (if applicable)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a		
pH	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt		
METALS												
Arsenic	nd	nd	nd	nd	23	nd	4	nd	nd	nd	*1*	*500*
Cadmium	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*1*	*100*
Chromium	nd	3.7	nd	1.2	14	20	11	1.8	4.7	1.6	*1*	*60%*
Copper	1.9	nd	46	nd	630	2.7	57	nd	36	nd	*1*	*5000*
Lead	1	3	7	nd	240	3	89	1	39	nd	*1*	*1500*
Mercury	nd	nd	0.13	nd	1.4	nd	3.4	nd	0.17	nd	*0.1*	*75*
Nickel	nd	2	nd	nd	17	3	3	1	23	1	*1*	*3000*
Silver	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	*1*	
Zinc	5	nd	7	nd	470	7	70	9	49	3	*1*	*35000*

NOTE:
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All units in mg/kg unless otherwise stipulated
nd - not detected above the Practical Quantitation Limit (PQL)
nt - not tested
Sample identification denotes test borehole number and depth of sample
Shaded results exceed the following guidelines:
(F) NEPC Schedule B(1) Soil Investigation Levels Table 5-A
"Commercial/Industrial: includes premises such as shops and offices as well as factories and industrial sites."

Borehole	BH112	BH112	BH113	BH113	BH114	BH114	BH115	BH115	BH116	BH116	*PQL*	
Depth	0.1-0.4	0.8-1.2	0.2-0.4	1.1-1.2	0.6-1.0	1.5-2.0	0.8-1.2	2.0-2.4	0.2-0.5	1.2-1.8		
Date sampled	14-Mar-06	14-Mar-06	15-Mar-06	15-Mar-06	10-Mar-06	10-Mar-06	14-Mar-06	14-Mar-06	9-Mar-06	9-Mar-06		*(F)*
Description	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
Composite (if applicable)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a		
pH	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt		
METALS												
Arsenic	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*1*	*500*
Cadmium	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*1*	*100*
Chromium	3.6	1.6	2.5	2	2.7	nd	2.6	nd	1.7	1.4	*1*	*60%*
Copper	340	nd	24	1.3	39	nd	16	nd	3.4	nd	*1*	*5000*
Lead	170	1	43	3	19	nd	37	nd	23	nd	*1*	*1500*
Mercury	nd	nd	2.2	nd	0.12	nd	nd	nd	nd	nd	*0.1*	*75*
Nickel	11	1	3	nd	2	nd	4	nd	2	nd	*1*	*3000*
Silver	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	*1*	
Zinc	330	nd	49	2	98	4	52	3	8	nd	*1*	*35000*

NOTE:
All results sourced from AGC Woodward Clyde (1999), Coffey Geosciences Pty Ltd (2000), and Golder Associates Pty Ltd (2006)
All units in mg/kg unless otherwise stipulated
nd - not detected above the Practical Quantitation Limit (PQL)
nt - not tested
Sample identification denotes test borehole number and depth of sample
Shaded results exceed the following guidelines:
(F) NEPC Schedule B(1) Soil Investigation Levels Table 5-A
"Commercial/Industrial: includes premises such as shops and offices as well as factories and industrial sites."

Borehole	BH117	BH117	BH118	BH118	BH121	BH122	BH122	BH123	BH123	BH123	*PQL*	
Depth	0.06-0.3	2.0-2.4	0.2-0.5	0.8-1.1	2.6-3.1	0.2	0.5	0.2-0.5	1.0-1.3	2.0-2.3		
Date sampled	8-Mar-06	8-Mar-06	10-Mar-06	10-Mar-06	9-Mar-06	10-Mar-06	10-Mar-06	10-Mar-06	10-Mar-06	10-Mar-06		*(F)*
Description	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
Composite (if applicable)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a		
pH	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt		
METALS												
Arsenic	nd	nd	nd	nd	nd	nd	nd	nd	54	nd	*1*	*500*
Cadmium	nd	nd	nd	nd	nd	nd	nd	nd	1.3	nd	*1*	*100*
Chromium	9.3	nd	4.9	3.2	1.6	6.7	3	11	19	2.4	*1*	*60%*
Copper	17	nd	27	12	nd	16	19	59	280	45	*1*	*5000*
Lead	8	2	48	18	2	12	1000	58	260	51	*1*	*1500*
Mercury	nd	nd	0.35	0.21	nd	nd	0.16	0.54	3.6	0.24	*0.1*	*75*
Nickel	70	nd	4	1	nd	4	2	12	19	6	*1*	*3000*
Silver	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	*1*	
Zinc	12	1	90	480	3	15	120	90	200	39	*1*	*35000*

NOTE:
All results sourced from AGC Woodward Clyde (1999), Coffey Geosciences Pty Ltd (2000), and Golder Associates Pty Ltd (2006)
All units in mg/kg unless otherwise stipulated
nd - not detected above the Practical Quantitation Limit (PQL)
nt - not tested
Sample identification denotes test borehole number and depth of sample
Shaded results exceed the following guidelines:
(F) NEPC Schedule B(1) Soil Investigation Levels Table 5-A
"Commercial/Industrial: includes premises such as shops and offices as well as factories and industrial sites."

Borehole	BH124	BH124	BH125	BH125	BH125	BH125	BH125	BH126	BH126	BH127	*PQL*	
Depth	0.2	1.5	0.0-0.2	0.5	2.0	2.5	4.0	1.5	2.5-2.7	0.2-0.4		
Date sampled	8-Mar-06	8-Mar-06	14-Mar-06	14-Mar-06	14-Mar-06	14-Mar-06	14-Mar-06	7-Mar-06	7-Mar-06	10-Mar-06		*(F)*
Description	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
Composite (if applicable)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a		
pH	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt		
METALS												
Arsenic	nd	nd	14	nd	5	12	nd	nd	nd	nd	*1*	*500*
Cadmium	nd	nd	1.9	nd	1.2	3.8	nd	nd	nd	nd	*1*	*100*
Chromium	5.5	2.8	46	6.2	32	120	36	1.4	1.3	130	*1*	*60%*
Copper	63	22	160	39	200	360	230	1.7	4.1	35	*1*	*5000*
Lead	3	130	370	56	490	**4000**	380	5	2	10	*1*	*1500*
Mercury	nd	nd	1.7	0.32	2.7	23	0.96	nd	nd	nd	*0.1*	*75*
Nickel	34	3	40	42	83	57	19	nd	4	110	*1*	*3000*
Silver	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	*1*	
Zinc	30	200	930	130	650	1700	250	13	5	63	*1*	*35000*

NOTE:
All results sourced from AGC Woodward Clyde (1999), Coffey Geosciences Pty Ltd (2000), and Golder Associates Pty Ltd (2006)
All units in mg/kg unless otherwise stipulated
nd - not detected above the Practical Quantitation Limit (PQL)
nt - not tested
Sample identification denotes test borehole number and depth of sample
Shaded results exceed the following guidelines:
(F) NEPC Schedule B(1) Soil Investigation Levels Table 5-A
"Commercial/Industrial: includes premises such as shops and offices as well as factories and industrial sites."

Borehole	BH127	BH128	BH128	BH129	BH129	BH130	BH130	BH131	BH131	BH132	*PQL*	
Depth	2.0-2.4	0.1-0.3	1.0-1.3	3.3-3.6	4.2-4.8	0.7-1.1	2.0-2.4	2.1-2.4	4.7-5.1	0.1-0.3		
Date sampled	10-Mar-06	14-Mar-06	14-Mar-06	8-Mar-06	8-Mar-06	8-Mar-06	8-Mar-06	8-Mar-06	8-Mar-06	7-Mar-06		*(F)*
Description	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
Composite (if applicable)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a		
pH	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt		
METALS												
Arsenic	nd	nd	nd	nd	nd	nd	9.5	nd	nd	9.5	*1*	*500*
Cadmium	nd	nd	nd	nd	nd	nd	nd	nd	nd	5.7	*1*	*100*
Chromium	6.1	1	3.3	11	3.6	6.5	6.4	2.5	4.1	62	*1*	*60%*
Copper	6.9	6.6	nd	36	nd	15	49	10	42	650	*1*	*5000*
Lead	8	2	nd	40	2	5	33	20	10	**1600**	*1*	*1500*
Mercury	nd	nd	nd	0.31	nd	nd	0.18	nd	0.33	4.4	*0.1*	*75*
Nickel	4	1	1	8	1	54	38	3	11	57	*1*	*3000*
Silver	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	*1*	
Zinc	18	17	nd	100	1	16	140	21	84	300	*1*	*35000*

NOTE:
All results sourced from AGC Woodward Clyde (1999), Coffey Geosciences Pty Ltd (2000), and Golder Associates Pty Ltd (2006)
All units in mg/kg unless otherwise stipulated
nd - not detected above the Practical Quantitation Limit (PQL)
nt - not tested
Sample identification denotes test borehole number and depth of sample
Shaded results exceed the following guidelines:
(F) NEPC Schedule B(1) Soil Investigation Levels Table 5-A
"Commercial/Industrial: includes premises such as shops and offices as well as factories and industrial sites."

Borehole	BH132	BH133	BH133	BH134	BH134	BH135	BH135	BH135	BH135	BH135	*PQL*	
Depth	4.5-4.8	3.1-3.6	6.8-7.2	0.3-0.5	3.0-3.5	0.0-0.2	0.4-0.5	0.9-1.0	2.4-2.5	3.9-4.0		
Date sampled	7-Mar-06	7-Mar-06	7-Mar-06	10-Mar-06	10-Mar-06	16-Mar-06	16-Mar-06	16-Mar-06	16-Mar-06	16-Mar-06		*(F)*
Description	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
Composite (if applicable)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a		
pH	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt		
METALS												
Arsenic	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*1*	*500*
Cadmium	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*1*	*100*
Chromium	6.2	28	1.2	19	2.2	nd	nd	nd	1.3	1.2	*1*	*60%*
Copper	18	72	nd	110	8	5	2.3	nd	nd	nd	*1*	*5000*
Lead	19	160	nd	160	8	2	nd	nd	nd	nd	*1*	*1500*
Mercury	0.14	2.8	nd	0.37	nd	nd	nd	nd	nd	nd	*0.1*	*75*
Nickel	7	8	nd	14	11	nd	nd	nd	1	nd	*1*	*3000*
Silver	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	*1*	
Zinc	56	210	1	800	16	7	2	nd	1	1	*1*	*35000*

NOTE:
All results sourced from AGC Woodward Clyde (1999), Coffey Geosciences Pty Ltd (2000), and Golder Associates Pty Ltd (2006)
All units in mg/kg unless otherwise stipulated
nd - not detected above the Practical Quantitation Limit (PQL)
nt - not tested
Sample identification denotes test borehole number and depth of sample
Shaded results exceed the following guidelines:
(F) NEPC Schedule B(1) Soil Investigation Levels Table 5-A
"Commercial/Industrial: includes premises such as shops and offices as well as factories and industrial sites."

Borehole	BH136	BH136	BH137	BH137	BH137	BH138	BH138	ASPHALT	*PQL*	
Depth	0.2-0.4	0.5-0.7	0.36	1.5	2.5	0.0-0.2	2.4-2.5	0.0-0.1		
Date sampled	13-Mar-06	13-Mar-06	16-Mar-06	16-Mar-06	16-Mar-06	13-Mar-06	13-Mar-06	14-Mar-06		*(F)*
Description	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Pavement		
Composite (if applicable)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a		
pH	nt	nt	nt	nt	nt	nt	nt	nt		
METALS										
Arsenic	nd	nd	nd	29	nd	4.1	nd	nd	*1*	*500*
Cadmium	nd	nd	nd	nd	nd	nd	nd	nd	*1*	*100*
Chromium	23	2.3	3.3	34	2.3	2.9	4.9	4.6	*1*	*60%*
Copper	48	20	8.7	160	5.3	15	18	66	*1*	*5000*
Lead	5	7	10	250	38	3	18	30	*1*	*1500*
Mercury	nd	nd	0.12	9.9	nd	nd	nd	nd	*0.1*	*75*
Nickel	150	12	2	22	2	12	8	6	*1*	*3000*
Silver	nt	nt	nt	nt	nt	nt	nt	nt	*1*	
Zinc	47	9	21	360	22	7	36	170	*1*	*35000*

NOTE:
All results sourced from AGC Woodward Clyde (1999), Coffey Geosciences Pty Ltd (2000), and Golder Associates Pty Ltd (2006)
All units in mg/kg unless otherwise stipulated
nd - not detected above the Practical Quantitation Limit (PQL)
nt - not tested
Sample identification denotes test borehole number and depth of sample
Shaded results exceed the following guidelines:
(F) NEPC Schedule B(1) Soil Investigation Levels Table 5-A
"Commercial/Industrial: includes premises such as shops and offices as well as factories and industrial sites."

Borehole	BH2	BH3	BH6	BH7	BH8	BH10	BH11	BH12	BH13	BH14	*PQL*	
Depth	0.0-0.5	1.0-2.0	0.9-1.5	0.5-1.0	0.0-1.0	0.0-0.7	0.0-0.5	2.0-3.0	0.0-1.0	0.5-0.8		
Date sampled	13-Aug-98	13-Aug-98	13-Aug-98	27-Aug-98	13-Aug-98	13-Aug-98	13-Aug-98	13-Aug-98	13-Aug-98	27-Aug-98		*(F)*
Description	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
Composite (if applicable)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a		
PAH's												
Naphthalene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*0.1*	-
2-Methylnaphthalene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*0.1*	-
2-Chloronaphthalene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*0.1*	-
Acenaphthylene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*0.1*	-
Acenaphthene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*0.1*	-
Fluorene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*0.1*	-
Phenanthrene	nd	nd	nd	0.80	nd	nd	nd	nd	nd	nd	*0.1*	-
Anthracene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*0.1*	-
Fluoranthene	nd	nd	nd	1.50	nd	nd	nd	nd	nd	nd	*0.1*	-
Pyrene	nd	nd	nd	1.60	nd	nd	nd	nd	nd	nd	*0.1*	-
N-2-Fluorenylacetamide	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*0.1*	-
Benz(a)anthracene	nd	nd	nd	1.00	nd	nd	nd	nd	nd	nd	*0.1*	-
Chrysene	nd	nd	nd	1.10	nd	nd	nd	nd	nd	nd	*0.1*	-
Benzo(b)&(k)fluoranthene	nd	nd	nd	2.00	nd	nd	nd	nd	nd	nd	*0.05*	-
7.12-Dimethylbenz(a)anthracene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*0.1*	-
Benzo(a)pyrene	nd	nd	nd	1.20	nd	nd	nd	nd	nd	nd	*0.1*	*5*
3-Methylchloanthrene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*0.1*	-
Indeno(1.2.3-cd)pyrene	nd	nd	nd	0.60	nd	nd	nd	nd	nd	nd	*0.1*	-
Dibenzo(a.h)anthracene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*0.1*	-
Benzo(g.h.i)perylene	nd	nd	nd	0.70	nd	nd	nd	nd	nd	nd	*0.1*	-
Total PAH's	0.00	0.00	0.00	10.50	0.00	0.00	0.00	0.00	0.00	0.00	-	*100*

NOTE:
All results sourced from AGC Woodward Clyde (1999), Coffey Geosciences Pty Ltd (2000), and Golder Associates Pty Ltd (2006)
All units in mg/kg unless otherwise stipulated
nd - not detected above the Practical Quantitation Limit (PQL)
nt - not tested
Sample identification denotes test borehole number and depth of sample
Shaded results exceed the following guidelines:
(F) NEPC Schedule B(1) Soil Investigation Levels Table 5-A
"Commercial/Industrial: includes premises such as shops and offices as well as factories and industrial sites."

Borehole	BH14		B3A	B3B	B3	B4A	B4	B4	B5	B5	*PQL*	
Depth	1.5-2.0		0.5-0.6	0.5-0.6	2.5-2.95	0.4-0.5	1.0-1.45	2.5-3.0	1.5-1.95	4.0-5.0		
Date sampled	27-Aug-98		24-May-00	24-May-00	24-May-00	24-May-00	24-May-00	24-May-00	23-May-00	23-May-00		*(F)*
Description	Soil		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
Composite (if applicable)	n/a		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a		
PAH's												
Naphthalene	nd		nd	nd	nd	nd	nd	nd	nd	nd	*0.1*	-
2-Methylnaphthalene	nd		nt	nt	nt	nt	nt	nt	nt	nt	*0.1*	-
2-Chloronaphthalene	nd		nt	nt	nt	nt	nt	nt	nt	nt	*0.1*	-
Acenaphthylene	nd		nd	nd	nd	nd	nd	nd	nd	nd	*0.1*	-
Acenaphthene	nd		nd	nd	nd	nd	nd	nd	nd	nd	*0.1*	-
Fluorene	nd		nd	nd	nd	nd	nd	nd	nd	nd	*0.1*	-
Phenanthrene	nd		nd	nd	nd	nd	nd	nd	nd	nd	*0.1*	-
Anthracene	nd		nd	nd	nd	nd	nd	nd	nd	nd	*0.1*	-
Fluoranthene	nd		nd	nd	nd	nd	nd	nd	nd	nd	*0.1*	-
Pyrene	nd		nd	nd	nd	nd	nd	nd	nd	nd	*0.1*	-
N-2-Fluorenylacetamide	nd		nt	nt	nt	nt	nt	nt	nt	nt	*0.1*	-
Benz(a)anthracene	nd		nd	nd	nd	nd	nd	nd	nd	nd	*0.1*	-
Chrysene	nd		nd	nd	nd	nd	nd	nd	nd	nd	*0.1*	-
Benzo(b)&(k)fluoranthene	nd		nd	nd	nd	nd	nd	nd	nd	nd	*0.05*	-
7.12-Dimethylbenz(a)anthracene	nd		nt	nt	nt	nt	nt	nt	nt	nt	*0.1*	-
Benzo(a)pyrene	nd		nd	nd	nd	nd	nd	nd	nd	nd	*0.1*	*5*
3-Methylchloanthrene	nd		nt	nt	nt	nt	nt	nt	nt	nt	*0.1*	-
Indeno(1.2.3-cd)pyrene	nd		nd	nd	nd	nd	nd	nd	nd	nd	*0.1*	-
Dibenzo(a.h)anthracene	nd		nd	nd	nd	nd	nd	nd	nd	nd	*0.1*	-
Benzo(g.h.i)perylene	nd		nd	nd	nd	nd	nd	nd	nd	nd	*0.1*	-
Total PAH's	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	*100*

NOTE:
All results sourced from AGC Woodward Clyde (1999), Coffey Geosciences Pty Ltd (2000), and Golder Associates Pty Ltd (2006)
All units in mg/kg unless otherwise stipulated
nd - not detected above the Practical Quantitation Limit (PQL)
nt - not tested
Sample identification denotes test borehole number and depth of sample
Shaded results exceed the following guidelines:
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"Commercial/Industrial: includes premises such as shops and offices as well as factories and industrial sites."

Borehole	B6A	B6	B7	B8	B9	B9	B9		BH101	BH101	*PQL*	
Depth	0.3-0.4	2.4-2.85	2.5-2.95	3.9-4.35	1.0-1.45	4.0-4.6	7.0-7.45		0.3-0.6	1.4-1.6		
Date sampled	19-May-00	19-May-00	17-May-00	15-May-00	23-May-00	23-May-00	23-May-00		9-Mar-06	9-Mar-06		*(F)*
Description	Soil	Soil	Soil	Soil	Soil	Soil	Soil		Soil	Soil		
Composite (if applicable)	n/a	n/a	n/a	n/a	n/a	n/a	n/a		n/a	n/a		
PAH's												
Naphthalene	nd	nd	nd	nd	nd	nd	nd		nd	nd	*0.1*	-
2-Methylnaphthalene	nt	nt	nt	nt	nt	nt	nt		nt	nt	*0.1*	-
2-Chloronaphthalene	nt	nt	nt	nt	nt	nt	nt		nt	nt	*0.1*	-
Acenaphthylene	nd	nd	nd	nd	nd	nd	nd		nd	nd	*0.1*	-
Acenaphthene	nd	nd	nd	nd	nd	nd	nd		nd	nd	*0.1*	-
Fluorene	nd	nd	nd	nd	nd	nd	nd		nd	nd	*0.1*	-
Phenanthrene	nd	nd	nd	nd	nd	nd	nd		nd	nd	*0.1*	-
Anthracene	nd	nd	nd	nd	nd	nd	nd		nd	nd	*0.1*	-
Fluoranthene	nd	nd	nd	nd	nd	0.90	nd		0.10	nd	*0.1*	-
Pyrene	nd	nd	nd	nd	nd	1.10	nd		0.10	nd	*0.1*	-
N-2-Fluorenylacetamide	nt	nt	nt	nt	nt	nt	nt		nt	nt	*0.1*	-
Benz(a)anthracene	nd	nd	nd	nd	nd	0.80	nd		nd	nd	*0.1*	-
Chrysene	nd	nd	nd	nd	nd	1.20	nd		nd	nd	*0.1*	-
Benzo(b)&(k)fluoranthene	nd	nd	nd	nd	nd	1.80	nd		nd	nd	*0.05*	-
7.12-Dimethylbenz(a)anthracene	nt	nt	nt	nt	nt	nt	nt		nt	nt	*0.1*	-
Benzo(a)pyrene	nd	nd	nd	nd	nd	1.30	nd		nd	0.05	*0.1*	*5*
3-Methylchloanthrene	nt	nt	nt	nt	nt	nt	nt		nt	nt	*0.1*	-
Indeno(1.2.3-cd)pyrene	nd	nd	nd	nd	nd	1.00	nd		nd	nd	*0.1*	-
Dibenzo(a.h)anthracene	nd	nd	nd	nd	nd	nd	nd		nd	nd	*0.1*	-
Benzo(g.h.i)perylene	nd	nd	nd	nd	nd	1.10	nd		nd	nd	*0.1*	-
Total PAH's	0.00	0.00	0.00	0.00	0.00	9.20	0.00		0.20	0.05	-	*100*

NOTE:
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All units in mg/kg unless otherwise stipulated
nd - not detected above the Practical Quantitation Limit (PQL)
nt - not tested
Sample identification denotes test borehole number and depth of sample
Shaded results exceed the following guidelines:
(F) NEPC Schedule B(1) Soil Investigation Levels Table 5-A
"Commercial/Industrial: includes premises such as shops and offices as well as factories and industrial sites."

Borehole	BH102	BH103	BH103	BH104	BH104	BH105	BH105	BH106	BH106	BH107	*PQL*	
Depth	0.5-1.0	0.15-0.3	1.9-2.4	0.2-0.6	0.7-1.2	0.2-0.3	0.7-0.8	0.4-0.7	0.7-1.0	0.5-0.7		
Date sampled	9-Mar-06	9-Mar-06	9-Mar-06	10-Mar-06	10-Mar-06	14-Mar-06	14-Mar-06	14-Mar-06	14-Mar-06	9-Mar-06		*(F)*
Description	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
Composite (if applicable)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a		
PAH's												
Naphthalene	nd	nd	nd	nt	nd	nd	nd	nd	nd	nd	*0.1*	-
2-Methylnaphthalene	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	*0.1*	-
2-Chloronaphthalene	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	*0.1*	-
Acenaphthylene	nd	nd	nd	nt	nd	nd	nd	nd	nd	nd	*0.1*	-
Acenaphthene	nd	nd	nd	nt	nd	nd	nd	nd	nd	nd	*0.1*	-
Fluorene	nd	nd	nd	nt	nd	nd	nd	nd	nd	nd	*0.1*	-
Phenanthrene	nd	0.20	nd	nt	nd	0.20	nd	nd	nd	nd	*0.1*	-
Anthracene	nd	nd	nd	nt	nd	nd	nd	nd	nd	nd	*0.1*	-
Fluoranthene	nd	0.60	nd	nt	nd	0.10	nd	nd	nd	nd	*0.1*	-
Pyrene	nd	0.60	nd	nt	nd	nd	nd	nd	nd	nd	*0.1*	-
N-2-Fluorenylacetamide	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	*0.1*	-
Benz(a)anthracene	nd	0.30	nd	nt	nd	nd	nd	nd	nd	nd	*0.1*	-
Chrysene	nd	0.40	nd	nt	nd	nd	nd	nd	nd	nd	*0.1*	-
Benzo(b)&(k)fluoranthene	nd	0.70	nd	nt	nd	nd	nd	nd	nd	nd	*0.05*	-
7.12-Dimethylbenz(a)anthracene	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	*0.1*	-
Benzo(a)pyrene	nd	0.30	nd	nt	nd	nd	nd	nd	nd	nd	*0.1*	*5*
3-Methylchloanthrene	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	*0.1*	-
Indeno(1.2.3-cd)pyrene	nd	0.20	nd	nt	nd	nd	nd	nd	nd	nd	*0.1*	-
Dibenzo(a.h)anthracene	nd	nd	nd	nt	nd	nd	nd	nd	nd	nd	*0.1*	-
Benzo(g.h.i)perylene	nd	0.20	nd	nt	nd	nd	nd	nd	nd	nd	*0.1*	-
Total PAH's	0.00	3.50	0.00	nt	0.00	0.30	0.00	0.00	0.00	0.00	-	*100*

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All units in mg/kg unless otherwise stipulated
nd - not detected above the Practical Quantitation Limit (PQL)
nt - not tested
Sample identification denotes test borehole number and depth of sample
Shaded results exceed the following guidelines:
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"Commercial/Industrial: includes premises such as shops and offices as well as factories and industrial sites."

Borehole	BH107	BH108	BH109	BH110	BH110	BH111	BH111	BH112	BH112	BH113	*PQL*	
Depth	1.9-2.4	0.8-1.7	0.2-0.25	0.5-0.8	1.3-1.6	0.1-0.4	0.9-1.2	0.1-0.4	0.8-1.2	0.2-0.4		
Date sampled	9-Mar-06	9-Mar-06	9-Mar-06	10-Mar-06	10-Mar-06	14-Mar-06	14-Mar-06	14-Mar-06	14-Mar-06	15-Mar-06		*(F)*
Description	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
Composite (if applicable)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a		
PAH's												
Naphthalene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*0.1*	-
2-Methylnaphthalene	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	*0.1*	-
2-Chloronaphthalene	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	*0.1*	-
Acenaphthylene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*0.1*	-
Acenaphthene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*0.1*	-
Fluorene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*0.1*	-
Phenanthrene	nd	nd	nd	nd	nd	nd	nd	nd	nd	0.10	*0.1*	-
Anthracene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*0.1*	-
Fluoranthene	nd	0.20	nd	nd	nd	nd	nd	nd	nd	0.30	*0.1*	-
Pyrene	nd	0.10	nd	nd	nd	nd	nd	nd	nd	0.20	*0.1*	-
N-2-Fluorenylacetamide	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	*0.1*	-
Benz(a)anthracene	nd	nd	nd	nd	nd	nd	nd	nd	nd	0.10	*0.1*	-
Chrysene	nd	0.20	nd	0.10	nd	nd	nd	nd	nd	0.20	*0.1*	-
Benzo(b)&(k)fluoranthene	nd	nd	nd	nd	nd	nd	nd	nd	nd	0.30	*0.05*	-
7.12-Dimethylbenz(a)anthracene	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	*0.1*	-
Benzo(a)pyrene	nd	0.10	nd	nd	nd	nd	nd	nd	nd	0.10	*0.1*	*5*
3-Methylchloanthrene	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	*0.1*	-
Indeno(1.2.3-cd)pyrene	nd	nd	nd	nd	nd	nd	nd	nd	nd	0.10	*0.1*	-
Dibenzo(a.h)anthracene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*0.1*	-
Benzo(g.h.i)perylene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*0.1*	-
Total PAH's	0.00	0.60	0.00	0.10	0.00	0.00	0.00	0.00	0.00	1.40	-	*100*

NOTE:
All results sourced from AGC Woodward Clyde (1999), Coffey Geosciences Pty Ltd (2000), and Golder Associates Pty Ltd (2006)
All units in mg/kg unless otherwise stipulated
nd - not detected above the Practical Quantitation Limit (PQL)
nt - not tested
Sample identification denotes test borehole number and depth of sample
Shaded results exceed the following guidelines:
(F) NEPC Schedule B(1) Soil Investigation Levels Table 5-A
"Commercial/Industrial: includes premises such as shops and offices as well as factories and industrial sites."

Borehole	BH113	BH114	BH114	BH115	BH115	BH116	BH116	BH117	BH117	BH118	*PQL*	
Depth	1.1-1.2	0.6-1.0	1.5-2.0	0.8-1.2	2.0-2.4	0.2-0.5	1.2-1.8	0.06-0.3	2.0-2.4	0.2-0.5		
Date sampled	15-Mar-06	10-Mar-06	10-Mar-06	14-Mar-06	14-Mar-06	9-Mar-06	9-Mar-06	8-Mar-06	8-Mar-06	10-Mar-06		*(F)*
Description	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
Composite (if applicable)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a		
PAH's												
Naphthalene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*0.1*	-
2-Methylnaphthalene	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	*0.1*	-
2-Chloronaphthalene	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	*0.1*	-
Acenaphthylene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*0.1*	-
Acenaphthene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*0.1*	-
Fluorene	nd	nd	nd	nd	nd	nd	nd	nd	0.10	nd	*0.1*	-
Phenanthrene	nd	nd	nd	nd	nd	0.20	nd	0.10	0.70	0.30	*0.1*	-
Anthracene	nd	nd	nd	nd	nd	nd	nd	nd	0.20	nd	*0.1*	-
Fluoranthene	nd	0.10	nd	nd	nd	nd	nd	0.30	0.60	0.40	*0.1*	-
Pyrene	nd	0.20	nd	nd	nd	nd	nd	0.30	0.60	0.50	*0.1*	-
N-2-Fluorenylacetamide	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	*0.1*	-
Benz(a)anthracene	nd	nd	nd	nd	nd	nd	nd	0.10	0.20	0.40	*0.1*	-
Chrysene	nd	0.10	nd	nd	nd	nd	nd	0.10	0.30	0.40	*0.1*	-
Benzo(b)&(k)fluoranthene	nd	nd	nd	nd	nd	nd	nd	nd	0.20	1.00	*0.05*	-
7.12-Dimethylbenz(a)anthracene	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	*0.1*	-
Benzo(a)pyrene	nd	0.10	nd	nd	nd	nd	nd	nd	0.10	0.60	*0.1*	*5*
3-Methylchloanthrene	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	*0.1*	-
Indeno(1.2.3-cd)pyrene	nd	nd	nd	nd	nd	nd	nd	nd	nd	0.40	*0.1*	-
Dibenzo(a.h)anthracene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*0.1*	-
Benzo(g.h.i)perylene	nd	nd	nd	nd	nd	nd	nd	nd	nd	0.30	*0.1*	-
Total PAH's	0.00	0.50	0.00	0.00	0.00	0.20	0.00	0.90	3.00	4.30	-	*100*

NOTE:
All results sourced from AGC Woodward Clyde (1999), Coffey Geosciences Pty Ltd (2000), and Golder Associates Pty Ltd (2006)
All units in mg/kg unless otherwise stipulated
nd - not detected above the Practical Quantitation Limit (PQL)
nt - not tested
Sample identification denotes test borehole number and depth of sample
Shaded results exceed the following guidelines:
(F) NEPC Schedule B(1) Soil Investigation Levels Table 5-A
"Commercial/Industrial: includes premises such as shops and offices as well as factories and industrial sites."

Borehole	BH118	BH121	BH122	BH122	BH123	BH123	BH123	BH124	BH124	BH125	*PQL*	
Depth	0.8-1.1	2.6-3.1	0.2	0.5	0.2-0.5	1.0-1.3	2.0-2.3	0.2	1.5	0.0-0.2		
Date sampled	10-Mar-06	9-Mar-06	10-Mar-06	10-Mar-06	10-Mar-06	10-Mar-06	10-Mar-06	8-Mar-06	8-Mar-06	14-Mar-06		*(F)*
Description	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
Composite (if applicable)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a		
PAH's												
Naphthalene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*0.1*	-
2-Methylnaphthalene	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	*0.1*	-
2-Chloronaphthalene	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	*0.1*	-
Acenaphthylene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*0.1*	-
Acenaphthene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*0.1*	-
Fluorene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*0.1*	-
Phenanthrene	nd	nd	nd	0.30	nd	nd	nd	nd	0.30	0.60	*0.1*	-
Anthracene	nd	nd	nd	nd	nd	nd	nd	nd	nd	0.10	*0.1*	-
Fluoranthene	0.20	nd	0.40	0.90	nd	nd	nd	nd	0.30	1.00	*0.1*	-
Pyrene	0.20	nd	0.90	1.00	nd	nd	nd	nd	0.20	1.10	*0.1*	-
N-2-Fluorenylacetamide	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	*0.1*	-
Benz(a)anthracene	0.10	nd	0.10	0.60	nd	nd	nd	nd	0.10	0.40	*0.1*	-
Chrysene	0.20	nd	0.20	0.80	nd	0.10	nd	nd	0.20	0.60	*0.1*	-
Benzo(b)&(k)fluoranthene	0.30	nd	0.60	1.50	nd	nd	nd	nd	0.20	0.80	*0.05*	-
7.12-Dimethylbenz(a)anthracene	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	*0.1*	-
Benzo(a)pyrene	0.20	nd	0.40	0.90	nd	nd	nd	nd	0.08	0.40	*0.1*	*5*
3-Methylchloanthrene	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	*0.1*	-
Indeno(1.2.3-cd)pyrene	nd	nd	0.30	0.60	nd	nd	nd	nd	nd	0.20	*0.1*	-
Dibenzo(a.h)anthracene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*0.1*	-
Benzo(g.h.i)perylene	0.10	nd	0.30	0.50	nd	nd	nd	nd	nd	0.30	*0.1*	-
Total PAH's	1.30	0.00	3.20	7.10	0.00	0.10	0.00	0.00	1.38	5.50	-	*100*

NOTE:
All results sourced from AGC Woodward Clyde (1999), Coffey Geosciences Pty Ltd (2000), and Golder Associates Pty Ltd (2006)
All units in mg/kg unless otherwise stipulated
nd - not detected above the Practical Quantitation Limit (PQL)
nt - not tested
Sample identification denotes test borehole number and depth of sample
Shaded results exceed the following guidelines:
(F) NEPC Schedule B(1) Soil Investigation Levels Table 5-A
"Commercial/Industrial: includes premises such as shops and offices as well as factories and industrial sites."

Borehole	BH125	BH125	BH125	BH125	BH126	BH126	BH127	BH127	BH128	BH128	*PQL*	
Depth	0.5	2.0	2.5	4.0	1.5	2.5-2.7	0.2-0.4	2.0-2.4	0.1-0.3	1.0-1.3		
Date sampled	14-Mar-06	14-Mar-06	14-Mar-06	14-Mar-06	7-Mar-06	7-Mar-06	10-Mar-06	10-Mar-06	14-Mar-06	14-Mar-06		*(F)*
Description	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
Composite (if applicable)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a		
PAH's												
Naphthalene	nd	0.10	1.10	0.90	0.20	nd	0.30	nd	nd	nd	*0.1*	-
2-Methylnaphthalene	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	*0.1*	-
2-Chloronaphthalene	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	*0.1*	-
Acenaphthylene	nd	nd	nd	nd	0.70	nd	nd	nd	nd	nd	*0.1*	-
Acenaphthene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*0.1*	-
Fluorene	nd	nd	nd	nd	0.20	nd	nd	nd	nd	nd	*0.1*	-
Phenanthrene	nd	0.20	0.60	0.30	4.50	nd	0.40	nd	nd	nd	*0.1*	-
Anthracene	nd	nd	0.10	nd	0.80	nd	nd	nd	nd	nd	*0.1*	-
Fluoranthene	nd	0.60	0.70	0.40	4.80	nd	nd	nd	nd	nd	*0.1*	-
Pyrene	nd	0.60	0.60	0.40	4.80	nd	nd	nd	nd	nd	*0.1*	-
N-2-Fluorenylacetamide	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	*0.1*	-
Benz(a)anthracene	nd	0.40	0.20	0.30	1.80	nd	nd	nd	nd	nd	*0.1*	-
Chrysene	nd	0.50	0.30	0.30	2.00	nd	nd	nd	nd	nd	*0.1*	-
Benzo(b)&(k)fluoranthene	nd	0.70	0.40	0.50	3.00	nd	nd	nd	nd	nd	*0.05*	-
7.12-Dimethylbenz(a)anthracene	nt	nt	0.20	nt	nt	nt	nt	nt	nt	nt	*0.1*	-
Benzo(a)pyrene	nd	0.30	nd	0.30	2.00	nd	nd	nd	nd	nd	*0.1*	*5*
3-Methylchloanthrene	nt	nt	0.10	nt	nt	nt	nt	nt	nt	nt	*0.1*	-
Indeno(1.2.3-cd)pyrene	nd	0.20	nd	0.20	1.30	nd	nd	nd	nd	nd	*0.1*	-
Dibenzo(a.h)anthracene	nd	nd	0.10	nd	0.20	nd	nd	nd	nd	nd	*0.1*	-
Benzo(g.h.i)perylene	nd	0.20	nd	0.20	1.30	nd	nd	nd	nd	nd	*0.1*	-
Total PAH's	0.00	3.80	4.40	3.80	27.60	0.00	0.70	0.00	0.00	0.00	-	*100*

NOTE:
All results sourced from AGC Woodward Clyde (1999), Coffey Geosciences Pty Ltd (2000), and Golder Associates Pty Ltd (2006)
All units in mg/kg unless otherwise stipulated
nd - not detected above the Practical Quantitation Limit (PQL)
nt - not tested
Sample identification denotes test borehole number and depth of sample
Shaded results exceed the following guidelines:
(F) NEPC Schedule B(1) Soil Investigation Levels Table 5-A
"Commercial/Industrial: includes premises such as shops and offices as well as factories and industrial sites."

