



**STAGE 1 ENVIRONMENTAL SITE ASSESSMENT
COMMERCIAL/RETAIL DEVELOPMENT
CNR KEATING STREET AND MOGGILL ROAD
INDOOROOPIILLY**

Prepared for
Property Solutions (Australia) Pty Ltd

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GEOTECHNICAL AND GEO-ENVIRONMENTAL CONSULTANTS

Butler Partners Pty Ltd
ABN 14 816 574 868
79 Doggett Street
Newstead
Queensland 4006

Ph: 61 7 3852 3800
Fx: 61 7 3852 3808
P.O. Box 2267
Fortitude Valley BC
Queensland 4006

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Drawing No. 2	Summary of Results Exceeding the EIL Criteria
Appendix A	Current and Historical Titles and EPA Registers Search Response
Appendix B	Bore Reports with Explanatory Notes
Appendix C	Laboratory Test Result Sheets

SECTION 1 - INTRODUCTION

1.1 Project

It is understood that the proposed development design allows for a mix of one and two level retail and commercial uses, over a two level basement. The site is currently used as a car yard. However, part of the site has formerly been used as a Service Station for which it is listed on the Queensland Environmental Protection Agency's (EPA's) Environmental Management Register (EMR).

1.2 Proposed Scope of Work

Based on the result of investigations for nearby sites, it is considered that the following ground conditions may underlie the site:

- Surface Fill to depths between 0.5m and 1m.
- Residual Clay – generally stiff, residual clays to 0.5m to 1m depth.
- Phyllite (rock) – initially low strength, but grading with depth to high strength.

Based on our understanding of site conditions and the likely requirements of the EPA for a Stage 1 Environmental Site Assessment (ESA), the following scope of work is proposed:

- review of the history of the site utilising aerial photographs, historical titles and discussions with personnel familiar with the history of the site;
- identification of likely locations of Underground Fuel Storage Tanks (UFSTs);
- drilling 19 holes across the site and in the vicinity of any UFSTs;
- collection of environmental samples for analytical testing;
- laboratory analysis of samples for a range of potential contaminants including:
 - heavy metals;
 - monocyclic aromatic hydrocarbons as benzene, toluene, ethyl benzene and xylenes (BTEX);
 - total petroleum hydrocarbons (TPH); and
 - pesticides.
- preparation of a report detailing the investigation undertaken, the results and any further investigation and remedial action that may be required.

1.3 Commission

Based on the proposed nature of the development, the anticipated subsurface conditions and the scope of work, a fee to undertake the investigation was presented in a proposal of 21 September 2006. Butler Partners Pty Ltd were subsequently commissioned by Property Solutions (Australia) Pty Ltd to conduct the environmental investigation as proposed.

1.4 Technical Framework

In general, this Stage 1 ESA has been carried out in accordance with:

- *Draft Guidelines for the Assessment and Management of Contaminated Land in Queensland*, May 1998;
- *Draft Investigation Thresholds for Underground Storage Tanks*, January 1999;
- Australian Oil Industry Environmental Guidelines Working Group document '*Guidelines for the Management of Petroleum Hydrocarbon Impacted Land*', April 1999;
- The Australian and New Zealand Environment and Conservation Council/National Health and Medical Research Council *Guidelines for the Assessment and Management of Contaminated Sites (the ANZECC/NHMRC Guidelines)* January 1992;
- Australian Standard AS 4482.2-2005 *Guide to the Sampling and Investigation of Potentially Contaminated Soil – Part 1: Non-volatile and Semi-volatile compounds*; and
- *National Environmental Protection (Assessment of Site Contamination) Measure 1999* (National Environment Protection Council).

SECTION 2 - THE SITE

2.1 Site Identification

Details of the site are given in Table 1. Copies of the Current Land Title and Registered Plan information are presented in Appendix A.

Table 1: Summary of Registered Plan and Current Title Search Information

Real Property Description	Parish of Indooroopilly, County of Stanley Lot 1 on RP154325
Registered Owner	Denmac Nominees Pty Ltd
Current Land Use (At the time of investigation)	Leased by Brisbane RJV Pty Ltd
Local Government	Brisbane City
Under Caveat	Dupont Properties (Qld) Pty Ltd (2003) No. 706419579

2.2 Site Description

The site is located on the large roundabout at the intersection of Moggill Road, Coonan Street, and Keating Street. At the time of the investigation, the site was occupied by a car dealership. Single storey buildings were located on the south-eastern half of the site, and a small single storey building existed at the northern end of the site. Concrete paved areas existed throughout the central area of the site, surrounded by grassed areas, which bordered on to the surrounding roads. Ground surface levels on the western half of the site generally sloped downwards towards the south-west, and on the eastern half of the site ground surface levels sloped towards the south and south-east. A steep rock face fronts the south-eastern corner of the site where site surface levels are approximately 4.5m above Coonan and Keating Streets.