Borehole	BH129	BH129	BH130	BH130	BH131	BH131	BH132	BH132	BH133	BH133	*PQL*	
Depth	3.3-3.6	4.2-4.8	0.7-1.1	2.0-2.4	2.1-2.4	4.7-5.1	0.1-0.3	4.5-4.8	3.1-3.6	6.8-7.2		
Date sampled	8-Mar-06	8-Mar-06	8-Mar-06	8-Mar-06	8-Mar-06	8-Mar-06	7-Mar-06	7-Mar-06	7-Mar-06	7-Mar-06		*(F)*
Description	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
Composite (if applicable)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a		
PAH's												
Naphthalene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*0.1*	-
2-Methylnaphthalene	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	*0.1*	-
2-Chloronaphthalene	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	*0.1*	-
Acenaphthylene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*0.1*	-
Acenaphthene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*0.1*	-
Fluorene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*0.1*	-
Phenanthrene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*0.1*	-
Anthracene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*0.1*	-
Fluoranthene	nd	nd	nd	0.20	nd	nd	0.10	nd	0.30	nd	*0.1*	-
Pyrene	nd	nd	nd	0.20	nd	nd	0.10	nd	0.30	nd	*0.1*	-
N-2-Fluorenylacetamide	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	*0.1*	-
Benz(a)anthracene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*0.1*	-
Chrysene	nd	nd	nd	nd	nd	nd	0.10	nd	nd	nd	*0.1*	-
Benzo(b)&(k)fluoranthene	nd	nd	nd	nd	nd	nd	0.20	nd	nd	nd	*0.05*	-
7.12-Dimethylbenz(a)anthracene	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	*0.1*	-
Benzo(a)pyrene	nd	nd	nd	nd	nd	nd	0.10	nd	nd	nd	*0.1*	*5*
3-Methylchloanthrene	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	*0.1*	-
Indeno(1.2.3-cd)pyrene	nd	nd	nd	nd	nd	nd	0.10	nd	nd	nd	*0.1*	-
Dibenzo(a.h)anthracene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*0.1*	-
Benzo(g.h.i)perylene	nd	nd	nd	nd	nd	nd	0.40	nd	nd	nd	*0.1*	-
Total PAH's	0.00	0.00	0.00	0.40	0.00	0.00	1.10	0.00	0.60	0.00	-	*100*

NOTE:
All results sourced from AGC Woodward Clyde (1999), Coffey Geosciences Pty Ltd (2000), and Golder Associates Pty Ltd (2006)
All units in mg/kg unless otherwise stipulated
nd - not detected above the Practical Quantitation Limit (PQL)
nt - not tested
Sample identification denotes test borehole number and depth of sample
Shaded results exceed the following guidelines:
(F) NEPC Schedule B(1) Soil Investigation Levels Table 5-A
"Commercial/Industrial: includes premises such as shops and offices as well as factories and industrial sites."

Borehole	BH134	BH134	BH135	BH135	BH135	BH135	BH135	BH136	BH136	BH137	*PQL*	
Depth	0.3-0.5	3.0-3.5	0.0-0.2	0.4-0.5	0.9-1.0	2.4-2.5	3.9-4.0	0.2-0.4	0.5-0.7	0.36		
Date sampled	10-Mar-06	10-Mar-06	16-Mar-06	16-Mar-06	16-Mar-06	16-Mar-06	16-Mar-06	13-Mar-06	13-Mar-06	16-Mar-06		*(F)*
Description	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
Composite (if applicable)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a		
PAH's												
Naphthalene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*0.1*	-
2-Methylnaphthalene	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	*0.1*	-
2-Chloronaphthalene	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	*0.1*	-
Acenaphthylene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*0.1*	-
Acenaphthene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*0.1*	-
Fluorene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*0.1*	-
Phenanthrene	0.10	nd	nd	nd	nd	nd	nd	nd	nd	nd	*0.1*	-
Anthracene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*0.1*	-
Fluoranthene	0.30	nd	nd	nd	nd	nd	nd	nd	nd	nd	*0.1*	-
Pyrene	0.20	nd	nd	nd	nd	nd	nd	nd	nd	nd	*0.1*	-
N-2-Fluorenylacetamide	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	*0.1*	-
Benz(a)anthracene	0.10	nd	nd	nd	nd	nd	nd	nd	nd	nd	*0.1*	-
Chrysene	0.20	nd	nd	nd	nd	nd	nd	nd	nd	nd	*0.1*	-
Benzo(b)&(k)fluoranthene	0.20	nd	nd	nd	nd	nd	nd	nd	nd	nd	*0.05*	-
7.12-Dimethylbenz(a)anthracene	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	*0.1*	-
Benzo(a)pyrene	0.08	nd	nd	nd	nd	nd	nd	nd	nd	nd	*0.1*	*5*
3-Methylchloanthrene	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	*0.1*	-
Indeno(1.2.3-cd)pyrene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*0.1*	-
Dibenzo(a.h)anthracene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*0.1*	-
Benzo(g.h.i)perylene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*0.1*	-
Total PAH's	1.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	*100*

NOTE:
All results sourced from AGC Woodward Clyde (1999), Coffey Geosciences Pty Ltd (2000), and Golder Associates Pty Ltd (2006)
All units in mg/kg unless otherwise stipulated
nd - not detected above the Practical Quantitation Limit (PQL)
nt - not tested
Sample identification denotes test borehole number and depth of sample
Shaded results exceed the following guidelines:
(F) NEPC Schedule B(1) Soil Investigation Levels Table 5-A
"Commercial/Industrial: includes premises such as shops and offices as well as factories and industrial sites."

Borehole	BH137	BH137	BH138	BH138	ASPHALT	*PQL*	
Depth	1.5	2.5	0.0-0.2	2.4-2.5	0.0-0.1		
Date sampled	16-Mar-06	16-Mar-06	13-Mar-06	13-Mar-06	14-Mar-06		*(F)*
Description	Soil	Soil	Soil	Soil	Pavement		
Composite (if applicable)	n/a	n/a	n/a	n/a	n/a		
PAH's							
Naphthalene	nd	nd	nd	nd	nd	*0.1*	-
2-Methylnaphthalene	nt	nt	nt	nt	nt	*0.1*	-
2-Chloronaphthalene	nt	nt	nt	nt	nt	*0.1*	-
Acenaphthylene	nd	nd	nd	nd	nd	*0.1*	-
Acenaphthene	nd	nd	nd	nd	nd	*0.1*	-
Fluorene	nd	nd	nd	nd	nd	*0.1*	-
Phenanthrene	0.10	nd	nd	nd	nd	*0.1*	-
Anthracene	nd	nd	nd	nd	nd	*0.1*	-
Fluoranthene	0.10	nd	nd	0.20	nd	*0.1*	-
Pyrene	nd	nd	nd	0.20	nd	*0.1*	-
N-2-Fluorenylacetamide	nt	nt	nt	nt	nt	*0.1*	-
Benz(a)anthracene	nd	nd	nd	0.10	nd	*0.1*	-
Chrysene	nd	nd	nd	nd	nd	*0.1*	-
Benzo(b)&(k)fluoranthene	nd	nd	nd	0.30	nd	*0.05*	-
7.12-Dimethylbenz(a)anthracene	nt	nt	nt	nt	nt	*0.1*	-
Benzo(a)pyrene	nd	nd	nd	0.10	nd	*0.1*	*5*
3-Methylchloanthrene	nt	nt	nt	nt	nt	*0.1*	-
Indeno(1.2.3-cd)pyrene	nd	nd	nd	nd	nd	*0.1*	-
Dibenzo(a.h)anthracene	nd	nd	nd	nd	nd	*0.1*	-
Benzo(g.h.i)perylene	nd	nd	nd	nd	nd	*0.1*	-
Total PAH's	0.20	0.00	0.00	0.90	0.00	-	*100*

NOTE:
All results sourced from AGC Woodward Clyde (1999), Coffey Geosciences Pty Ltd (2000), and Golder Associates Pty Ltd (2006)
All units in mg/kg unless otherwise stipulated
nd - not detected above the Practical Quantitation Limit (PQL)
nt - not tested
Sample identification denotes test borehole number and depth of sample
Shaded results exceed the following guidelines:
(F) NEPC Schedule B(1) Soil Investigation Levels Table 5-A
"Commercial/Industrial: includes premises such as shops and offices as well as factories and industrial sites."

Borehole	BH4	BH4	BH7	BH7	BH15	BH15		B3A	B3B	B3	*PQL*	
Depth	0.1-0.5	2.0-3.0	0.5-1.0	2.0-2.5	0.0-0.5	1.0-2.0		0.5-0.6	0.5-0.6	2.5-2.95		
Date sampled	13-Aug-98	13-Aug-98	27-Aug-98	27-Aug-98	13-Aug-98	13-Aug-98		24-May-00	24-May-00	24-May-00		*(a)*
Description	Soil	Soil	Soil	Soil	Soil	Soil		Soil	Soil	Soil		
Composite (if applicable)	n/a	n/a	n/a	n/a	n/a	n/a		n/a	n/a	n/a		
TOTAL PETROLEUM HYDROCARBONS												
C6-C9	nd	nd	nd	nd	nd	nd		nd	nd	nd	*25*	*65*
C10-C14	nd	nd	nd	nd	nd	nd		nd	nd	nd	*50*	
C15-C28	nd	nd	nd	nd	nd	nd		nd	nd	nd	*100*	*1000*
C29-C36	nd	nd	nd	nd	nd	nd		nd	nd	nd	*100*	
BTEX												
Benzene	nd	nd	nd	nd	nd	nd		nd	nd	nd	*1*	*1*
Toluene	nd	nd	nd	nd	nd	nd		nd	nd	nd	*1*	*1.4*
Ethyl benzene	nd	nd	nd	nd	nd	nd		nd	nd	nd	*1*	*3.1*
Xylene	nd	nd	nd	nd	nd	nd		nd	nd	nd	*2*	*14*

NOTE:
All results sourced from AGC Woodward Clyde (1999), Coffey Geosciences Pty Ltd (2000), and Golder Associates Pty Ltd (2006)
All units in mg/kg unless otherwise stipulated
nd - not detected above the Practical Quantitation Limit (PQL)
nt - not tested
Sample identification denotes test borehole number and depth of sample
Shaded results exceed the following guidelines:
(a) NSW EPA Contaminated Sites Guidelines for Assessing Service Station Sites - Table 3
"Threshold concentrations for sensitive land use - soils"

Borehole	B4A	B4	B4	B5	B5	B6A	B6	B7	B8	B9	*PQL*	
Depth	0.4-0.5	1.0-1.45	2.5-3.0	1.5-1.95	4.0-5.0	0.3-0.4	2.4-2.85	2.5-2.95	3.9-4.35	1.0-1.45		
Date sampled	24-May-00	24-May-00	24-May-00	23-May-00	23-May-00	19-May-00	19-May-00	17-May-00	15-May-00	23-May-00		*(a)*
Description	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
Composite (if applicable)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a		
TOTAL PETROLEUM HYDROCARBONS												
C6-C9	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*25*	*65*
C10-C14	nd	nd	nd	nd	nd	nd	nd	105	nd	nd	*50*	
C15-C28	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*100*	*1000*
C29-C36	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*100*	
BTEX												
Benzene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*1*	*1*
Toluene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*1*	*1.4*
Ethyl benzene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*1*	*3.1*
Xylene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*2*	*14*

NOTE:
All results sourced from AGC Woodward Clyde (1999), Coffey Geosciences Pty Ltd (2000), and Golder Associates Pty Ltd (2006)
All units in mg/kg unless otherwise stipulated
nd - not detected above the Practical Quantitation Limit (PQL)
nt - not tested
Sample identification denotes test borehole number and depth of sample
Shaded results exceed the following guidelines:
(a) NSW EPA Contaminated Sites Guidelines for Assessing Service Station Sites - Table 3
"Threshold concentrations for sensitive land use - soils"

Borehole	B9	B9		BH101	BH101	BH102	BH103	BH103	BH104	BH104	*PQL*	
Depth	4.0-4.6	7.0-7.45		0.3-0.6	1.4-1.6	0.5-1.0	0.15-0.3	1.9-2.4	0.2-0.6	0.7-1.2		
Date sampled	23-May-00	23-May-00		9-Mar-06	9-Mar-06	9-Mar-06	9-Mar-06	9-Mar-06	10-Mar-06	10-Mar-06		*(a)*
Description	Soil	Soil		Soil	Soil	Soil	Soil	Soil	Soil	Soil		
Composite (if applicable)	n/a	n/a		n/a	n/a	n/a	n/a	n/a	n/a	n/a		
TOTAL PETROLEUM HYDROCARBONS												
C6-C9	nd	nd		nd	nd	nd	nd	nd	nd	nd	*25*	*65*
C10-C14	nd	nd		nd	nd	nd	nd	nd	nd	nd	*50*	
C15-C28	**1160**	nd		nd	nd	**3700**	nd	nd	nd	nd	*100*	*1000*
C29-C36	**297**	nd		nd	nd	**310**	nd	nd	nd	nd	*100*	
BTEX												
Benzene	nd	nd		nd	nd	nd	nd	nd	nd	nd	*1*	*1*
Toluene	nd	nd		nd	nd	nd	nd	nd	nd	nd	*1*	*1.4*
Ethyl benzene	nd	nd		nd	nd	nd	nd	nd	nd	nd	*1*	*3.1*
Xylene	nd	nd		nd	nd	nd	nd	nd	nd	nd	*2*	*14*

NOTE:
All results sourced from AGC Woodward Clyde (1999), Coffey Geosciences Pty Ltd (2000), and Golder Associates Pty Ltd (2006)
All units in mg/kg unless otherwise stipulated
nd - not detected above the Practical Quantitation Limit (PQL)
nt - not tested
Sample identification denotes test borehole number and depth of sample
Shaded results exceed the following guidelines:
(a) NSW EPA Contaminated Sites Guidelines for Assessing Service Station Sites - Table 3
"Threshold concentrations for sensitive land use - soils"

Borehole	BH105	BH105	BH106	BH106	BH107	BH107	BH108	BH109	BH110	BH110	*PQL*	
Depth	0.2-0.3	0.7-0.8	0.4-0.7	0.7-1.0	0.5-0.7	1.9-2.4	0.8-1.7	0.2-0.25	0.5-0.8	1.3-1.6		
Date sampled	14-Mar-06	14-Mar-06	14-Mar-06	14-Mar-06	9-Mar-06	9-Mar-06	9-Mar-06	9-Mar-06	10-Mar-06	10-Mar-06		*(a)*
Description	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
Composite (if applicable)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a		
TOTAL PETROLEUM HYDROCARBONS												
C6-C9	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*25*	*65*
C10-C14	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*50*	
C15-C28	nd	nd	nd	nd	nd	nd	**1000**	nd	nd	nd	*100*	*1000*
C29-C36	nd	nd	nd	nd	nd	nd	**3500**	nd	nd	nd	*100*	
BTEX												
Benzene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*1*	*1*
Toluene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*1*	*1.4*
Ethyl benzene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*1*	*3.1*
Xylene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*2*	*14*

NOTE:
All results sourced from AGC Woodward Clyde (1999), Coffey Geosciences Pty Ltd (2000), and Golder Associates Pty Ltd (2006)
All units in mg/kg unless otherwise stipulated
nd - not detected above the Practical Quantitation Limit (PQL)
nt - not tested
Sample identification denotes test borehole number and depth of sample
Shaded results exceed the following guidelines:
(a) NSW EPA Contaminated Sites Guidelines for Assessing Service Station Sites - Table 3
"Threshold concentrations for sensitive land use - soils"

Borehole	BH111	BH111	BH112	BH112	BH114	BH114	BH115	BH115	BH116	BH116	*PQL*	
Depth	0.1-0.4	0.9-1.2	0.1-0.4	0.8-1.2	0.6-1.0	1.5-2.0	0.8-1.2	2.0-2.4	0.2-0.5	1.2-1.8		
Date sampled	14-Mar-06	14-Mar-06	14-Mar-06	14-Mar-06	10-Mar-06	10-Mar-06	14-Mar-06	14-Mar-06	9-Mar-06	9-Mar-06		*(a)*
Description	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
Composite (if applicable)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a		
TOTAL PETROLEUM HYDROCARBONS												
C6-C9	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*25*	*65*
C10-C14	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*50*	
C15-C28	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*100*	*1000*
C29-C36	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*100*	
BTEX												
Benzene	nd	nd	nd	nd	nd	nd	nd	nd	**3.5**	nd	*1*	*1*
Toluene	nd	nd	nd	nd	nd	nd	nd	nd	**4.7**	nd	*1*	*1.4*
Ethyl benzene	nd	nd	nd	nd	nd	nd	nd	nd	**4.6**	nd	*1*	*3.1*
Xylene	nd	nd	nd	nd	nd	nd	nd	nd	**14.4**	nd	*2*	*14*

NOTE:
All results sourced from AGC Woodward Clyde (1999), Coffey Geosciences Pty Ltd (2000), and Golder Associates Pty Ltd (2006)
All units in mg/kg unless otherwise stipulated
nd - not detected above the Practical Quantitation Limit (PQL)
nt - not tested
Sample identification denotes test borehole number and depth of sample
Shaded results exceed the following guidelines:
(a) NSW EPA Contaminated Sites Guidelines for Assessing Service Station Sites - Table 3
"Threshold concentrations for sensitive land use - soils"

Borehole	BH117	BH117	BH118	BH118	BH121	BH122	BH122	BH123	BH123	BH123	*PQL*	
Depth	0.06-0.3	2.0-2.4	0.2-0.5	0.8-1.1	2.6-3.1	0.2	0.5	0.2-0.5	1.0-1.3	2.0-2.3		
Date sampled	8-Mar-06	8-Mar-06	10-Mar-06	10-Mar-06	9-Mar-06	10-Mar-06	10-Mar-06	10-Mar-06	10-Mar-06	10-Mar-06		*(a)*
Description	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
Composite (if applicable)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a		
TOTAL PETROLEUM HYDROCARBONS												
C6-C9	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*25*	*65*
C10-C14	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*50*	
C15-C28	nd	nd	nd	nd	nd	nd	nd	nd	**510**	nd	*100*	*1000*
C29-C36	nd	nd	nd	nd	nd	nd	nd	nd	**1400**	nd	*100*	
BTEX												
Benzene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*1*	*1*
Toluene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*1*	*1.4*
Ethyl benzene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*1*	*3.1*
Xylene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*2*	*14*

NOTE:
All results sourced from AGC Woodward Clyde (1999), Coffey Geosciences Pty Ltd (2000), and Golder Associates Pty Ltd (2006)
All units in mg/kg unless otherwise stipulated
nd - not detected above the Practical Quantitation Limit (PQL)
nt - not tested
Sample identification denotes test borehole number and depth of sample
Shaded results exceed the following guidelines:
(a) NSW EPA Contaminated Sites Guidelines for Assessing Service Station Sites - Table 3
"Threshold concentrations for sensitive land use - soils"

Borehole	BH124	BH124	BH125	BH125	BH125	BH125	BH125	BH126	BH126	BH127	*PQL*	
Depth	0.2	1.5	0.0-0.2	0.5	2.0	2.5	4.0	1.5	2.5-2.7	0.2-0.4		
Date sampled	8-Mar-06	8-Mar-06	14-Mar-06	14-Mar-06	14-Mar-06	14-Mar-06	14-Mar-06	7-Mar-06	7-Mar-06	10-Mar-06		*(a)*
Description	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
Composite (if applicable)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a		
TOTAL PETROLEUM HYDROCARBONS												
C6-C9	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*25*	*65*
C10-C14	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*50*	
C15-C28	nd	nd	nd	nd	**970**	**710**	280	nd	nd	nd	*100*	*1000*
C29-C36	nd	nd	nd	nd	**980**	**540**	150	nd	nd	nd	*100*	
BTEX												
Benzene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*1*	*1*
Toluene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*1*	*1.4*
Ethyl benzene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*1*	*3.1*
Xylene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*2*	*14*

NOTE:
All results sourced from AGC Woodward Clyde (1999), Coffey Geosciences Pty Ltd (2000), and Golder Associates Pty Ltd (2006)
All units in mg/kg unless otherwise stipulated
nd - not detected above the Practical Quantitation Limit (PQL)
nt - not tested
Sample identification denotes test borehole number and depth of sample
Shaded results exceed the following guidelines:
(a) NSW EPA Contaminated Sites Guidelines for Assessing Service Station Sites - Table 3
"Threshold concentrations for sensitive land use - soils"

Borehole	BH127	BH128	BH128	BH129	BH129	BH130	BH130	BH131	BH131	BH132	*PQL*	
Depth	2.0-2.4	0.1-0.3	1.0-1.3	3.3-3.6	4.2-4.8	0.7-1.1	2.0-2.4	2.1-2.4	4.7-5.1	0.1-0.3		
Date sampled	10-Mar-06	14-Mar-06	14-Mar-06	8-Mar-06	8-Mar-06	8-Mar-06	8-Mar-06	8-Mar-06	8-Mar-06	7-Mar-06		*(a)*
Description	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
Composite (if applicable)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a		
TOTAL PETROLEUM HYDROCARBONS												
C6-C9	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*25*	*65*
C10-C14	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*50*	
C15-C28	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*100*	*1000*
C29-C36	nd	nd	nd	nd	nd	nd	nd	nd	nd	200	*100*	
BTEX												
Benzene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*1*	*1*
Toluene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*1*	*1.4*
Ethyl benzene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*1*	*3.1*
Xylene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*2*	*14*

NOTE:
All results sourced from AGC Woodward Clyde (1999), Coffey Geosciences Pty Ltd (2000), and Golder Associates Pty Ltd (2006)
All units in mg/kg unless otherwise stipulated
nd - not detected above the Practical Quantitation Limit (PQL)
nt - not tested
Sample identification denotes test borehole number and depth of sample
Shaded results exceed the following guidelines:
(a) NSW EPA Contaminated Sites Guidelines for Assessing Service Station Sites - Table 3
"Threshold concentrations for sensitive land use - soils"

Borehole	BH132	BH133	BH133	BH134	BH134	BH135	BH135	BH135	BH135	BH135	*PQL*	
Depth	4.5-4.8	3.1-3.6	6.8-7.2	0.3-0.5	3.0-3.5	0.0-0.2	0.4-0.5	0.9-1.0	2.4-2.5	3.9-4.0		
Date sampled	7-Mar-06	7-Mar-06	7-Mar-06	10-Mar-06	10-Mar-06	16-Mar-06	16-Mar-06	16-Mar-06	16-Mar-06	16-Mar-06		*(a)*
Description	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
Composite (if applicable)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a		
TOTAL PETROLEUM HYDROCARBONS												
C6-C9	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*25*	*65*
C10-C14	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*50*	
C15-C28	nd	280	nd	nd	nd	nd	nd	nd	nd	nd	*100*	*1000*
C29-C36	170	300	nd	nd	nd	nd	nd	nd	nd	nd	*100*	
BTEX												
Benzene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*1*	*1*
Toluene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*1*	*1.4*
Ethyl benzene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*1*	*3.1*
Xylene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	*2*	*14*

NOTE:
All results sourced from AGC Woodward Clyde (1999), Coffey Geosciences Pty Ltd (2000), and Golder Associates Pty Ltd (2006)
All units in mg/kg unless otherwise stipulated
nd - not detected above the Practical Quantitation Limit (PQL)
nt - not tested
Sample identification denotes test borehole number and depth of sample
Shaded results exceed the following guidelines:
(a) NSW EPA Contaminated Sites Guidelines for Assessing Service Station Sites - Table 3
"Threshold concentrations for sensitive land use - soils"

Borehole	BH137	BH137	BH137	BH138	BH138	ASPHALT	*PQL*	
Depth	0.36	1.5	2.5	0.0-0.2	2.4-2.5	0.0-0.1		
Date sampled	16-Mar-06	16-Mar-06	16-Mar-06	13-Mar-06	13-Mar-06	14-Mar-06		*(a)*
Description	Soil	Soil	Soil	Soil	Soil	Pavement		
Composite (if applicable)	n/a	n/a	n/a	n/a	n/a	n/a		
TOTAL PETROLEUM HYDROCARBONS								
C6-C9	nd	nd	nd	nd	nd	nd	*25*	*65*
C10-C14	nd	nd	nd	nd	nd	nd	*50*	
C15-C28	nd	330	nd	nd	nd	nd	*100*	*1000*
C29-C36	nd	330	nd	nd	nd	nd	*100*	
BTEX								
Benzene	nd	nd	nd	nd	nd	nd	*1*	*1*
Toluene	nd	nd	nd	nd	nd	nd	*1*	*1.4*
Ethyl benzene	nd	nd	nd	nd	nd	nd	*1*	*3.1*
Xylene	nd	nd	nd	nd	nd	nd	*2*	*14*

NOTE:
All results sourced from AGC Woodward Clyde (1999), Coffey Geosciences Pty Ltd (2000), and Golder Associates Pty Ltd (2006)
All units in mg/kg unless otherwise stipulated
nd - not detected above the Practical Quantitation Limit (PQL)
nt - not tested
Sample identification denotes test borehole number and depth of sample
Shaded results exceed the following guidelines:
(a) NSW EPA Contaminated Sites Guidelines for Assessing Service Station Sites - Table 3
"Threshold concentrations for sensitive land use - soils"

Borehole	BH2	BH3	BH6	BH7	BH8	BH10	BH11	BH13	BH14	*PQL*	
Depth	0.0-0.5	1.0-2.0	0.9-1.5	0.5-1.0	0.0-1.0	0.0-0.7	0.0-0.5	0.0-1.0	1.5-2.0		
Date sampled	13-Aug-98	13-Aug-98	13-Aug-98	27-Aug-98	13-Aug-98	13-Aug-98	13-Aug-98	13-Aug-98	27-Aug-98		*(F)*
Description	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
Composite (if applicable)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a		
OC PESTICIDES											
HCB	nt	nt	nt	nt	nt	nt	nt	nt	nt	0.1	
alpha-BHC	nd	nd	nd	nd	nt	nd	nd	nd	nd	0.5	
gamma-BHC (Lindane)	nd	nd	nd	nd	nt	nd	nd	nd	nd	1	
beta-BHC	nd	nd	nd	nd	nt	nd	nd	nd	nd	1	
Heptachlor	nd	nd	nd	nd	nt	nd	nd	nd	nd	0.5	*50*
delta-BHC	nd	nd	nd	nd	nt	nd	nd	nd	nd	0.5	
Aldrin	nd	nd	nd	nd	nt	nd	nd	nd	nd	0.5	*50*
Heptachlor Epoxide	nd	nd	nd	nd	nt	nd	nd	nd	nd	0.5	
gamma-Chlordane	nt	nt	nt	nt	nt	nt	nt	nt	nt	0.1	*250*
alpha-Chlordane	nt	nt	nt	nt	nt	nt	nt	nt	nt	0.1	
Endosulfan I	nd	nd	nd	nd	nt	nd	nd	nd	nd	0.5	
p,p'-DDE	nd	nd	nd	nd	nt	nd	nd	nd	nd	0.5	*1000 **
Dieldrin	nd	nd	nd	nd	nt	nd	nd	nd	nd	0.5	*50*
Endrin	nd	nd	nd	nd	nt	nd	nd	nd	nd	0.5	
p,p'-DDD	nd	nd	nd	nd	nt	nd	nd	nd	nd	0.5	*1000 **
Endosulfan II	nd	nd	nd	nd	nt	nd	nd	nd	nd	0.5	
p,p'-DDT	nd	nd	nd	nd	nt	nd	nd	nd	nd	1	*1000 **
Endrin Aldehyde	nt	nt	nt	nt	nt	nt	nt	nt	nt	0.1	
Endosulfan Sulphate	nd	nd	nd	nd	nt	nd	nd	nd	nd	0.5	
Methoxychlor	nt	nt	nt	nt	nt	nt	nt	nt	nt	0.1	
	nd	nd	nd	nd	nt	nd	nd	nd	nd		
OP PESTICIDES	nd	nd	nd	nd	nt	nd	nd	nd	nd		
Methanesulfonate methyl	nd	nd	nd	nd	nt	nd	nd	nd	nd	0.5	
Methanesulfonate ethyl	nd	nd	nd	nd	nt	nd	nd	nd	nd	0.5	
Dichlorvos	nd	nd	nd	nd	nt	nd	nd	nd	nd	0.5	
cis-Isosafrole	nd	nd	nd	nd	nt	nd	nd	nd	nd	0.5	
trans-Isosafrole	nd	nd	nd	nd	nt	nd	nd	nd	nd	0.5	
Safrole	nd	nd	nd	nd	nt	nd	nd	nd	nd	0.5	
Diazinon	nd	nd	nd	nd	nt	nd	nd	nd	nd	0.5	
Dimethoate	nd	nd	nd	nd	nt	nd	nd	nd	nd	0.5	
Chlorpyrifos-methyl	nd	nd	nd	nd	nt	nd	nd	nd	nd	0.5	
Malathion	nd	nd	nd	nd	nt	nd	nd	nd	nd	0.5	
Fenthion	nd	nd	nd	nd	nt	nd	nd	nd	nd	0.5	
Ronnel	nt	nt	nt	nt	nt	nt	nt	nt	nt	0.1	
Chlorpyrifos	nd	nd	nd	nd	nt	nd	nd	nd	nd	0.5	
Pirimiphos ethyl	nd	nd	nd	nd	nt	nd	nd	nd	nd	0.5	
Chlorfenvinphos-E	nd	nd	nd	nd	nt	nd	nd	nd	nd	0.5	
Chlorfenvinphos-Z	nd	nd	nd	nd	nt	nd	nd	nd	nd	0.5	
Prothiofos	nd	nd	nd	nd	nt	nd	nd	nd	nd	0.5	
Fenitrothion	nt	nt	nt	nt	nt	nt	nt	nt	nt	0.1	
Bromophos-ethyl	nt	nt	nt	nt	nt	nt	nt	nt	nt	0.1	
Ethion	nd	nd	nd	nd	nt	nd	nd	nd	nd	0.5	

NOTE:
All results sourced from AGC Woodward Clyde (1999), Coffey Geosciences Pty Ltd (2000), and Golder Associates Pty Ltd (2006)
All units in mg/kg unless otherwise stipulated
nd - not detected above the Practical Quantitation Limit (PQL)
nt - not tested
Sample identification denotes test borehole number and depth of sample
Shaded results exceed the following guidelines:
(F) NEPC Schedule B(1) Soil Investigation Levels Table 5-A
"Commercial/Industrial: includes premises such as shops and offices as well as factories and industrial sites."
* Analysis value to be sum value of DDD, DDE & DDT results to determine total DDD+DDE+DDT exposure value

Borehole	BH2	BH3	BH6	BH7	BH10	BH11	BH13	BH14		BH105	*PQL*	
Depth	0.0-0.5	1.0-2.0	0.9-1.5	0.5-1.0	0.0-0.7	0.0-0.5	0.0-1.0	1.5-2.0		0.2-0.3		
Date sampled	13-Aug-98	13-Aug-98	13-Aug-98	27-Aug-98	13-Aug-98	13-Aug-98	13-Aug-98	27-Aug-98		14-Mar-06		*(F)*
Description	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		Soil		
Composite (if applicable)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a		n/a		
Total Phenolics	nd	nd	nd	nd	nd	nd	nd	nd		nt	*5*	*42500*
2-Chlorophenol	nd	nd	nd	nd	nd	nd	nd	nd		nt	*0.5*	
2-Methylphenol	nd	nd	nd	nd	nd	nd	nd	nd		nt	*0.5*	
4-Methylphenol	nd	nd	nd	nd	nd	nd	nd	nd		nt	*0.5*	
2-Nitrophenol	nd	nd	nd	nd	nd	nd	nd	nd		nt	*0.5*	
2.4-Dimethylphenol	nd	nd	nd	nd	nd	nd	nd	nd		nt	*0.5*	
2.4-Dichlorophenol	nd	nd	nd	nd	nd	nd	nd	nd		nt	*0.5*	
2.6-Dichlorophenol	nd	nd	nd	nd	nd	nd	nd	nd		nt	*0.5*	
4-Chloro-3-methylphenol	nd	nd	nd	nd	nd	nd	nd	nd		nt	*0.5*	
2.4.6-Trichlorophenol	nd	nd	nd	nd	nd	nd	nd	nd		nt	*0.5*	
2.4.5-Trichlorophenol	nd	nd	nd	nd	nd	nd	nd	nd		nt	*0.5*	
Pentachlorophenol	nd	nd	nd	nd	nd	nd	nd	nd		nt	*1*	
PCB												
Arochlor 1016	nt	nt	nt	nt	nt	nt	nt	nt		nd	*0.1*	*50*
Arochlor 1232	nt	nt	nt	nt	nt	nt	nt	nt		nd	*0.1*	
Arochlor 1242	nt	nt	nt	nt	nt	nt	nt	nt		nd	*0.1*	
Arochlor 1248	nt	nt	nt	nt	nt	nt	nt	nt		nd	*0.1*	
Arochlor 1254	nt	nt	nt	nt	nt	nt	nt	nt		nd	*0.1*	
Arochlor 1260	nt	nt	nt	nt	nt	nt	nt	nt		nd	*0.1*	
Total Positive PCB	nt	nt	nt	nt	nt	nt	nt	nt		nd		

NOTE:
All results sourced from AGC Woodward Clyde (1999), Coffey Geosciences Pty Ltd (2000), and Golder Associates Pty Ltd (2006)
All units in mg/kg unless otherwise stipulated
nd - not detected above the Practical Quantitation Limit (PQL)
nt - not tested
Sample identification denotes test borehole number and depth of sample
Shaded results exceed the following guidelines:
(F) NEPC Schedule B(1) Soil Investigation Levels Table 5-A
"Commercial/Industrial: includes premises such as shops and offices as well as factories and industrial sites."

Borehole	BH106	BH106	BH122	BH115	BH125	BH125	BH137	*PQL*	
Depth	0.4-0.7	2.1-2.4	0.1-0.4	0.8-1.2	0.0-0.2	2	1.5		
Date sampled	14-Mar-06	14-Mar-06	14-Mar-06	14-Mar-06	14-Mar-06	14-Mar-06	16-Mar-06		*(F)*
Description	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
Composite (if applicable)	n/a	n/a	n/a	n/a	n/a	n/a	n/a		
Total Phenolics	nt	nt	nt	nt	nt	nt	nt	*5*	*42500*
2-Chlorophenol	nt	nt	nt	nt	nt	nt	nt	*0.5*	
2-Methylphenol	nt	nt	nt	nt	nt	nt	nt	*0.5*	
4-Methylphenol	nt	nt	nt	nt	nt	nt	nt	*0.5*	
2-Nitrophenol	nt	nt	nt	nt	nt	nt	nt	*0.5*	
2.4-Dimethylphenol	nt	nt	nt	nt	nt	nt	nt	*0.5*	
2.4-Dichlorophenol	nt	nt	nt	nt	nt	nt	nt	*0.5*	
2.6-Dichlorophenol	nt	nt	nt	nt	nt	nt	nt	*0.5*	
4-Chloro-3-methylphenol	nt	nt	nt	nt	nt	nt	nt	*0.5*	
2.4.6-Trichlorophenol	nt	nt	nt	nt	nt	nt	nt	*0.5*	
2.4.5-Trichlorophenol	nt	nt	nt	nt	nt	nt	nt	*0.5*	
Pentachlorophenol	nt	nt	nt	nt	nt	nt	nt	*1*	
PCB									
Arochlor 1016	nd	nd	nd	nd	nd	nd	nd	*0.1*	*50*
Arochlor 1232	nd	nd	nd	nd	nd	nd	nd	*0.1*	
Arochlor 1242	nd	nd	nd	nd	nd	nd	nd	*0.1*	
Arochlor 1248	nd	nd	nd	nd	nd	nd	nd	*0.1*	
Arochlor 1254	nd	nd	nd	nd	nd	nd	nd	*0.1*	
Arochlor 1260	nd	nd	nd	nd	nd	nd	nd	*0.1*	
Total Positive PCB	nd	nd	nd	nd	nd	nd	nd		

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nd - not detected above the Practical Quantitation Limit (PQL)
nt - not tested
Sample identification denotes test borehole number and depth of sample
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"Commercial/Industrial: includes premises such as shops and offices as well as factories and industrial sites."

Borehole	BH2	BH3	BH6	BH7	BH10	BH11	*PQL*	
Depth	0.0-0.5	1.0-2.0	0.9-1.5	0.5-1.0	0.0-0.7	0.0-0.5		
Date sampled	13-Aug-98	13-Aug-98	13-Aug-98	27-Aug-98	13-Aug-98	13-Aug-98		*(F)*
Description	Soil	Soil	Soil	Soil	Soil	Soil		
Composite (if applicable)	n/a	n/a	n/a	n/a	n/a	n/a		
PHTHALATE ESTERS								
Dimethyl phthalate	nd	nd	nd	nd	nd	nd	*0.5*	-
Diethyl phthalate	nd	nd	nd	nd	nd	nd	*0.5*	-
Di-n-butyl phthalate	nd	nd	nd	nd	nd	nd	*0.5*	-
Butyl benzyl phthalate	nd	nd	nd	nd	nd	nd	*0.5*	-
Bis(2-ethylhexyl) phthalate	nd	nd	nd	nd	nd	nd	*5*	-
Di-n-octylphthalate	nd	nd	nd	nd	nd	nd	*0.5*	-
NITROSAMINES	nd	nd	nd	nd	nd	nd		-
N-Nitrosomethylethylamine	nd	nd	nd	nd	nd	nd	*0.5*	-
N-Nitrosodiethylamine	nd	nd	nd	nd	nd	nd	*0.5*	-
N-Nitrosopyrrolidine	nd	nd	nd	nd	nd	nd	*1*	-
N-Nitrosomorpholine	nd	nd	nd	nd	nd	nd	*0.5*	-
N-Nitrosodi-n-propylamine	nd	nd	nd	nd	nd	nd	*0.5*	-
N-Nitrosopiperidine	nd	nd	nd	nd	nd	nd	*0.5*	-
N-Nitrosodibutylamine	nd	nd	nd	nd	nd	nd	*0.5*	-
N-Nitrosodiphenyl & Diphenylamine	nd	nd	nd	nd	nd	nd	*1*	-
Diallate	nd	nd	nd	nd	nd	nd	*0.5*	-
Methapyrilene	nd	nd	nd	nd	nd	nd	*0.5*	-
NITROAROMATICS & CYCLIC KETONES	nd	nd	nd	nd	nd	nd		-
2-Picoline	nd	nd	nd	nd	nd	nd	*0.5*	-
Acetophenone	nd	nd	nd	nd	nd	nd	*0.5*	-
Nitrobenzene	nd	nd	nd	nd	nd	nd	*0.5*	-
Isophorone	nd	nd	nd	nd	nd	nd	*0.5*	-
2.6-Dinitrotoluene	nd	nd	nd	nd	nd	nd	*1*	-
2.4-Dinitrotoluene	nd	nd	nd	nd	nd	nd	*1*	-
1-Naphthylamine	nd	nd	nd	nd	nd	nd	*0.5*	-
4-Nitroquinoline-N-oxide	nd	nd	nd	nd	nd	nd	*0.5*	-
5-Nitro-o-toluidine	nd	nd	nd	nd	nd	nd	*0.5*	-
Azobenzene	nd	nd	nd	nd	nd	nd	*0.5*	-
1.3.5-Trinitrobenzene	nd	nd	nd	nd	nd	nd	*0.5*	-
Phenacetin	nd	nd	nd	nd	nd	nd	*0.5*	-
4-Aminobiphenyl	nd	nd	nd	nd	nd	nd	*0.5*	-
Pentachloronitrobenzene	nd	nd	nd	nd	nd	nd	*0.5*	-
Pronamide	nd	nd	nd	nd	nd	nd	*0.5*	-
Dimethylaminoazobenzene	nd	nd	nd	nd	nd	nd	*0.5*	-
Chlorobenzilate	nd	nd	nd	nd	nd	nd	*0.5*	-
HALOETHERS	nd	nd	nd	nd	nd	nd		
Bis(2-chloroethyl) ether	nd	nd	nd	nd	nd	nd	*0.5*	-
Bis(2-chloroethoxy) methane	nd	nd	nd	nd	nd	nd	*0.5*	-
4-Chlorophenyl phenyl ether	nd	nd	nd	nd	nd	nd	*0.5*	-
4-Bromophenyl phenyl ether	nd	nd	nd	nd	nd	nd	*0.5*	-
CHLORINATED HYDROCARBONS	nd	nd	nd	nd	nd	nd		
1.3-Dichlorobenzene	nd	nd	nd	nd	nd	nd	*0.5*	-
1.4-Dichlorobenzene	nd	nd	nd	nd	nd	nd	*0.5*	-
1.2-Dichlorobenzene	nd	nd	nd	nd	nd	nd	*0.5*	-
Hexachloroethane	nd	nd	nd	nd	nd	nd	*0.5*	-
1.2.4-Trichlorobenzene	nd	nd	nd	nd	nd	nd	*0.5*	-
Hexachloropropylene	nd	nd	nd	nd	nd	nd	*0.5*	-
Hexachlorobutadiene	nd	nd	nd	nd	nd	nd	*0.5*	-
Hexachlorocyclopentadiene	nd	nd	nd	nd	nd	nd	*3*	-
Pentachlorobenzene	nd	nd	nd	nd	nd	nd	*0.5*	-
Hexachlorobenzene	nd	nd	nd	nd	nd	nd	*1*	-
ANILINES & BENZIDINES	nd	nd	nd	nd	nd	nd		
Aniline	nd	nd	nd	nd	nd	nd	*0.5*	-
4-Chloroaniline	nd	nd	nd	nd	nd	nd	*0.5*	-
2-Nitroaniline	nd	nd	nd	nd	nd	nd	*1*	-
3-Nitroaniline	nd	nd	nd	nd	nd	nd	*0.5*	-
Dibenzofuran	nd	nd	nd	nd	nd	nd	*0.5*	-
4-Nitroaniline	nd	nd	nd	nd	nd	nd	*0.5*	-
Carbazole	nd	nd	nd	nd	nd	nd	*0.5*	-
3.3'-Dichlorobenzidine	nd	nd	nd	nd	nd	nd	*0.5*	-

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nt - not tested
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Borehole	BH13	BH14	*PQL*	
Depth	0.0-1.0	1.5-2.0		
Date sampled	13-Aug-98	27-Aug-98		*(F)*
Description	Soil	Soil		
Composite (if applicable)	n/a	n/a		
PHTHALATE ESTERS				
Dimethyl phthalate	nd	nd	*0.5*	-
Diethyl phthalate	nd	nd	*0.5*	-
Di-n-butyl phthalate	nd	nd	*0.5*	-
Butyl benzyl phthalate	nd	nd	*0.5*	-
Bis(2-ethylhexyl) phthalate	nd	nd	*5*	-
Di-n-octylphthalate	nd	nd	*0.5*	-
NITROSAMINES	nd	nd		-
N-Nitrosomethylethylamine	nd	nd	*0.5*	-
N-Nitrosodiethylamine	nd	nd	*0.5*	-
N-Nitrosopyrrolidine	nd	nd	*1*	-
N-Nitrosomorpholine	nd	nd	*0.5*	-
N-Nitrosodi-n-propylamine	nd	nd	*0.5*	-
N-Nitrosopiperidine	nd	nd	*0.5*	-
N-Nitrosodibutylamine	nd	nd	*0.5*	-
N-Nitrosodiphenyl & Diphenylamine	nd	nd	*1*	-
Diallate	nd	nd	*0.5*	-
Methapyrilene	nd	nd	*0.5*	-
NITROAROMATICS & CYCLIC KETONES	nd	nd		-
2-Picoline	nd	nd	*0.5*	-
Acetophenone	nd	nd	*0.5*	-
Nitrobenzene	nd	nd	*0.5*	-
Isophorone	nd	nd	*0.5*	-
2.6-Dinitrotoluene	nd	nd	*1*	-
2.4-Dinitrotoluene	nd	nd	*1*	-
1-Naphthylamine	nd	nd	*0.5*	-
4-Nitroquinoline-N-oxide	nd	nd	*0.5*	-
5-Nitro-o-toluidine	nd	nd	*0.5*	-
Azobenzene	nd	nd	*0.5*	-
1.3.5-Trinitrobenzene	nd	nd	*0.5*	-
Phenacetin	nd	nd	*0.5*	-
4-Aminobiphenyl	nd	nd	*0.5*	-
Pentachloronitrobenzene	nd	nd	*0.5*	-
Pronamide	nd	nd	*0.5*	-
Dimethylaminoazobenzene	nd	nd	*0.5*	-
Chlorobenzilate	nd	nd	*0.5*	-
HALOETHERS	nd	nd		
Bis(2-chloroethyl) ether	nd	nd	*0.5*	-
Bis(2-chloroethoxy) methane	nd	nd	*0.5*	-
4-Chlorophenyl phenyl ether	nd	nd	*0.5*	-
4-Bromophenyl phenyl ether	nd	nd	*0.5*	-
CHLORINATED HYDROCARBONS	nd	nd		
1.3-Dichlorobenzene	nd	nd	*0.5*	-
1.4-Dichlorobenzene	nd	nd	*0.5*	-
1.2-Dichlorobenzene	nd	nd	*0.5*	-
Hexachloroethane	nd	nd	*0.5*	-
1.2.4-Trichlorobenzene	nd	nd	*0.5*	-
Hexachloropropylene	nd	nd	*0.5*	-
Hexachlorobutadiene	nd	nd	*0.5*	-
Hexachlorocyclopentadiene	nd	nd	*3*	-
Pentachlorobenzene	nd	nd	*0.5*	-
Hexachlorobenzene	nd	nd	*1*	-
ANILINES & BENZIDINES	nd	nd		
Aniline	nd	nd	*0.5*	-
4-Chloroaniline	nd	nd	*0.5*	-
2-Nitroaniline	nd	nd	*1*	-
3-Nitroaniline	nd	nd	*0.5*	-
Dibenzofuran	nd	nd	*0.5*	-
4-Nitroaniline	nd	nd	*0.5*	-
Carbazole	nd	nd	*0.5*	-
3.3'-Dichlorobenzidine	nd	nd	*0.5*	-

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nt - not tested
Sample identification denotes test borehole number and depth of sample
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Borehole	BH101	BH103	BH107	BH107	BH108	BH110	PQL	
Depth	1.4-1.6	1.9-2.4	0.5-0.7	1.9-2.4	0.8-1.7	1.3-1.6		
Date sampled	9-Mar-06	9-Mar-06	9-Mar-06	9-Mar-06	9-Mar-06	10-Mar-06		(F)
Description	Soil	Soil	Soil	Soil	Soil	Soil		
Composite (if applicable)	n/a	n/a	n/a	n/a	n/a	n/a		
Phenol	nd	nd	nd	nd	nd	nd	1	42500
Bis-(2-chloroethyl) ether	nd	nd	nd	nd	nd	nd	1	-
2-Chlorophenol	nd	nd	nd	nd	nd	nd	1	-
1,3-Dichlorobenzene	nd	nd	nd	nd	nd	nd	1	-
1,4-Dichlorobenzene	nd	nd	nd	nd	nd	nd	1	-
2-Methylphenol	nd	nd	nd	nd	nd	nd	1	-
1,2-Dichlorobenzene	nd	nd	nd	nd	nd	nd	1	-
Bis (2-chloroisopropyl) ether	nd	nd	nd	nd	nd	nd	1	-
4-Methylphenol	nd	nd	nd	nd	nd	nd	1	-
N-nitrosodi-n-propylamine	nd	nd	nd	nd	nd	nd	1	-
Hexachloroethane	nd	nd	nd	nd	nd	nd	1	-
Nitrobenzene	nd	nd	nd	nd	nd	nd	1	-
Isophorone	nd	nd	nd	nd	nd	nd	1	-
2,4-Dimethylphenol	nd	nd	nd	nd	nd	nd	1	-
2-Nitrophenol	nd	nd	nd	nd	nd	nd	1	-
Bis(2-chloroethoxy)methane	nd	nd	nd	nd	nd	nd	1	-
2,4-Dichlorophenol	nd	nd	nd	nd	nd	nd	1	-
1,2,4-Trichlorobenzene	nd	nd	nd	nd	nd	nd	1	-
Naphthalene	nd	nd	nd	nd	nd	nd	1	-
4-Chloroaniline	nd	nd	nd	nd	nd	nd	1	-
Hexachlorobutadiene	nd	nd	nd	nd	nd	nd	1	-
2-Methylnaphthalene	nd	nd	nd	nd	nd	nd	1	-
Hexachlorocyclopentadiene	nd	nd	nd	nd	nd	nd	1	-
2,4,6-trichlorophenol	nd	nd	nd	nd	nd	nd	1	-
2,4,5-trichlorophenol	nd	nd	nd	nd	nd	nd	1	-
2-Chloronaphthalene	nd	nd	nd	nd	nd	nd	1	-
2-nitroaniline	nd	nd	nd	nd	nd	nd	1	-
Dimethylphthalate	nd	nd	nd	nd	nd	nd	1	-
2,6-Dinitrotoluene	nd	nd	nd	nd	nd	nd	1	-
Acenaphthene	nd	nd	nd	nd	nd	nd	1	-
2,4-dinitrophenol	nd	nd	nd	nd	nd	nd	1	-
4-nitrophenol	nd	nd	nd	nd	nd	nd	1	-
Dibenzofuran	nd	nd	nd	nd	nd	nd	1	-
Diethylphthalate	nd	nd	nd	nd	nd	nd	1	-
4-chlorophenylphenylether	nd	nd	nd	nd	nd	nd	1	-
4-nitroaniline	nd	nd	nd	nd	nd	nd	1	-
Fluorene	nd	nd	nd	nd	nd	nd	1	-
2-methyl-4,6-dinitrophenol	nd	nd	nd	nd	nd	nd	1	-
Azobenzene	nd	nd	nd	nd	nd	nd	1	-
4-bromophenylphenylether	nd	nd	nd	nd	nd	nd	1	-
Hexachlorobenzene	nd	nd	nd	nd	nd	nd	1	-
Pentachlorophenol	nd	nd	nd	nd	nd	nd	1	-
Phenanthrene	nd	nd	nd	nd	nd	nd	1	-
Anthracene	nd	nd	nd	nd	nd	nd	1	-
Carbazole	nd	nd	nd	nd	nd	nd	1	-
di-n-butylphthalate	nd	nd	nd	nd	nd	nd	1	-
Fluoranthene	nd	nd	nd	nd	1.1	nd	1	-
Pyrene	nd	nd	nd	nd	1.1	nd	1	-
Butylbenzylphthalate	nd	nd	nd	nd	nd	nd	1	-
Bi (2-ethylhexyl) phthalate	nd	nd	nd	nd	nd	nd	1	-
Benzo(a)anthracene	nd	nd	nd	nd	1.3	nd	1	-
Chrysene	nd	nd	nd	nd	nd	nd	1	-
Di-n-octylphthalate	nd	nd	nd	nd	nd	nd	1	-
Benzo(b)fluoranthene	nd	nd	nd	nd	1.4	nd	1	-
Benzo(k)fluoranthene	nd	nd	nd	nd	nd	nd	1	-
Benzo(a)pyrene	nd	nd	nd	nd	nd	nd	1	5
Indeno(1,2,3-cd)pyrene	nd	nd	nd	nd	nd	nd	1	-
Dibenzo (a,h) perylene	nd	nd	nd	nd	nd	nd	1	-
Ethylmethanesulfonate	nd	nd	nd	nd	nd	nd	1	-
Aniline	nd	nd	nd	nd	nd	nd	1	-
Pentachloroethane	nd	nd	nd	nd	nd	nd	1	-
Benzyl alcohol	nd	nd	nd	nd	nd	nd	1	-
Acetophenone	nd	nd	nd	nd	nd	nd	1	-
N-nitrosomorpholine	nd	nd	nd	nd	nd	nd	1	-
3-methylphenol (m cresol)	nd	nd	nd	nd	nd	nd	1	-
N-nitrosopiperidine	nd	nd	nd	nd	nd	nd	1	-
2,6-dichlorophenol	nd	nd	nd	nd	nd	nd	1	-
hexachloropropene-1	nd	nd	nd	nd	nd	nd	1	-
N-nitroso-n-butylamine safrole	nd	nd	nd	nd	nd	nd	1	-
1,2,4,5-tetrachlorobenzene	nd	nd	nd	nd	nd	nd	1	-
trans-iso-safrole	nd	nd	nd	nd	nd	nd	1	-
1,3-dinitrobenzene	nd	nd	nd	nd	nd	nd	1	-
pentachlorobenzene	nd	nd	nd	nd	nd	nd	1	-
1-naphthlamine	nd	nd	nd	nd	nd	nd	1	-
2,3,4,6-tetrachlorophenol	nd	nd	nd	nd	nd	nd	1	-
2-naphthylamine	nd	nd	nd	nd	nd	nd	1	-
5-nitro-o-toluidine	nd	nd	nd	nd	nd	nd	1	-
diphenylamine	nd	nd	nd	nd	nd	nd	1	-
Phenacetin	nd	nd	nd	nd	nd	nd	1	-
Pentachloronitrobenzene	nd	nd	nd	nd	nd	nd	1	-
Dinoseb	nd	nd	nd	nd	nd	nd	1	-
Methapriline	nd	nd	nd	nd	nd	nd	1	-
p-dimethylaminoazobenzene	nd	nd	nd	nd	nd	nd	1	-
2-acetylaminofluorene	nd	nd	nd	nd	nd	nd	1	-
7,12-dimethylbenz(a)anthracene	nd	nd	nd	nd	nd	nd	1	-
3-methylcholanthrene	nd	nd	nd	nd	nd	nd	1	-
a-BHC	nd	nd	nd	nd	nd	nd	1	-
b-BHC	nd	nd	nd	nd	nd	nd	1	-
g-BHC	nd	nd	nd	nd	nd	nd	1	-
d-BHC	nd	nd	nd	nd	nd	nd	1	-
Heptachlor	nd	nd	nd	nd	nd	nd	1	50
Aldrin	nd	nd	nd	nd	nd	nd	1	50
Heptachlor Expoxide	nd	nd	nd	nd	nd	nd	1	-
g-Chlordane	nd	nd	nd	nd	nd	nd	1	250
a-Chlordane	nd	nd	nd	nd	nd	nd	1	
Endosulfan 1	nd	nd	nd	nd	nd	nd	1	-
p,p'-DDE	nd	nd	nd	nd	nd	nd	1	1000 *
Dieldrin	nd	nd	nd	nd	nd	nd	1	50
Endrin	nd	nd	nd	nd	nd	nd	1	-
p,p'-DDD	nd	nd	nd	nd	nd	nd	1	1000 *
Endosulfan II	nd	nd	nd	nd	nd	nd	1	-
p,p'-DDT	nd	nd	nd	nd	nd	nd	1	1000 *
Endosulfan Sulphate	nd	nd	nd	nd	nd	nd	1	-

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nt - not tested
Sample identification denotes test borehole number and depth of sample
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* Analysis value to be sum value of DDD, DDE & DDT results to determine total DDD+DDE+DDT exposure value

Borehole	BH116	BH121	BH122	BH122	BH123	BH125	PQL	
Depth	0.2-0.5	2.6-3.1	0.5	2.5	1.0-1.3	2.0		
Date sampled	9-Mar-06	9-Mar-06	10-Mar-06	10-Mar-06	10-Mar-06	14-Mar-06		(F)
Description	Soil	Soil	Soil	Soil	Soil	Soil		
Composite (if applicable)	n/a	n/a	n/a	n/a	n/a	n/a		
Phenol	nd	nd	nd	nd	nd	nd	1	42500
Bis-(2-chloroethyl) ether	nd	nd	nd	nd	nd	nd	1	-
2-Chlorophenol	nd	nd	nd	nd	nd	nd	1	-
1,3-Dichlorobenzene	nd	nd	nd	nd	nd	nd	1	-
1,4-Dichlorobenzene	nd	nd	nd	nd	nd	nd	1	-
2-Methylphenol	nd	nd	nd	nd	nd	nd	1	-
1,2-Dichlorobenzene	nd	nd	nd	nd	nd	nd	1	-
Bis (2-chloroisopropyl) ether	nd	nd	nd	nd	nd	nd	1	-
4-Methylphenol	nd	nd	nd	nd	nd	nd	1	-
N-nitrosodi-n-propylamine	nd	nd	nd	nd	nd	nd	1	-
Hexachloroethane	nd	nd	nd	nd	nd	nd	1	-
Nitrobenzene	nd	nd	nd	nd	nd	nd	1	-
Isophorone	nd	nd	nd	nd	nd	nd	1	-
2,4-Dimethylphenol	nd	nd	nd	nd	nd	nd	1	-
2-Nitrophenol	nd	nd	nd	nd	nd	nd	1	-
Bis(2-chloroethoxy)methane	nd	nd	nd	nd	nd	nd	1	-
2,4-Dichlorophenol	nd	nd	nd	nd	nd	nd	1	-
1,2,4-Trichlorobenzene	nd	nd	nd	nd	nd	nd	1	-
Naphthalene	nd	nd	nd	nd	nd	nd	1	-
4-Chloroaniline	nd	nd	nd	nd	nd	nd	1	-
Hexachlorobutadiene	nd	nd	nd	nd	nd	nd	1	-
2-Methylnaphthalene	nd	nd	nd	nd	nd	nd	1	-
Hexachlorocyclopentadiene	nd	nd	nd	nd	nd	nd	1	-
2,4,6-trichlorophenol	nd	nd	nd	nd	nd	nd	1	-
2,4,5-trichlorophenol	nd	nd	nd	nd	nd	nd	1	-
2-Chloronaphthalene	nd	nd	nd	nd	nd	nd	1	-
2-nitroaniline	nd	nd	nd	nd	nd	nd	1	-
Dimethylphthalate	nd	nd	nd	nd	nd	nd	1	-
2,6-Dinitrotoluene	nd	nd	nd	nd	nd	nd	1	-
Acenaphthene	nd	nd	nd	nd	nd	nd	1	-
2,4-dinitrophenol	nd	nd	nd	nd	nd	nd	1	-
4-nitrophenol	nd	nd	nd	nd	nd	nd	1	-
Dibenzofuran	nd	nd	nd	nd	nd	nd	1	-
Diethylphthalate	nd	nd	nd	nd	nd	nd	1	-
4-chlorophenylphenylether	nd	nd	nd	nd	nd	nd	1	-
4-nitroaniline	nd	nd	nd	nd	nd	nd	1	-
Fluorene	nd	nd	nd	nd	nd	nd	1	-
2-methyl-4,6-dinitrophenol	nd	nd	nd	nd	nd	nd	1	-
Azobenzene	nd	nd	nd	nd	nd	nd	1	-
4-bromophenylphenylether	nd	nd	nd	nd	nd	nd	1	-
Hexachlorobenzene	nd	nd	nd	nd	nd	nd	1	-
Pentachlorophenol	nd	nd	nd	nd	nd	nd	1	-
Phenanthrene	nd	nd	nd	nd	nd	1.3	1	-
Anthracene	nd	nd	nd	nd	nd	1.1	1	-
Carbazole	nd	nd	nd	nd	1.2	nd	1	-
di-n-butylphthalate	nd	nd	nd	nd	1.1	nd	1	-
Fluoranthene	nd	nd	nd	nd	1.1	1.7	1	-
Pyrene	nd	nd	nd	nd	nd	1.7	1	-
Butylbenzylphthalate	nd	nd	nd	nd	nd	nd	1	-
Bi (2-ethylhexyl) phthalate	nd	nd	nd	nd	1.3	nd	1	-
Benzo(a)anthracene	nd	nd	nd	nd	1	1.7	1	-
Chrysene	nd	nd	nd	nd	nd	1.6	1	-
Di-n-octylphthalate	nd	nd	nd	nd	nd	nd	1	-
Benzo(b)fluoranthene	nd	nd	nd	nd	1.4	1.8	1	-
Benzo(k)fluoranthene	nd	nd	nd	nd	nd	1.4	1	-
Benzo(a)pyrene	nd	nd	nd	nd	1.2	1.7	1	5
Indeno(1,2,3-cd)pyrene	nd	nd	nd	nd	nd	1.6	1	-
Dibenzo (a,h) perylene	nd	nd	nd	nd	nd	1.5	1	-
Ethylmethanesulfonate	nd	nd	nd	nd	nd	nd	1	-
Aniline	nd	nd	nd	nd	nd	nd	1	-
Pentachloroethane	nd	nd	nd	nd	nd	nd	1	-
Benzyl alcohol	nd	nd	nd	nd	nd	nd	1	-
Acetophenone	nd	nd	nd	nd	nd	nd	1	-
N-nitrosomorpholine	nd	nd	nd	nd	nd	nd	1	-
3-methylphenol (m cresol)	nd	nd	nd	nd	nd	nd	1	-
N-nitrosppieridine	nd	nd	nd	nd	nd	nd	1	-
2,6-dichlorophenol	nd	nd	nd	nd	nd	nd	1	-
hexachloropropene-1	nd	nd	nd	nd	nd	nd	1	-
N-nitroso-n-butylamine safrole	nd	nd	nd	nd	nd	nd	1	-
1,2,4,5-tetrachlorobenzene	nd	nd	nd	nd	nd	nd	1	-
trans-iso-safrole	nd	nd	nd	nd	nd	nd	1	-
1,3-dinitrobenzene	nd	nd	nd	nd	nd	nd	1	-
pentachlorobenzene	nd	nd	nd	nd	nd	nd	1	-
1-naphthlamine	nd	nd	nd	nd	nd	nd	1	-
2,3,4,6-tetrachlorophenol	nd	nd	nd	nd	nd	nd	1	-
2-naphthylamine	nd	nd	nd	nd	nd	nd	1	-
5-nitro-o-toluidine	nd	nd	nd	nd	nd	nd	1	-
diphenylamine	nd	nd	nd	nd	nd	nd	1	-
Phenacetin	nd	nd	nd	nd	nd	nd	1	-
Pentachloronitrobenzene	nd	nd	nd	nd	nd	nd	1	-
Dinoseb	nd	nd	nd	nd	nd	nd	1	-
Methapriline	nd	nd	nd	nd	nd	nd	1	-
p-dimethylaminoazobenzene	nd	nd	nd	nd	nd	nd	1	-
2-acetylaminofluorene	nd	nd	nd	nd	nd	nd	1	-
7,12-dimethylbenz(a)anthracene	nd	nd	nd	nd	nd	nd	1	-
3-methylcholanthrene	nd	nd	nd	nd	nd	nd	1	-
a-BHC	nd	nd	nd	nd	nd	nd	1	-
b-BHC	nd	nd	nd	nd	nd	nd	1	-
g-BHC	nd	nd	nd	nd	nd	nd	1	-
d-BHC	nd	nd	nd	nd	nd	nd	1	-
Heptachlor	nd	nd	nd	nd	nd	nd	1	50
Aldrin	nd	nd	nd	nd	nd	nd	1	50
Heptachlor Expoxide	nd	nd	nd	nd	nd	nd	1	-
g-Chlordane	nd	nd	nd	nd	nd	nd	1	250
a-Chlordane	nd	nd	nd	nd	nd	nd	1	
Endosulfan 1	nd	nd	nd	nd	nd	nd	1	-
p,p'-DDE	nd	nd	nd	nd	nd	nd	1	1000 *
Dieldrin	nd	nd	nd	nd	nd	nd	1	50
Endrin	nd	nd	nd	nd	nd	nd	1	-
p,p'-DDD	nd	nd	nd	nd	nd	nd	1	1000 *
Endosulfan II	nd	nd	nd	nd	nd	nd	1	-
p,p'-DDT	nd	nd	nd	nd	nd	nd	1	1000 *
Endosulfan Sulphate	nd	nd	nd	nd	nd	nd	1	-

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nd - not detected above the Practical Quantitation Limit (PQL)
nt - not tested
Sample identification denotes test borehole number and depth of sample
Shaded results exceed the following guidelines:
(F) NEPC Schedule B(1) Soil Investigation Levels Table 5-A
"Commercial/Industrial: includes premises such as shops and offices as well as factories and industrial sites."
* Analysis value to be sum value of DDD, DDE & DDT results to determine total DDD+DDE+DDT exposure value

Borehole	BH127	BH127	BH134	PQL	
Depth	0.2-0.4	2.0-2.4	3.0-3.5		
Date sampled	10-Mar-06	10-Mar-06	10-Mar-06		(F)
Description	Soil	Soil	Soil		
Composite (if applicable)	n/a	n/a	n/a		
Phenol	nd	nd	nd	1	42500
Bis-(2-chloroethyl) ether	nd	nd	nd	1	-
2-Chlorophenol	nd	nd	nd	1	-
1,3-Dichlorobenzene	nd	nd	nd	1	-
1,4-Dichlorobenzene	nd	nd	nd	1	-
2-Methylphenol	nd	nd	nd	1	-
1,2-Dichlorobenzene	nd	nd	nd	1	-
Bis (2-chloroisopropyl) ether	nd	nd	nd	1	-
4-Methylphenol	nd	nd	nd	1	-
N-nitrosodi-n-propylamine	nd	nd	nd	1	-
Hexachloroethane	nd	nd	nd	1	-
Nitrobenzene	nd	nd	nd	1	-
Isophorone	nd	nd	nd	1	-
2,4-Dimethylphenol	nd	nd	nd	1	-
2-Nitrophenol	nd	nd	nd	1	-
Bis(2-chloroethoxy)methane	nd	nd	nd	1	-
2,4-Dichlorophenol	nd	nd	nd	1	-
1,2,4-Trichlorobenzene	nd	nd	nd	1	-
Naphthalene	nd	nd	nd	1	-
4-Chloroaniline	nd	nd	nd	1	-
Hexachlorobutadiene	nd	nd	nd	1	-
2-Methylnaphthalene	nd	nd	nd	1	-
Hexachlorocyclopentadiene	nd	nd	nd	1	-
2,4,6-trichlorophenol	nd	nd	nd	1	-
2,4,5-trichlorophenol	nd	nd	nd	1	-
2-Chloronaphthalene	nd	nd	nd	1	-
2-nitroaniline	nd	nd	nd	1	-
Dimethylphthalate	nd	nd	nd	1	-
2,6-Dinitrotoluene	nd	nd	nd	1	-
Acenaphthene	nd	nd	nd	1	-
2,4-dinitrophenol	nd	nd	nd	1	-
4-nitrophenol	nd	nd	nd	1	-
Dibenzofuran	nd	nd	nd	1	-
Diethylphthalate	nd	nd	nd	1	-
4-chlorophenylphenylether	nd	nd	nd	1	-
4-nitroaniline	nd	nd	nd	1	-
Fluorene	nd	nd	nd	1	-
2-methyl-4,6-dinitrophenol	nd	nd	nd	1	-
Azobenzene	nd	nd	nd	1	-
4-bromophenylphenylether	nd	nd	nd	1	-
Hexachlorobenzene	nd	nd	nd	1	-
Pentachlorophenol	nd	nd	nd	1	-
Phenanthrene	nd	nd	nd	1	-
Anthracene	nd	nd	nd	1	-
Carbazole	nd	nd	nd	1	-
di-n-butylphthalate	nd	nd	nd	1	-
Fluoranthene	nd	nd	nd	1	-
Pyrene	nd	nd	nd	1	-
Butylbenzylphthalate	nd	nd	nd	1	-
Bi (2-ethylhexyl) phthalate	nd	nd	nd	1	-
Benzo(a)anthracene	nd	nd	nd	1	-
Chrysene	nd	nd	nd	1	-
Di-n-octylphthalate	nd	nd	nd	1	-
Benzo(b)fluoranthene	nd	nd	nd	1	-
Benzo(k)fluoranthene	nd	nd	nd	1	-
Benzo(a)pyrene	nd	nd	nd	1	5
Indeno(1,2,3-cd)pyrene	nd	nd	nd	1	-
Dibenzo (a,h) perylene	nd	nd	nd	1	-
Ethylmethanesulfonate	nd	nd	nd	1	-
Aniline	nd	nd	nd	1	-
Pentachloroethane	nd	nd	nd	1	-
Benzyl alcohol	nd	nd	nd	1	-
Acetophenone	nd	nd	nd	1	-
N-nitrosomorpholine	nd	nd	nd	1	-
3-methylphenol (m cresol)	nd	nd	nd	1	-
N-nitrospiperidine	nd	nd	nd	1	-
2,6-dichlorophenol	nd	nd	nd	1	-
hexachloropropene-1	nd	nd	nd	1	-
N-nitroso-n-butylamine safrole	nd	nd	nd	1	-
1,2,4,5-tetrachlorobenzene	nd	nd	nd	1	-
trans-iso-safrole	nd	nd	nd	1	-
1,3-dinitrobenzene	nd	nd	nd	1	-
pentachlorobenzene	nd	nd	nd	1	-
1-naphthlamine	nd	nd	nd	1	-
2,3,4,6-tetrachlorophenol	nd	nd	nd	1	-
2-naphthylamine	nd	nd	nd	1	-
5-nitro-o-toluidine	nd	nd	nd	1	-
diphenylamine	nd	nd	nd	1	-
Phenacetin	nd	nd	nd	1	-
Pentachloronitrobenzene	nd	nd	nd	1	-
Dinoseb	nd	nd	nd	1	-
Methapriline	nd	nd	nd	1	-
p-dimethylaminoazobenzene	nd	nd	nd	1	-
2-acetylaminofluorene	nd	nd	nd	1	-
7,12-dimethylbenz(a)anthracene	nd	nd	nd	1	-
3-methylcholanthrene	nd	nd	nd	1	-
a-BHC	nd	nd	nd	1	-
b-BHC	nd	nd	nd	1	-
g-BHC	nd	nd	nd	1	-
d-BHC	nd	nd	nd	1	-
Heptachlor	nd	nd	nd	1	50
Aldrin	nd	nd	nd	1	50
Heptachlor Expoxide	nd	nd	nd	1	-
g-Chlordane	nd	nd	nd	1	250
a-Chlordane	nd	nd	nd	1	
Endosulfan 1	nd	nd	nd	1	-
p,p'-DDE	nd	nd	nd	1	1000 *
Dieldrin	nd	nd	nd	1	50
Endrin	nd	nd	nd	1	-
p,p'-DDD	nd	nd	nd	1	1000 *
Endosulfan II	nd	nd	nd	1	-
p,p'-DDT	nd	nd	nd	1	1000 *
Endosulfan Sulphate	nd	nd	nd	1	-

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All units in mg/kg unless otherwise stipulated
nd - not detected above the Practical Quantitation Limit (PQL)
nt - not tested
Sample identification denotes test borehole number and depth of sample
Shaded results exceed the following guidelines:
(F) NEPC Schedule B(1) Soil Investigation Levels Table 5-A
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* Analysis value to be sum value of DDD, DDE & DDT results to determine total DDD+DDE+DDT exposure value

Borehole	BH6	BH7	BH9		BH125	BH125	BH132	BH133		*PQL*	
Depth	0.9-1.5	0.5-1.0	1.0-2.0		0.5	2.0	4.5-4.8	3.1-3.6			
Date sampled	13-Aug-98	28-Aug-98	13-Aug-98		14-Mar-06	14-Mar-06	7-Mar-06	7-Mar-06			*(F)*
Description	Soil	Soil	Soil		Soil	Soil	Soil	Soil			
Composite (if applicable)	n/a	n/a	n/a		n/a	n/a	n/a	n/a			
Halogenated Organic Compounds (EOX)	0.2	0.3	0.07		nt	nt	nt	nt			-
Ammonia	nt	nt	nt		nd	nd	nd	nd		*30*	-

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All units in mg Cl/kg dry weight unless otherwise stipulated
nd - not detected above the Practical Quantitation Limit (PQL)
nt - not tested
Sample identification denotes test borehole number and depth of sample
Shaded results exceed the following guidelines:
(F) NEPC Schedule B(1) Soil Investigation Levels Table 5-A
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Borehole	BH101	BH103	BH107	BH108	BH110	BH116		
Depth	1.4-1.6	1.9-2.4	1.9-2.4	0.8-1.7	1.3-1.6	0.2-0.5	*PQL*	
Date sampled	9-Mar-06	9-Mar-06	9-Mar-06	9-Mar-06	10-Mar-06	9-Mar-06		
Description	Soil	Soil	Soil	Soil	Soil	Soil		*(F)*
Composite (if applicable)	n/a	n/a	n/a	n/a	n/a	n/a		
VOCs								
Dichlorodifluoromethane	nd	nd	nd	nd	nd	nd	*10.0*	-
Chloromethane	nd	nd	nd	nd	nd	nd	*10.0*	-
Vinyl Chloride	nd	nd	nd	nd	nd	nd	*10.0*	-
Bromomethane	nd	nd	nd	nd	nd	nd	*10.0*	-
Chloroethane	nd	nd	nd	nd	nd	nd	*10.0*	-
Trichlorofluoromethane	nd	nd	nd	nd	nd	nd	*10.0*	-
1,1-Dichloroethene	nd	nd	nd	nd	nd	nd	*1.0*	-
Trans-1,2-dichloroethene	nd	nd	nd	nd	nd	nd	*1.0*	-
1,1-dichloroethane	nd	nd	nd	nd	nd	nd	*1.0*	-
Cis-1,2-dichloroethene	nd	nd	nd	nd	nd	nd	*1.0*	-
Chloroform	nd	nd	nd	nd	nd	nd	*1.0*	-
2,2-dichloropropane	nd	nd	nd	nd	nd	nd	*1.0*	-
1,2-dichloroethane	nd	nd	nd	nd	nd	nd	*1.0*	-
1,1,1-trichloroethane	nd	nd	nd	nd	nd	nd	*1.0*	-
1,1-dichloropropene	nd	nd	nd	nd	nd	nd	*1.0*	-
Carbon tetrachloride	nd	nd	nd	nd	nd	nd	*1.0*	-
Benzene	nd	nd	nd	nd	nd	3.5	*1.0*	*1*
Dibromomethane	nd	nd	nd	nd	nd	nd	*1.0*	-
Trichloroethene	nd	nd	nd	nd	nd	nd	*1.0*	-
Bromodichloromethane	nd	nd	nd	nd	nd	nd	*1.0*	-
trans-1,3-dichloropropene	nd	nd	nd	nd	nd	nd	*1.0*	-
cis-1,3-dichloropropene	nd	nd	nd	nd	nd	nd	*1.0*	-
1,1,2-trichloroethane	nd	nd	nd	nd	nd	nd	*1.0*	-
Toluene	nd	nd	nd	nd	nd	4.7	*1.0*	*1.4*
1,3-dichloropropane	nd	nd	nd	nd	nd	nd	*1.0*	-
Dibromochloromethane	nd	nd	nd	nd	nd	nd	*1.0*	-
1,2-dibromoethane	nd	nd	nd	nd	nd	nd	*1.0*	-
Tetrachloroethene	nd	nd	nd	nd	nd	33	*1.0*	-
1,1,1,2-tetrachloroethane	nd	nd	nd	nd	nd	nd	*1.0*	-
Chlorobenzene	nd	nd	nd	nd	nd	nd	*1.0*	-
Ethylbenzene	nd	nd	nd	nd	nd	4.6	*1.0*	*3.1*
Bromoform	nd	nd	nd	nd	nd	nd	*1.0*	-
m+p-xylene	nd	nd	nd	nd	nd	10	*2.0*	*14*
Styrene	nd	nd	nd	nd	nd	nd	*1.0*	-
1,1,2,2-tetrachloroethane	nd	nd	nd	nd	nd	nd	*1.0*	-
o-xylene	nd	nd	nd	nd	nd	4.4	*1.0*	*14*
1,2,3-trichloropropane	nd	nd	nd	nd	nd	nd	*1.0*	-
Isopropylbenzene	nd	nd	nd	nd	nd	nd	*1.0*	-
Bromobenzene	nd	nd	nd	nd	nd	nd	*1.0*	-
n-propyl benzene	nd	nd	nd	nd	nd	nd	*1.0*	-
2-chlorotoluene	nd	nd	nd	nd	nd	nd	*1.0*	-
4-chlorotoluene	nd	nd	nd	nd	nd	nd	*1.0*	-
1,3,5-trimethyl benzene	nd	nd	nd	nd	nd	nd	*1.0*	-
Tert-butyl benzene	nd	nd	nd	nd	nd	nd	*1.0*	-
1,2,4-trimethyl benzene	nd	nd	nd	nd	nd	nd	*1.0*	-
1,3-dichlorobenzene	nd	nd	nd	nd	nd	nd	*1.0*	-
Sec-butyl benzene	nd	nd	nd	nd	nd	nd	*1.0*	-
1,4-dichlorobenzene	nd	nd	nd	nd	nd	nd	*1.0*	-
4-isopropyl toluene	nd	nd	nd	nd	nd	nd	*1.0*	-
1,2-dichlorobenzene	nd	nd	nd	nd	nd	nd	*1.0*	-
n-butyl benzene	nd	nd	nd	nd	nd	nd	*1.0*	-
1,2-dibromo-3-chloropropane	nd	nd	nd	nd	nd	nd	*1.0*	-
1,2,4-trichlorobenzene	nd	nd	nd	nd	nd	nd	*1.0*	-
Naphthalene	nd	nd	nd	nd	nd	nd	*1.0*	-
Hexachlorobutadiene	nd	nd	nd	nd	nd	nd	*1.0*	-
1,2,3-trichlorobenzene	nd	nd	nd	nd	nd	nd	*1.0*	-