At the time of the investigation, the site was leased for a vehicle viewing and sales yard with associated office space (refer to Photographs 1 and 2).



Photograph 1: View from the south-western corner of the site looking east



Photograph 2: View from the northern corner of the site looking south

2.3 Government Records

A search of the EPA's EMR and Contaminated Land Register (CLR) indicates that Lot 1 on RP154325 is listed on the EMR but is NOT listed on the CLR.

2.4 Published Information

2.4.1 Fire Ants

Review of the Department of Primary Industries *Fire Ant Eradication and Surveillance Zone Plan* updated March 2005, indicates the site is not located in a Fire Ant infested area.

2.4.2 Geology

Reference to the Geological Survey of Queensland's 1:31,680 Series City of Brisbane Sheet, indicates that the site is located in an area mapped as underlain by Bunya Phyllite, which comprises phyllite with minor phyllonite.

2.5 Hydrogeology/Hydrology

A search conducted by NRM found that one bore was drilled approximately 800m to the north-east of the site at 20 Harrys Road, Taringa. There was no water reported to a maximum depth of 42m, with yellow clay reported to three metres, then broken and hard shale. The bore was reportedly backfilled with cuttings and grout.

A study of the hydrogeology of the site was not conducted as part of this investigation. Groundwater flow beneath the site is anticipated to be to the south, toward the Brisbane River located approximately 800m away.

2.6 Additional Information

Mr Bruce Kelly from Denmac Nominees, the current owner of the site, oversaw the construction of the current facilities, in particular he was able to provide information on the following:

- any fill material utilised in the construction of the current facility was sourced from onsite;
- there is very little fill on the site except where it has been locally used to level the building pad on which the showroom and offices have been constructed;
- the former service station was located in the northern corner of the site with the bowzers and canopy facing the Moggill Road and Coonan Street intersection;
- the UFSTs were located to the south of the service station buildings and forecourt; and
- the UFSTs, fuel bowzers and associated pipework have been removed.

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SECTION 3 - SITE HISTORY

3.1 Aerial Photograph Review

- 1946 The site is approximately triangular in shape and bound by Moggill Road, Coonan Street and Keating Street. A single structure is located in the south-west corner of the site while a cluster of larger structures is visible in approximately the centre of the site. The remainder of the site appears vacant with a few isolated trees. The surrounding area is occupied by residential properties.



Photograph 3: Extract from 1946 Aerial Photograph

- 1964 The isolated structure located in the south-west corner is the only structure remaining from the photograph taken in 1946, with the buildings in the centre having been demolished. A cluster of three small buildings now occupies the northern portion of the site with the remainder of the site appearing vacant.



Photograph 4: Extract from 1964 Aerial Photograph

- 1974 The site is similar to that seen in the photograph taken in 1964 except the isolated building located in the south-west corner has been demolished. A number of cars are using the site for informal parking.



Photograph 5: Extract from 1974 Aerial Photograph

- 1981 A large split level building (show room observed today) occupies the southwest corner of the site with frontage on Coonan Street and Keating Street. The south-west and northern portions of the site are paved and used for the storage and display of additional motor vehicles. One of the three buildings that occupied the northern portion of the site in 1974 remains in the centre of the northern display yard. A retractable shade structure appears to be present over much of the south-west display yard.



Photograph 6: Extract from 1981 Aerial Photograph

- 2002 The site appears similar to that seen in the photograph taken in 2002



Photograph 7: Extract from 2002 Aerial Photograph

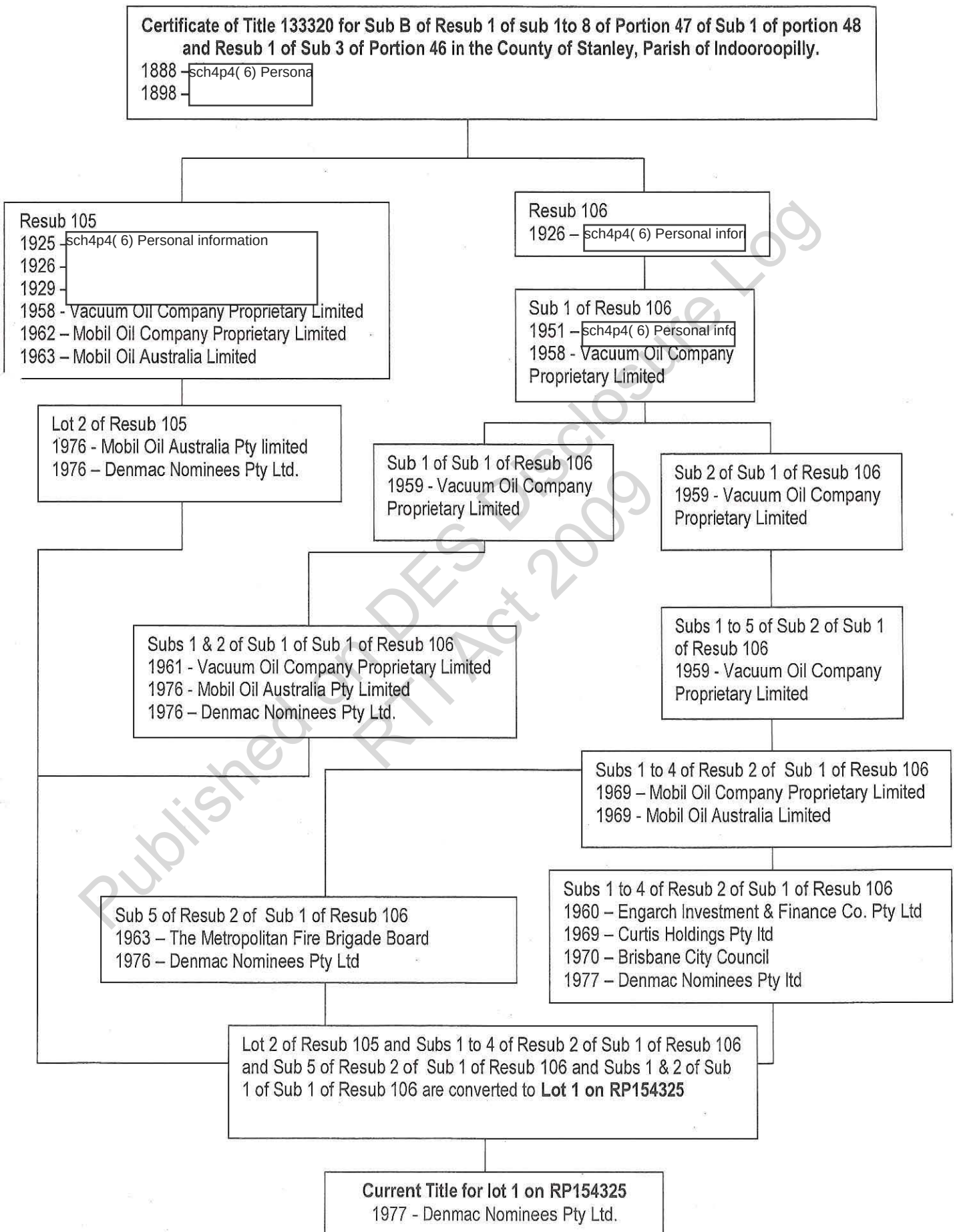
3.2 Historical Title Search

The Department of Natural Resources (DNR) carried out a historical title search for Lot 1 RP154325. Historical titles were traced for the allotments back to the year 1888.

Review of the historical Certificates of Title indicate that Lot 1 RP154325 was owned by individuals until it was purchased by The Vacuum Oil Company Proprietary Limited in 1958. Mobil Oil gradually resumed subdivision portions in 1962, 1969 and 1976. Denmac Nominees purchased the Subdivision 5 in 1976 from the Metropolitan Fire Brigade Board and Subdivisions 1 to 4 from the Brisbane City Council.

Demac Nominees Pty Ltd was the owner of the lot at the time of the current title searches 13 November 2006. A copy of the titles are provided in Appendix A, with a summary of the historical Certificates of Title reviewed provided in Figure 1.

Figure 1: Site Occupancy Flow Chart



SECTION 4 - FIELDWORK

4.1 Drilling and Sampling Methods

Fieldwork was undertaken on 6 December 2006 and 8 December 2006 and comprised the drilling and sampling of nineteen (19) bores using a truck-mounted Mobile B40L drilling rig, using a combination of solid flight augering and NMLC core drilling (in rock).

Strata identification was from inspection of material returned to the surface on the augers and in the circulation fluid during wash bore drilling samples taken at selected depth intervals, as well as the inspection and logging of rock core samples.

To minimise the potential for cross contamination of samples, each environmental sample was collected using disposable gloves, which were replaced between each sample.

Samples were placed immediately into laboratory prepared jars that were sealed, labelled with a unique identifier and placed into a chilled ice chest. Each sample was immediately recorded on a chain of custody register, which was used to track the movement of the samples. The samples remained in the chilled ice chest and were transported to the analytical laboratory for analysis.

4.2 Test Locations and Supervision

Bore and test pit locations were determined on site by direct measurement from existing site features and are shown approximately on Drawing No. 1, attached. Ground surface levels were determined by interpolation between contours given on PMM Brisbane Pty Ltd Detail Survey, Drawing Reference 21454.

An experienced geotechnical engineer set out the test locations, logged the stratigraphy encountered in the bores and directed the in-situ sampling and testing program

SECTION 5 - INVESTIGATION RESULTS

5.1 Results

The subsurface conditions encountered at the bore locations are given in detail on Bore Reports presented in Appendix C, using classification and descriptive terms defined in attached notes.