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Borehole	BH121	BH122	BH122	BH123	BH125	BH127		
Depth	2.6-3.1	0.5	2.5	1.0-1.3	2.0	0.2-0.4	*PQL*	
Date sampled	9-Mar-06	10-Mar-06	10-Mar-06	10-Mar-06	14-Mar-06	10-Mar-06		
Description	Soil	Soil	Soil	Soil	Soil	Soil		*(F)*
Composite (if applicable)	n/a	n/a	n/a	n/a	n/a	n/a		
VOCs								
Dichlorodifluoromethane	nd	nd	nd	nd	nd	nd	*10.0*	-
Chloromethane	nd	nd	nd	nd	nd	nd	*10.0*	-
Vinyl Chloride	nd	nd	nd	nd	nd	nd	*10.0*	-
Bromomethane	nd	nd	nd	nd	nd	nd	*10.0*	-
Chloroethane	nd	nd	nd	nd	nd	nd	*10.0*	-
Trichlorofluoromethane	nd	nd	nd	nd	nd	nd	*10.0*	-
1,1-Dichloroethene	nd	nd	nd	nd	nd	nd	*1.0*	-
Trans-1,2-dichloroethene	nd	nd	nd	nd	nd	nd	*1.0*	-
1,1-dichloroethane	nd	nd	nd	nd	nd	nd	*1.0*	-
Cis-1,2-dichloroethene	nd	nd	nd	nd	nd	nd	*1.0*	-
Chloroform	nd	nd	nd	nd	nd	nd	*1.0*	-
2,2-dichloropropane	nd	nd	nd	nd	nd	nd	*1.0*	-
1,2-dichloroethane	nd	nd	nd	nd	nd	nd	*1.0*	-
1,1,1-trichloroethane	nd	nd	nd	nd	nd	nd	*1.0*	-
1,1-dichloropropene	nd	nd	nd	nd	nd	nd	*1.0*	-
Carbon tetrachloride	nd	nd	nd	nd	nd	nd	*1.0*	-
Benzene	nd	nd	nd	nd	nd	nd	*1.0*	-
Dibromomethane	nd	nd	nd	nd	nd	nd	*1.0*	-
Trichloroethene	nd	nd	nd	nd	nd	nd	*1.0*	-
Bromodichloromethane	nd	nd	nd	nd	nd	nd	*1.0*	-
trans-1,3-dichloropropene	nd	nd	nd	nd	nd	nd	*1.0*	-
cis-1,3-dichloropropene	nd	nd	nd	nd	nd	nd	*1.0*	-
1,1,2-trichloroethane	nd	nd	nd	nd	nd	nd	*1.0*	-
Toluene	nd	nd	nd	nd	nd	nd	*1.0*	-
1,3-dichloropropane	nd	nd	nd	nd	nd	nd	*1.0*	-
Dibromochloromethane	nd	nd	nd	nd	nd	nd	*1.0*	-
1,2-dibromoethane	nd	nd	nd	nd	nd	nd	*1.0*	-
Tetrachloroethene	nd	nd	nd	nd	nd	nd	*1.0*	-
1,1,1,2-tetrachloroethane	nd	nd	nd	nd	nd	nd	*1.0*	-
Chlorobenzene	nd	nd	nd	nd	nd	nd	*1.0*	-
Ethylbenzene	nd	nd	nd	nd	nd	nd	*1.0*	-
Bromoform	nd	nd	nd	nd	nd	nd	*1.0*	-
m+p-xylene	nd	nd	nd	nd	nd	nd	*2.0*	-
Styrene	nd	nd	nd	nd	nd	nd	*1.0*	-
1,1,2,2-tetrachloroethane	nd	nd	nd	nd	nd	nd	*1.0*	-
o-xylene	nd	nd	nd	nd	nd	nd	*1.0*	-
1,2,3-trichloropropane	nd	nd	nd	nd	nd	nd	*1.0*	-
Isopropylbenzene	nd	nd	nd	nd	nd	nd	*1.0*	-
Bromobenzene	nd	nd	nd	nd	nd	nd	*1.0*	-
n-propyl benzene	nd	nd	nd	nd	nd	nd	*1.0*	-
2-chlorotoluene	nd	nd	nd	nd	nd	nd	*1.0*	-
4-chlorotoluene	nd	nd	nd	nd	nd	nd	*1.0*	-
1,3,5-trimethyl benzene	nd	nd	nd	nd	nd	nd	*1.0*	-
Tert-butyl benzene	nd	nd	nd	nd	nd	nd	*1.0*	-
1,2,4-trimethyl benzene	nd	nd	nd	nd	nd	nd	*1.0*	-
1,3-dichlorobenzene	nd	nd	nd	nd	nd	nd	*1.0*	-
Sec-butyl benzene	nd	nd	nd	nd	nd	nd	*1.0*	-
1,4-dichlorobenzene	nd	nd	nd	nd	nd	nd	*1.0*	-
4-isopropyl toluene	nd	nd	nd	nd	nd	nd	*1.0*	-
1,2-dichlorobenzene	nd	nd	nd	nd	nd	nd	*1.0*	-
n-butyl benzene	nd	nd	nd	nd	nd	nd	*1.0*	-
1,2-dibromo-3-chloropropane	nd	nd	nd	nd	nd	nd	*1.0*	-
1,2,4-trichlorobenzene	nd	nd	nd	nd	nd	nd	*1.0*	-
Naphthalene	nd	nd	nd	nd	nd	nd	*1.0*	-
Hexachlorobutadiene	nd	nd	nd	nd	nd	nd	*1.0*	-
1,2,3-trichlorobenzene	nd	nd	nd	nd	nd	nd	*1.0*	-

NOTE:
All results sourced from AGC Woodward Clyde (1999), Coffey Geosciences Pty Ltd (2000), and Golder Associates Pty Ltd (2006)
All units in mg/kg unless otherwise stipulated
nd - not detected above the Practical Quantitation Limit (PQL)
nt - not tested
Sample identification denotes test borehole number and depth of sample
Shaded results exceed the following guidelines:
(F) NEPC Schedule B(1) Soil Investigation Levels Table 5-A
"Commercial/Industrial: includes premises such as shops and offices as well as factories and industrial sites."

Borehole	BH127	BH134		
Depth	2.0-2.4	3.0-3.5	*PQL*	
Date sampled	10-Mar-06	10-Mar-06		
Description	Soil	Soil		*(F)*
Composite (if applicable)	n/a	n/a		
VOCs				
Dichlorodifluoromethane	nd	nd	*10.0*	-
Chloromethane	nd	nd	*10.0*	-
Vinyl Chloride	nd	nd	*10.0*	-
Bromomethane	nd	nd	*10.0*	-
Chloroethane	nd	nd	*10.0*	-
Trichlorofluoromethane	nd	nd	*10.0*	-
1,1-Dichloroethene	nd	nd	*1.0*	-
Trans-1,2-dichloroethene	nd	nd	*1.0*	-
1,1-dichloroethane	nd	nd	*1.0*	-
Cis-1,2-dichloroethene	nd	nd	*1.0*	-
Chloroform	nd	nd	*1.0*	-
2,2-dichloropropane	nd	nd	*1.0*	-
1,2-dichloroethane	nd	nd	*1.0*	-
1,1,1-trichloroethane	nd	nd	*1.0*	-
1,1-dichloropropene	nd	nd	*1.0*	-
Carbon tetrachloride	nd	nd	*1.0*	-
Benzene	nd	nd	*1.0*	-
Dibromomethane	nd	nd	*1.0*	-
Trichloroethene	nd	nd	*1.0*	-
Bromodichloromethane	nd	nd	*1.0*	-
trans-1,3-dichloropropene	nd	nd	*1.0*	-
cis-1,3-dichloropropene	nd	nd	*1.0*	-
1,1,2-trichloroethane	nd	nd	*1.0*	-
Toluene	nd	nd	*1.0*	-
1,3-dichloropropane	nd	nd	*1.0*	-
Dibromochloromethane	nd	nd	*1.0*	-
1,2-dibromoethane	nd	nd	*1.0*	-
Tetrachloroethene	nd	nd	*1.0*	-
1,1,1,2-tetrachloroethane	nd	nd	*1.0*	-
Chlorobenzene	nd	nd	*1.0*	-
Ethylbenzene	nd	nd	*1.0*	-
Bromoform	nd	nd	*1.0*	-
m+p-xylene	nd	nd	*2.0*	-
Styrene	nd	nd	*1.0*	-
1,1,2,2-tetrachloroethane	nd	nd	*1.0*	-
o-xylene	nd	nd	*1.0*	-
1,2,3-trichloropropane	nd	nd	*1.0*	-
Isopropylbenzene	nd	nd	*1.0*	-
Bromobenzene	nd	nd	*1.0*	-
n-propyl benzene	nd	nd	*1.0*	-
2-chlorotoluene	nd	nd	*1.0*	-
4-chlorotoluene	nd	nd	*1.0*	-
1,3,5-trimethyl benzene	nd	nd	*1.0*	-
Tert-butyl benzene	nd	nd	*1.0*	-
1,2,4-trimethyl benzene	nd	nd	*1.0*	-
1,3-dichlorobenzene	nd	nd	*1.0*	-
Sec-butyl benzene	nd	nd	*1.0*	-
1,4-dichlorobenzene	nd	nd	*1.0*	-
4-isopropyl toluene	nd	nd	*1.0*	-
1,2-dichlorobenzene	nd	nd	*1.0*	-
n-butyl benzene	nd	nd	*1.0*	-
1,2-dibromo-3-chloropropane	nd	nd	*1.0*	-
1,2,4-trichlorobenzene	nd	nd	*1.0*	-
Naphthalene	nd	nd	*1.0*	-
Hexachlorobutadiene	nd	nd	*1.0*	-
1,2,3-trichlorobenzene	nd	nd	*1.0*	-

NOTE:
All results sourced from AGC Woodward Clyde (1999), Coffey Geosciences Pty Ltd (2000), and Golder Associates Pty Ltd (2006)
All units in mg/kg unless otherwise stipulated
nd - not detected above the Practical Quantitation Limit (PQL)
nt - not tested
Sample identification denotes test borehole number and depth of sample
Shaded results exceed the following guidelines:
(F) NEPC Schedule B(1) Soil Investigation Levels Table 5-A
"Commercial/Industrial: includes premises such as shops and offices as well as factories and industrial sites."

Borehole	B3A	B4A	B5	B9	B9	*PQL*
Depth	0.5-0.6	0.4-0.5	1.5-1.95	1.0-1.45	4.0-4.6	
Date sampled	24-May-00	24-May-00	23-May-00	23-May-00	23-May-00	
Description	Soil	Soil	Soil	Soil	Soil	
Composite (if applicable)	n/a	n/a	n/a	n/a	n/a	
TCLP Benzo(a)pyrene	nd	nd	nd	nd	nd	*0.3 ug/L*
TCLP Arsenic	nd	nd	nd	nd	nd	*0.1*
TCLP Cadmium	nd	nd	nd	nd	nd	*0.05*
TCLP Lead	nd	nd	nd	nd	nd	*0.1*
TCLP Nickel	nd	nd	nd	nd	nd	*0.1*

NOTE:
All results sourced from AGC Woodward Clyde (1999), Coffey Geosciences Pty Ltd (2000), and Golder Associates Pty Ltd (2006)
All units in mg/L unless otherwise stipulated
nd - not detected above the Practical Quantitation Limit (PQL)
nt - not tested
Sample identification denotes test borehole number and depth of sample
Shaded results exceed the following guidelines:
(F) NEPC Schedule B(1) Soil Investigation Levels Table 5-A
"Commercial/Industrial: includes premises such as shops and offices as well as factories and industrial sites."

Consultant	Woodward Clyde	Woodward Clyde	Woodward Clyde	Woodward Clyde	Woodward Clyde	Woodward Clyde	Woodward Clyde	Woodward Clyde		
Borehole	BH1 _ GW001	BH7 _ GW002	BH12 _ GW003	BH14 _ GW004	BH1 _ BH1	BH12 _ BH12	BH14 _ BH14	BH16 _ BH16	*PQL*	
Depth	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a		
Date sampled	9-Jan-98	9-Jan-98	9-Jan-98	9-Jan-98	24-Mar-99	24-Mar-99	24-Mar-99	24-Mar-99		*(a)*
Description	Water	Water	Water	Water	Water	Water	Water	Water		
METALS										
Arsenic	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	*0.001*	*0.0023 **
Cadmium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	*0.0002*	*0.0055*
Chromium	0.002	0.002	**0.028**	0.002	0.002	0.014	0.002	<0.001	*0.001*	*0.0274*
Copper	**0.004**	**0.002**	**0.003**	**0.003**	**0.004**	**0.002**	**0.004**	**0.002**	*0.001*	*0.0013*
Lead	0.004	<0.001	0.004	0.003	**0.008**	0.002	<0.001	<0.001	*0.001*	*0.0044*
Mercury	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	*0.0001*	*0.0004*
Nickel	0.002	<0.001	0.01	0.022	0.002	0.006	0.008	0.001	*0.001*	*0.07*
Silver	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	*0.001*	*0.0014*
Zinc	**0.07**	0.002	**0.018**	**0.524**	**0.062**	0.01	0.015	0.003	*0.001*	*0.015*

NOTE:
All units in mg/L unless otherwise stipulated
nd - not detected above the Practical Quantitation Limit (PQL)
nt - not tested
ID - Insufficient data to derive a reliable trigger value
Shaded results exceed the following guidelines:
(a) ANZECC (2000) Trigger values for marine water (95% of species)
* ANZECC (2000) Sect 8.3.7 Low reliability trigger values, however PQL of analysis is greater

Consultant	Golders	Golders	Golders	Golders		
Borehole	BH135	BH136	BH137	BH138	*PQL*	
Depth	n/a	n/a	n/a	n/a		
Date sampled	28-Mar-06	28-Mar-06	28-Mar-06	28-Mar-06		*(a)*
Description	Water	Water	Water	Water		
METALS						
Arsenic	<0.001	<0.001	**0.0035**	<0.001	*0.001*	*0.0023 **
Cadmium	<0.0001	0.0001	<0.0001	<0.0001	*0.0002*	*0.0055*
Chromium	0.001	0.0012	0.0037	0.0012	*0.001*	*0.0274*
Copper	0.0017	<0.001	<0.001	<0.001	*0.001*	*0.0013*
Lead	<0.001	<0.001	<0.001	<0.001	*0.001*	*0.0044*
Mercury	<0.0001	<0.0001	<0.0001	<0.0001	*0.0001*	*0.0004*
Nickel	<0.001	<0.001	0.0027	<0.001	*0.001*	*0.07*
Silver	nt	nt	nt	nt	*0.001*	*0.0014*
Zinc	0.01	0.0074	0.005	0.0076	*0.001*	*0.015*

NOTE:
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nd - not detected above the Practical Quantitation Limit (PQL)
nt - not tested
ID - Insufficient data to derive a reliable trigger value
Shaded results exceed the following guidelines:
(a) ANZECC (2000) Trigger values for marine water (95% of species)
* ANZECC (2000) Sect 8.3.7 Low reliability trigger values, however PQL of analysis is greater

Consultant	Woodward Clyc	/oodward Clyc	/oodward Clyc	/oodward Clyde	Golders	Golders	Golders	Golders		
Borehole	BH1 _ GW001	BH7 _ GW002	3H12 _ GW003	3H14 _ GW004	BH135	BH136	BH137	BH138	*PQL*	
Depth	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a		
Date sampled	9-Jan-98	9-Jan-98	9-Jan-98	9-Jan-98	28-Mar-06	28-Mar-06	28-Mar-06	28-Mar-06		*(a)*
Description	Water	Water	Water	Water	Water	Water	Water	Water		
PAH's										
Naphthalene	<2	<2	4.00	<2	nd	nd	nd	nd	*1*	*70*
2-Methylnaphthalene	<2	<2	<2	<2	nt	nt	nt	nt	*1*	-
2-Chloronaphthalene	<2	<2	<2	<2	nt	nt	nt	nt	*1*	-
Acenaphthylene	<2	<2	<2	<2	nd	nd	nd	nd	*1*	-
Acenaphthene	<2	<2	<2	<2	nd	nd	nd	nd	*1*	-
Fluorene	<2	<2	<2	<2	nd	nd	nd	nd	*1*	-
Phenanthrene	<2	<2	<2	<2	nd	nd	nd	nd	*1*	*ID*
Anthracene	<2	<2	<2	<2	nd	nd	nd	nd	*1*	*ID*
Fluoranthene	<2	<2	<2	<2	nd	nd	nd	nd	*1*	*ID*
Pyrene	<2	<2	<2	<2	nd	nd	nd	nd	*1*	-
N-2-Fluorenlacetamide	<2	<2	<2	<2	nt	nt	nt	nt	*1*	-
Benzo(a)anthracene	<2	<2	<2	<2	nd	nd	nd	nd	*1*	-
Chrysene	<2	<2	<2	<2	nd	nd	nd	nd	*1*	-
Benzo(b)&(k)fluoranthene	<4	<4	<4	<4	nd	nd	nd	nd	*2*	-
7.12-Dimethylbenz(a)anthrac	<2	<2	<2	<2	nt	nt	nt	nt	*1*	-
Benzo(a)pyrene	<2	<2	<2	<2	nd	nd	nd	nd	*1*	*ID*
3-Methylchloanthrene	<2	<2	<2	<2	nt	nt	nt	nt	*1*	-
Indeno(1.2.3-cd)pyrene	<2	<2	<2	<2	nd	nd	nd	nd	*1*	-
Dibenz(a.h)anthracene	<2	<2	<2	<2	nd	nd	nd	nd	*1*	-
Benzo(g.h.i)perylene	<2	<2	<2	<2	nd	nd	nd	nd	*1*	-
Total PAH's	nd	nd	>4	nd	nd	nd	nd	nd	-	-

NOTE:
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nt - not tested
ID - Insufficient data to derive a reliable trigger value
Shaded results exceed the following guidelines:
(a) ANZECC (2000) Trigger values for marine water (95% of species)

Consultant	Woodward Clyde	Woodward Clyde	Woodward Clyde	Woodward Clyde	Woodward Clyde	Woodward Clyde	Woodward Clyde	Woodward Clyde		
Borehole	BH1 _ GW001	BH7 _ GW002	BH12 _ GW003	BH14 _ GW004	BH1 _ BH1	BH12 _ BH12	BH14 _ BH14	BH16 _ BH16	*PQL*	
Depth	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a		
Date sampled	9-Jan-98	9-Jan-98	9-Jan-98	9-Jan-98	24-Mar-99	24-Mar-99	24-Mar-99	24-Mar-99		*(a)*
Description	Water	Water	Water	Water	Water	Water	Water	Water		
TOTAL PETROLEUM HYDROCARBONS										
C6-C9	nt	<20	<20	nt	<20	<20	<20	<20	*10*	*40 **
C10-C14	nt	<50	**328**	nt	<50	**115**	<50	<50	*50*	*600 **
C15-C28	nt	<100	**2940**	nt	<100	**1500**	179	<100	*100*	
C29-C36	nt	<50	**1090**	nt	<50	**698**	66	<50	*100*	
BTEX										
Benzene	nt	<1	<1	nt	nt	nt	nt	nt	*1*	*700*
Toluene	nt	<2	2	nt	nt	nt	nt	nt	*1*	*1000 ^*
Ethyl benzene	nt	<2	<2	nt	nt	nt	nt	nt	*1*	*150 ^*
Xylene	nt	<2	<2	nt	nt	nt	nt	nt	*2*	*70 ^*

NOTE:
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nt - not tested
ID - Insufficient data to derive a reliable trigger value
Shaded results exceed the following guidelines:
(a) ANZECC (2000) Trigger values for marine water (95% of species)
* Guideline values sourced from Dutch (2000) Intervention Values
^ Guideline values sourced from Dutch (2000) Intervention Values

Consultant	Golders	Golders	Golders	Golders		
Borehole	BH135	BH136	BH137	BH138	*PQL*	
Depth	n/a	n/a	n/a	n/a		
Date sampled	28-Mar-06	28-Mar-06	28-Mar-06	28-Mar-06		*(a)*
Description	Water	Water	Water	Water		
TOTAL PETROLEUM HYDROCARBONS						
C6-C9	nd	nd	nd	nd	*10*	*40 **
C10-C14	nd	nd	nd	nd	*50*	*600 **
C15-C28	nd	nd	nd	nd	*100*	
C29-C36	nd	nd	nd	nd	*100*	
BTEX						
Benzene	nd	nd	nd	nd	*1*	*700*
Toluene	nd	nd	nd	nd	*1*	*1000 ^*
Ethyl benzene	nd	nd	nd	nd	*1*	*150 ^*
Xylene	nd	nd	nd	nd	*2*	*70 ^*

NOTE:
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nd - not detected above the Practical Quantitation Limit (PQL)
nt - not tested
ID - Insufficient data to derive a reliable trigger value
Shaded results exceed the following guidelines:
(a) ANZECC (2000) Trigger values for marine water (95% of species)
* Guideline values sourced from Dutch (2000) Intervention Values
^ Guideline values sourced from Dutch (2000) Intervention Values

Consultant	Woodward Clyde	Woodward Clyde	Woodward Clyde	Golders	Golders	Golders	Golders	
Borehole	BH1 _ GW001	BH7 _ GW002	BH12 _ GW003	BH135	BH136	BH137	BH138	*PQL*
Depth	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
Date sampled	9-Jan-98	9-Jan-98	9-Jan-98	28-Mar-06	28-Mar-06	28-Mar-06	28-Mar-06	*(a)*
Description	Water	Water	Water	Water	Water	Water	Water	
OC PESTICIDES								
alpha-BHC	<2	<2	<2	<10	<10	<10	<10	-
gamma-BHC (Lindane)	<4	<4	<4	<10	<10	<10	<10	-
beta-BHC	<2	<2	<2	<10	<10	<10	<10	-
Heptachlor	<2	<2	<2	<10	<10	<10	<10	*0.01 **
delta-BHC	<2	<2	<2	<10	<10	<10	<10	-
Aldrin	<2	<2	<2	<10	<10	<10	<10	*0.003 **
Heptachlor Epoxide	<2	<2	<2	<10	<10	<10	<10	-
gamma-Chlordane	<2	<2	<2	<10	<10	<10	<10	*0.001 **
alpha-Chlordane	<2	<2	<2	<10	<10	<10	<10	*0.0002 **
Endosulfan I	<2	<2	<2	<10	<10	<10	<10	*0.0005 **
p,p'-DDE	<2	<2	<2	<10	<10	<10	<10	-
Dieldrin	<2	<2	<2	<10	<10	<10	<10	*0.008*
Endrin	<2	<2	<2	<10	<10	<10	<10	-
p,p'-DDD	<2	<2	<2	<10	<10	<10	<10	*0.007 **
Endosulfan II	<2	<2	<2	<10	<10	<10	<10	*0.0004 **
p,p'-DDT	<2	<2	<2	<10	<10	<10	<10	-
Endrin Aldehyde	<2	<2	<2	<10	<10	<10	<10	-
Endosulfan Sulphate	<2	<2	<2	<10	<10	<10	<10	*0.004 **
Methoxychlor	<4	<4	<4	nt	nt	nt	nt	
OP PESTICIDES								
Methanesulfonate methyl	<2	<2	<2	nt	nt	nt	nt	-
Methanesulfonate ethyl	<2	<2	<2	nt	nt	nt	nt	-
Dichlorvos	<2	<2	<2	nt	nt	nt	nt	-
cis-Isosafrole	<2	<2	<2	nt	nt	nt	nt	-
trans-Isosafrole	<2	<2	<2	nt	nt	nt	nt	-
Safrole	<2	<2	<2	nt	nt	nt	nt	-
Diazinon	<2	<2	<2	nt	nt	nt	nt	*0.01 **
Dimethoate	<2	<2	<2	nt	nt	nt	nt	*0.015 **
Chlorpyrifos-methyl	<2	<2	<2	nt	nt	nt	nt	-
Malathion	<2	<2	<2	nt	nt	nt	nt	*0.05 **
Fenthion	<2	<2	<2	nt	nt	nt	nt	-
Chlorpyrifos	<2	<2	<2	nt	nt	nt	nt	*0.09 **
Pirimiphos ethyl	<2	<2	<2	nt	nt	nt	nt	-
Chlorfenvinphos-E	<2	<2	<2	nt	nt	nt	nt	-
Chlorfenvinphos-Z	<2	<2	<2	nt	nt	nt	nt	-
Prothiofos	<2	<2	<2	nt	nt	nt	nt	-
Ethion	<2	<2	<2	nt	nt	nt	nt	-

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nt - not tested
ID - Insufficient data to derive a reliable trigger value
Shaded results exceed the following guidelines:
(a) ANZECC (2000) Trigger values for marine water (95% of species)
* ANZECC (2000) Sect 8.3.7 Low reliability trigger values

Consultant	Woodward Clyde	Woodward Clyde	Woodward Clyde	Woodward Clyde	Golders	Golders	Golders	Golders	
Borehole	BH1 _ GW001	BH7 _ GW002	BH12 _ GW003	BH14 _ GW004	BH135	BH136	BH137	BH138	*PQL*
Depth	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
Date sampled	9-Jan-98	9-Jan-98	9-Jan-98	9-Jan-98	28-Mar-06	28-Mar-06	28-Mar-06	28-Mar-06	*(a)*
Description	Water	Water	Water	Water	Water	Water	Water	Water	
Total Phenolics	<2	<2	<2	nt	nt	nt	nt	nt	*400*
2-Chlorophenol	<2	<2	<2	nt	nt	nt	nt	nt	*340 **
2-Methylphenol	<2	<2	<2	nt	nt	nt	nt	nt	
4-Methylphenol	<2	<2	2.0	nt	nt	nt	nt	nt	
2-Nitrophenol	<2	<2	<2	nt	nt	nt	nt	nt	
2.4-Dimethylphenol	<2	<2	4.0	nt	nt	nt	nt	nt	*ID*
2.4-Dichlorophenol	<2	<2	<2	nt	nt	nt	nt	nt	*120 **
2.6-Dichlorophenol	<2	<2	<2	nt	nt	nt	nt	nt	*34 **
4-Chloro-3-methylphenol	<2	<2	<2	nt	nt	nt	nt	nt	
2.4.6-Trichlorophenol	<2	<2	<2	nt	nt	nt	nt	nt	*3 **
2.4.5-Trichlorophenol	<2	<2	<2	nt	nt	nt	nt	nt	*4 **
Pentachlorophenol	<4	<4	<4	nt	nt	nt	nt	nt	*22*
PCB									
Arochlor 1016	nt	nt	nt	nt	<2	<2	<2	<2	*0.009 **
Arochlor 1232	nt	nt	nt	nt	<2	<2	<2	<2	*0.3 **
Arochlor 1242	nt	nt	nt	nt	<2	<2	<2	<2	*0.3 **
Arochlor 1248	nt	nt	nt	nt	<2	<2	<2	<2	*0.03 **
Arochlor 1254	nt	nt	nt	nt	<2	<2	<2	<2	*0.01 **
Arochlor 1260	nt	nt	nt	nt	<2	<2	<2	<2	-
Total Positive PCB	nt	nt	nt	nt	<2	<2	<2	<2	-

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nt - not tested
ID - Insufficient data to derive a reliable trigger value
Shaded results exceed the following guidelines:
(a) ANZECC (2000) Trigger values for marine water (95% of species)
* ANZECC (2000) Sect 8.3.7 Low reliability trigger values

Consultant	Golders	Golders	Golders	Golders		
Borehole	BH135	BH136	BH137	BH138	*PQL*	
Depth	n/a	n/a	n/a	n/a		
Date sampled	28-Mar-06	28-Mar-06	28-Mar-06	28-Mar-06		*(a)*
Description	Water	Water	Water	Water		
VOCs						
Dichlorodifluoromethane	nd	nd	nd	nd	*10.0*	-
Chloromethane	nd	nd	nd	nd	*10.0*	-
Vinyl Chloride	nd	nd	nd	nd	*10.0*	-
Bromomethane	nd	nd	nd	nd	*10.0*	-
Chloroethane	nd	nd	nd	nd	*10.0*	-
Trichlorofluoromethane	nd	nd	nd	nd	*10.0*	-
1,1-Dichloroethene	nd	nd	nd	nd	*1.0*	-
Trans-1,2-dichloroethene	nd	nd	nd	nd	*1.0*	-
1,1-dichloroethane	nd	nd	nd	nd	*1.0*	-
Cis-1,2-dichloroethene	nd	nd	nd	nd	*1.0*	-
Chloroform	nd	nd	nd	nd	*1.0*	-
2,2-dichloropropane	nd	nd	nd	nd	*1.0*	-
1,2-dichloroethane	nd	nd	nd	nd	*1.0*	-
1,1,1-trichloroethane	nd	nd	nd	nd	*1.0*	-
1,1-dichloropropene	nd	nd	nd	nd	*1.0*	-
Carbon tetrachloride	nd	nd	nd	nd	*1.0*	-
Benzene	nd	nd	nd	nd	*1.0*	*700 **
Dibromomethane	nd	nd	nd	nd	*1.0*	-
Trichloroethene	nd	nd	nd	nd	*1.0*	-
Bromodichloromethane	nd	nd	nd	nd	*1.0*	-
trans-1,3-dichloropropene	nd	nd	nd	nd	*1.0*	-
cis-1,3-dichloropropene	nd	nd	nd	nd	*1.0*	-
1,1,2-trichloroethane	nd	nd	nd	nd	*1.0*	-
Toluene	nd	nd	nd	nd	*1.0*	*1000 ^*
1,3-dichloropropane	nd	nd	nd	nd	*1.0*	-
Dibromochloromethane	nd	nd	nd	nd	*1.0*	-
1,2-dibromoethane	nd	nd	nd	nd	*1.0*	-
Tetrachloroethene	nd	nd	nd	nd	*1.0*	-
1,1,1,2-tetrachloroethane	nd	nd	nd	nd	*1.0*	-
Chlorobenzene	nd	nd	nd	nd	*1.0*	-
Ethylbenzene	nd	nd	nd	nd	*1.0*	*150 ^*
Bromoform	nd	nd	nd	nd	*1.0*	-
m+p-xylene	nd	nd	nd	nd	*2.0*	*70 ^*
Styrene	nd	nd	nd	nd	*1.0*	-
1,1,2,2-tetrachloroethane	nd	nd	nd	nd	*1.0*	-
o-xylene	nd	nd	nd	nd	*1.0*	*70 ^*
1,2,3-trichloropropane	nd	nd	nd	nd	*1.0*	-
Isopropylbenzene	nd	nd	nd	nd	*1.0*	-
Bromobenzene	nd	nd	nd	nd	*1.0*	-
n-propyl benzene	nd	nd	nd	nd	*1.0*	-
2-chlorotoluene	nd	nd	nd	nd	*1.0*	-
4-chlorotoluene	nd	nd	nd	nd	*1.0*	-
1,3,5-trimethyl benzene	nd	nd	nd	nd	*1.0*	-
Tert-butyl benzene	nd	nd	nd	nd	*1.0*	-
1,2,4-trimethyl benzene	nd	nd	nd	nd	*1.0*	-
1,3-dichlorobenzene	nd	nd	nd	nd	*1.0*	-
Sec-butyl benzene	nd	nd	nd	nd	*1.0*	-
1,4-dichlorobenzene	nd	nd	nd	nd	*1.0*	-
4-isopropyl toluene	nd	nd	nd	nd	*1.0*	-
1,2-dichlorobenzene	nd	nd	nd	nd	*1.0*	-
n-butyl benzene	nd	nd	nd	nd	*1.0*	-
1,2-dibromo-3-chloropropane	nd	nd	nd	nd	*1.0*	-
1,2,4-trichlorobenzene	nd	nd	nd	nd	*1.0*	-
Naphthalene	nd	nd	nd	nd	*1.0*	-
Hexachlorobutadiene	nd	nd	nd	nd	*1.0*	-
1,2,3-trichlorobenzene	nd	nd	nd	nd	*1.0*	-

NOTE:
All units in µg/L unless otherwise stipulated
nd - not detected above the Practical Quantitation Limit (PQL)
nt - not tested
ID - Insufficient data to derive a reliable trigger value
Shaded results exceed the following guidelines:
(a) ANZECC (2000) Trigger values for marine water (95% of species)
* ANZECC (2000) Sect 8.3.7 Low reliability trigger values
^ Guideline values sourced from Dutch (2000) Intervention Values

Consultant	Woodward Clyd	Woodward Clyd	Woodward Clyde	*PQL*
Borehole	BH1 _ GW001	BH7 _ GW002	BH12 _ GW003	
Depth	n/a	n/a	n/a	*(a)*
Date sampled	9-Jan-98	9-Jan-98	9-Jan-98	
Description	Water	Water	Water	
PHTHALATE ESTERS				
Dimethyl phthalate	<2	<2	<2	*3700 **
Diethyl phthalate	<2	<2	4.00	*900 **
Di-n-butyl phthalate	20.00	24.00	22.00	*25 **
Butyl benzyl phthalate	<2	<2	<2	*ID*
Bis(2-ethylhexyl) phthalate	<20	<20	36.00	-
Di-n-octylphthalate	<2	<2	<2	-
NITROSAMINES				-
N-Nitrosomethylethylamine	<2	<2	<2	-
N-Nitrosodiethylamine	<2	<2	<2	-
N-Nitrosopyrrolidine	<4	<4	<4	-
N-Nitrosomorpholine	<2	<2	<2	-
N-Nitrosodi-n-propylamine	<2	<2	<2	-
N-Nitrosopiperidine	<2	<2	<2	-
N-Nitrosodibutylamine	<2	<2	<2	-
N-Nitrosodiphenyl & Diphenylamine	<4	<4	<4	-
Diallate	<2	<2	<2	-
Methapyrilene	<2	<2	<2	-
NITROAROMATICS & CYCLIC KETONES				
2-Picoline	<2	<2	<2	-
Acetophenone	<2	<2	<2	-
Nitrobenzene	<2	<2	<2	*550 **
Isophorone	<2	<2	<2	*130 **
2.6-Dinitrotoluene	<4	<4	<4	-
2.4-Dinitrotoluene	<4	<4	<4	*0.03 **
1-Naphthylamine	<2	<2	<2	-
4-Nitroquinoline-N-oxide	<2	<2	<2	-
5-Nitro-o-toluidine	<2	<2	<2	-
Azobenzene	<2	<2	<2	-
1.3.5-Trinitrobenzene	<2	<2	<2	*ID*
Phenacetin	<2	<2	<2	-
4-Aminobiphenyl	<2	<2	<2	-
Pentachloronitrobenzene	<2	<2	<2	-
Pronamide	<2	<2	<2	-
Dimethylaminoazobenzene	<2	<2	<2	-
Chlorobenzilate	<2	<2	<2	-
HALOETHERS				-
Bis(2-chloroethyl) ether	<2	<2	<2	-
Bis(2-chloroethoxy) methane	<2	<2	<2	-
4-Chlorophenyl phenyl ether	<2	<2	<2	-
4-Bromophenyl phenyl ether	<2	<2	<2	-
CHLORINATED HYDROCARBONS				
1.3-Dichlorobenzene	<2	<2	<2	-
1.4-Dichlorobenzene	<2	<2	<2	-
1.2-Dichlorobenzene	<2	<2	<2	-
Hexachloroethane	<2	<2	<2	*290 **
1.2.4-Trichlorobenzene	<2	<2	<2	*80*
Hexachloropropylene	<2	<2	<2	-
Hexachlorobutadiene	<2	<2	<2	*0.03 **
Hexachlorocyclopentadiene	<10	<10	<10	*0.05 **
Pentachlorobenzene	<2	<2	<2	*2 **
Hexachlorobenzene	<4	<4	<4	*0.05 **
ANILINES & BENZIDINES				*8 **
Aniline	<2	<2	<2	-
4-Chloroaniline	<2	<2	<2	-
2-Nitroaniline	<2	<2	<2	-
3-Nitroaniline	<2	<2	<2	-
Dibenzofuran	<2	<2	<2	-
4-Nitroaniline	<2	<2	<2	-
Carbazole	<2	<2	<2	-
3.3'-Dichlorobenzidine	<2	<2	<2	*0.5 **

NOTE:
All units in µg/L unless otherwise stipulated
nd - not detected above the Practical Quantitation Limit (PQL)
nt - not tested
ID - Insufficient data to derive a reliable trigger value
Shaded results exceed the following guidelines:
(a) ANZECC (2000) Trigger values for marine water (95% of species)
* ANZECC (2000) Sect 8.3.7 Low reliability trigger values