5.2 Groundwater

'Free' groundwater was not encountered during auger drilling in any bore, and could not be observed once NMLC core drilling was commenced. The depth to free water in a standpipe installed in Bore 5 at the completion of drilling was approximately 5.1m (i.e. RL 21.1m), measured 5 days and 8 days after standpipe installation.

It is considered that groundwater levels could vary considerably across the site, and would be dependent upon seasonal affects and the prevailing weather. It is also considered highly likely that 'perched' groundwater conditions could also occur in areas of fill across the site, particularly after prolonged periods of rain.

It should be noted that the groundwater level would be expected to vary both seasonally and with the prevailing weather conditions. It is recommended that groundwater presence/levels be confirmed if construction is undertaken during/following wet weather or if a significant period of time elapses between the investigation and construction.

5.3 Laboratory Testing

In general, soil samples from each 0.5m depth interval and/or from each strata unit down the soil profile until natural soils were encountered, were submitted to National Measurement Institute, a laboratory registered by NATA for the analyses required. Based on site history and fieldwork observations soil samples were submitted for a combination of the following analyses:

- heavy metals;
- monocyclic aromatic hydrocarbons as benzene, toluene, ethyl benzene and xylenes (BTEX);
- total petroleum hydrocarbons (TPH); and
- organochlorine pesticides.

A summary of the laboratory results for this Stage 1 ESA is given in Table 2 and the laboratory reports are provided in Appendix C.

5.4 Subsurface Conditions

The general stratigraphy encountered across the site consisted of subsurface conditions comprising 0.4m to 4.1m depth of fill, overlain by a concrete slab at some bore locations. The fill was underlain by phyllite (rock). The bores were terminated in the phyllite between 7.35m and 9.98m depth.

5.5 Quality Assurance/Quality Control (QA/QC) Methods

The samples were dispatched under Chain of Custody documentation provided in Appendix C in order to identify sample movements. The laboratory's internal QA/QC measures included spike analyses, method blanks and duplicates. The laboratory's internal QA/QC results for each batch are included in the laboratory reports.

To ensure the integrity of data transfer the electronic data supplied by the laboratory has been used to develop the results summary tables.

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Client: Property Solutions (Australia) Pty Ltd
 Project: Commercial Development
 Location: Cnr Keating Street and Moggi Road, Indoreopolis

Project Number:
 Date:

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Table 2 - Analytical Results for Soils (Total Concentrations)

Test Location	Sample Number	Sample Depth (m)	Material Type	TPH				BTEX				Pesticides				Inorganics (mg/kg)								
				C6-C9	C10-C14	C15-C28	C29-C36	Benzene	Toluene	Ethylbenzene	Xylene	Aldrin & Dieldrin	Chlordane	DDT	Heptachlor	As	Cd	Total Cr	Cu	Pb	Hg	Ni	Zn	
Background Levels				-	-	-	-	-	-	-	-	-	-	-	-	0.2-30	0.04-2	0.5-110	1-190	<2-200	0.001-0.1	2-400	2-180	
EPA EIL (mg/kg)				100 ¹	100 ¹	1000 ¹	1000 ¹	1	-	-	-	-	0.2	-	0.2	-	20	3	50	60	300	1	60	200
EPA HIL-A (mg/kg)				-	-	-	-	-	-	-	-	10	50	200	10	100	20	12%	1,000	300	15	600	7000	
Phytotoxicity Levels				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	200	-	-	-	-	400
Laboratory Level of Reporting (mg/kg)				25	50	100	100	0.5	0.5	0.5	1.0	0.2	0.2	0.2	0.2	1.0	0.5	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	B1-1	0.14-0.22	Concrete/ Fill	-	-	-	-	-	-	-	-	<LOR	<LOR	<LOR	<0.01	5.6	<0.5	11	5.6	2	<0.2	7.9	17	
	B1-4	0.95-1.5	Phyllite	-	-	-	-	-	-	-	-	-	-	-	-	12	<0.5	13	36	28	<0.2	18	79	
	B2-1	0.1-0.5	Concrete/ Fill	-	-	-	-	-	-	-	-	-	-	-	-	13	<0.5	17	39	44	<0.2	20	91	
	B2-3	0.8-1.0	Phyllite	-	-	-	-	-	-	-	-	-	-	-	-	13	<0.5	19	41	30	<0.2	31	79	
	B4-1	0.1-0.2	Concrete/ Fill	-	-	-	-	-	-	-	-	<LOR	<LOR	<LOR	<0.01	1	<0.5	5.9	3.4	2	<0.2	5.6	13	
	B4-3	0.5-0.95	Phyllite	<25	<50	<100	<100	<0.5	<0.5	<0.5	<LOR	-	-	-	-	8.9	<0.5	7	16	110	<0.2	5.3	57	
	B4-4	1.0-1.3	Phyllite	-	-	-	-	-	-	-	-	-	-	-	-	11	<0.5	9.6	24	81	<0.2	12	71	
	B6-1	0.5-0.65	Phyllite	-	-	-	-	-	-	-	-	<LOR	<LOR	<LOR	<0.01	8.3	<0.5	12	36	31	<0.2	33	120	
	B7-1	0.5-0.9	Fill	-	-	-	-	-	-	-	-	<LOR	<LOR	<LOR	<0.01	11	<0.5	7.4	30	22	<0.2	16	66	
	B7-2	0.9-1.0	Fill	-	-	-	-	-	-	-	-	-	-	-	-	12	2	10	28	690	<0.2	8.6	210	
	B7-4	1.5-2.0	Fill	<25	<50	<100	<100	<0.5	<0.5	<0.5	<LOR	<LOR	<LOR	<LOR	<0.01	8.6	2	11	23	520	<0.2	6.2	140	
	B7-6	2.5-3.0	Fill	-	-	-	-	-	-	-	-	-	-	-	-	9.9	<0.5	11	19	150	<0.2	6.5	53	
	B7-7	3.0-3.5	Fill	<25	<50	<100	<100	<0.5	<0.5	<0.5	<LOR	-	-	-	-	8.4	<0.5	12	16	110	<0.2	5.6	44	
	B7-9	3.8-4.0	Fill	<25	<50	<100	<100	<0.5	<0.5	<0.5	<LOR	<LOR	<LOR	<LOR	<0.01	10	<0.5	16	21	39	<0.2	8.2	55	
	B8-1	0.1-0.5	Fill	<25	<50	<100	<100	<0.5	<0.5	<0.5	<LOR	<LOR	<LOR	<LOR	<0.01	19	<0.5	12	51	27	<0.2	25	90	
	B8-2	0.5-0.85	Fill	-	-	-	-	-	-	-	-	-	-	-	-	14	<0.5	5.6	40	29	<0.2	22	98	
	B9-1	0.1-0.3	Fill	-	-	-	-	-	-	-	-	-	-	-	-	6.4	<0.5	13	20	12	<0.2	<16.5	50	
	B9-2	0.3-0.5	Fill	<25	<50	<100	<100	<0.5	<0.5	<0.5	<LOR	-	-	-	-	11	<0.5	6.1	31	23	<0.2	10	55	
	B10-1	0.1-0.5	Fill	-	-	-	-	-	-	-	-	-	-	-	-	13	<0.5	11	36	25	<0.2	23	82	
	B10-2	0.5-0.8	Fill	<25	<50	<100	<100	<0.5	<0.5	<0.5	<LOR	-	-	-	-	16	<0.5	6.5	32	34	<0.2	13	67	
	B11-2	0.5-1.0	Fill	<25	<50	<100	<100	<0.5	<0.5	<0.5	<LOR	<LOR	<LOR	<LOR	<0.01	16	<0.5	5.7	31	34	<0.2	11	66	
	B11-4	1.7-2.0	Phyllite	-	-	-	-	-	-	-	-	<LOR	<LOR	<LOR	<0.01	3.3	<0.5	1.9	16	11	<0.2	4.3	26	
	B12-1	0.1-0.5	Fill	-	-	-	-	-	-	-	-	-	-	-	-	13	<0.5	8	35	44	<0.2	16	81	
	B12-3	1.0-1.5	Fill	-	-	-	-	-	-	-	-	-	-	-	-	9.3	<0.5	7.7	14	18	<0.2	3.7	24	
	B12-4	1.6-1.6	Phyllite	-	-	-	-	-	-	-	-	-	-	-	-	20	<0.5	10	28	32	<0.2	15	76	
	B13-1	0.1-0.5	Fill	<25	<50	<100	<100	<0.5	<0.5	<0.5	<LOR	-	-	-	-	15	<0.5	9.6	36	30	<0.2	28	86	
	B13-2	0.5-1.0	Fill	-	-	-	-	-	-	-	-	-	-	-	-	13	<0.5	6.2	43	32	<0.2	19	82	
	B13-6	2.1-2.3	Phyllite	-	-	-	-	-	-	-	-	-	-	-	-	21	<0.5	9.6	26	37	<0.2	11	50	
	B14-2	0.5-1.0	Fill	-	-	-	-	-	-	-	-	-	-	-	-	11	<0.5	13	27	41	<0.2	9.8	99	
	B14-4	1.5-1.7	Fill	-	-	-	-	-	-	-	-	<LOR	<LOR	<LOR	<0.01	14	<0.5	13	34	35	<0.2	25	91	
	B15-1	0.1-0.4	Fill	-	-	-	-	-	-	-	-	-	-	-	-	7.6	<0.5	10	12	16	<0.2	11	40	
	B15-2	0.5-1.0	Fill	<25	<50	<100	<100	<0.5	<0.5	<0.5	<LOR	<LOR	<LOR	<LOR	<0.01	2.2	<0.5	7.2	5.5	3.8	<0.2	8.7	23	
	B15-3	1.0-1.2	Fill	-	-	-	-	-	-	-	-	<LOR	<LOR	<LOR	<0.01	2.2	<0.5	8.7	4.6	2.7	<0.2	9.4	20	
	B15-4	1.2-1.3	Phyllite	-	-	-	-	-	-	-	-	-	-	-	-	12	<0.5	9.2	24	35	<0.2	26	86	
	B16-1	0.1-0.4	Fill	<25	<50	<100	<100	<0.5	<0.5	<0.5	<LOR	-	-	-	-	2.6	<0.5	8.4	17	29	<0.2	5.2	41	
	B16-2	0.5-0.8	Fill	-	-	-	-	-	-	-	-	-	-	-	-	15	<0.5	5.6	24	22	<0.2	7.3	41	
	B16-3	0.9-1.2	Phyllite	-	-	-	-	-	-	-	-	-	-	-	-	13	<0.5	13	32	39	<0.2	30	95	
	B17-2	0.5-0.8	Fill	-	-	-	-	-	-	-	-	<LOR	<LOR	<LOR	<0.01	14	<0.5	10	29	110	<0.2	13	81	
	B17-3	1.0-1.2	Phyllite	-	-	-	-	-	-	-	-	-	-	-	-	13	<0.5	3.6	30	35	<0.2	6.8	42	
	B18-1	0.3-0.5	Fill	-	-	-	-	-	-	-	-	<LOR	<LOR	<LOR	<0.01	15	<0.5	13	24	35	<0.2	11	51	
	B18-4	1.6-1.9	Fill	-	-	-	-	-	-	-	-	-	-	-	-	11	<0.5	8.1	29	30	<0.2	16	65	
	B18-5	2.0-2.3	Phyllite	-	-	-	-	-	-	-	-	-	-	-	-	22	<0.5	3.7	38	27	<0.2	7.1	37	
	B19-1	0.1-0.4	Fill	-	-	-	-	-	-	-	-	-	-	-	-	14	<0.5	7.8	24	35	<0.2	<13.5	57	
	B19-3	1.0-1.3	Fill	-	-	-	-	-	-	-	-	<LOR	<LOR	<LOR	<0.01	8.5	<0.5	6.3	25	54	<0.2	13	71	
	B19-4	1.5-1.6	Phyllite	-	-	-	-	-	-	-	-	-	-	-	-	4.1	<0.5	8	15	15	<0.2	12	48	
	DUP01 (B15-2 DUP)	-	-	<25	<50	<100	<100	<0.5	<0.5	<0.5	<LOR	-	-	-	-	2.5	<0.5	12	4.8	4.2	<0.2	11	25	
	DUP02 (B16-2 DUP)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16	<0.5	4.6	35	33	<0.2	14	50	
	DUP03 (B19-3 DUP)	-	-	-	-	-	-	-	-	-	-	<LOR	<LOR	<LOR	<0.01	16	<0.5	4	35	30	<0.2	26	87	
	DUP04 (B2-3 DUP)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15	<0.5	21	41	40	<0.2	32	82	
	DUP05 (B7-4)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.7	1	5.8	21	410	<0.2	6.7	130	