Consultant	Golders	Golders	Golders	Golders	*PQL*	
Borehole	BH135	BH136	BH137	BH138		
Depth	n/a	n/a	n/a	n/a		*(a)*
Date sampled	28-Mar-06	28-Mar-06	28-Mar-06	28-Mar-06		
Description	Water	Water	Water	Water		
Phenol	nd	nd	nd	nd	*<10*	*400*
Bis-(2-chloroethyl) ether	nd	nd	nd	nd	*<10*	-
2-Chlorophenol	nd	nd	nd	nd	*<10*	-
1,3-Dichlorobenzene	nd	nd	nd	nd	*<10*	-
1,4-Dichlorobenzene	nd	nd	nd	nd	*<10*	-
2-Methylphenol	nd	nd	nd	nd	*<10*	-
1,2-Dichlorobenzene	nd	nd	nd	nd	*<10*	-
Bis (2-chloroisopropyl) ether	nd	nd	nd	nd	*<10*	-
4-Methylphenol	nd	nd	nd	nd	*<10*	-
N-nitrosodi-n-propylamine	nd	nd	nd	nd	*<10*	-
Hexachloroethane	nd	nd	nd	nd	*<10*	-
Nitrobenzene	nd	nd	nd	nd	*<10*	-
Isophorone	nd	nd	nd	nd	*<10*	-
2,4-Dimethylphenol	nd	nd	nd	nd	*<10*	-
2-Nitrophenol	nd	nd	nd	nd	*<10*	-
Bis(2-chloroethoxy)methane	nd	nd	nd	nd	*<10*	-
2,4-Dichlorophenol	nd	nd	nd	nd	*<10*	-
1,2,4-Trichlorobenzene	nd	nd	nd	nd	*<10*	-
Naphthalene	nd	nd	nd	nd	*<10*	-
4-Chloroaniline	nd	nd	nd	nd	*<10*	-
Hexachlorobutadiene	nd	nd	nd	nd	*<10*	-
2-Methylnaphthalene	nd	nd	nd	nd	*<10*	-
Hexachlorocyclopentadiene	nd	nd	nd	nd	*<10*	-
2,4,6-trichlorophenol	nd	nd	nd	nd	*<10*	-
2,4,5-trichlorophenol	nd	nd	nd	nd	*<10*	-
2-Chloronaphthalene	nd	nd	nd	nd	*<10*	-
2-nitroaniline	nd	nd	nd	nd	*<10*	-
Dimethylphthalate	nd	nd	nd	nd	*<10*	-
2,6-Dinitrotoluene	nd	nd	nd	nd	*<10*	-
Acenaphthene	nd	nd	nd	nd	*<10*	-
2,4-dinitrophenol	nd	nd	nd	nd	*<10*	-
4-nitrophenol	nd	nd	nd	nd	*<10*	-
Dibenzofuran	nd	nd	nd	nd	*<10*	-
Diethylphthalate	nd	nd	nd	nd	*<10*	-
4-chlorophenylphenylether	nd	nd	nd	nd	*<10*	-
4-nitroaniline	nd	nd	nd	nd	*<10*	-
Fluorene	nd	nd	nd	nd	*<10*	-
2-methyl-4,6-dinitrophenol	nd	nd	nd	nd	*<10*	-
Azobenzene	nd	nd	nd	nd	*<10*	-
4-bromophenylphenylether	nd	nd	nd	nd	*<10*	-
Hexachlorobenzene	nd	nd	nd	nd	*<10*	-
Pentachlorophenol	nd	nd	nd	nd	*<10*	*22*
Phenanthrene	nd	nd	nd	nd	*<10*	-
Anthracene	nd	nd	nd	nd	*<10*	-
Carbazole	nd	nd	nd	nd	*<10*	-
di-n-butylphthalate	nd	nd	nd	nd	*<10*	-
Fluoranthene	nd	nd	nd	nd	*<10*	-
Pyrene	nd	nd	nd	nd	*<10*	-
Butylbenzylphthalate	nd	nd	nd	nd	*<10*	-
Bi (2-ethylhexyl) phthalate	nd	nd	nd	nd	*<10*	-
Benzo(a)anthracene	nd	nd	nd	nd	*<10*	-
Chrysene	nd	nd	nd	nd	*<10*	-
Di-n-octylphthalate	nd	nd	nd	nd	*<10*	-
Benzo(b)fluoranthene	nd	nd	nd	nd	*<10*	-
Benzo(k)fluoranthene	nd	nd	nd	nd	*<10*	-
Benzo(a)pyrene	nd	nd	nd	nd	*<10*	-
Indeno(1,2,3-cd)pyrene	nd	nd	nd	nd	*<10*	-
Dibenzo (a,h) perylene	nd	nd	nd	nd	*<10*	-
Ethylmethanesulfonate	nd	nd	nd	nd	*<10*	-
Aniline	nd	nd	nd	nd	*<10*	-
Pentachloroethane	nd	nd	nd	nd	*<10*	-
Benzyl alcohol	nd	nd	nd	nd	*<10*	-
Acetophenone	nd	nd	nd	nd	*<10*	-
N-nitrosomorpholine	nd	nd	nd	nd	*<10*	-
3-methylphenol (m cresol)	nd	nd	nd	nd	*<10*	-
N-nitrospiperidine	nd	nd	nd	nd	*<10*	-
2,6-dichlorophenol	nd	nd	nd	nd	*<10*	-
hexachloropropene-1	nd	nd	nd	nd	*<10*	-
N-nitroso-n-butylamine safrole	nd	nd	nd	nd	*<10*	-
1,2,4,5-tetrachlorobenzene	nd	nd	nd	nd	*<10*	-
trans-iso-safrole	nd	nd	nd	nd	*<10*	-
1,3-dinitrobenzene	nd	nd	nd	nd	*<10*	-
pentachlorobenzene	nd	nd	nd	nd	*<10*	-
1-naphthlamine	nd	nd	nd	nd	*<10*	-
2,3,4,6-tetrachlorophenol	nd	nd	nd	nd	*<10*	-
2-naphthylamine	nd	nd	nd	nd	*<10*	-
5-nitro-o-toluidine	nd	nd	nd	nd	*<10*	-
diphenylamine	nd	nd	nd	nd	*<10*	-
Phenacetin	nd	nd	nd	nd	*<10*	-
Pentachloronitrobenzene	nd	nd	nd	nd	*<10*	-
Dinoseb	nd	nd	nd	nd	*<10*	-
Methapriline	nd	nd	nd	nd	*<10*	-
p-dimethylaminoazobenzene	nd	nd	nd	nd	*<10*	-
2-acetylaminofluorene	nd	nd	nd	nd	*<10*	-
7,12-dimethylbenz(a)anthracene	nd	nd	nd	nd	*<10*	-
3-methylcholanthrene	nd	nd	nd	nd	*<10*	-
a-BHC	nd	nd	nd	nd	*<10*	-
b-BHC	nd	nd	nd	nd	*<10*	-
g-BHC	nd	nd	nd	nd	*<10*	-
d-BHC	nd	nd	nd	nd	*<10*	-
Heptachlor	nd	nd	nd	nd	*<10*	-
Aldrin	nd	nd	nd	nd	*<10*	-
Heptachlor Expoxide	nd	nd	nd	nd	*<10*	-
g-Chlordane	nd	nd	nd	nd	*<10*	-
a-Chlordane	nd	nd	nd	nd	*<10*	-
Endosulfan 1	nd	nd	nd	nd	*<10*	-
p,p'-DDE	nd	nd	nd	nd	*<10*	-
Dieldrin	nd	nd	nd	nd	*<10*	-
Endrin	nd	nd	nd	nd	*<10*	-
p,p'-DDD	nd	nd	nd	nd	*<10*	-
Endosulfan II	nd	nd	nd	nd	*<10*	-
p,p'-DDT	nd	nd	nd	nd	*<10*	-
Endosulfan Sulphate	nd	nd	nd	nd	*<10*	-

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nd - not detected above the Practical Quantitation Limit (PQL)
nt - not tested
ID - Insufficient data to derive a reliable trigger value
Shaded results exceed the following guidelines:
(a) ANZECC (2000) Trigger values for marine water (95% of species)
* ANZECC (2000) Sect 8.3.7 Low reliability trigger values

Consultant	Woodward Clyde	Woodward Clyde	Woodward Clyde	Woodward Clyde	Woodward Clyde	Woodward Clyde	Woodward Clyde	Woodward Clyde		
Borehole	BH1 _ GW001	BH7 _ GW002	BH12 _ GW003	BH14 _ GW004	BH1 _ BH1	BH12 _ BH12	BH14 _ BH14	BH16 _ BH16	*PQL*	
Depth	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a		
Date sampled	9-Jan-98	9-Jan-98	9-Jan-98	9-Jan-98	24-Mar-99	24-Mar-99	24-Mar-99	24-Mar-99		*(a)*
Description	Water	Water	Water	Water	Water	Water	Water	Water		
pH	**7.18**	**7.3**	**7.33**	**7.11**	**6.31**	**7.18**	**6.71**	**6.02**	*0.01 units*	*8.0-8.4*
Electrical conductivity	nt	nt	nt	nt	210	2370	909	139	*µS/cm*	-
Nitrite & Nitrate as N	**4.26**	nt	nd	nt	**6.3**	0.06	0.04	**2.8**	*0.01*	*0.7 **
Total Kjeldahl Nitrogen as N	3.4	nt	125	nt	nt	nt	nt	nt	*0.1*	-
Total Nitrogen as N	**7.7**	nt	**125**	nt	nt	nt	nt	nt	*0.1*	*0.12*
Phosphorus as P - Total	**3.76**	nt	**3.15**	nt	**4.3**	**10.1**	**4.79**	**1.32**	*0.01*	*0.025*
Sulphide	nd	nt	4	nt	nt	nt	nt	nt	*1*	-
Sulphate	16	72	29	25	nt	nt	nt	nt	*1*	-
Biochemical Oxygen Dema	6	nd	80	36	nt	nt	nt	nt	*2*	-
Total Organic Carbon	1920	357	220	6850	80	99	189	41	*1*	-
Volatile Acids as Acetic Aci	nd	nt	270	nt	nt	nt	nt	nt	*5*	-

NOTE:
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nt - not tested
ID - Insufficient data to derive a reliable trigger value
Shaded results exceed the following guidelines:
(a) ANZECC (2000) Trigger values for marine water (95% of species)
* ANZECC (2000) Sect 8.3.7 Low reliability trigger values

APPENDIX B
TEST BOREHOLE LOGS

Woodward-Clyde

DRILL HOLE LOG BH1

AGC Woodward-Clyde Pty. Ltd.
Level 6, 484-496 Pacific Highway NSW 2065
Phone 02 99346700
Fax 02 99346710

Drilling Contractor:	Macquarie Drilling Pty Ltd
Project No.:	A8601913
Project Reference:	Amcor Paper Australia - Botany
Drill Type:	Hollow stem auger
Logged By:	E. Spencer
Checked By:	M. Mingari
Date Started:	28-08-98
Date Finished:	28-08-98
Relative Level:	8.55 mRL
Coordinates:	6240424.37 mN 335905.78 mE
Permit No:	
Client:	Amcor Paper Australia

SAMPLE TYPE	SAMPLING AND TESTING	WELL CONSTRUCTION DETAILS	DEPTH (m)	LEGEND	DESCRIPTION OF STRATA	GEOLOGICAL DESCRIPTION
		Lockable wellhead; PVC end cap; Backfill; Bentonite	0		GRAVELLY SAND: brown/grey with some red mottles, gravel (up to 8mm), black, dry	SP
	BH1(0.5-1.0) PID=28.4 ppm				SAND: grey/light grey	
			1		SAND: red/brown, with some gravel, with a nail, dry, no odour detected	
	BH1(1.5-2.0) PID=27.2 ppm				SAND: fine grained, red/brown with yellow and grey mottling, with iron staining, dry, no odour detected	
			2		SAND: As above, but yellow, moist to wet	
	BH1(3.0-3.5) PID=30.9 ppm		3		SAND: fine grained, yellow, with some fine black grains in the sand, black, wet, no odour detected	
		Standing water level @ 3.96m.			SAND: As above, but very light grey, with some yellow staining	
			4			
		Screen	5			
			6			
			7			
			8		End of Investigation @ 8.00m.	
			9			

This information and attachments is provided IN CONFIDENCE, for the eyes of the addressee only, and is not to be released to a third party without the authorisation of General Manager, Botany Mill.

REMARKS:

Woodward-Clyde

DRILL HOLE LOG BH2

AGC Woodward-Clyde Pty. Ltd.
Level 6, 484-496 Pacific Highway NSW 2065
Phone 02 99346700
Fax 02 99346710

Project No.: **A8601913**

Project Reference: **Amcor Paper Australia - Botany**

Drilling Contractor: **Noel Arnold and Associates**

Drill Type: **Hollow stem auger**

Logged By: **S. Kennedy-Clark**
Checked By: **M. Mingari**
Date Started: **13-08-98**
Date Finished: **13-08-98**

Relative Level: **mRL**
Coordinates: **mN** **mE**
Permit No:

Client: **Amcor Paper Australia**

SAMPLE TYPE	DRILL RUN (m)	FIELD SHEAR STRENGTH (kPa)	PENETROMETER BLOWS (N)	SAMPLING AND OTHER TESTING	GROUND WATER DATA AND COMMENTS	PIEZOMETER CONSTRUCTION	DEPTH (m)	LEGEND	DESCRIPTION OF STRATA	GEOLOGICAL DESCRIPTION
	0.00			BH2_0-0.5 PID = 0.3 ppm			0		ASPHALT	
									ROADBASE	
									FILL: peaty sand	
	0.50								FILL:sand, grey with mottled yellow/orange, with minor peat casts	
									SAND:yellow/grey, medium grained, well sorted, rounded, cross bedded	
				PID = 0.1 ppm			1			
									Slight black, peaty sand layer	
									SAND:yellow/grey, medium grained, well sorted, rounded, cross bedded	
				PID = 0.1 ppm			2			
				BH2_2.5-3.0 PID = 0.2 ppm	Groundwater encountered during drilling @ 2.5m.	▼				
				PID = 0.1 ppm			3		End of Investigation @ 3.0m.	
							4			
							5			

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REMARKS: Natural stratigraphy encountered at approximatley 0.5m.

Woodward-Clyde

DRILL HOLE LOG BH3

AGC Woodward-Clyde Pty. Ltd.
Level 6, 484-496 Pacific Highway NSW 2065
Phone 02 99346700
Fax 02 99346710

Drilling Contractor:	Noel Arnold and Associates
Project No.:	A8601913
Project Reference:	Amcor Paper Australia - Botany
Drill Type:	Hollow stem auger
Logged By:	S. Kennedy-Clark
Checked By:	M. Mingari
Date Started:	13-08-98
Date Finished:	13-08-98
Relative Level:	mRL
Coordinates:	mN mE
Permit No:	
Client:	Amcor Paper Australia

SAMPLE TYPE	DRILL RUN (m)	FIELD SHEAR STRENGTH (kPa)	PENETROMETER BLOWS (N)	SAMPLING AND OTHER TESTING	GROUND WATER DATA AND COMMENTS	PIEZOMETER CONSTRUCTION	DEPTH (m)	LEGEND	DESCRIPTION OF STRATA	GEOLOGICAL DESCRIPTION
	0.00			BH3_0-0.5 PID=0.3 ppm			0		FILL:clayey silty sand, brown, with minor roots and glass	
	0.50									SM
				PID=0.4 ppm					SILTY SAND:brown	
	1.00			BH3_1.0-2.0 PID=0.1 ppm (1.3m) PID=0.2 ppm (1.7m)			1		SILTY SAND:grey	
									SILTY SAND:white	
									PEATY SILTY/SAND:black	
									SAND:brown, medium grained	SP
									SAND:interbedded black and white	
	2.00						2		SAND:yellow/cream, medium grained, sub-rounded to sub-angular, well sorted	SW
				PID=0.4 ppm						
	3.00			BH3_3.0-4.0 PID=0.4 ppm	Groundwater encountered during drilling @ 2.7m.	▼	3			
							4		End of Investigation @ 4.0m.	
							5			

This information and attachments is provided IN CONFIDENCE, for the eyes of the addressee only, and is not to be released to a third party without the authorisation of General Manager, Botany Mill.

REMARKS:

Woodward-Clyde

DRILL HOLE LOG BH4

AGC Woodward-Clyde Pty. Ltd.
Level 6, 484-496 Pacific Highway NSW 2065
Phone 02 99346700
Fax 02 99346710

Project No.:	A8601913
Project Reference:	Amcor Paper Australia - Botany
Drilling Contractor:	Noel Arnold and Associates
Drill Type:	Hollow stem auger
Logged By:	S. Kennedy-Clark
Checked By:	M. Mingari
Date Started:	13-08-98
Date Finished:	13-08-98
Relative Level:	mRL
Coordinates:	mN mE
Permit No:	
Client:	Amcor Paper Australia

SAMPLE TYPE	DRILL RUN (m)	FIELD SHEAR STRENGTH (kPa)	PENETROMETER BLOWS (N)	SAMPLING AND OTHER TESTING	GROUND WATER DATA AND COMMENTS	PIEZOMETER CONSTRUCTION	DEPTH (m)	LEGEND	DESCRIPTION OF STRATA	GEOLOGICAL DESCRIPTION
	0.00						0		CONCRETE	
	0.10			BH4_0.1-0.5					FILL:sand, grey/yellow, with some crushed sandstone	
									SAND:brown, becoming grey brown with depth, medium grained, slightly silty, poorly sorted	SP
				PID=0.2 ppm			1			
	2.00			BH4_2.0-3.0 PID=0.1ppm			2			
					Groundwater encountered during drilling @ 2.5m.	▼			SAND:yellow, medium grained, rounded to sub-rounded, well sorted	SW
				PID=0.3 ppm			3			
									End of Investigation @ 3.0m.	
							4			
							5			

This information and attachments is provided IN CONFIDENCE, for the eyes of the addressee only, and is not to be released to a third party without the authorisation of General Manager, Botany Mill.

REMARKS:

Woodward-Clyde

DRILL HOLE LOG BH5

AGC Woodward-Clyde Pty. Ltd.
Level 6, 484-496 Pacific Highway NSW 2065
Phone 02 99346700
Fax 02 99346710

Drilling Contractor:	Noel Arnold and Associates
Project No.:	A8601913
Project Reference:	Amcor Paper Australia - Botany
Drill Type:	Hollow stem auger
Logged By:	S. Kennedy-Clark
Checked By:	M. Mingari
Date Started:	13-08-98
Date Finished:	13-08-98
Relative Level:	mRL
Coordinates:	mN mE
Permit No:	
Client:	Amcor Paper Australia

SAMPLE TYPE	DRILL RUN (m)	FIELD SHEAR STRENGTH (kPa)	PENETROMETER BLOWS (N)	SAMPLING AND OTHER TESTING	GROUND WATER DATA AND COMMENTS	PIEZOMETER CONSTRUCTION	DEPTH (m)	LEGEND	DESCRIPTION OF STRATA	GEOLOGICAL DESCRIPTION
	0.00						0		CONCRETE	
									FILL:silty sand, brown	
									FILL:crushed bricks and bricks in a sandy matrix	
							1		Refusal @ 0.9m on concrete and/or brick fragments.	
							2			
							3			
							4			
							5			

This information and attachments is provided IN CONFIDENCE, for the eyes of the addressee only, and is not to be released to a third party without the authorisation of General Manager, Botany Mill.

REMARKS:

Woodward-Clyde

DRILL HOLE LOG BH6

AGC Woodward-Clyde Pty. Ltd.
Level 6, 484-496 Pacific Highway NSW 2065
Phone 02 99346700
Fax 02 99346710

Project No.: A8601913

Project Reference: Amcor Paper Australia - Botany

Drilling Contractor: Noel Arnold and Associates

Drill Type: Hollow stem auger

Logged By: S. Kennedy-Clark
Checked By: M. Mingari
Date Started: 13-08-98
Date Finished: 13-08-98

Relative Level: mRL
Coordinates: mN
mE
Permit No:

Client: Amcor Paper Australia

SAMPLE TYPE	DRILL RUN (m)	FIELD SHEAR STRENGTH (kPa)	PENETROMETER BLOWS (N)	SAMPLING AND OTHER TESTING	GROUND WATER DATA AND COMMENTS	PIEZOMETER CONSTRUCTION	DEPTH (m)	LEGEND	DESCRIPTION OF STRATA	GEOLOGICAL DESCRIPTION
	0.00						0		CONCRETE	
									VOID	
									FILL:brick fragments	
									VOID	
	0.90								CONCRETE SLAB	
				BH6_0.9-1.5 PID=0.3 ppm			1		FILL:silt,sand, bricks, and concrete fragments	
									SAND:light creamy yellow, medium grained, rounded to sub-rounded, well sorted, cross bedded	SW
				PID=0.3 ppm						
	2.00			BH6_2.0-3.0 PID=0.2 ppm (At 2.0m) PID=0.3 ppm (At 2.8m)			2			
									SAND:grey/brown, slightly silty	
									SAND:light creamy yellow, rounded to sub-rounded, well sorted, cross bedded	
					Groundwater encountered during drilling @ 2.7m.	▼	3			
									Coarse sand and gravel, grey, with some sediments	
				PID=0.3 ppm					SAND:light creamy yellow, rounded to sub-rounded, well sorted, cross bedded	SW
							4		End of Investigation @ 4.0m.	
							5			

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REMARKS:

Woodward-Clyde

DRILL HOLE LOG BH7

AGC Woodward-Clyde Pty. Ltd.
Level 6, 484-496 Pacific Highway NSW 2065
Phone 02 99346700
Fax 02 99346710

Drilling Contractor:	Macquarie Drilling Pty Ltd
Project No.:	A8601913
Project Reference:	Amcor Paper Australia - Botany
Drill Type:	Hollow stem auger
Logged By:	E. Spencer
Checked By:	M. Mingari
Date Started:	28-08-98
Date Finished:	28-08-98
Relative Level:	4.82 mRL
Coordinates:	6240306.65 mN 335708.31 mE
Permit No:	
Client:	Amcor Paper Australia

SAMPLE TYPE	SAMPLING AND TESTING	WELL CONSTRUCTION DETAILS	DEPTH (m)	LEGEND	DESCRIPTION OF STRATA	GEOLOGICAL DESCRIPTION
		Flush mounted wellhead; PVC end cap; Backfill; Bentonite	0		CONCRETE	
					ASPHALT/SANDSTONE	
	BH7(0.5-1.0) PID=17.1 ppm				GRAVELLY SAND: dark grey/red/black, with some gravel (up to 5mm), and some sandstone (up to 20mm), moist, no odour detected	
			1		SAND: dark grey becoming lighter with depth	SP
	BH7(2.0-2.5) PID=1.8 ppm	Standing water level @ 2.05m.	2		SAND: fine grained, dark grey with some yellow, with some gravel, angular, hard, wet, no odour detected	
					SAND: As above, but lighter grey	
		Screen	4			
			5			
			6			
			7		End of Investigation @ 7.00m.	
			8			
			9			

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REMARKS:

Woodward-Clyde

DRILL HOLE LOG BH8

AGC Woodward-Clyde Pty. Ltd.
Level 6, 484-496 Pacific Highway NSW 2065
Phone 02 99346700
Fax 02 99346710

Project No.: A8601913

Project Reference: Amcor Paper Australia - Botany

Drilling Contractor: Noel Arnold and Associates

Drill Type: Hollow stem auger

Logged By: S. Kennedy-Clark
Checked By: M. Mingari
Date Started: 13-08-98
Date Finished: 13-08-98

Relative Level: mRL
Coordinates: mN
mE
Permit No:

Client: Amcor Paper Australia

SAMPLE TYPE	DRILL RUN (m)	FIELD SHEAR STRENGTH (kPa)	PENETROMETER BLOWS (N)	SAMPLING AND OTHER TESTING	GROUND WATER DATA AND COMMENTS	PIEZOMETER CONSTRUCTION	DEPTH (m)	LEGEND	DESCRIPTION OF STRATA	GEOLOGICAL DESCRIPTION
	0.00			BH8_0.0-1.0 PID=1.8 ppm (At 0.5m) PID=1.2 ppm (At 1.0m)			0		FILL:sand,clay,gravel, black	
									FILL:As above but brown	
									FILL:As above but white	
	1.00						1			
									FILL:As above, but very gravelly	
	1.50			BH8_1.5-2.5 PID=2.4 ppm (At 1.5m) PID=2.3 ppm (At 2.5m)					SAND:grey, poorly sorted	SP
									SAND:brown, with some peaty silt, poorly sorted	
							2			
									SILTY SAND:dark grey, poorly sorted	SM
	2.50								SAND:creamy,medium grained,well sorted	SW
					Groundwater encountered during drilling @ 2.7m.	▼				
							3		End of Investigation @ 3.0m.	
							4			
							5			

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REMARKS:

Woodward-Clyde

DRILL HOLE LOG BH9

AGC Woodward-Clyde Pty. Ltd.
Level 6, 484-496 Pacific Highway NSW 2065
Phone 02 99346700
Fax 02 99346710

Drilling Contractor: **Noel Arnold and Associates**

Project No.: **A8601913**

Project Reference: **Amcor Paper Australia - Botany**

Drill Type: **Hollow stem auger**

Logged By: **S. Kennedy-Clark**
Checked By: **M. Mingari**
Date Started: **13-08-98**
Date Finished: **13-08-98**

Relative Level: **mRL**
Coordinates: **mN** **mE**
Permit No:

Client: **Amcor Paper Australia**

SAMPLE TYPE	DRILL RUN (m)	FIELD SHEAR STRENGTH (kPa)	PENETROMETER BLOWS (N)	SAMPLING AND OTHER TESTING	GROUND WATER DATA AND COMMENTS	PIEZOMETER CONSTRUCTION	DEPTH (m)	LEGEND	DESCRIPTION OF STRATA	GEOLOGICAL DESCRIPTION
	0.00			BH9_0.0-1.0 PID=12.8 ppm			0		FILL:sandy clay, brown, mottled yellow, minor root material, plastic waste	
	1.00			BH9_1.0-2.0 PID=11.4 ppm (At 1.8m)			1		SAND:grey/brown, fine to medium grained, poorly sorted, angular to sub-angular, with minor shell fragments	SP
	2.00			PID=11.9 ppm			2		SAND:dark brown, fine to medium grained, slightly peaty, poorly sorted	
					Groundwater encountered during drilling @ 2.5m.	▼			SAND:brown, medium grained, with minor shell fragments, well sorted	SW
	3.00			BH9_3.0-4.0 PID=6.3 ppm			3	×	SILTY SAND:dark brown	SWSM
									SAND:dark brown to light yellow/cream with depth, medium grained, well rounded, well sorted	
							4		End of Investigation @ 4.0m.	
							5			

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REMARKS:

Woodward-Clyde

DRILL HOLE LOG BH10

AGC Woodward-Clyde Pty. Ltd.
Level 6, 484-496 Pacific Highway NSW 2065
Phone 02 99346700
Fax 02 99346710

Project No.:	A8601913
Project Reference:	Amcor Paper Australia - Botany
Drilling Contractor:	Noel Arnold and Associates
Drill Type:	Hollow stem auger
Logged By:	S. Kennedy-Clark
Checked By:	M. Mingari
Date Started:	13-08-98
Date Finished:	13-08-98
Relative Level:	mRL
Coordinates:	mN mE
Permit No:	
Client:	Amcor Paper Australia

SAMPLE TYPE	DRILL RUN (m)	FIELD SHEAR STRENGTH (kPa)	PENETROMETER BLOWS (N)	SAMPLING AND OTHER TESTING	GROUND WATER DATA AND COMMENTS	PIEZOMETER CONSTRUCTION	DEPTH (m)	LEGEND	DESCRIPTION OF STRATA	GEOLOGICAL DESCRIPTION
	0.00			BH10_0.0-0.7 PID=23.7 ppm			0		FILL:sand, brown, poorly sorted	
									ROADBASE/ASPHALT	
									FILL:crushed cement in a sandy matrix	
									FILL:roadbase, sand and crushed sandstone	
	0.70								SILTY SAND:grey, poorly sorted	
	1.00			BH10_1.0-2.0 PID=17.2 ppm			1		SILTY SAND:brown, with minor shell fragments, poorly sorted, with a trace of peat	
									SILTY SAND:As above but grey	
	2.00			BH10_2.0-3.0 PID=14.2 ppm			2		SILTY SAND:As above but brown	
					Groundwater encountered during drilling @ 2.7m.	▼			SAND:light yellow/cream, well sorted, well rounded	SW
	3.00			PID=6.2 ppm			3			
							4		End of Investigation @ 4.0m.	
							5			

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REMARKS:

Woodward-Clyde

DRILL HOLE LOG BH11

AGC Woodward-Clyde Pty. Ltd.
Level 6, 484-496 Pacific Highway NSW 2065
Phone 02 99346700
Fax 02 99346710

Drilling Contractor:	Noel Arnold and Associates
Project No.:	A8601913
Project Reference:	Amcor Paper Australia - Botany
Drill Type:	Hollow stem auger
Logged By:	S. Kennedy-Clark
Checked By:	M. Mingari
Date Started:	13-08-98
Date Finished:	13-08-98
Relative Level:	mRL
Coordinates:	mN mE
Permit No:	
Client:	Amcor Paper Australia

SAMPLE TYPE	DRILL RUN (m)	FIELD SHEAR STRENGTH (kPa)	PENETROMETER BLOWS (N)	SAMPLING AND OTHER TESTING	GROUND WATER DATA AND COMMENTS	PIEZOMETER CONSTRUCTION	DEPTH (m)	LEGEND	DESCRIPTION OF STRATA	GEOLOGICAL DESCRIPTION
	0.00			BH11_0.0-0.5 PID=8.3 ppm			0		FILL:sand, medium to coarse grained, with glass, wood, roots, poorly sorted	
	0.50								SAND:brown, medium to coarse grained, containing shell fragments	
									Slightly peaty layer	
				PID=7.2 ppm			1		SAND:brown, medium to coarse grained, containing shell fragments	
	2.00			BH11_2.0-3.0 PID=6.1 ppm (At 2.0m) PID=6.0 ppm (At 2.8m)	Groundwater encountered during drilling @ 1.8m.		2		SAND: dark brown, slightly peaty	
									SAND:yellow/grey, fine to medium grained, well sorted, with minor silt	
							3		End of Investigation @ 3.0m.	
							4			
							5			

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REMARKS:

Woodward-Clyde

DRILL HOLE LOG BH12

AGC Woodward-Clyde Pty. Ltd.
Level 6, 484-496 Pacific Highway NSW 2065
Phone 02 99346700
Fax 02 99346710

Project No.:	A8601913
Project Reference:	Amcor Paper Australia - Botany
Drilling Contractor:	Noel Arnold and Associates
Drill Type:	Hollow stem auger
Logged By:	S. Kennedy-Clark
Checked By:	M. Mingari
Date Started:	13-08-98
Date Finished:	13-08-98
Relative Level:	mRL
Coordinates:	mN mE
Permit No:	
Client:	Amcor Paper Australia

SAMPLE TYPE	DRILL RUN (m)	FIELD SHEAR STRENGTH (kPa)	PENETROMETER BLOWS (N)	SAMPLING AND OTHER TESTING	GROUND WATER DATA AND COMMENTS	PIEZOMETER CONSTRUCTION	DEPTH (m)	LEGEND	DESCRIPTION OF STRATA	GEOLOGICAL DESCRIPTION
	0.00						0		FILL: brown, silty sand	
									FILL:sand with ash, black	
									FILL:sand, slightly ashy, dark brown	
	1.00			BH12_1.0-2.0 PID=5.7 ppm			1			
									FILL:ash, coarse sand, black	
									FILL:sand, slightly ashy, dark brown	
	2.00			BH12_2.0-3.0 PID=1.1 ppm			2			
	3.00			BH12_3.0-4.0 PID=1.2 ppm			3		FILL:rubber, fill, sand, ash, gravel, dark brown	
					Groundwater encountered during drilling @ 3.7m.	▼			PEAT/SILT	
	4.00			BH12_4.0-5.0 PID=1.1 ppm			4			
							5		End of Investigation @ 5.0m.	

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REMARKS:

Woodward-Clyde

DRILL HOLE LOG BH12a

AGC Woodward-Clyde Pty. Ltd.
Level 6, 484-496 Pacific Highway NSW 2065
Phone 02 99346700
Fax 02 99346710

Project No.:	A8601913
Project Reference:	Amcor Paper Australia - Botany
Drilling Contractor:	Macquarie Drilling Pty Ltd
Drill Type:	Hollow stem auger
Logged By:	E. Spencer
Checked By:	M. Mingari
Date Started:	27-08-98
Date Finished:	27-08-98
Relative Level:	6.49 mRL
Coordinates:	6240200.65 mN 335729.03 mE
Permit No:	
Client:	Amcor Paper Australia

SAMPLE TYPE	SAMPLING AND TESTING	WELL CONSTRUCTION DETAILS	DEPTH (m)	LEGEND	DESCRIPTION OF STRATA	GEOLOGICAL DESCRIPTION
		Lockable wellhead; PVC end cap; Backfill; Bentonite	0		SAND: dark brown/red, with some gravel, and a steel nail	SF
	BH12(0.5-0.8) PID=27.1 ppm					
			1		FILL: Sand, black, with some pebbles, rounded (up to 10mm), with some metal piping, plastic tubing (3mm dia), friable, moist	
	BH12(1.5-2.0) PID= 25.0 ppm	Standing water level @ 1.64m.				
			2		FILL: Gravelly sand, black, with some metal scrap (page binders, aluminium scrap) shoe inner sole, white rubber, wood, minor roots, becoming slightly clayey with depth, no odour detected	
			3			
	BH12(4.0-4.5) PID= 31.0 ppm		4			
		Screen			Gradation into sand between 4 and 5 metres	
			5			
			6			
			7			
			8		End of Investigation @ 7.9m.	
			9			

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REMARKS:

Woodward-Clyde

DRILL HOLE LOG BH13

AGC Woodward-Clyde Pty. Ltd.
Level 6, 484-496 Pacific Highway NSW 2065
Phone 02 99346700
Fax 02 99346710

Drilling Contractor: Noel Arnold and Associates		Project No.: A8601913	Project Reference: Amcor Paper Australia - Botany
Drill Type: Hollow stem auger	Logged By: S. Kennedy-Clark Checked By: M. Mingari Date Started: 13-08-98 Date Finished: 13-08-98	Relative Level: mRL Coordinates: mN mE Permit No:	Client: Amcor Paper Australia

SAMPLE TYPE	DRILL RUN (m)	FIELD SHEAR STRENGTH (kPa)	PENETROMETER BLOWS (N)	SAMPLING AND OTHER TESTING	GROUND WATER DATA AND COMMENTS	PIEZOMETER CONSTRUCTION	DEPTH (m)	LEGEND	DESCRIPTION OF STRATA	GEOLOGICAL DESCRIPTION
	0.00			BH13_0.0-1.0 PID=12 ppm			0		FILL:soil, ash, and sandy ash, black, viterous	
	1.00						1		FILL:crushed white sandstone FILL:muddy vitric ash and gravel, silty/clayey in some areas, includes wood and brick fragments	
				PID=10 ppm						
	2.00			BH13_2.0-3.0 PID=8 ppm			2			
									As above, but very gravelly	
							3		SAND:black, poorly sorted, contains minor shell fragments	
				PID=3 ppm						
					Groundwater encountered during drilling @ 3.6m.	▼				
							4		End of Investigation @ 4.0m.	
							5			

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REMARKS:

Woodward-Clyde

DRILL HOLE LOG BH14

AGC Woodward-Clyde Pty. Ltd.
Level 6, 484-496 Pacific Highway NSW 2065
Phone 02 99346700
Fax 02 99346710

Drilling Contractor:	Macquarie Drilling Pty Ltd
Project No.:	A8601913
Project Reference:	Amcor Paper Australia - Botany
Drill Type:	Hollow stem auger
Logged By:	E. Spencer
Checked By:	M. Mingari
Date Started:	27-08-98
Date Finished:	27-08-98
Relative Level:	6.04 mRL
Coordinates:	6240063.66 mN 335872.37 mE
Permit No:	
Client:	Amcor Paper Australia

SAMPLE TYPE	SAMPLING AND TESTING	WELL CONSTRUCTION DETAILS	DEPTH (m)	LEGEND	DESCRIPTION OF STRATA	GEOLOGICAL DESCRIPTION
		Flush mounted wellhead; PVC end cap	0		ASPHALT	
					SAND: black/dark brown	
	BH14(0.5-0.8) PID=27.1ppm	Backfill			SAND: fine grained, dark brown/black mottled with light brown, gravelly	
			1		GRAVELLY SAND: coarse grained, black, with gravel up to 15cm, no odour detected, with a trace of ash, moist	
	BH14(1.5-2.0) PID=25.0ppm	Bentonite; Standing water level @ 1.57m.			FILL: Layers of ash, slag, black, friable, moist, no odour detected, with a thin layer (~3cm) of iron stained fill, with some glass (15-20cm)	
		Filter gravel	2		GRAVELLY SAND: dark brown, with gravel (up to 25mm), with some ceramic fragments	
					FILL: Ash, dark brown with some iron staining, moist, with some crushed glass, with some gravel, ceramic, minor root material, no odour detected	
			3		FILL: Gravelly sand with a trace of non-plastic clay, dark brown, moist to wet, gravel (up to 15-20cm), with some tile/ceramic fragments, wire, no odour detected	
	BH14(4.0-4.5) PID=31.0ppm		4		FILL: Gravelly sand, dark brown, with some tile fragments	
					FILL: Gravelly sand, black, with some shell fragments, no odour detected	
			5		GRAVELLY SAND: fine to medium grained sand, black, with a trace of clay, slight organic odour detected	
		Screen				
			6			
			7			
			8			
		Collapsed material	9			
					End of Investigation @ 9.37m.	