SECTION 6 - ENVIRONMENTAL DISCUSSION

6.1 Contaminated Land

6.1.1 Potential Contamination Sources

Potentially contaminating activities identified in the site history review and observations made on site include:

- use of the site as a former service station; and
- former storage of fuel in UFSTs.

Potential contaminants of concern associated with the identified potentially contaminating activities listed above comprise:

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

6.1.2 Results and Assessment Criteria

To assess the suitability of the site for its proposed use, assessment criteria is required for heavy metals, TPH, BTEX and OCPs.

Heavy Metals, and OCPs

Assessment of heavy metal and OCP soil contamination is based on the Queensland EPA's *Draft Guidelines for the Assessment and Management of Contaminated Land in Queensland*, May 1998 ('the Guidelines').

Investigation levels for contaminants are presented in the Guidelines for a range of categories:

- *Background levels* provide levels of contaminants which would be expected to occur naturally in soils in Queensland;
- *Environmental Investigation Levels (EILs)* are levels below which contaminants in soils are not considered to adversely impact the environment;
- *Phytotoxicity Investigation Levels (PILs)* are levels below which contaminants in soil are not considered toxic to plant life; and
- *Health-based Investigation Levels (HILs)* are levels below which contaminants in soils are not considered to adversely impact human health. HILs are divided into six exposure settings depending upon proposed land-use type. Exposure settings range from standard residential settings with garden accessible soil, to commercial/industrial type exposure that includes offices/shops, factories and industrial sites.

In order to assess the results obtained in terms of the site's status on the EMR, EILs are utilised for OCPs and heavy metals except Cu and Zn for which PILs are adopted.

TPH and BTEX

Assessment of TPH and BTEX soil contamination is based on Queensland EPA's *Draft Investigation Threshold for Underground Storage Tanks* – January 1999.

The threshold concentrations for both TPH and BTEX are based on suitable levels for sensitive land use.

6.1.3 Comparison of Results to Assessment Criteria

The results of the laboratory analyses have been compared with the assessment criteria and the results are summarised below.

6.1.3.1 *Metals*

- results for all fifty (50) samples analysed for metal returned concentrations of Cd, Cr, Cu, Hg, Ni and Zn below the EPA EIL/PIL criteria;
- results for two (2) of the 50 samples analysed returned arsenic concentrations above the EPA RIL criterion of 20 mg/kg; and
- results for two (2) of the 50 samples analysed returned lead concentrations above the EPA EIL/HIL-A criterion of 300 mg/kg.

6.1.3.2 *Total Petroleum Hydrocarbons (TPH)*

All ten (10) samples submitted for TPH analysis were below the laboratory limit of reporting.

6.1.3.3 *Benzene, Toluene, Ethyl benzene and Xylene (BTEX)*

All ten (10) samples submitted for BTEX analysis were below the laboratory limit of reporting.

6.1.3.4 *Organochlorine Pesticides (OCP)*

All fourteen (14) samples submitted for OCP analysis were below the laboratory limit of reporting.

6.2 Quality Assurance/Quality Control (QA/QC) Methods

The samples were dispatched under Chain of Custody documentation provided in Appendix C in order to identify sample movements. To ensure the integrity of data transfer the electronic data supplied by the laboratory has been used to develop the results summary tables.

Data quality is assessed with respect to completeness, accuracy, precision, sensitivity, laboratory blanks, holding times, field duplicates and representativeness. The QA parameters are discussed in what follows as indicators of data quality.

6.2.1 Completeness

The following information is required to check for completeness of data sets:

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- chain-of-custody forms (signed by Butler Partners and the laboratory);
- sample receipt forms;
- all sample results reported;
- all blank data reported;
- all lab duplicates reported and relative percent differences (RPDs) calculated;
- all surrogate spike data reported;
- all matrix spike and matrix spike duplicate (MS/MSD) data reported and RPDs calculated; and
- NATA stamp on reports.

The results of this check indicated that required documentation and data has been reported on NATA approved reports.

6.2.2 Accuracy

Accuracy is a measure of the agreement between an experimental determination and the true value of the parameter being measured. The determination of accuracy can be achieved through the analysis of known reference materials or assessed by the analysis of matrix spikes. Spiking of reference materials into an actual sample matrix is the preferred technique because it provides a measure of the matrix effects on the analytical accuracy. Accuracy is measured in terms of percentage recovery as defined by the following equation:

$$\%R = \frac{SSR - SR}{SA} \times 100$$

where: %R = percentage recovery of the spike
 SSR = spiked sample result
 SR = sample result (native)
 SA = spike added

Laboratory personnel calculate percentage recoveries of spiked compounds, which are evaluated against control or acceptance limits taken from the appropriate NATA approved method. If the spike recovery for a sample does not fall within the prescribed control limits, laboratory based corrective action is taken, although the sample is not necessarily reanalysed.

Surrogate spikes consist of spiking non-target compounds into the sample prior to analysis. The spiked compounds are expected to behave during analysis in the same way as the target compounds. Every sample is spiked prior to extraction or analysis with surrogate compounds that are representative of the analysis. If surrogate spike recovery does not meet the prescribed control limits, samples are generally reanalysed.

Matrix spikes and matrix spike/matrix spike duplicates (MS/MSDs) are analysed at a frequency of one in 10 samples or one per analytical batch, whichever is more frequent. Matrix spike/matrix spike duplicates are analysed by splitting a field sample. Each portion is spiked with known quantities of the target compound in order to ascertain the effects of the specific sample matrix on the recovery of analytes.

The sample batch may contain samples from other sources. Therefore, MS/MSDs may be analysed on other samples from the batch or on a 'clean' matrix (eg distilled water). However, the laboratory's QA/QC procedures require all batch MS/MSDs to conform to the prescribed criteria. The laboratory may report this analysis as laboratory control samples, which may be used to assess the laboratory's methods and procedures.

According to guidelines, sample results are qualified when a matrix spike recovery is below or above the QA acceptance criteria. Typically, results are qualified when percentage recovery is below QA acceptance criteria, indicating that sample results may be biased low. However, results are also qualified when percentage recovery is above QA acceptance criteria, indicating that sample results may be biased high.

The laboratory reports indicated that analyses met acceptance criteria.

6.2.3 Precision

Precision is a measure of the ability to reproduce results, and is assessed on the basis of agreement between a set of replicate results obtained from duplicate analyses. The precision of a duplicate determination can be measured as relative percentage difference (RPD), and is calculated from the following equation:

$$RPD = \left[\frac{X1 - X2}{\left(\frac{X1 + X2}{2} \right)} \right] \times 100$$

where: X1 is the first duplicate value
X2 is the second duplicate value

Laboratory personnel calculate the RPDs of laboratory duplicates and matrix spike/matrix spike duplicates. Control or acceptance limits are taken from the appropriate method. If the RPD for a sample does not fall within the control limits, laboratory based corrective action is taken; however, the sample is not necessarily reanalysed. All laboratory duplicates and matrix spike/matrix spike duplicate RPDs were reported within prescribed limits.