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REMARKS:

Woodward-Clyde

DRILL HOLE LOG BH15

AGC Woodward-Clyde Pty. Ltd.
Level 6, 484-496 Pacific Highway NSW 2065
Phone 02 99346700
Fax 02 99346710

Project No.: A8601913

Project Reference: Amcor Paper Australia - Botany

Drilling Contractor: Noel Arnold and Associates

Drill Type: Hollow stem auger

Logged By: S. Kennedy-Clark
Checked By: M. Mingari
Date Started: 13-08-98
Date Finished: 13-08-98

Relative Level: mRL
Coordinates: mN
mE
Permit No:

Client: Amcor Paper Australia

SAMPLE TYPE	DRILL RUN (m)	FIELD SHEAR STRENGTH (kPa)	PENETROMETER BLOWS (N)	SAMPLING AND OTHER TESTING	GROUND WATER DATA AND COMMENTS	PIEZOMETER CONSTRUCTION	DEPTH (m)	LEGEND	DESCRIPTION OF STRATA	GEOLOGICAL DESCRIPTION
	0.00			BH15_0.0-0.5 PID=0.3 ppm			0		CONCRETE	
									FILL:crushed yellow sandstone	
									FILL:crushed bricks, coarse sand	
	0.50								SILTY SAND:grey, coarse grained	SM
									SILTY SAND: brown, fine grained, with some peat, becoming fine to medium grained, poorly sorted	
	1.00			BH15_1.0-2.0 PID=0.3 ppm (At 1.0m) PID=0.2 ppm (At 2.0m)			1			
	2.00			BH15_2.0-3.0 PID=0.2 ppm (At 2.3m) PID=0.1 ppm (At 3.0m)			2			
					Groundwater encountered during drilling @ 2.5m.	▼			SAND:light yellow/grey, medium grained, sub-angular to angular, well rounded	SP
							3		End of Investigation @ 3.0m.	
							4			
							5			

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REMARKS:

Woodward-Clyde

DRILL HOLE LOG BH16

AGC Woodward-Clyde Pty. Ltd.
Level 6, 486-494 Pacific Highway St Leonards
Phone
Fax

Drilling Contractor:	Engineering Exploration
Drill Type:	Hollow stem auger
Logged By:	LJM
Checked By:	
Date Started:	19-03-99
Date Finished:	19-03-99
Project No.:	A86/1913/0003
Project Reference:	Amcor Paper Mill
Relative Level:	mRL
Coordinates:	mN mE
Permit No:	
Client:	Amcor Packaging

SAMPLE TYPE	SAMPLING AND TESTING	WELL CONSTRUCTION DETAILS	DEPTH (m)	LEGEND	DESCRIPTION OF STRATA	GEOLOGICAL DESCRIPTION
		Flush mounted wellhead; PVC end cap; Grout; Bentonite; Gravel; Screen	0		FILL, SAND, fine to medium grained, light brown, minor clay component, abundant plant roots	
					FILL, Sandy CLAY, medium plasticity, fine grained sand, brown	
					FILL, SLAG, black, <5cm in diameter, angular	
					FILL, Gravelly CLAY, medium plasticity, angular gravel <5cm in diameter, brown/grey	
			1		SAND, fine to medium grained, grey, minor clay component Colour changes to brown at 1.00 metre and then to cream at 1.25 metres	
			2			
			3			
					Lithology becomes wet. No odours or staining	
			4			SP
			5		This information and attachments is provided IN CONFIDENCE, for the eyes of the addressee only, and is not to be released to a third party without the authorisation of General Manager, Botany Mill.	
			6			
			7			
			8		End of Well at 8.00 metres	
			9			

REMARKS:

Coffey Geosciences Pty Ltd ACN 056 335 516

Borehole No. *B3*

Sheet 1 of 2

Office Job No.: *S20466/1*

Engineering Log - Borehole

Client: *AMCOR FIBRE PACKAGING AUSTRALASIA*

Date started: *24.5.2000*

Principal:

Date completed: *24.5.2000*

Project: *PROPOSED BOTANY PAPER MILL*

Logged by: *PM*

Borehole Location: *1891 BOTANY ROAD, MATRAVILLE*

Checked by:

drill model and mounting: EDSON 3000 - TRUCK | Easting: 2084.5 | slope: -90° | R.L. Surface: 2.3

hole diameter: 200mm mm | Northing 2069 | bearing: - | datum: AHD

drilling information / **material substance**

method	penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material (soil type: plasticity or particle characteristics, colour, secondary and minor components.)	moisture condition	consistency/ density index	hand penetro-meter kPa 100 200 300 400	structure and additional observations
ADV		N	None observed	E	2				FILL: SAND: Medium to coarse grained, grey, some ash, trace charcoal fragments, trace fine to medium gravel. 200mm layer of medium to coarse gravel.	D	VL		FILL
				SPT 3,1,1 N*=2	1	1		SP	FILL: SAND: Pale grey to grey, medium grained, trace gravel.				
					0	2			PEATY SAND: Fine to medium grained, white, wood fibres, some brown silt.				
				SPT 1,1,3 N*=4		3		SP	SAND: Medium grained, white to yellow, trace nodules of medium plasticity clay.		L		Transgressive Dune Sand ("Marine Sand")
					-1	4		SP	SAND: Medium grained, pale grey, trace nodules of medium plasticity clay and trace nodules of peat, trace fine gravel.		D		
				SPT 7,11,22 N*=33	-2	5							SPT at 5.50m, abandoned because of infill back up inside hollow flight augers.
					-3	6							
					-4	7					VD		
				SPT 8,16,31 N*=47	-5	8							

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit

*bit shown by suffix e.g. ADT

support

M mud N nil

C casing

penetration

1 2 3 4 — no resistance ranging to refusal

water

10/1/98 water level on date shown

water inflow

water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description

based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

Coffey Geosciences Pty Ltd ACN 056 335 516

Borehole No. *B3*

Sheet 2 of 2

Engineering Log - Borehole

Office Job No.: *S20466/1*

Client: *AMCOR FIBRE PACKAGING AUSTRALASIA*

Date started: *24.5.2000*

Principal:

Date completed: *24.5.2000*

Project: *PROPOSED BOTANY PAPER MILL*

Logged by: *PM*

Borehole Location: *1891 BOTANY ROAD, MATRAVILLE*

Checked by:

Coffey

drill model and mounting: EDSON 3000 - TRUCK | Easting: 2084.5 | slope: -90° | R.L. Surface: 2.3

hole diameter: 200mm mm | Northing 2069 | bearing: - | datum: AHD

drilling information / **material substance**

method	penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material (soil type: plasticity or particle characteristics, colour, secondary and minor components.)	moisture condition	consistency/ density index	hand penetro-meter kPa 100 200 300 400	structure and additional observations
ADV		N	None observed		-6			SP	SAND: Medium grained, pale grey, trace nodules of medium plasticity clay and trace nodules of peat, trace fine gravel. *(continued)*	D	VD		
				SPT 6,18,37 N=55	-7	9							
						10		SP	SAND: Medium grained, yellow-pale grey, trace coarse grained sand.				
				SPT 11,22,R N=R	-8								
					-9	11							
				SPT 16,40,R N=R		12							
					-10								
						13		SP	SAND: Medium grained, yellow-pale brown, some plastic silt.				
				SPT 8,22,37 N*=59	-11								
						14		SP	SAND: Medium to coarse grained, white and brown.		D		
					-12								
				SPT 5,18,28 N*=46		15			PEATY SAND: Medium grained, brown, brown peat, some plastic silt.				
					-13				Borehole B3 terminated at 14.95m				
						16							

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit

*bit shown by suffix e.g. ADT

support

M mud N nil

C casing

penetration 1 2 3 4 — no resistance ranging to refusal

water

10/1/98 water level on date shown

water inflow

water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

Coffey Geosciences Pty Ltd ACN 056 335 516

Borehole No. *B4*

Sheet 1 of 2

Office Job No.: *S20466/1*

Engineering Log - Borehole

Client: *AMCOR FIBRE PACKAGING AUSTRALASIA*

Date started: *24.5.2000*

Principal:

Date completed: *24.5.2000*

Project: *PROPOSED BOTANY PAPER MILL*

Logged by: *PM*

Borehole Location: *1891 BOTANY ROAD, MATRAVILLE*

Checked by:

Coffey

drill model and mounting: EDSON 3000 - TRUCK | Easting: 2049 | slope: -90° | R.L. Surface: 2.4

hole diameter: 200mm mm | Northing 2093 | bearing: - | datum: AHD

drilling information / **material substance**

method	penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material (soil type: plasticity or particle characteristics, colour, secondary and minor components.)	moisture condition	consistency/ density index	hand penetro-meter kPa 100 200 300 400	structure and additional observations
ADV		N						SP	FILL: SAND: Medium grained, grey to black, some fine to medium gravel, some charcoal fragments and trace ash.	D	VL		FILL
				E	2								
			26/6/2000			1		SP	FILL: SAND: Medium grained, brown, trace gravel, trace charcoal fragment.	M			
				SPT 1,0,1 N*=1	1								
						2							
					0			SP	SAND: Medium grained, brown and white grains, trace shell fragments, trace medium quartz gravel.				Transgressive Dune Sand ("Marine Sand")
				SPT 1,0,0 N*=0		3							
					-1								
						4		SP	SAND: Medium grained, pale grey to grey, trace shell fragments and medium quartz gravel, trace low plasticity organic clay layers in lenses.		MD		
				SPT 2,8,16 N*=24	-2								
						5					L		
					-3								
				SPT 2,3,3 N*=6		6							
					-4			SP	SAND: Medium grained, grey and brown, trace lenses of silty sand with plastic brown silt.		VD		
						7							
				SPT 4,21,25 N*=46	-5								
						8							

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit

*bit shown by suffix e.g. ADT

support

M mud N nil

C casing

penetration

1 2 3 4 — no resistance ranging to refusal

water

10/1/98 water level on date shown

water inflow

water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

Coffey Geosciences Pty Ltd ACN 056 335 516

Borehole No. *B4*

Sheet 2 of 2

Engineering Log - Borehole

Office Job No.: *S20466/1*

Client: *AMCOR FIBRE PACKAGING AUSTRALASIA*

Date started: *24.5.2000*

Principal:

Date completed: *24.5.2000*

Project: *PROPOSED BOTANY PAPER MILL*

Logged by: *PM*

Borehole Location: *1891 BOTANY ROAD, MATRAVILLE*

Checked by:

Coffey

drill model and mounting: EDSON 3000 - TRUCK | Easting: 2049 | slope: -90° | R.L. Surface: 2.4

hole diameter: 200mm mm | Northing 2093 | bearing: - | datum: AHD

drilling information / **material substance**

method	penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material (soil type: plasticity or particle characteristics, colour, secondary and minor components.)	moisture condition	consistency/ density index	hand penetro-meter kPa 100 200 300 400	structure and additional observations
ADV		N			-6			SP	SAND: Medium grained, pale grey to white, trace black grains.	M	VD		
				SPT 7,34,R N*=R		9							
					-7								
						10							
				SPT 10,44,R N=R	-8								
								SP	SAND: Medium grained, white to yellow, trace medium quartz gravel and lenses of sand with some plastic silt.				
						11							
					-9								
				SPT 5,20,42 N*=62		12							
					-10								
						13							
				SPT 3,24,R N=R	-11								
						14							
					-12								
				SPT 5,30,R N=R		15							
					-13	16			Borehole B4 terminated at 15m and completed as a standpipe piezometer.				

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit

*bit shown by suffix e.g. ADT

support

M mud N nil

C casing

penetration

1 2 3 4 — no resistance ranging to refusal

water

10/1/98 water level on date shown

water inflow

water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

Coffey Geosciences Pty Ltd ACN 056 335 516

Borehole No. *B5*

Sheet 1 of 2

Engineering Log - Borehole

Office Job No.: *S20466/1*

Client: *AMCOR FIBRE PACKAGING AUSTRALASIA*

Date started: *23.5.2000*

Principal:

Date completed: *23.5.2000*

Project: *PROPOSED BOTANY PAPER MILL*

Logged by: *PM*

Borehole Location: *1891 BOTANY ROAD, MATRAVILLE*

Checked by:

Coffey

drill model and mounting:	EDSON 3000 - TRUCK	Easting:	2083	slope:	-90°	R.L. Surface:	2.5
hole diameter:	200mm mm	Northing	2102.5	bearing:	-	datum:	AHD

drilling information / **material substance**

method	penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material (soil type: plasticity or particle characteristics, colour, secondary and minor components.)	moisture condition	consistency/ density index	hand penetrometer kPa 100 200 300 400	structure and additional observations
AD		N	None observed					SP	**FILL: SAND:** Medium grained, dark grey to black, trace medium gravel, trace charcoal fragments, some ash.	D / M	VL		FILL
					2			SP	**FILL: SAND:** Medium grained, dark grey to black, trace medium to coarse gravel and cobbles.				
						1		SP	**FILL: SAND:** Fine to medium grained, grey, trace fine to medium gravel, trace grey plastic fines.		L		
				SPT 2,2,3 N*=5	1								
						2		SP	**FILL: SAND:** Medium grained, pale grey, trace fine to medium gravel, trace charcoal fragments.		VL		
					0								
				SPT 3,1,2 N=3									
						3							
					-1			SP	**SILTY SAND:** Medium grained, pale brown, brown plastic silt, some peat up to 20mm in size.				Transgressive Dune Sand ("Marine Sand")
						4							
				SPT 1,0,0 N=0	-2								
						5		SP	**SILTY SAND:** Medium to coarse grained, white and pale brown, brown plastic silt, trace peat up to 20mm in size				
					-3								Sand flowed back up inside hollow flight augers causing SPT to be abandoned.
						6							
					-4						L		
						7							
				SPT 2,1,3 N=4	-5								
						8							

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit

*bit shown by suffix e.g. ADT

support

M mud N nil
C casing

penetration

1 2 3 4 — no resistance ranging to refusal

water

10/1/98 water level on date shown

water inflow

water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description

based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

Coffey Geosciences Pty Ltd ACN 056 335 516

Borehole No. *B5*

Sheet 2 of 2

Engineering Log - Borehole

Office Job No.: *S20466/1*

Client: *AMCOR FIBRE PACKAGING AUSTRALASIA*

Date started: *23.5.2000*

Principal:

Date completed: *23.5.2000*

Project: *PROPOSED BOTANY PAPER MILL*

Logged by: *PM*

Borehole Location: *1891 BOTANY ROAD, MATRAVILLE*

Checked by:

Coffey

drill model and mounting:	EDSON 3000 - TRUCK	Easting:	2083	slope:	-90°	R.L. Surface:	2.5
hole diameter:	200mm mm	Northing	2102.5	bearing:	-	datum:	AHD

drilling information / **material substance**

method	penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material (soil type: plasticity or particle characteristics, colour, secondary and minor components.)	moisture condition	consistency/ density index	hand penetro-meter kPa 100 200 300 400	structure and additional observations
AD		N	None observed					SP	SAND: Medium grained, pale grey-white, trace black grains.	M	MD		
				SPT 6,13,16 N=29	-6	9							
					-7						VD		
				SPT 6,23,R N=R		10							
					-8								
						11		SP	SAND: Medium to coarse grained, yellow, trace medium plasticity clay lenses.				
				SPT 6,20,29 N=49	-9								
						12							
					-10								
								SP	SAND: Medium grained, grey, some plastic silt, trace bands of cemented sand.				
						13							
				SPT 15,34,R N=R	-11								
						14					D		
					-12								
				SPT 4,23,31 N=54		15							
									Borehole B5 terminated at 14.95m				
					-13								
						16							

BOREHOLE S204661.GPJ COFFEY.GDT 27.06.00

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit

*bit shown by suffix e.g. ADT

support

M mud N nil

C casing

penetration 1 2 3 4

no resistance ranging to refusal

water

10/1/98 water level on date shown

water inflow

water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

Form GEO 5.3 Issue 3 Rev.2

Coffey Geosciences Pty Ltd ACN 056 335 516

Borehole No. *B6*

Sheet 1 of 2

Office Job No.: *S20466/1*

Engineering Log - Borehole

Client: *AMCOR FIBRE PACKAGING AUSTRALASIA*

Principal:

Project: *PROPOSED BOTANY PAPER MILL*

Borehole Location: *1891 BOTANY ROAD, MATRAVILLE*

Date started: *19.5.2000*

Date completed: *19.5.2000*

Logged by: *PM*

Checked by:

Coffey

drill model and mounting: HYDROPOWER 5000 - TRUCK Easting: 2148 slope: -90° R.L. Surface: 6.0

hole diameter: 300mm - then 200mm mm Northing 2170.5 bearing: - datum: AHD

drilling information / **material substance**

method	penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material: soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	hand penetrometer kPa 100 200 300 400	structure and additional observations
DT		N							CONCRETE: Angular aggregate up to 25mm in size, pale grey. Reinforcing mesh @ 0.14m and reinforcing bar @ 0.16m.	D	H		CONCRETE PAVEMENT
ADT				E				SP	FILL: Sand, medium grained, brown to black, brick fragment @ 0.2m. Trace medium gravel, trace high plasticity clay.	M	VL		FILL
				SPT 1,1,1 N*=2	5	1							
					4	2		SP	SAND: Medium grained, grey to white.		L		Transgressive Dune Sand ("Marine Sand")
			9:30am 19-5-2000	SPT 1,3,3 N*=6	3	3		SP	SAND: Medium grained, grey, some black-brown silt.	W			
			10:30am 26-6-2000					SP	SAND: Medium grained, pale grey.		D		
				SPT 5,16,20 N*=36	2	4							
					1	5							
				SPT 3,16,31 N*=47	0	6							
				SPT 5,17,21 N=38	-1	7							
					-2	8							

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit

*bit shown by suffix e.g. ADT

support

M mud N nil

C casing

penetration

1 2 3 4 — no resistance ranging to refusal

water

10/1/98 water level on date shown

water inflow

water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

Coffey Geosciences Pty Ltd ACN 056 335 516

Borehole No. *B6*

Sheet 2 of 2

Office Job No.: *S20466/1*

Engineering Log - Borehole

Client: *AMCOR FIBRE PACKAGING AUSTRALASIA*

Principal:

Project: *PROPOSED BOTANY PAPER MILL*

Borehole Location: *1891 BOTANY ROAD, MATRAVILLE*

Date started: *19.5.2000*

Date completed: *19.5.2000*

Logged by: *PM*

Checked by:

Coffey

drill model and mounting: HYDROPOWER 5000 - TRUCK Easting: 2148 slope: -90° R.L. Surface: 6.0

hole diameter: 300mm - then 200mm mm Northing 2170.5 bearing: - datum: AHD

drilling information | **material substance**

method	penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material (soil type: plasticity or particle characteristics, colour, secondary and minor components.)	moisture condition	consistency/ density index	hand penetrometer kPa 100 200 300 400	structure and additional observations
ADT		N						SP	SAND: Medium grained, pale grey. *(continued)*	W	D		
				SPT 5,19,R N=R							VD		
					-3	9							
											D		
				SPT 4,14,24 N=38	-4	10							
					-5	11							
				SPT 4,16,27 N=43									
					-6	12					VD		
				SPT 7,27,R N=R	-7	13							
					-8	14					MD		
				SPT 2,5,17 N*=22									
					-9	15		SM	SILTY SAND: Medium grained, brown, brown plastic silt.		D		
									Borehole B6 terminated at 15m and completed as a standpipe piezometer. Borehole B6 terminated at 15m				
					-10	16							

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit

*bit shown by suffix e.g. ADT

support

M mud N nil

C casing

penetration

1 2 3 4 — no resistance ranging to refusal

water

10/1/98 water level on date shown

water inflow

water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

Coffey Geosciences Pty Ltd ACN 056 335 516

Borehole No. *B7*

Sheet 1 of 4

Office Job No.: *S20466/1*

Engineering Log - Borehole

Client: *AMCOR FIBRE PACKAGING AUSTRALASIA*

Principal:

Project: *PROPOSED BOTANY PAPER MILL*

Borehole Location: *1891 BOTANY ROAD, MATRAVILLE*

Date started: *17.5.2000*

Date completed: *18.5.2000*

Logged by: *PM*

Checked by:

Coffey

drill model and mounting: HYDROPOWER 5000 - TRUCK | Easting: 2072.3 | slope: -90° | R.L. Surface: 5.5

hole diameter: 200mm mm | Northing 2178.5 | bearing: - | datum: AHD

drilling information / **material substance**

method	penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material (soil type: plasticity or particle characteristics, colour, secondary and minor components.)	moisture condition	consistency/ density index	hand penetro-meter kPa 100 200 300 400	structure and additional observations
ADT		C	None observed		5				ASPHALT: Aggregate up to 10mm, black.	D	H		ASPHALT
								FILL	CONCRETE: Angular aggregate up to 30mm, pale grey.	M	L		CONCRETE PAVEMENT
					4	1			FILL: Sand, medium grained, black, brown and yellow. Masonary bricks and brick fragments in fill from 0.5m depth to 0.8m depth.				FILL
						2							
HW				SPT 2,4,3 N*=7	3			SP	SAND: Medium grained, yellow-white, trace black grains, trace shell fragment.		L		Blade bit casing advancer used from 2.40m onwards. Transgressive Dune Sand ("Marine Sand")
					2	3							
				SPT 14,27,R N*=R	1	4					VD		
						5			Trace grey clay.				
					0			SP	SAND: Medium grained, pale grey and yellow, trace brown peat, trace black brown grains.		D		
				SPT 17,10,16 N*=26		6							
					-1			SP	SAND: Medium to coarse grained, white, trace pale grey clay.				
						7							
				SPT 11,18,23 N*=41	-2				70mm band of stiff, high plasticity grey clay.				
						8							

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit

*bit shown by suffix e.g. ADT

support

M mud N nil

C casing

penetration

1 2 3 4 — no resistance ranging to refusal

water

10/1/98 water level on date shown

water inflow

water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

Coffey Geosciences Pty Ltd ACN 056 335 516

Borehole No. *B7*

Sheet 2 of 4

Office Job No.: *S20466/1*

Engineering Log - Borehole

Client: *AMCOR FIBRE PACKAGING AUSTRALASIA*

Principal:

Project: *PROPOSED BOTANY PAPER MILL*

Borehole Location: *1891 BOTANY ROAD, MATRAVILLE*

Date started: *17.5.2000*

Date completed: *18.5.2000*

Logged by: *PM*

Checked by:

Coffey

drill model and mounting: HYDROPOWER 5000 - TRUCK Easting: 2072.3 slope: -90° R.L. Surface: 5.5

hole diameter: 200mm mm Northing 2178.5 bearing: - datum: AHD

drilling information | **material substance**

method	penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material: soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	hand penetro-meter kPa 100 200 300 400	structure and additional observations
HW		C	None observed					SP	SAND: Medium to coarse grained, yellow, trace bands of high plasticity, grey, clay.	M	VD		
				SPT 12,24,29 N*=53	-3	9							
					-4								
				SPT 18,30,R N*=R		10							
					-5								
						11							
				SPT 15,30,R N*=R	-6								
						12							
					-7			SP	SAND: Medium to coarse grained, yellow and grey, trace bands of grey clay and trace peat.		D		
						13		SP	SAND: Medium to coarse grained, yellow, trace black grains.				
				SPT 11,18,25 N*=43	-8								
						14					VD		
				SPT 21,30,R N*=R	-9								
						15							
					-10								
						16							

method
- AS auger screwing*
- AD auger drilling*
- RR roller/tricone
- W washbore
- CT cable tool
- HA hand auger
- DT diatube
- B blank bit
- V V bit
- T TC bit

*bit shown by suffix e.g. ADT

support
- M mud
- N nil
- C casing

penetration 1 2 3 4 — no resistance ranging to refusal

water
- 10/1/98 water level on date shown
- water inflow
- water outflow

notes, samples, tests
- U_{50} undisturbed sample 50mm diameter
- U_{63} undisturbed sample 63mm diameter
- D disturbed sample
- N standard penetration test (SPT)
- N* SPT - sample recovered
- Nc SPT with solid cone
- V vane shear (kPa)
- P pressuremeter
- Bs bulk sample
- E environmental sample
- R refusal

classification symbols and soil description based on unified classification system

moisture
- D dry
- M moist
- W wet
- Wp plastic limit
- W_L liquid limit

consistency/density index
- VS very soft
- S soft
- F firm
- St stiff
- VSt very stiff
- H hard
- Fb friable
- VL very loose
- L loose
- MD medium dense
- D dense
- VD very dense

Coffey Geosciences Pty Ltd ACN 056 335 516

Borehole No. *B7*

Sheet 3 of 4

Office Job No.: *S20466/1*

Engineering Log - Borehole

Client: *AMCOR FIBRE PACKAGING AUSTRALASIA*

Principal:

Project: *PROPOSED BOTANY PAPER MILL*

Borehole Location: *1891 BOTANY ROAD, MATRAVILLE*

Date started: *17.5.2000*

Date completed: *18.5.2000*

Logged by: *PM*

Checked by:

Coffey

drill model and mounting: HYDROPOWER 5000 - TRUCK Easting: 2072.3 slope: -90° R.L. Surface: 5.5

hole diameter: 200mm mm Northing 2178.5 bearing: - datum: AHD

drilling information / **material substance**

method	penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material (soil type: plasticity or particle characteristics, colour, secondary and minor components.)	moisture condition	consistency/ density index	hand penetrometer kPa 100 200 300 400	structure and additional observations
HW		C	None observed	SPT 21,30,R N*=R	-11	17		SP	SAND: Medium to coarse grained, yellow, trace black grains. *(continued)*	M	VD		
				SPT 11,30,R N*=R	-12	18		SP	70mm band of peaty clay, brown grey. SAND: Medium to coarse grained, pale grey, trace peaty clay bands, trace black grains.				
					-13	19			PEATY SAND: Medium to coarse grained, white and pale grey, black-brown peat, trace pale grey clay.		L		
				SPT 3,4,5 N*=9	-14	20		SM	SILTY SAND: Coarse to medium grained, pale grey and white brown, trace white, fine grained gravel.		MD		
				SPT 4,10,19 N*=29	-15	21							
					-16	22					VD		CEMENTED SANDS
				SPT 16,35,R N*=R	-17	23			70mm band of peaty clay - high plasticity dark grey clay, stiff.				
				SPT 8,30,R N*=R	-18	24							

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit

*bit shown by suffix e.g. ADT

support

M mud N nil

C casing

penetration

1 2 3 4 — no resistance ranging to refusal

water

10/1/98 water level on date shown

water inflow

water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

Coffey Geosciences Pty Ltd ACN 056 335 516

Borehole No. *B7*

Sheet 4 of 4

Office Job No.: *S20466/1*

Engineering Log - Borehole

Client: *AMCOR FIBRE PACKAGING AUSTRALASIA*

Principal:

Project: *PROPOSED BOTANY PAPER MILL*

Borehole Location: *1891 BOTANY ROAD, MATRAVILLE*

Date started: *17.5.2000*

Date completed: *18.5.2000*

Logged by: *PM*

Checked by:

Coffey

drill model and mounting: HYDROPOWER 5000 - TRUCK Easting: 2072.3 slope: -90° R.L. Surface: 5.5

hole diameter: 200mm mm Northing 2178.5 bearing: - datum: AHD

drilling information								material substance								
method	penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	hand penetro-meter kPa 100 200 300 400	structure and additional observations
HW		C	None observed		-19	25		SM	SILTY SAND: Coarse to medium grained, pale grey and white brown, trace white, fine grained gravel. *(continued)*	M	VD		
					-20	26			Borehole B7 terminated at 25m and completed with 85mm internal diameter PVC casing.				
					-21	27							
					-22	28							
					-23	29							
					-24	30							
					-25	31							
					-26	32							

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit

*bit shown by suffix e.g. ADT

support

M mud N nil

C casing

penetration

1 2 3 4 — no resistance ranging to refusal

water

10/1/98 water level on date shown

water inflow

water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

Coffey Geosciences Pty Ltd ACN 056 335 516

Borehole No. *B8*

Sheet 1 of 4

Office Job No.: *S20466/1*

Engineering Log - Borehole

Client: *AMCOR FIBRE PACKAGING AUSTRALASIA*

Principal:

Project: *PROPOSED BOTANY PAPER MILL*

Borehole Location: *1891 BOTANY ROAD, MATRAVILLE*

Date started: *15.5.2000*

Date completed: *17.5.2000*

Logged by: *PM*

Checked by:

Coffey

drill model and mounting: HYDROPOWER 5000 - TRUCK Easting: 2047.5 slope: -90° R.L. Surface: 7.0

hole diameter: 100mm - then 200mm mm Northing 2293 bearing: - datum: AHD

drilling information / **material substance**

method	penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material: soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	hand penetrometer kPa 100 200 300 400	structure and additional observations
ADT		C	None observed					SP	FILL: Sand medium to coarse grained, brown and grey, trace high plasticity clay.	M	VL		FILL
HQ				SPT 1,1,2 N*=3	6	1		SP	SAND: medium to coarse grained, brown and grey.		L		Transgressive Dune Sand ("Marine Sand")
					5	2			100mm band of peaty sand, medium to coarse grained sand, brown, peat.				
				SPT 2,3,5 N*=8									
					4	3					D		
								SP	SAND: Medium with some coarse grained, yellow, trace dark brown black grains.				
				SPT 12,18,20 N*=38	3	4							
					2	5					VD		
				SPT 13,29,R N*=R									
					1	6		SP	SAND: Medium grained, pale grey to white, trace black/dark brown grains.		D		
				SPT 8,20,24 N*=44	0	7			60mm band of high plasticity, very stiff clay.				
									Some clay layers, high plasticity grey clay.				
					-1	8							

BOREHOLE S204661.GPJ COFFEY.GDT 27.06.00

Form GEO 5.3 Issue 3 Rev.2

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit

*bit shown by suffix e.g. ADT

support

M mud N nil

C casing

penetration

1 2 3 4 no resistance ranging to refusal

water

10/1/98 water level on date shown

water inflow

water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description

based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

Coffey Geosciences Pty Ltd ACN 056 335 516

Borehole No. *B8*

Sheet 2 of 4

Engineering Log - Borehole

Office Job No.: *S20466/1*

Client: *AMCOR FIBRE PACKAGING AUSTRALASIA*

Date started: *15.5.2000*

Principal:

Date completed: *17.5.2000*

Project: *PROPOSED BOTANY PAPER MILL*

Logged by: *PM*

Borehole Location: *1891 BOTANY ROAD, MATRAVILLE*

Checked by:

Coffey

drill model and mounting:	HYDROPOWER 5000 - TRUCK	Easting:	2047.5	slope:	-90°	R.L. Surface:	7.0
hole diameter:	100mm - then 200mm mm	Northing	2293	bearing:	-	datum:	AHD

drilling information / **material substance**

method	penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material (soil type: plasticity or particle characteristics, colour, secondary and minor components.)	moisture condition	consistency/ density index	hand penetro-meter kPa 100 200 300 400	structure and additional observations
HQ		C	None observed					SP	SAND: Medium grained, pale grey to white, trace black/dark brown grains. *(continued)* Trace fine quartz gravel in water return.	M	D		
				SPT 16,23,24 N*=47	-2	9							
								SP	SAND: Medium grained, yellow-white, trace bands of high plasticity clay, trace fine grained quartz gravel.		VD		
				SPT 14,30,R N*=R	-3	10							
					-4	11							
				SPT 40 ,R N*=R									
					-5	12							
				SPT 15,40,R N*=R	-6	13							
					-7	14							
				SPT 13,26,R N*=R	-8	15							
					-9	16							

method
AS auger screwing*
AD auger drilling*
RR roller/tricone
W washbore
CT cable tool
HA hand auger
DT diatube
B blank bit
V V bit
T TC bit
*bit shown by suffix
e.g. ADT

support
M mud N nil
C casing

penetration
1 2 3 4
no resistance ranging to refusal

water
10/1/98 water level on date shown
water inflow
water outflow

notes, samples, tests
U_{50} undisturbed sample 50mm diameter
U_{63} undisturbed sample 63mm diameter
D disturbed sample
N standard penetration test (SPT)
N* SPT - sample recovered
Nc SPT with solid cone
V vane shear (kPa)
P pressuremeter
Bs bulk sample
E environmental sample
R refusal

classification symbols and soil description
based on unified classification system

moisture
D dry
M moist
W wet
Wp plastic limit
W_L liquid limit

consistency/density index
VS very soft
S soft
F firm
St stiff
VSt very stiff
H hard
Fb friable
VL very loose
L loose
MD medium dense
D dense
VD very dense

Coffey Geosciences Pty Ltd ACN 056 335 516

Borehole No. *B8*

Sheet 3 of 4

Office Job No.: *S20466/1*

Engineering Log - Borehole

Client: *AMCOR FIBRE PACKAGING AUSTRALASIA*

Date started: *15.5.2000*

Principal:

Date completed: *17.5.2000*

Project: *PROPOSED BOTANY PAPER MILL*

Logged by: *PM*

Borehole Location: *1891 BOTANY ROAD, MATRAVILLE*

Checked by:

drill model and mounting: HYDROPOWER 5000 - TRUCK Easting: 2047.5 slope: -90° R.L. Surface: 7.0

hole diameter: 100mm - then 200mm mm Northing 2293 bearing: - datum: AHD

drilling information / **material substance**

method	penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material (soil type: plasticity or particle characteristics, colour, secondary and minor components.)	moisture condition	consistency/ density index	hand penetrometer kPa 100 200 300 400	structure and additional observations
HQ		C	None observed	SPT 5,18,R N*=R				SP	SAND: Medium grained, yellow-white, trace bands of high plasticity clay, trace fine grained quartz gravel. *(continued)*	M	VD		
					-10	17							
				SPT 11,36,R N*=R									
					-11	18							
				SPT 13,30,R N*=R	-12	19			50mm band of very stiff grey clay.				
									PEATY SAND: (Based on observation of drilling progress and water loss).		MD		
					-13	20		SM	SILTY SAND: Medium grained, pale grey and brown, brown plastic silt, trace peat fragments.		VD		CEMENTED SANDS
				SPT 6,30,R N*=R									
					-14	21							
				SPT 19,31,30 N*=61	-15	22			100mm band of medium grained, pale grey sand.				
					-16	23							
HW				SPT 14,30,R N*=R	-17	24							

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit

*bit shown by suffix e.g. ADT

support

M mud N nil

C casing

penetration

1 2 3 4 — no resistance ranging to refusal

water

10/1/98 water level on date shown

water inflow

water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description

based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

Coffey Geosciences Pty Ltd ACN 056 335 516

Borehole No. *B8*

Sheet 4 of 4

Office Job No.: *S20466/1*

Engineering Log - Borehole

Client: *AMCOR FIBRE PACKAGING AUSTRALASIA*

Date started: *15.5.2000*

Principal:

Date completed: *17.5.2000*

Project: *PROPOSED BOTANY PAPER MILL*

Logged by: *PM*

Borehole Location: *1891 BOTANY ROAD, MATRAVILLE*

Checked by:

Coffey

drill model and mounting:	HYDROPOWER 5000 - TRUCK	Easting:	2047.5	slope:	-90°	R.L. Surface:	7.0
hole diameter:	100mm - then 200mm mm	Northing	2293	bearing:	-	datum:	AHD

drilling information / **material substance**

method	penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material (soil type: plasticity or particle characteristics, colour, secondary and minor components.)	moisture condition	consistency/ density index	hand penetrometer kPa 100 200 300 400	structure and additional observations
HW		C	None observed		-18	25		SM	SILTY SAND: Medium grained, pale grey and brown, brown plastic silt, trace peat fragments. *(continued)*	M	VD		
					-19	26			Borehole B8 terminated at 25m and completed with 80mm internal diameter PVC casing.				
					-20	27							
					-21	28							
					-22	29							
					-23	30							
					-24	31							
					-25	32							

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit

*bit shown by suffix e.g. ADT

support

M mud N nil

C casing

penetration

1 2 3 4 — no resistance ranging to refusal

water

10/1/98 water level on date shown

water inflow

water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description

based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

Coffey Geosciences Pty Ltd ACN 056 335 516

Borehole No. *B9*

Sheet 1 of 2

Office Job No.: *S20466/1*

Engineering Log - Borehole

Client: *AMCOR FIBRE PACKAGING AUSTRALASIA*

Date started: *23.5.2000*

Principal:

Date completed: *23.5.2000*

Project: *PROPOSED BOTANY PAPER MILL*

Logged by: *PM*

Borehole Location: *1891 BOTANY ROAD, MATRAVILLE*

Checked by:

Coffey

drill model and mounting:	EDSON 3000 - TRUCK	Easting:	2138.4	slope:	-90°	R.L. Surface:	5.4
hole diameter:	200mm mm	Northing	2077.5	bearing:	-	datum:	AHD

drilling information / **material substance**

method	penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material (soil type: plasticity or particle characteristics, colour, secondary and minor components.)	moisture condition	consistency/ density index	hand penetrometer kPa 100 200 300 400	structure and additional observations
AD		N			5			SM	**FILL: Silty SAND:** Medium grained, black and dark brown, brown and black plastic silt, trace charcoal fragments.	D	VL		TOPSOIL FILL
						1		SP	**FILL: SAND:** Medium grained, brown, trace non plastic fines, trace medium gravel, 5mm wide rubber strip.	M			FILL
				SPT 1,1,1 N*=2	4			SP	**FILL: SAND:** Medium grained, some coarse grains, yellow-brown, trace medium gravel, trace electrical (?) wires.				
						2			**FILL: Gravelly SAND:** Medium to coarse grained, dark grey and pale grey, fine to medium angular gravel, trace wood fragments up to 10mm in diameter.				
				SPT 1,1,2 N*=3	3								
						3			Timber and lengths of steel wire in fill.				
			10:10am 23/5/2000		2					W			
						4							
				SPT 1,0,0 N*=0	1			OH	**FILL: Clay:** High plasticity, black, some black silt, wood fragments up to 20mm diameter.				
						5			**FILL: Gravel:** Fine to coarse, angular and subangular, dark grey, grey and orange, some medium grained sand, trace timber fragments.		L		
					0								
				SPT 2,3,1 N*=4		6							
					-1			SP	**SAND:** Medium grained, pale grey, trace clear glass fragments, trace high plasticity clay lenses.		MD		Transgressive Dune Sand ("Marine Sand")
						7							
				SPT 4,11,16 N*=27	-2								
						8		SP			D		

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit

*bit shown by suffix e.g. ADT

support

M mud N nil

C casing

penetration

1 2 3 4 — no resistance ranging to refusal

water

10/1/98 water level on date shown

water inflow

water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

Coffey Geosciences Pty Ltd ACN 056 335 516

Borehole No. *B9*

Sheet 2 of 2

Engineering Log - Borehole

Office Job No.: *S20466/1*

Client: *AMCOR FIBRE PACKAGING AUSTRALASIA*

Date started: *23.5.2000*

Principal:

Date completed: *23.5.2000*

Project: *PROPOSED BOTANY PAPER MILL*

Logged by: *PM*

Borehole Location: *1891 BOTANY ROAD, MATRAVILLE*

Checked by:

Coffey

drill model and mounting:	EDSON 3000 - TRUCK	Easting:	2138.4	slope:	-90°	R.L. Surface:	5.4
hole diameter:	200mm mm	Northing	2077.5	bearing:	-	datum:	AHD

drilling information / **material substance**

method	penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material (soil type: plasticity or particle characteristics, colour, secondary and minor components.)	moisture condition	consistency/ density index	hand penetrometer kPa 100 200 300 400	structure and additional observations
AD		N			-3			SP	SAND: Medium grained, yellow, trace black grains, trace plastic fines. *(continued)*	W	D		
				SPT 8,12,19 N*=31		9							
					-4			SP	SAND: Medium grained, white to yellow, trace lens of low plasticity, pale brown, clay, trace black grains.		D		
						10							
				SPT 11,19,30 N*=49	-5								
						11							
					-6								
				SPT 3,13,27 N=40		12							
					-7								
						13							
				SPT 5,15,29 N=44	-8								
						14							
					-9			SP	SAND: Medium grained, pale brown, trace plastic fines.		VD		
				SPT 10,30,R N=R		15							
					-10				Borehole B9 terminated at 14.95m				
						16							

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit

*bit shown by suffix e.g. ADT

support

M mud N nil

C casing

penetration 1 2 3 4 — no resistance ranging to refusal

water

10/1/98 water level on date shown

water inflow

water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

REPORT OF BOREHOLE: BH101

Golder Associates

SHEET: 1 OF 1
DRILL RIG: Geoprobe
DRILLER: Drilltest
LOGGED: JAH DATE: 9/3/06
CHECKED: CSC DATE: 15/5/06

CLIENT: AMCOR
PROJECT: Fibre Packaging Plant
LOCATION: Botany Rd, Matraville
JOB NO: 06623026

POSITION:
SURFACE RL: 5.90 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: mm HOLE DEPTH: 2.40 m

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC Symbol	SOIL / ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
DTC	M	Groundwater not encountered	0	0.12					Concrete pavement			
				5.78	U50 0.30-0.60m R = 0A PID = 0.0 ppm			SM	Silty SAND, medium grained, grey-brown, poorly sorted.	M		Transgressive Dune Sediments (Marine), no odour noted.
			1	1.10								
PT	L			4.80				SM	Silty SAND, fine grained, dark red-brown, poorly sorted, organic silt.			Transgressive Dune Sediments (Marine), high fine organic content.
				1.40								
				1.50	U50 1.40-1.60m R = 0A PID = 5.4 ppm			CH	Silty Clay, high plasticity, red-brown.			Transgressive Dune Sediments (Marine)
				4.40				SP	SAND, medium grained, orange- brown, poorly sorted, trace silt.			
			2	2.40								
				3.50					END OF BOREHOLE @ 2.40 m natural material reached.			
			3									
			4									
			5									
			6									
			7									
			8									
			9									
			10									

This report of borehole must be read in conjunction with accompanying notes and abbreviations.

GAP gINT FN. F01a
RL2

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REPORT OF BOREHOLE: BH102

Golder Associates

SHEET: 1 OF 1

CLIENT:	AMCOR	POSITION:	DRILL RIG: Geoprobe
PROJECT:	Fibre Packaging Plant	SURFACE RL: 5.90 m DATUM: AHD	DRILLER: Drilltest
LOCATION:	Botany Rd, Matraville	INCLINATION: -90°	LOGGED: JAH DATE: 9/3/06
JOB NO:	06623026	HOLE DIA: mm HOLE DEPTH: 2.40 m	CHECKED: CSC DATE: 15/5/06

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC Symbol	SOIL / ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
DTC	M		0	0.13					Concrete pavement.			
				5.77					Crushed sandstone with fine to medium silty sands, pink to grey brown.			FILL, no odour noted
PT	L	Groundwater not encountered	1		U50 0.50-1.00m R = 1A PID = 7.6 ppm DUP6					M		
			2	2.40								
				3.50					END OF BOREHOLE @ 2.40 m Refusal on sandstone boulder.			
			3									
			4									
			5									
			6									
			7									
			8									
			9									
			10									

This report of borehole must be read in conjunction with accompanying notes and abbreviations.

GAP gINT FN. F01a
RL2

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REPORT OF BOREHOLE: BH103

Golder Associates

SHEET: 1 OF 1
DRILL RIG: Geoprobe
DRILLER: Drilltest
LOGGED: JAH DATE: 9/3/06
CHECKED: CSC DATE: 15/5/06

CLIENT: AMCOR
PROJECT: Fibre Packaging Plant
LOCATION: Botany Rd, Matraville
JOB NO: 06623026

POSITION:
SURFACE RL: 6.30 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: mm HOLE DEPTH: 2.40 m

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC Symbol	SOIL / ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
DTC	M	Groundwater not encountered	0	0.15					Concrete pavement.			
				6.15					Silty SAND, medium grained, brown, poorly sorted with medium angular road base and sandstone gravels.			FILL, no odour noted.
				0.90								
			1	5.40					Silty CLAY, high plasticity, red brown.			FILL, no odour noted.
				1.10								
PT	F			5.20				SP	SAND, medium grained, grey-brown, poorly sorted, some silt.	M		Transgressive Dune Sediments (Marine)
				1.80								
				4.50				SP	SAND, medium grained, dark orange-brown, poorly sorted, some silt.			
			2	2.40								
				3.90					END OF BOREHOLE @ 2.40 m			
			3									
			4									
			5									
			6									
			7									
			8									
			9									
			10									

This report of borehole must be read in conjunction with accompanying notes and abbreviations.

GAP gINT FN. F01a
RL2

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REPORT OF BOREHOLE: BH104

Golder Associates

SHEET: 1 OF 1

CLIENT:	AMCOR	POSITION:	DRILL RIG: Geoprobe
PROJECT:	Fibre Packaging Plant	SURFACE RL: 6.90 m DATUM: AHD	DRILLER: Drillitest
LOCATION:	Botany Rd, Matraville	INCLINATION: -90°	LOGGED: JAH DATE: 10/3/06
JOB NO:	06623026	HOLE DIA: mm HOLE DEPTH: 2.40 m	CHECKED: CSC DATE: 15/5/06

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC Symbol	SOIL / ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
CTC	M-H	Groundwater not encountered	0	0.15					Concrete pavement with river pebble aggregate.			
				6.75	U50 0.20-0.40m R = 2A				Gravelly SAND, black to brown, well sorted, fine to large sandstone gravels with trace of ash.			FILL, no odour noted.
				0.60 6.30	U50 0.70-0.12m R = 0A PID = 1.1 ppm			SP	SAND, fine grained, dark grey brown, poorly sorted, some silt.			Transgressive Dune Sediments (Marine)
PT	L-M		1	1.30 5.60	DUP9 U50 1.50-2.00m R = 0A			SP	SAND, fine grained, dark red-brown, poorly sorted with some organic silt	M		Transgressive Dune Sediments (Marine)
			2	2.40 4.50					END OF BOREHOLE @ 2.40 m natural material reached.			
			3									
			4									
			5									
			6									
			7									
			8									
			9									
			10									

This report of borehole must be read in conjunction with accompanying notes and abbreviations.

GAP gINT FN. F01a
RL2

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REPORT OF BOREHOLE: BH105

Golder Associates

SHEET: 1 OF 1

CLIENT:	AMCOR	POSITION:	DRILL RIG: Geoprobe
PROJECT:	Fibre Packaging Plant	SURFACE RL: 6.50 m DATUM: AHD	DRILLER: Drilltest
LOCATION:	Botany Rd, Matraville	INCLINATION: -90°	LOGGED: JAH DATE: 14/3/06
JOB NO:	06623026	HOLE DIA: mm HOLE DEPTH: 0.80 m	CHECKED: CSC DATE: 15/5/06

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC Symbol	SOIL / ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
DTC	M	Groundwater not encountered	0	0.10					Concrete pavement.			
PT	L			6.40	U50 0.20-0.30m R = 2A PID = 3.6 ppm				Silty SAND, medium grained, dark grey, poorly sorted with medium angular concrete gravels	M		FILL, no odour noted.
				0.50 6.00					Grading to SAND with some silt.			
				0.80 5.70	U50 0.70-0.80m PID = 0.7 ppm				END OF BOREHOLE @ 0.80 m Refusal on concrete boulder possibly protecting services.			
			1									
			2									
			3									
			4									
			5									
			6									
			7									
			8									
			9									
			10									

This report of borehole must be read in conjunction with accompanying notes and abbreviations.

GAP gINT FN. F01a
RL2

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REPORT OF BOREHOLE: BH106

Golder Associates

SHEET: 1 OF 1

CLIENT:	AMCOR	POSITION:		DRILL RIG:	Geoprobe
PROJECT:	Fibre Packaging Plant	SURFACE RL: 6.90 m	DATUM: AHD	DRILLER:	Drilltest
LOCATION:	Botany Rd, Matraville	INCLINATION: -90°		LOGGED: JAH	DATE: 14/3/06
JOB NO:	06623026	HOLE DIA: mm	HOLE DEPTH: 2.40 m	CHECKED: CSC	DATE: 15/5/06

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC Symbol	SOIL / ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
DTC	M	Groundwater not encountered	0	0.17					Concrete pavement.			
				6.73 / 0.40					Silty SAND, medium grained, grey with some asphalt gravels, poorly sorted.			FILL, no odour noted.
PT	L			6.50 / 0.70	U50 0.40-0.70m R = 0A PID = 8.4 ppm			SM	Silty SAND, medium grained, light grey, poorly sorted.	M		Transgressive Dune Sediments (Marine)
				6.20 / 1.00	U50 0.70-1.00m R = 0A PID = 5.6 ppm			SP	SAND, fine grained, dark red - brown, poorly sorted,some organic content.			
			1	5.90	U50 1.00-1.20m R = 0A PID = 1.5 ppm			SP	SAND, medium grained, orange - brown, poorly sorted, some silt.			
			2	2.40	U50 2.10-2.40m PID = 2.7 ppm							
				4.50					END OF BOREHOLE @ 2.40 m natural material reached.			
			3									
			4									
			5									
			6									
			7									
			8									
			9									
			10									

This report of borehole must be read in conjunction with accompanying notes and abbreviations.

GAP gINT FN. F01a
RL2

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REPORT OF BOREHOLE: BH107

Golder Associates

SHEET: 1 OF 1
DRILL RIG: Geoprobe
DRILLER: Drilltest
LOGGED: JAH DATE: 9/3/06
CHECKED: CSC DATE: 15/5/06

CLIENT: AMCOR
PROJECT: Fibre Packaging Plant
LOCATION: Botany Rd, Matraville
JOB NO: 06623026

POSITION:
SURFACE RL: 5.90 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: mm HOLE DEPTH: 2.40 m

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC Symbol	SOIL / ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
DTC	M		0	0.10					Concrete pavement.			
				5.80					Silty SAND, medium grained, grey, poorly sorted with medium sandstone gravels.			FILL, no odour noted
				0.50								
				5.40	U50 0.50-0.70m R = 1A PID = 9.2 ppm				SAND, medium grained, light grey - poorly sorted, some silt.			
				0.90								
			1	5.00	U50 1.00-1.20m R = 1A PID = 6.0 ppm				Silty SAND, fine grained, dark red - brown, poorly sorted with some crushed sandstone gravels.			
PT	L	Groundwater not encountered		1.30						M		
				4.60				SP	SAND, medium grained, grey - brown, poorly sorted, trace silt.			Transgressive Dune Sediments (Marine)
			2		U50 1.90-2.40m R = 0A PID = 5.4 ppm							
				2.40								
				3.50					END OF BOREHOLE @ 2.40 m natural material reached.			
			3									
			4									
			5									
			6									
			7									
			8									
			9									
			10									

This report of borehole must be read in conjunction with accompanying notes and abbreviations.

GAP gINT FN. F01a
RL2

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REPORT OF BOREHOLE: BH108

Golder Associates

SHEET: 1 OF 1
DRILL RIG: Geoprobe
DRILLER: Drilltest
LOGGED: JAH DATE: 9/3/06
CHECKED: CSC DATE: 15/5/06

CLIENT: AMCOR
PROJECT: Fibre Packaging Plant
LOCATION: Botany Rd, Matraville
JOB NO: 06623026

POSITION:
SURFACE RL: 5.90 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: mm HOLE DEPTH: 1.20 m

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC Symbol	SOIL / ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
DTC	M	Groundwater not encountered	0	5.90					Concrete pavement.			
				5.70					Stainless steel disk.			FILL, no odour noted.
				5.65					Crushed Sandstone, orange - grey.			
PT	L		1		U50 0.80-1.20m R = 1A PID = 6.7 ppm					M		
				1.20					END OF BOREHOLE @ 1.20 m Refusal on sandstone boulder.			
				4.70								
			2									
			3									
			4									
			5									
			6									
			7									
			8									
			9									
			10									

This report of borehole must be read in conjunction with accompanying notes and abbreviations.

GAP gINT FN. F01a
RL2

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REPORT OF BOREHOLE: BH109

Golder Associates

SHEET: 1 OF 1

CLIENT:	AMCOR	POSITION:	DRILL RIG: Geoprobe
PROJECT:	Fibre Packaging Plant	SURFACE RL: 6.30 m DATUM: AHD	DRILLER: Drilltest
LOCATION:	Botany Rd, Matraville	INCLINATION: -90°	LOGGED: JAH DATE: 9/3/06
JOB NO:	06623026	HOLE DIA: mm HOLE DEPTH: 0.50 m	CHECKED: CSC DATE: 15/5/06

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC Symbol	SOIL / ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
PT BTQ	M	Groundwater not encountered	0	0.18					Concrete pavement.			
	L			6.12	U50 0.20-0.25m R = 1A PID = 5.9 ppm				Silty SAND, medium grained, grey - black, poorly sorted.	M		FILL, no odour noted.
				0.50 5.80					END OF BOREHOLE @ 0.50 m Refusal on concrete slab			
			1									
			2									
			3									
			4									
			5									
			6									
			7									
			8									
			9									
			10									

This report of borehole must be read in conjunction with accompanying notes and abbreviations.

GAP gINT FN. F01a
RL2

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REPORT OF BOREHOLE: BH110

Golder Associates

SHEET: 1 OF 1

CLIENT:	AMCOR	POSITION:	DRILL RIG: Geoprobe
PROJECT:	Fibre Packaging Plant	SURFACE RL: 6.90 m DATUM: AHD	DRILLER: Drilltest
LOCATION:	Botany Rd, Matraville	INCLINATION: -90°	LOGGED: JAH DATE: 10/3/06
JOB NO:	06623026	HOLE DIA: mm HOLE DEPTH: 2.40 m	CHECKED: CSC DATE: 15/5/06

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH/ RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC Symbol	SOIL / ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
DTC	M		0	0.15					Concrete pavement.			
				0.30					Crushed Sandstone, white.			FILL, no odour noted.
				6.60	U50 0.50-0.80m R = 2A PID = 2.5 ppm				Clayey SAND, low plasticity with medium gravels, dark brown.			
				0.80 6.10				SP	SAND, medium grained, grey brown, poorly sorted, some silt.			Transgressive Dune Sediments (Marine)
PT	L	Groundwater not encountered	1		U50 1.00-1.20m R = 0A PID = 3.3 ppm					M		
				1.30 5.60	U50 1.30-1.60m R = 0A PID = 0.3 ppm			SP	As above but orange -brown.			
				1.90 5.00				SM	Silty SAND, fine grained, dark brown - red, poorly sorted with organic silt.			
			2	2.20 4.70 2.40 4.50				SM	Silty SAND, medium grained, grey, poorly sorted, some silt.			
									END OF BOREHOLE @ 2.40 m natural material reached.			
			3									
			4									
			5									
			6									
			7									
			8									
			9									
			10									

This report of borehole must be read in conjunction with accompanying notes and abbreviations.

GAP gINT FN. F01a
RL2

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REPORT OF BOREHOLE: BH111

Golder Associates

SHEET: 1 OF 1

CLIENT:	AMCOR	POSITION:	DRILL RIG: Geoprobe
PROJECT:	Fibre Packaging Plant	SURFACE RL: m DATUM: AHD	DRILLER: Drilltest
LOCATION:	Botany Rd, Matraville	INCLINATION: -90°	LOGGED: JAH DATE: 14/3/06
JOB NO:	06623026	HOLE DIA: mm HOLE DEPTH: 2.40 m	CHECKED: CSC DATE: 15/5/06

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC Symbol	SOIL / ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
PT	L	Groundwater not encountered	0		U50 0.10-0.40m R = 2A PID = 5.1 ppm				Bitumen pavement.	M		FILL, no odour noted.
				0.40					Gravelly SAND, grey to black, well sorted, with some asphalt and slag.			
			1		DUP10 U50 0.90-1.20m R = 0A PID = 5.3 ppm			SP	SAND, medium grained, orange - brown, poorly sorted, trace silt			Transgressive Dune Sediments (Marine)
			2	2.40					END OF BOREHOLE @ 2.40 m natural material reached.			
			3									
			4									
			5									
			6									
			7									
			8									
			9									
			10									

This report of borehole must be read in conjunction with accompanying notes and abbreviations.

GAP gINT FN. F01a
RL2

GAP5_0-1BETA_SRIS.GLB FULL PAGE J:\06PROJ\001-050\06623026_AMCOR_BOTANY\GINT\06623026_AMCOR_BH.GPJ GAP5_1.GDT 16/05/2006 2:03:35 PM

REPORT OF BOREHOLE: BH112

Golder Associates

SHEET: 1 OF 1
DRILL RIG: Geoprobe
DRILLER: Drilltest
LOGGED: JAH DATE: 14/3/06
CHECKED: CSC DATE: 15/5/06

CLIENT: AMCOR
PROJECT: Fibre Packaging Plant
LOCATION: Botany Rd, Matraville
JOB NO: 06623026

POSITION:
SURFACE RL: 7.00 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: mm HOLE DEPTH: 2.40 m

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC Symbol	SOIL / ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
PT	L	Groundwater not encountered	0	6.98	U50 0.10-0.40m R = 2A PID = 3.8 ppm				Bitumen pavement.	M		FILL, no odour noted.
				0.60					SAND, medium grained, grey - black, poorly sorted with asphalt gravels, some silt.			
				6.40	DUP11 U50 0.80-1.20m R = 0A PID = 2.7 ppm			SP	SAND, fine grained, red - brown, poorly sorted with some silt, some fine organic material.			Transgressive Dune Sediments (Marine)
			1	1.30								
				5.70				SM	Silty SAND, medium grained, orange - brown, poorly sorted, some silt.			
			2	2.40								
				4.60					END OF BOREHOLE @ 2.40 m natural material reached.			
			3									
			4									
			5									
			6									
			7									
			8									
			9									
			10									

This report of borehole must be read in conjunction with accompanying notes and abbreviations.

GAP gINT FN. F01a
RL2

GAP5_0-1BETA_BRIS CLB FULL PAGE J:\06PROJ\001-050\06623026_AMCOR_BOTANY\GINT\06623026_AMCOR_BH.GPJ GAP5_1.GDT 15/05/2006 2:03:40 PM

REPORT OF BOREHOLE: BH113

Golder Associates

SHEET: 1 OF 1
DRILL RIG: Mole
DRILLER: Drilltest
LOGGED: AHP DATE: 15/3/06
CHECKED: CSC DATE: 15/5/06

CLIENT: AMCOR
PROJECT: Fibre Packaging Plant
LOCATION: Botany Rd, Matraville
JOB NO: 06623026

POSITION:
SURFACE RL: 5.40 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: mm HOLE DEPTH: 4.00 m

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC Symbol	SOIL / ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
	H		0	0.20 / 5.20	DS 0.00-0.40m				Start Soil Borehole @ 0.20 m			Concrete Coring
AD	L								SAND - medium, brown-grey			FILL
				0.60 / 4.80	DS 0.60-0.70m				SAND - medium, brown, some silt			
			1		DS 1.10-1.20m							
			2	2.00 / 3.40				SP	SAND - medium, pale brown-grey	M		Transgressive Dune Sediments (Marine)
					DS 2.20-m							
			3		DS 3.20-m							
					DS 3.60-4.20m							
		▽	4	4.00 / 1.40					END OF BOREHOLE @ 4.00 m	W		
			5									
			6									
			7									
			8									
			9									
			10									

This report of borehole must be read in conjunction with accompanying notes and abbreviations.

GAP giNT FN. F01a
RL2

GAP6_0-13ETA_BRIS.GLB FULL PAGE J:\06PROJ\001-050\06623026_AMCOR_BOTANY\GINT\06623026_AMCOR_BH.GPJ GAP5_1.GDT 15/05/2006 2:03:45 PM

REPORT OF BOREHOLE: BH114

Golder Associates

SHEET: 1 OF 1
DRILL RIG: Geoprobe
DRILLER: Drilltest
LOGGED: JAH DATE: 10/3/06
CHECKED: CSC DATE: 15/5/06

CLIENT: AMCOR
PROJECT: Fibre Packaging Plant
LOCATION: Botany Rd, Matraville
JOB NO: 06623026

POSITION:
SURFACE RL: 6.90 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: mm HOLE DEPTH: 2.40 m

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC Symbol	SOIL / ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
PT	M	Groundwater not encountered	0	0.12					Asphalt pavement.	M		
				0.30					Crushed sandstone, orange - white.			FILL no odour noted.
				6.60					Gravelly SAND with silt, grey - black, poorly sorted with trace organic content.			
					U50 0.60-1.00m R = 2A PID = 2.9 ppm							
	L		1	1.10 5.80				SP	SAND, medium grained, brown - grey, poorly sorted, trace silt.			Transgressive Dune Sediments (Marine)
					DUP7 U50 1.50-2.00m PID = 4.3 ppm							
			2	2.00 4.90				SM	Silty SAND, fine grained, dark red - brown, poorly sorted with trace organic silt.			
				2.40 4.50					END OF BOREHOLE @ 2.40 m natural material reached.			
			3									
			4									
			5									
			6									
			7									
			8									
			9									
			10									

This report of borehole must be read in conjunction with accompanying notes and abbreviations.

GAP gINT FN. F01a
RL2

GAP8 0-18ETA_BRIS.GLB FULL PAGE J:\06PROJ\601-050\06623026_AMCOR_BOTANY\GINT\06623026_AMCOR_BH.GPJ GAP8_1.GDT 15/05/2006 2:39:51 PM

REPORT OF BOREHOLE: BH115

Golder Associates

SHEET: 1 OF 1
DRILL RIG: Geoprobe
DRILLER: Drilltest
LOGGED: JAH DATE: 14/3/06
CHECKED: CSC DATE: 15/5/06

CLIENT: AMCOR
PROJECT: Fibre Packaging Plant
LOCATION: Botany Rd, Matraville
JOB NO: 06623026

POSITION:
SURFACE RL: 5.80 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: mm HOLE DEPTH: 2.40 m

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC Symbol	SOIL / ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
DTC	M	Groundwater not encountered	0	0.15					Concrete pavement.			
				5.65				SP	SAND, medium grained, orange brown, poorly sorted, with occasional gravels mixed, from overlying concrete, some silt.			Transgressive Dune Sediments (Marine), no odour noted.
PT	L		1		U50 0.80-1.20m R = 0A PID = 4.3 ppm					M		
				1.40 4.40				SP	As above but colour change to yellow - pale grey.			
			2		DUP12, DUP13 U50 2.00-2.40m PID = 3.0 ppm							
				2.40 3.40					END OF BOREHOLE @ 2.40 m natural material reached.			
			3									
			4									
			5									
			6									
			7									
			8									
			9									
			10									

This report of borehole must be read in conjunction with accompanying notes and abbreviations.

GAP gINT FN. F01a
RL2

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REPORT OF BOREHOLE: BH116

Golder Associates

SHEET: 1 OF 1
DRILL RIG: Geoprobe
DRILLER: Drilltest
LOGGED: JAH DATE: 9/3/06
CHECKED: CSC DATE: 15/5/06

CLIENT: AMCOR
PROJECT: Fibre Packaging Plant
LOCATION: Botany Rd, Matraville
JOB NO: 06623026

POSITION:
SURFACE RL: 5.90 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: mm HOLE DEPTH: 2.40 m

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC Symbol	SOIL / ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
DTC	M	Groundwater not encountered	0	0.13					Concrete pavement.			
				5.77	U50 0.20-0.50m R = 3A PID = 3.0 ppm				Gravelly SAND, brown - black, well sorted with charcoal, brick & slag gravels.			FILL no odour noted.
				0.50 5.40					Silty SAND, medium grained, grey, poorly sorted.			
PT	L		1	1.00 4.90	U50 1.20-1.80m R = 0A PID = 8.0 ppm			SP	SAND, medium grained, orange-brown, poorly sorted, trace silt.	M		Transgressive Dune Sediments (Marine)
			2	2.40 3.50					END OF BOREHOLE @ 2.40 m natural material reached.			
			3									
			4									
			5									
			6									
			7									
			8									
			9									
			10									

This report of borehole must be read in conjunction with accompanying notes and abbreviations.

GAP gINT FN. F01a
RL2

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REPORT OF BOREHOLE: BH117

Golder Associates

SHEET: 1 OF 1
DRILL RIG: Geoprobe
DRILLER: Drilltest
LOGGED: JAH DATE: 8/3/06
CHECKED: CSC DATE: 15/5/06

CLIENT: AMCOR
PROJECT: Fibre Packaging Plant
LOCATION: Botany Rd, Matraville
JOB NO: 06623026

POSITION:
SURFACE RL: 4.60 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: mm HOLE DEPTH: 4.80 m

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC Symbol	SOIL / ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
DT	M		0	4.54	U50 0.06-0.30m R = 3C PID = 10.6 ppm				Concrete pavement.			FILL mild phenol odour noted.
				0.30					Gravelly ASH, black with slag and charcoal gravels, some sands.			FILL no odour noted.
				4.30					Silty SAND, medium grained, orange - brown with grey mottling, poorly sorted.	M		
		8/3/06	1	1.50					Wood pulp, brown.			FILL, sulfidic odour noted.
				1.60 3.00				SP	SAND, medium grained, orange - brown, poorly sorted, trace silt.			Transgressive Dune Sediments (Marine), sulfidic odour noted.
PT	L		2		U50 2.00-2.40m R = 0A PID = 5.0 ppm							
				2.70 1.90				SP	As above but orange.	W		
			3	3.40 1.20	U50 3.20-3.40m PID = 4.2 ppm			SM	Silty SAND, fine grained, grey - black, poorly sorted, organic silt.			Transgressive Dune Sediments (Marine), strong sulfidic odour noted.
				3.90 0.70				SM	Silty SAND, medium grained, grey - brown, poorly sorted, some silt.			Transgressive Dune Sediments (Marine), mild sulfidic odour noted.
			4	4.80 -0.20					END OF BOREHOLE @ 4.80 m natural material reached.			
			5									
			6									
			7									
			8									
			9									
			10									

This report of borehole must be read in conjunction with accompanying notes and abbreviations.

GAP gINT FN. F01a
RL2

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REPORT OF BOREHOLE: BH118

Golder Associates

SHEET: 1 OF 1
DRILL RIG: Geoprobe
DRILLER: Drilltest
LOGGED: JAH DATE: 10/3/06
CHECKED: CSC DATE: 15/5/06

CLIENT: AMCOR
PROJECT: Fibre Packaging Plant
LOCATION: Botany Rd, Matraville
JOB NO: 06623026

POSITION:
SURFACE RL: 5.60 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: mm HOLE DEPTH: 1.80 m

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC Symbol	SOIL / ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
DTC	M	Groundwater not encountered	0	0.13					Concrete pavement.			
				5.47	U50 0.20-0.50m R = 2A PID = 4.2 ppm				Silty SAND, medium grained, dark grey brown, poorly sorted, some organic content, with coarse sandstone gravels.			FILL no odour noted.
				0.60					Crushed brick, red.			
				0.70								
PT	L		1	4.90	U50 0.80-1.10m R = 1A PID = 9.3 ppm				Silty SAND, medium grained, dark brown, poorly sorted, some organic content, with coarse sandstone gravels	M		
				1.80								
				3.80					END OF BOREHOLE @ 1.80 m Refusal on unknown object.			
			2									
			3									
			4									
			5									
			6									
			7									
			8									
			9									
			10									

This report of borehole must be read in conjunction with accompanying notes and abbreviations.

GAP gINT FN. F01a
RL2

GAP6_0-19ETA_BRIS.GLB FULL PAGE J:\06PROJ\001-050\06623026_AMCOR_BOTANY\GINT\06623026_AMCOR_BH.GPJ GAPS_1.GDT 16/09/2006 2:34:12 PM

REPORT OF BOREHOLE: BH121

Golder Associates

SHEET: 1 OF 1
DRILL RIG: Geoprobe
DRILLER: Drilltest
LOGGED: JAH DATE: 9/3/06
CHECKED: CSC DATE: 15/5/06

CLIENT: AMCOR
PROJECT: Fibre Packaging Plant
LOCATION: Botany Rd, Matraville
JOB NO: 06623026

POSITION:
SURFACE RL: 5.70 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: mm HOLE DEPTH: 3.40 m

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC Symbol	SOIL / ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
DTC	M	9/3/06	0	5.62	U50 0.10-0.40m R = 2A PID = 5.7 ppm				Concrete pavement.			
				0.60					Silty SAND, medium grained, grey - black, poorly sorted.	M		FILL no odour noted.
			1	5.10					Silty SAND, medium grained, grey - brown, poorly sorted, with coarse sandstone gravels			
				1.50								
PT	L			4.20				SM	Silty SAND, fine grained, dark brown - red, poorly sorted, some silt.	W		Transgressive Dune Sediments (Marine)
			2	2.40								
				3.30	U50 2.60-3.10m R = 0A PID = 5.9 ppm			SP	SAND, medium grained, orange - brown, poorly sorted, some silt.			
			3	3.20								
				2.50				SP	SAND, fine grained, dark red - brown, poorly sorted, some silt.			
				3.40								
				2.30					END OF BOREHOLE @ 3.40 m natural material reached.			
			4									
			5									
			6									
			7									
			8									
			9									
			10									

This report of borehole must be read in conjunction with accompanying notes and abbreviations.

GAP gINT FN. F01a
RL2

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REPORT OF BOREHOLE: BH122

Golder Associates

SHEET: 1 OF 3
DRILL RIG: Fox B40
DRILLER: Drilltest
LOGGED: AHP DATE: 10/3/06
CHECKED: CSC DATE: 15/5/06

CLIENT: AMCOR
PROJECT: Fibre Packaging Plant
LOCATION: Botany Rd, Matraville
JOB NO: 06623026

POSITION:
SURFACE RL: 3.70 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: mm HOLE DEPTH: 24.55 m

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC Symbol	SOIL / ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT			0	0.10					BITUMEN			Road Pavement
				3.60	DS 0.20-0.40m			SP	SAND - medium, brown, some silt			FILL
			1		DS 0.80-1.00m					M		
			2		SPT 1.50-1.95m 1,1,2 N = 3							
				2.50	DS 2.30-2.50m							
				1.20	SPT 2.50-2.95m 1,2,8 N = 10			SP	SAND - medium, brown, grey, some silt			Transgressive Dune Sediments (Marine)
			3								MD	
			4		SPT 4.00-4.45m 5,11,14 N = 25							
				4.80 -1.10					lens with peat fibres			
			5		SPT 5.00-5.45m 6,18,30 N = 48							
				5.60 -1.90				SP	SAND - medium, grey			
			6		SPT 6.50-6.80m 21,33,- N = >54					W		
RT			7	7.10 -3.40					lens with peat fibres		D-VD	
			8	8.00 -4.30	SPT 8.00-8.45m 9,20,25 N = 45				lens with peat fibres			
			9	9.00 -5.30				SP	SAND - medium, pale brown, some silt			
			10									

This report of borehole must be read in conjunction with accompanying notes and abbreviations.

GAP gINT FN. F01a
RL2

GAP8_0-1BETA_BRIS.GLB FULL PAGE J:\GSPRO.N01-050\06623026_AMCOR_BOTANY\GINT\06623026_AMCOR_BH.GPJ GAP5_1.GDT 15/05/2006 2:04:27 PM

REPORT OF BOREHOLE: BH122

Golder Associates

SHEET: 2 OF 3

CLIENT:	AMCOR	POSITION:	DRILL RIG: Fox B40
PROJECT:	Fibre Packaging Plant	SURFACE RL: 3.70 m DATUM: AHD	DRILLER: Drillitest
LOCATION:	Botany Rd, Matraville	INCLINATION: -90°	LOGGED: AHP DATE: 10/3/06
JOB NO:	06623026	HOLE DIA: mm HOLE DEPTH: 24.55 m	CHECKED: CSC DATE: 15/5/06

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC Symbol	SOIL / ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
RT			10					SP	SAND - medium, pale brown, some silt			Transgressive Dune Sediments (Marine)
			11	11.10 -7.40	SPT 11.00-11.36m 16,26,- N = >42				As above, some fine, pale grey sand			
			12									
			13									
				13.70 -10.00				SP	SAND - medium, dark grey, trace silt			
			14		SPT 14.00-14.30m 26,13,- N = >39							SPT Mechanical breakdown
			15							W	D-VD	
				15.60 -11.90				SP	SAND - medium, dark brown grey, some silt			
			16									
				16.60 -12.90					lens with peat fibres			
			17		SPT 17.00-17.30m 14,32,- N = >46							
			18									
				18.20 -14.50					lens with peat			
			19									
				19.45 -15.75					lens with peat			
			20	20.00								

This report of borehole must be read in conjunction with accompanying notes and abbreviations.

GAP gINT FN. F01a
RL2

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REPORT OF BOREHOLE: BH122

Golder Associates

SHEET: 3 OF 3
DRILL RIG: Fox B40
DRILLER: Drilltest
LOGGED: AHP DATE: 10/3/06
CHECKED: CSC DATE: 15/5/06

CLIENT: AMCOR
PROJECT: Fibre Packaging Plant
LOCATION: Botany Rd, Matraville
JOB NO: 06623026

POSITION:
SURFACE RL: 3.70 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: mm HOLE DEPTH: 24.55 m

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC Symbol	SOIL / ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
RT			20	-16.30	SPT 20.00-20.30m 25,35,- N = >60			SP	SAND - medium, dark brown, some peat lenses	W	D-VD	Transgressive Dune Sediments (Marine)
			21									
			22									
			23									
				23.40 -19.70					lens with peat fibres			
			24									
				24.55 -20.85	SPT 24.40-24.55m 42,-,- N = >42				END OF BOREHOLE @ 24.55 m			
			25									
			26									
			27									
			28									
			29									
			30									

This report of borehole must be read in conjunction with accompanying notes and abbreviations.

GAP gINT FN. F01a
RL2

GAPS_0-13BETA_BRIS.GLB PULL PAGE J:\06PROJ\0614-09\06623026_AMCOR_BOTANY\GINT\06623026_AMCOR_BH.GPJ GAPS_1.GDT 16/05/2006 2:04:28 PM

REPORT OF BOREHOLE: BH123

Golder Associates

SHEET: 1 OF 1
DRILL RIG: Geoprobe
DRILLER: Drilltest
LOGGED: JAH DATE: 10/3/06
CHECKED: CSC DATE: 15/5/06

CLIENT: AMCOR
PROJECT: Fibre Packaging Plant
LOCATION: Botany Rd, Matraville
JOB NO: 06623026

POSITION:
SURFACE RL: 2.30 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: mm HOLE DEPTH: 3.60 m

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC Symbol	SOIL / ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
PT	L	10/3/06	0	0.15					Silty SAND, brown - grey, well sorted.			FILL, rootlets encountered.
				2.15	U50 0.20-0.50m R = 3A PID = 0.3 ppm				Gravelly ASH with slag gravels, grey - black, ash perdominantly silt sized.	M		FILL, no odour noted.
				0.50 1.80					Silty SAND, medium grained, dark brown, poorly sorted with coarse gravels and high organic content.			
			1	1.00					Wood pulp, brown.			FILL, sulfidic odour noted.
				1.10 1.20 1.30	U50 1.00-1.30m R = 3B PID = 5.2 ppm				Gravelly SAND, black with slag gravels, ash.			FILL, no odour noted.
				1.00					Silty SAND, medium grained, grey, poorly sorted with medium slag gravels.			
			2	2.00					Wood pulp, brown.			FILL, sulfidic odour noted.
				2.15 0.15	U50 2.00-2.30m R = 3B PID = 0.8 ppm				SAND, medium grained, grey - black, poorly sorted with slag gravels, some silt.	W		FILL, no odour noted.
				2.70 -0.40				SP	SAND, medium grained, grey, poorly sorted.			Transgressive Dune Sediments (Marine), sulfidic odour noted.
			3	3.60 -1.30					END OF BOREHOLE @ 3.60 m natural material reached.			
			4									
			5									
			6									
			7									
			8									
			9									
			10									

This report of borehole must be read in conjunction with accompanying notes and abbreviations.

GAP gINT FN. F01a
RL2

GAP8_0-1BETA_BRIS.GLB FULL PAGE J:\06PROJ\001-050\06623026_AMCOR_BOTANY\GINT\06623026_AMCOR_BH.GPJ GAP5_1.GDT 15/05/2006 2:34:36 PM

REPORT OF BOREHOLE: BH124

Golder Associates

SHEET: 1 OF 3
DRILL RIG: Fox B40
DRILLER: Drilltest
LOGGED: AHP DATE: 8/3/06
CHECKED: CSC DATE: 15/5/06

CLIENT: AMCOR
PROJECT: Fibre Packaging Plant
LOCATION: Botany Rd, Matraville
JOB NO: 06623026

POSITION:
SURFACE RL: 5.50 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: mm HOLE DEPTH: 23.80 m

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC Symbol	SOIL / ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
Concrete Coring	H		0	0.18 / 5.33					Concrete			Road Pavement
					DS 0.20-0.30m				SAND - medium, brown, some silt			Fill, concrete cobbles to 0.6m
					DS 0.40-0.50m							
	M				DS 0.80-1.00m							
			1		SPT 1.00-1.40m 3,2,1 N = 3							
			2	2.20 / 3.30				SP	SAND - medium, brown grey	M	L	Transgressive Dune Sediments (Marine)
AD					DS 2.30-2.50m							
					SPT 2.50-2.95m 3,4,5 N = 7							
			3									
				3.70 / 1.80				SP	SAND - medium, pale grey			
			4		SPT 4.00-4.45m 6,12,18 N = 30							
			5								MD	
	L			5.65 / -0.15	SPT 5.50-5.95m 17,7,15 N = 22				lens of CLAY, pale brown			
			6									
			7		SPT 7.00-7.45m 11,14,17 N = 31					W		
RT				7.60 / -2.10				SP	SAND - medium, brown grey			
			8								D-VD	
					SPT 8.50-8.80m 18,35,- N = >53							
			9									
			10									

This report of borehole must be read in conjunction with accompanying notes and abbreviations.

GAP gINT FN. F01a
RL2

GAP6_0-18ETA_BRIS.GLB FULL PAGE J:\96PROJ\001-050\06623026_AMCOR_BOTANY\GINT\06623026_AMCOR_BH.GPJ GAP5_1.GDT 16/05/2006 2:04:44 PM

REPORT OF BOREHOLE: BH124

Golder Associates

SHEET: 2 OF 3
DRILL RIG: Fox B40
DRILLER: Drilltest
LOGGED: AHP DATE: 8/3/06
CHECKED: CSC DATE: 15/5/06

CLIENT: AMCOR
PROJECT: Fibre Packaging Plant
LOCATION: Botany Rd, Matraville
JOB NO: 06623026

POSITION:
SURFACE RL: 5.50 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: mm HOLE DEPTH: 23.80 m

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC Symbol	SOIL / ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
RT	L		10					SP	SAND - medium, brown grey	W	D-VD	Transgressive Dune Sediments (Marine)
			11		SPT 11.50-11.80m 20,38,- N = >58							
			12	12.60 -7.10					CLAY lens, dark brown, 150 mm thick			
			13									
			14	14.20 -8.70				SP	SAND - medium, brown			Dark silty SAND lens at the top of SPT recovery
			15		SPT 14.50-14.59m 24,25,- N = >49							
				15.75 -10.25					Lens with peat fibres, dark brown			
			16									
			17	17.30 -11.80				SP	SAND - medium, dark brown, peat fibres present in lenses			SPT mechanical breakdown
					SPT 17.50-17.72m 25,27/70mm,- N = >45							
			18									
			19									
			20									

This report of borehole must be read in conjunction with accompanying notes and abbreviations.

GAP gINT FN. F01a
RL2

GAP6 0-13ETA_BRIS.GLB FULL PAGE J:\06PROJ\001-050\06623026_AMCOR_BOTANY\GINT\06623026_AMCOR_BH.GPJ GAP5_1.GDT 16/05/2006 2:54:45 PM

REPORT OF BOREHOLE: BH124

Golder Associates

SHEET: 3 OF 3
DRILL RIG: Fox B40
DRILLER: Drilltest
LOGGED: AHP DATE: 8/3/06
CHECKED: CSC DATE: 15/5/06

CLIENT: AMCOR
PROJECT: Fibre Packaging Plant
LOCATION: Botany Rd, Matraville
JOB NO: 06623026

POSITION:
SURFACE RL: 5.50 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: mm HOLE DEPTH: 23.80 m

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC Symbol	SOIL / ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
RT	M		20					SP	SAND - medium, dark brown, peat fibres present in lenses	W	D-VD	Transgressive Dune Sediments (Marine)
					SPT 20.50-20.80m 18,35,- N = >53							
			21									
			22									
			23									
				23.50 -18.00	SPT 23.50-23.80m 14,30,- N = >44			SP	Brown SANDS			
				23.80 -18.30					END OF BOREHOLE @ 23.80 m			
			24									
			25									
			26									
			27									
			28									
			29									
			30									

This report of borehole must be read in conjunction with accompanying notes and abbreviations.

GAP gINT FN. F01a
RL2

GAP6 0-1BETA_BRIS.GLB FULL PAGE J:\06PROJ\051-050\06623026_AMCOR_BOTANY\GINT\06623026_AMCOR_BH.GPJ GAP6_1.GDT 16/5/2006 2:24:43 PM

REPORT OF BOREHOLE: BH125

Golder Associates

SHEET: 1 OF 2
DRILL RIG: Fox B40
DRILLER: Drilltest
LOGGED: AHP DATE: 14/3/06
CHECKED: CSC DATE: 15/5/06

CLIENT: AMCOR
PROJECT: Fibre Packaging Plant
LOCATION: Botany Rd, Matraville
JOB NO: 06623026

POSITION:
SURFACE RL: 6.20 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: mm HOLE DEPTH: 15.30 m

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC Symbol	SOIL / ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
At			0	6.20	DS 0.00-0.20m				Silty SANDS - medium, dark brown, trace fines, gravels present, organic matter	M		FILL, organic odour
					DS 0.40-0.50m							
					DS 0.80-1.00m							
			1		SPT 1.00-1.45m 2,2,7 N = 9							
			2		DS 2.30-2.50m							
					SPT 2.50-2.95m 2,4,3 N = 7							
			3									
			4		DS 3.80-4.00m							
					SPT 4.00-4.45m 1,1,1 N = 2							
				4.60 / 1.60				SP	SAND with peat lenses			Transgressive Dune Sediments (Marine), organic odour top 1m
	L		5	5.10 / 1.10				SP	SAND - medium, brown, some silt			
					SPT 5.50-5.90m 16,13,16 N = 29						MD	no recovery from SPT
			6							W		
RD			7		SPT 7.00-7.45m 11,14,17 N = 31							
			8								D	
					SPT 8.50-8.95m 10,16,21 N = 37							
			9									
			10									

This report of borehole must be read in conjunction with accompanying notes and abbreviations.

GAP gINT FN. F01a
RL2

GAP6_0-1BETA_BRIS.GLB FULL PAGE J:\06PROJ\001-050\06623026_AMCOR_BOTANY\GINT\06623026_AMCOR_BH.GPJ GAP5_1.GDT 15/05/2006 2:04:53 PM

REPORT OF BOREHOLE: BH125

Golder Associates

SHEET: 2 OF 2
DRILL RIG: Fox B40
DRILLER: Drilltest
LOGGED: AHP DATE: 14/3/06
CHECKED: CSC DATE: 15/5/06

CLIENT: AMCOR
PROJECT: Fibre Packaging Plant
LOCATION: Botany Rd, Matraville
JOB NO: 06623026

POSITION:
SURFACE RL: 6.20 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: mm HOLE DEPTH: 15.30 m

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC Symbol	SOIL / ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
RT	L		10					SP	SAND - medium, brown, some silt	W	D	Transgressive Dune Sediments (Marine), organic odour top 1m
				10.50 -4.30					SAND lens, high in peat fibres (10.5 - 10.7)			
			11		SPT 11.50-11.80m 14,28,- N = >42							
			12									
			13	13.00 -6.80					SAND lens with peat fibres (13 - 13.2)			
			14	14.00 -7.80				SP	SAND - medium, grey			
			15		SPT 15.00-15.30m 20,32,- N = >52							
				15.30 -9.10					END OF BOREHOLE @ 15.30 m			
			16									
			17									
			18									
			19									
			20									

This report of borehole must be read in conjunction with accompanying notes and abbreviations.

GAP gINT FN. F01a
RL2

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REPORT OF BOREHOLE: BH126

Golder Associates

SHEET: 1 OF 2

CLIENT:	AMCOR	POSITION:	DRILL RIG: Fox B40
PROJECT:	Fibre Packaging Plant	SURFACE RL: 5.70 m DATUM: AHD	DRILLER: Drilltest
LOCATION:	Botany Rd, Matraville	INCLINATION: -90°	LOGGED: AHP DATE: 7/3/06
JOB NO:	06623026	HOLE DIA: mm HOLE DEPTH: 15.00 m	CHECKED: CSC DATE: 15/5/06

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC Symbol	SOIL / ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
	H		0	5.70					Concrete			Road Pavement
				0.23 / 5.47					SAND - medium, brown, some silt			FILL
	M				DS 0.25-0.35m							Concrete cobbles to about 1m.
			1		DS 0.80-1.00m SPT 1.00-1.45m 2,3,4 N = 7							
AD			2							M		Wire found
					DS 2.30-2.50m SPT 2.50-2.95m 1,2,1 N = 3							
			3	3.20 / 2.50				SP	SAND - medium, brown-grey, some silt			Transgressive Dune Sediments (Marine)
		▽	4		DS 3.80-4.00m SPT 4.00-4.45m 1,2,5 N = 7						L	
			5									
	L				SPT 5.50-5.93m 5,11,27/130mm N = >38							
			6									
RT			7	7.00 / -1.30					lens with peat fibres	W		
				7.60 / -1.90					Sandy CLAY lens, pale grey from 7.6 to 7.8m		D-VD	
			8	8.30 / -2.60					Sandy CLAY lens, dark grey from 8.3 to 8.4m			
					SPT 8.50-8.95m 11,13,20 N = 33							
			9									
			10									

This report of borehole must be read in conjunction with accompanying notes and abbreviations.

GAP gINT FN. F01a
RL2

GAP5_0-1BETA_SRIS.GLB FULL PAGE J:\GPROJ\001-050\06623026_AMCOR_BOTANY\GINT\06623026_AMCOR_BH.GPJ GAP5_1.GDT 15/05/2006 2:05:02 PM

REPORT OF BOREHOLE: BH126

Golder Associates

SHEET: 2 OF 2
DRILL RIG: Fox B40
DRILLER: Drilltest
LOGGED: AHP DATE: 7/3/06
CHECKED: CSC DATE: 15/5/06

CLIENT: AMCOR
PROJECT: Fibre Packaging Plant
LOCATION: Botany Rd, Matraville
JOB NO: 06623026

POSITION:
SURFACE RL: 5.70 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: mm HOLE DEPTH: 15.00 m

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC Symbol	SOIL / ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
RT	L		10					SP	SAND - medium, brown-grey, some silt	W	D-VD	Transgressive Dune Sediments (Marine)
			11		SPT 11.50-11.63m 32/130mm,-,- N = >32							
			12	-6.90 / 12.60					lens with peat fibres, dark brown, 12.6 - 12.8			
			13	13.30 / -7.60					lens with peat fibres			
			14		SPT 14.50-14.80m 22,35,- N = >57							
			15	15.00 / -9.30					END OF BOREHOLE @ 15.00 m			
			16									
			17									
			18									
			19									
			20									

This report of borehole must be read in conjunction with accompanying notes and abbreviations.

GAP gINT FN. F01a
RL2

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REPORT OF BOREHOLE: BH127

Golder Associates

SHEET: 1 OF 3

CLIENT:	AMCOR	POSITION:	DRILL RIG: Fox B40
PROJECT:	Fibre Packaging Plant	SURFACE RL: 5.40 m DATUM: AHD	DRILLER: Drilltest
LOCATION:	Botany Rd, Matraville	INCLINATION: -90°	LOGGED: AHP DATE: 9/3/06
JOB NO:	06623026	HOLE DIA: mm HOLE DEPTH: 24.35 m	CHECKED: CSC DATE: 15/5/06

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC Symbol	SOIL / ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
			0	5.40					HAND EXCAVATION			PVC pipe through services, 1.85m. Drill started with rotary drilling
			1									
				1.85 / 3.55					SAND medium, brown, some gravel			FILL, gravel present
			2		SPT 2.50-2.95m 4,6,8 N = 14							
			3									
					SPT 3.70-4.15m 7,4,4 N = 8							SPT test at 3.7m to break gravel The SPT tube was empty
RT	r	GWNO	4	4.40 / 1.00					gravel layer @ 4.4m	W		
			5	5.20 / 0.20				SP	SAND medium, brown grey, some silt			Transgressive Dune Sediments (Marine)
					SPT 5.50-5.95m 8,11,11 N = 22							
			6	6.50 / -1.10				SC	Sandy CLAY layer, brown, grey (6.5 - 6.7)		MD	
			7	6.95 / -1.55	SPT 7.00-7.45m 9,9,10 N = 19			SP	SAND - medium, dark grey			
			8									
					SPT 8.50-8.95m 10,16,18 N = 34						D-VD	
			9									
			10	9.95								

This report of borehole must be read in conjunction with accompanying notes and abbreviations.

GAP gINT FN. F01a
RL2

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REPORT OF BOREHOLE: BH127

Golder Associates

SHEET: 2 OF 3

CLIENT:	AMCOR	POSITION:	DRILL RIG: Fox B40
PROJECT:	Fibre Packaging Plant	SURFACE RL: 5.40 m DATUM: AHD	DRILLER: Drilltest
LOCATION:	Botany Rd, Matraville	INCLINATION: -90°	LOGGED: AHP DATE: 9/3/06
JOB NO:	06623026	HOLE DIA: mm HOLE DEPTH: 24.35 m	CHECKED: CSC DATE: 15/5/06

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC Symbol	SOIL / ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
RT	L		10	10.15 -4.75				SC	Sandy CLAY layer (9.95 - 10.15)	W	D-VD	Transgressive Dune Sediments (Marine)
								SP	SAND - medium, dark grey			
			11		SPT 11.50-11.80m 18,30,- N = >48							
			12	12.50 -7.10					lens with some peat fibres			
			13									
			14	14.20 -8.80				SP	SAND - medium, dark brown grey			
					SPT 14.50-14.80m 24,30,- N = >54							
			15									
			16	16.50 -11.10				SC	Sandy CLAY layer, 16.5 - 16.7m			
			17	17.20 -11.80				SP	SAND - medium, dark brown, some lenses with peat fibres			
					SPT 17.50-17.65m 32,-,- N = >32							
			18									
			19	19.20 -13.80					lens with some peat fibres			
			20									

This report of borehole must be read in conjunction with accompanying notes and abbreviations.

GAP gINT FN. F01a
RL2

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REPORT OF BOREHOLE: BH127

Golder Associates

SHEET: 3 OF 3
DRILL RIG: Fox B40
DRILLER: Drilltest
LOGGED: AHP DATE: 9/3/06
CHECKED: CSC DATE: 15/5/06

CLIENT: AMCOR
PROJECT: Fibre Packaging Plant
LOCATION: Botany Rd, Matraville
JOB NO: 06623026

POSITION:
SURFACE RL: 5.40 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: mm HOLE DEPTH: 24.35 m

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC Symbol	SOIL / ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
RT	L		20		SPT 20.50-20.95m 15,23,12 N = 35			SP	SAND - medium, dark brown, some lenses with peat fibres	W	D-VD	Transgressive Dune Sediments (Marine)
			21									
			22									
			23									
			24									
				24.35 -18.95	SPT 24.20-24.35m 21,31,- N = >52				END OF BOREHOLE @ 24.35 m			Ground water not observed due to rotary drilling methods from 1.85m
			25									
			26									
			27									
			28									
			29									
			30									

This report of borehole must be read in conjunction with accompanying notes and abbreviations.

GAP gINT FN. F01a
RL2

GAP6_0-1BETA_BRIS.GLB FULL PAGE J:\06PROJ\001-050\06623026_AMCOR_BOTANY\GINT\06623026_AMCOR_BH.GPJ GAP5_1.GDT 16/05/2006 2:05:13 PM

REPORT OF BOREHOLE: BH128

Golder Associates

SHEET: 1 OF 1
DRILL RIG: Geoprobe
DRILLER: Drilltest
LOGGED: JAH DATE: 14/3/06
CHECKED: CSC DATE: 15/5/06

CLIENT: AMCOR
PROJECT: Fibre Packaging Plant
LOCATION: Botany Rd, Matraville
JOB NO: 06623026

POSITION:
SURFACE RL: 4.70 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: mm HOLE DEPTH: 2.40 m

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC Symbol	SOIL / ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
DTC	M	Groundwater not encountered	0	0.10					Concrete pavement.	M		
				4.60 / 0.30	U50 0.10-0.30m R = 1A PID = 1.7 ppm				Silty SAND, medium grained, grey, poorly sorted.			FILL, no odour noted.
				4.40 / 0.60				SM	Silty SAND, fine and medium grained, dark red brown, poorly sorted, some organic material.			Transgressive Dune Sediments (Marine)
PT	L			4.10	U50 0.30-0.60m R = 0A PID = 4.4 ppm U50 1.00-1.30m R = 0A PID = 4.1 ppm			SP	SAND, medium grained, orange - brown, poorly sorted, trace silt.			
			1	1.50 / 3.20				SM	Silty SAND, fine grained, dark red - brown, poorly sorted with some organic material.			
			2	2.20 / 2.50 / 2.40				SP	SAND, medium grained, orange - brown, poorly sorted.			
				2.30					END OF BOREHOLE @ 2.40 m natural material reached.			
			3									
			4									
			5									
			6									
			7									
			8									
			9									
			10									

This report of borehole must be read in conjunction with accompanying notes and abbreviations.

GAP gINT FN. F01a
RL2

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REPORT OF BOREHOLE: BH129

Golder Associates

SHEET: 1 OF 1
DRILL RIG: Geoprobe
DRILLER: Drilltest
LOGGED: JAH DATE: 8/3/06
CHECKED: CSC DATE: 15/5/06

CLIENT: AMCOR
PROJECT: Fibre Packaging Plant
LOCATION: Botany Rd, Matraville
JOB NO: 06623026

POSITION:
SURFACE RL: 2.40 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: mm HOLE DEPTH: 4.80 m

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC Symbol	SOIL / ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
PT	L	8/3/06	0	0.10					Road Base GRAVEL, grey - black.			FILL.
				2.30					Gravelly ASH, grey - black, with charcoal and slag gravel.	M		FILL, no odour noted.
				0.60 1.80	DUP4 U50 0.60-1.20m R = 1A PID = 0.4 ppm				Silty SAND, medium grained, grey - brown, poorly sorted, with traces of ash and slag gravel, some silt.			
			1									
			2									
			3							W		
				3.30 -0.90	U50 3.30-3.60m R = 0A PID = 2.6 ppm			SP	SAND, fine grained, dark grey, poorly sorted, trace organic material.			Transgressive Dune Sediments (Marine), sulfidic odour noted .
			4	4.10 -1.70	U50 4.20-4.80m R = 0A PID = 3.5 ppm			SP	SAND, medium grained, grey, poorly sorted.			Transgressive Dune Sediments (Marine)
	M			4.80 -2.40					END OF BOREHOLE @ 4.80 m natural material reached.			
			5									
			6									
			7									
			8									
			9									
			10									

This report of borehole must be read in conjunction with accompanying notes and abbreviations.

GAP gINT FN. F01a
RL2

GAPS_0-1BETA_BRIS.GLB FULL PAGE J:\06PROJ\001-050\06623026_AMCOR_BOTANY\GINT\06623026_AMCOR_BH.GPJ GAPS_1.GDT 16/05/2006 2:05:27 PM

REPORT OF BOREHOLE: BH130

Golder Associates

SHEET: 1 OF 1
DRILL RIG: Geoprobe
DRILLER: Drilltest
LOGGED: JAH DATE: 8/3/06
CHECKED: CSC DATE: 15/5/06

CLIENT: AMCOR
PROJECT: Fibre Packaging Plant
LOCATION: Botany Rd, Matraville
JOB NO: 06623026

POSITION:
SURFACE RL: 2.20 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: mm HOLE DEPTH: 3.60 m

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC Symbol	SOIL / ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
PT	L	8/3/06	0	0.10 / 2.10					Road Base GRAVEL, grey - black.			FILL.
									Gravelly ASH, black, with slag and charcoal gravel.			FILL, no odour noted.
					U50 0.70-1.10m PID = 0.2 ppm							
			1	1.00 / 1.20					Silty SAND, medium grained, grey to brown, poorly sorted.	M		
			2	2.00 / 0.20	U50 2.00-2.40m PID = 5.4 ppm				Silty SAND, medium grained, grey to black, some charcoal and slag gravels, trace organic material.	W		FILL, sulfidic odour noted.
			3	3.00 / -0.80				SP	SAND, medium grained, grey, poorly sorted.			Transgressive Dune Sediments (Marine)
					U50 3.20-3.60m R = 0A PID = 1.1 ppm			SM	Silty Sand, grey - brown, fine grained.			
				3.50 / 3.60 / -1.40					END OF BOREHOLE @ 3.60 m natural material reached.			
			4									
			5									
			6									
			7									
			8									
			9									
			10									

This report of borehole must be read in conjunction with accompanying notes and abbreviations.

GAP gINT FN. F01a
RL2

GAP6_0-13BETA_BRMS.GLB FULL PAGE J:\06PROJ\001-050\06623026_AMCOR_BOTANY\GINT\06623026_AMCOR_B4.GPJ GAP5_1.GDT 16/05/2006 2:05:33 PM

REPORT OF BOREHOLE: BH131

Golder Associates

SHEET: 1 OF 1
DRILL RIG: Geoprobe
DRILLER: Drilltest
LOGGED: JAH DATE: 8/3/06
CHECKED: CSC DATE: 15/5/06

CLIENT: AMCOR
PROJECT: Fibre Packaging Plant
LOCATION: Botany Rd, Matraville
JOB NO: 06623026

POSITION:
SURFACE RL: 5.40 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: mm HOLE DEPTH: 7.20 m

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC Symbol	SOIL / ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
PT	L	8/3/06	0	0.10 / 5.30	U50 0.10-0.40m PID = 2.6 ppm				Silty SAND, brown.	M		FILL, rootlets noted.
				0.40 / 5.00					Silty SAND, medium grained, grey - brown, poorly sorted.			FILL, no odour noted.
				0.70 / 4.70					Gravelly ASH, black, with slag and charcoal gravel.			
			1						SAND, medium grained, brown to orange, with angular slag and charcoal gravels, poorly sorted.			
			2		U50 2.10-2.40m PID = 2.7 ppm							
			3									
			4									
			5	4.90 / 0.50	U50 4.70-5.10m PID = 1.8 ppm				Gravelly ASH, black, with slag gravel.	W		
			6	5.90 / -0.50				SP	SAND, medium grained, brown- grey poorly sorted, trace silt.			Transgressive Dune Sediments (Marine), sulfidic odour noted.
			7	7.20 / -1.80	U50 6.80-7.20m PID = 0.3 ppm				END OF BOREHOLE @ 7.20 m natural material reached.			
			8									
			9									
			10									

This report of borehole must be read in conjunction with accompanying notes and abbreviations.

GAP gINT FN. F01a
RL2

GAP5 0-13ETA_BRIS.GLB FULL PAGE J:\06PROJ\001-050\06623026_AMCOR_BOTANY\GINT\06623026_AMCOR_BH.GPJ GAP5_1.GDT 16/05/2006 2:05:39 PM

REPORT OF BOREHOLE: BH132

Golder Associates

SHEET: 1 OF 1
DRILL RIG: Geoprobe
DRILLER: Drilltest
LOGGED: JAH DATE: 7/3/06
CHECKED: CSC DATE: 15/5/06

CLIENT: AMCOR
PROJECT: Fibre Packaging Plant
LOCATION: Botany Rd, Matraville
JOB NO: 06623026

POSITION:
SURFACE RL: 5.50 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: mm HOLE DEPTH: 7.20 m

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC Symbol	SOIL / ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
PT	L	7/3/06	0	0.10 / 5.40	DUP1 U50 0.10-0.30m R = 2A PID = 4.3 ppm				Silty SAND, medium grained, brown.	M		Rootlets noted.
									SAND, black to grey, with coarse angular slag occasional glass and metal, some silt.			FILL, no odour noted.
			1	0.90 / 4.60	U50 0.90-1.20m PID = 6.7 ppm				Woody pulp, brown, with occasional metal pieces.			FILL, sulfidic odour noted, inferred poorly compacted
			2									
			3									
			4	4.30 / 1.20					Clayey SAND, medium grained, brown, with some fine to medium angular gravels.	W		FILL, mild sulfidic odour.
			5		U50 4.50-4.80m PID = 4.9 ppm							
			6	6.20 / -0.70				SP	SAND, medium grained, brown- grey, with some lenses of clayey sand, poorly sorted.			Transgressive Dune Sediments (Marine), sulfidic odour noted.
			7		U50 6.60-7.00m R = 0A PID = 2.2 ppm							
				7.20 / -1.70					END OF BOREHOLE @ 7.20 m natural material reached.			
			8									
			9									
			10									

This report of borehole must be read in conjunction with accompanying notes and abbreviations.

GAP gINT FN. F01a
RL2

GAP6_0-15ETA_BHS.GLB FULL PAGE J:\06PROJ\061-050\06623026_AMCOR_BOTANY\GINT\06623026_AMCOR_BH.GPJ GAP5_1.GDT 16/05/2006 2:05:45 PM

REPORT OF BOREHOLE: BH133

Golder Associates

CLIENT:	AMCOR	POSITION:	SHEET: 1 OF 1
PROJECT:	Fibre Packaging Plant	SURFACE RL: 5.50 m DATUM: AHD	DRILL RIG: Geoprobe
LOCATION:	Botany Rd, Matraville	INCLINATION: -90°	DRILLER: Drilltest
JOB NO:	06623026	HOLE DIA: mm HOLE DEPTH: 7.20 m	LOGGED: JAH DATE: 7/3/06
			CHECKED: CSC DATE: 15/5/06

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC Symbol	SOIL / ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
PT	L	7/3/06	0	0.10					Silty SAND, medium grained, brown - black.	M		Rootlets encountered.
				5.35	U50 0.10-0.15m R = 3A PID = 8.7 ppm				Gravelly ASH, black, with slag and charcoal gravels.			FILL, no odour noted.
				0.60	U50 0.50-0.80m R = 3A PID = 3.6 ppm				Silty SAND, medium grained, grey - black, with some clay and slag gravels, well sorted.			
				4.85					Gravelly ASH, black, with some slag gravels.			FILL.
			1						Sand, medium grained with some slag gravel and clay, grey-brown			FILL, no odour noted.
			2	2.10								
				3.40	U50 2.10-2.40m R = 3A PID = 3.0 ppm				Gravelly ASH with slag and charcoal gravel, brown-black.			
			3	3.10								
				2.40	U50 3.10-3.60m R = 3B PID = 2.9 ppm				Wood pulp, brown.			FILL, sulfidic odour noted.
			4									
			5									
	M		6	6.00 -0.50				SP	SAND, medium grained, brown - grey, poorly sorted, trace silt.	W		Transgressive Dune Sediments (Marine), strong sulfidic odour.
					U50 6.80-7.20m PID = 3.7 ppm							
			7	7.20 -1.70					END OF BOREHOLE @ 7.20 m natural material reached.			
			8									
			9									
			10									

This report of borehole must be read in conjunction with accompanying notes and abbreviations.

GAP gINT FN. F01a
RL2

GAP5_0-13ETA_BRIS.GLB FULL PAGE J:\06PROJ\061-050\06623026_AMCOR_BOTANY\GINT\06623026_AMCOR_BH.GPJ GAP5_1.GDT 16/05/2006 2:05:51 PM

REPORT OF BOREHOLE: BH134

Golder Associates

SHEET: 1 OF 1
DRILL RIG: Geoprobe
DRILLER: Drilltest
LOGGED: JAH DATE: 10/3/06
CHECKED: CSC DATE: 15/5/06

CLIENT: AMCOR
PROJECT: Fibre Packaging Plant
LOCATION: Botany Rd, Matraville
JOB NO: 06623026

POSITION:
SURFACE RL: 4.30 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: mm HOLE DEPTH: 5.00 m

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC Symbol	SOIL / ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
PT	L	10/3/06	0	0.10 / 4.20	U50 0.30-0.50m PID = 1.5 ppm				Silty SAND, fine grained, brown, poorly sorted.	M		Rootlets encountered.
									SAND, brown, well sorted with medium angular sandstone and brick gravels, some silt, some organic material.			FILL, no odour noted.
			1		U50 1.40-1.80m							
	M		2	2.00 / 2.10 / 2.20	U50 2.10-2.30m PID = 2.7 ppm				Crushed concrete.			
									SAND, fine to medium, grey brown, trace organic medium angular sandstone and brick gravels, some silt, trace organic fibres.	W		Sulfidic odour noted from 2.5m
	L		3									
				3.80 / 0.50 / 4.00					Sandy CLAY, high plasticity, black, with organic content.			FILL, sulfidic odour noted.
			4	0.30				SP	SAND, medium grained, grey - brown, poorly sorted, some silt.			Transgressive Dune Sediments (Marine), sulfidic odour noted.
			5	6.00 / -0.70					END OF BOREHOLE @ 5.00 m natural material reached.			
			6									
			7									
			8									
			9									
			10									

This report of borehole must be read in conjunction with accompanying notes and abbreviations.

GAP gINT FN. F01a
RL2

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REPORT OF BOREHOLE: BH135

Golder Associates

CLIENT:	AMCOR	POSITION:	SHEET: 1 OF 2
PROJECT:	Fibre Packaging Plant	SURFACE RL: 5.90 m DATUM: AHD	DRILL RIG: Mole
LOCATION:	Botany Rd, Matraville	INCLINATION: -90°	DRILLER: Drilitest
JOB NO:	06623026	HOLE DIA: mm HOLE DEPTH: 15.00 m	LOGGED: AHP DATE: 16/3/06
			CHECKED: CSC DATE: 15/5/06

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC Symbol	SOIL / ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
	H		0	0.20					Start Soil Borehole @ 0.20 m			Concrete Coring
AD				5.70	DS 0.20-0.30m				SAND - medium, grey, some silt traces			FILL
					DS 0.40-0.50m							
			1		DS 0.90-1.00m							
				1.20 / 4.70				SP	Sand - medium, brown			Transgressive Dune Sediments (Marine)
	L		2							M		
					DS 2.40-2.50m							
				2.60 / 3.30				SP	SAND - medium, pale brown grey			
			3									
			4	4.00 / 1.90	DS 3.90-4.00m			SP	SAND - medium, pale brown			
WB	M		5									
			6									
			7							W		
			8									
			9									
			10									

This report of borehole must be read in conjunction with accompanying notes and abbreviations.

GAP gINT FN. F01a
RL2

GAP6_0-IBETA_BRIS.GLB FULL PAGE J:\06PROJ\001-050\06623026_AMCOR_BOTANY\GINT\06623026_AMCOR_BH.GPJ GAP5_1.GDT 16/05/2006 2:06:05 PM

REPORT OF BOREHOLE: BH135

Golder Associates

SHEET: 2 OF 2
DRILL RIG: Mole
DRILLER: Drilltest
LOGGED: AHP DATE: 16/3/06
CHECKED: CSC DATE: 15/5/06

CLIENT: AMCOR
PROJECT: Fibre Packaging Plant
LOCATION: Botany Rd, Matraville
JOB NO: 06623026

POSITION:
SURFACE RL: 5.90 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: mm HOLE DEPTH: 15.00 m

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC Symbol	SOIL / ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
WB	M		10					SP	SAND - medium, pale brown	W		Transgressive Dune Sediments (Marine)
			11									
			12									
			13									
			14									
			15	15.00 -9.10					END OF BOREHOLE @ 15.00 m			Well installed from 4m to 15m
			16									
			17									
			18									
			19									
			20									

This report of borehole must be read in conjunction with accompanying notes and abbreviations.

GAP gINT FN. F01a
RL2

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REPORT OF BOREHOLE: BH136

Golder Associates

CLIENT:	AMCOR	POSITION:	SHEET: 1 OF 2
PROJECT:	Fibre Packaging Plant	SURFACE RL: 6.90 m DATUM: AHD	DRILL RIG: Fox B40
LOCATION:	Botany Rd, Matraville	INCLINATION: -90°	DRILLER: Drilltest
JOB NO:	06623026	HOLE DIA: mm HOLE DEPTH: 15.30 m	LOGGED: AHP DATE: 13/3/06
			CHECKED: CSC DATE: 15/5/06

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC Symbol	SOIL / ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
AD	L		0	6.90 / 0.20	DS 0.00-0.20m				ASHPHALT	M		Roadway
				6.70	DS 0.30-0.50m				SAND - medium, brown, some silt, some gravel			FILL Strong Odour
			1		DS 0.90-1.00m SPT 1.00-1.45m 2,2,4 N = 6							
			2	2.40 / 4.50				SP	SAND - medium, pale brown		MD	Transgressive Dune Sediments (Marine)
			3		SPT 2.50-2.95m 3,7,10 N = 17							
			4		SPT 4.00-4.45m 2,14,16 N = 30					W		
			5	5.30 / 1.60				SP	SAND - medium, brown grey		D-VD	
			6		SPT 5.50-5.80m 18,25,- N = >43							
RT	M			6.50 / 0.40					CLAY lens, grey 6.5 - 6.7			
			7		SPT 7.00-7.45m 15,23,28 N = 51							
			8	8.20 / -1.30				SP	SAND - medium, pale brown, some silt			
					SPT 8.50-8.80m 22,35,- N = >57							
			9									
			10									

This report of borehole must be read in conjunction with accompanying notes and abbreviations.

GAP gINT FN. F01a
RL2

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REPORT OF BOREHOLE: BH136

Golder Associates

SHEET: 2 OF 2
DRILL RIG: Fox B40
DRILLER: Drilltest
LOGGED: AHP DATE: 13/3/06
CHECKED: CSC DATE: 15/5/06

CLIENT: AMCOR
PROJECT: Fibre Packaging Plant
LOCATION: Botany Rd, Matraville
JOB NO: 06623026

POSITION:
SURFACE RL: 6.90 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: mm HOLE DEPTH: 15.30 m

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC Symbol	SOIL / ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
RT	M		10	10.50 -3.60				SP	SAND - medium, pale brown, some silt	W	D-VD	Transgressive Dune Sediments (Marine)
			11		SPT 11.50-11.80m 22,30,- N = >52			SP	SAND - medium, brown			
			12									
			13									
			14									
			15	15.30 -8.40	SPT 15.00-15.30m 12,27,- N = >39				END OF BOREHOLE @ 15.30 m			
			16									
			17									
			18									
			19									
			20									

This report of borehole must be read in conjunction with accompanying notes and abbreviations.

GAP gINT FN. F01a
RL2

GAP6_0-1BETA_BR15.GLB FULL PAGE J:\06PROJ\001-050\06623026_AMCOR_BOTANY\GINT\06623026_AMCOR_BH.GPJ GAP6_1.GDT 16/05/2006 2:06:14 PM

REPORT OF BOREHOLE: BH137

Golder Associates

SHEET: 1 OF 2

CLIENT:	AMCOR	POSITION:	DRILL RIG: Mole
PROJECT:	Fibre Packaging Plant	SURFACE RL: 2.50 m DATUM: AHD	DRILLER: Drilltest
LOCATION:	Botany Rd, Matraville	INCLINATION: -90°	LOGGED: AHP DATE: 16/3/06
JOB NO:	06623026	HOLE DIA: mm HOLE DEPTH: 15.00 m	CHECKED: CSC DATE: 15/5/06

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC Symbol	SOIL / ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
HAND			0	2.50					Hand Excavation			PVC pipe installed 1.3m into ground to avoid services. ponding of water from leaky pipes at surface, 2m from PVC pipe
			1	1.30								
AD		▷	2	1.20	DS 1.40-1.50m DS 2.40-2.50m				SAND - medium, dark brown, some peat fibres and silt	M		FILL
			3									
			4	4.00 -1.50	DS 3.90-4.00m			SP	SAND - medium, pale brown, trace silt			Transgressive Dune Sediments (Marine)
RT	L		5									
			6									
			7							W		
			8									
			9									
			10									

This report of borehole must be read in conjunction with accompanying notes and abbreviations.

GAP gINT FN. F01a
RL2

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REPORT OF BOREHOLE: BH137

Golder Associates

SHEET: 2 OF 2
DRILL RIG: Mole
DRILLER: Drilltest
LOGGED: AHP DATE: 16/3/06
CHECKED: CSC DATE: 15/5/06

CLIENT: AMCOR
PROJECT: Fibre Packaging Plant
LOCATION: Botany Rd, Matraville
JOB NO: 06623026

POSITION:
SURFACE RL: 2.50 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: mm HOLE DEPTH: 15.00 m

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC Symbol	SOIL / ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
RT	L		10					SP	SAND - medium, pale brown, trace silt	W		Transgressive Dune Sediments (Marine)
			11									
			12									
			13									
			14									
			15	15.00 -12.50					END OF BOREHOLE @ 15.00 m			Well installation from 4m-15m
			16									
			17									
			18									
			19									
			20									

This report of borehole must be read in conjunction with accompanying notes and abbreviations.

GAP gINT FN. F01a
RL2

GAP5_0-1BETA_BRIS.GLB FULL PAGE J:\06PROJ\001-050\06623026_AMCOR_BOTANY\GINT\06623026_AMCOR_BH.GPJ GAP5_1.GST 15/05/2006 2:06:21 PM

REPORT OF BOREHOLE: BH138

Golder Associates

SHEET: 1 OF 2

CLIENT:	AMCOR	POSITION:	DRILL RIG: Fox B40
PROJECT:	Fibre Packaging Plant	SURFACE RL: 2.40 m DATUM: AHD	DRILLER: Drilltest
LOCATION:	Botany Rd, Matraville	INCLINATION: -90°	LOGGED: AHP DATE: 13/3/06
JOB NO:	06623026	HOLE DIA: mm HOLE DEPTH: 15.45 m	CHECKED: CSC DATE: 15/5/06

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC Symbol	SOIL / ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
AD	L	▽	0	2.40 / 0.20	DS 0.00-0.20m				Road Surface	M		Unsealed gravel road
				2.20	DS 0.30-0.50m				SAND - medium, brown, some flyash, some gravel, some silt.			FILL
					DS 0.70-1.00m							
			1		SPT 1.00-1.50m 3,3,3 N = 6							
			2		DS 2.40-2.50m SPT 2.50-2.95m 2,3,3 N = 6							
			3	3.80 / -1.40				SP	SAND - medium, brown - grey, some silt	W	MD	Transgressive Dune Sediments (Marine)
RT	M		4		SPT 4.00-4.45m 3,10,22 N = 32							
			5		SPT 5.50-5.95m 12,13,11 N = 24							
			6									
			7		SPT 7.00-7.50m 4,7,11 N = 18							
			8		SPT 8.50-8.95m 10,22,20/100mm N = >42						D-VD	
			9									
			10									

This report of borehole must be read in conjunction with accompanying notes and abbreviations.

GAP gINT FN. F01a
RL2

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REPORT OF BOREHOLE: BH138

Golder Associates

CLIENT:	AMCOR	POSITION:	SHEET: 2 OF 2
PROJECT:	Fibre Packaging Plant	SURFACE RL: 2.40 m DATUM: AHD	DRILL RIG: Fox B40
LOCATION:	Botany Rd, Matraville	INCLINATION: -90°	DRILLER: Drilltest
JOB NO:	06623026	HOLE DIA: mm HOLE DEPTH: 15.45 m	LOGGED: AHP DATE: 13/3/06
			CHECKED: CSC DATE: 15/5/06

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC Symbol	SOIL / ROCK MATERIAL DESCRIPTION	MOISTURE	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
RT	M		10					SP	SAND - medium, brown - grey, some silt	W	D-VD	Transgressive Dune Sediments (Marine)
			11	11.30 -8.90				SP	SAND - medium, brown red, some silt			
			12		SPT 11.50-11.80m 16,20,- N = >36							
			13	13.40 -11.00				SP	SAND - medium, dark grey			
			14									
			15		SPT 15.00-15.45m 14,25,23 N = 48							
				15.45 -13.05					END OF BOREHOLE @ 15.45 m			
			16									
			17									
			18									
			19									
			20									

This report of borehole must be read in conjunction with accompanying notes and abbreviations.

GAP gINT FN. F01a
RL2

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