As previously noted, a laboratory batch may contain samples from other sources. Therefore, laboratory duplicates and MS/MSDs may be analysed on other samples from the batch. However, the laboratory's QA/QC procedures require all batch laboratory duplicates and MS/MSDs to conform to prescribed criteria. This was achieved for this batch of samples.

6.2.4 Sensitivity

Sensitivity criteria are used to monitor achievement of quantification using method detection limits. Method detection limits depend on the method of analysis, the instrument's ability to measure analytes and the sample matrix; in particular, background interferences.

When interferences are present in the sample, a loss of sensitivity can occur resulting in an increase in the method detection limit. In some instances (e.g. where one or more compounds have particularly high concentrations) the sample must be diluted for analysis. This increases the method detection limit by the dilution factor.

Method detection limits for soil/sediments are based on 'wet weight'. Actual detection limits are calculated on a 'dry weight' basis and are higher. The detection limits achieved by the laboratory were below the site criteria for all analytes.

6.2.5 Laboratory blanks

Laboratory blanks monitor externally introduced contaminants that potentially derive from glassware, cleaning reagents and digestion reagents during the analysis process. The blank consists of water and digestion reagents prepared in the laboratory. The laboratory blank is treated as a sample in the laboratory, going through the same sample preparation and analysis procedures as corresponding samples.

To meet the QC acceptance criteria the laboratory blanks should have no detectable concentrations of the target compounds. The laboratory blank results are presented in the laboratory analytical reports. All laboratory blank results were reported within prescribed acceptance criteria.

6.2.6 Holding times

Holding times from field sampling to laboratory analysis must be minimised to ensure the representativeness of the result obtained. Delays between sampling and analysis can lead to analytes changing due to processes such as volatilisation, mineralisation, and biological modification.

Where standard holding times are exceeded, professional judgement as to the integrity of the data will be required, taking into account such factors as field storage, laboratory storage and even sample bottle characteristics. The laboratory reported that all samples were received and analysed within prescribed holding times.

6.2.7 Field Duplicates

Blind duplicates were collected and the pair of samples (i.e. duplicate and primary) were submitted for analyses for the contaminants of concern. The duplicate analytical results are compared to the primary results using relative percentage difference (RPD). The RPD is the absolute difference between two results divided by their mean values and expressed as a percentage. Where either primary or duplicate results have concentrations below the laboratory level of reporting, the RPD is not calculated. A value of 50% is considered an acceptable data quality objective (DQO).

Results exceeding the RPD DQO (shown in Table 3) for Nickel (Ni) analysed in sample B16-2 and DUP02 (primary and duplicate sample respectively) was 63%, which exceeds the acceptable 50% RPD.

Results exceeding the RPD for Chromium (total Cr) analysed in sample B7-4 and DUP05 (primary and duplicate sample respectively) was 62%, which exceeds the acceptable 50% RPD.

The calculated RPD for Arsenic, Lead, Nickel for sample B19-3 and duplicate DUP03 was 61%, 57% and 67%, respectively, also exceeding the acceptable RPD of 50%.

The variability in results maybe due to matrix heterogeneity and as such, the RPD's reported in this investigation are therefore considered to be acceptable.

Refer to Table 3 for summary of RPD calculations.

6.2.8 Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represents a characteristic of a population, parameter variations at a sampling point, or an environmental condition.

Representativeness is primarily dependent on the design and implementation of the sampling program and is partially ensured by the avoidance of contamination, adherence to sample handling and analysis protocols, and use of proper chain-of-custody and documentation procedures. Blanks, holding times and field duplicates are all QA parameters that can assist in the analysis of representativeness.

The QA/QC evaluation presented in this report generally confirms the representativeness of the samples analysed. Therefore, the analytical data reported is considered suitable for the assessment of the site.

Table 2 - Analytical Results for Soils (Total Concentrations)

Test Location	Sample Number	Sample Depth (m)	Material Type	TPH				BTEX				Pesticides						Inorganics (mg/kg)							
				C6-C9	C10-C14	C15-C28	C29-C36	Benzene	Toluene	Ethyl-benzene	Xylene	Aldrin & Dieldrin	Chlordane	DDT	Heptachlor	As	Cd	Metals							
																		Total Cr	Cu	Pb	Hg	Ni	Zn		
Background Levels				-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.2-30	0.04-2	0.5-110	1-190	<2-200	0.001-0.1	2-400	2-180
EPA EIL (mg/kg)				100 ¹ .	100 ¹ .	1000 ¹ .	1000 ¹ .	1	-	-	-	-	0.2	-	0.2	-	20	3	50	60	300	1	60	200	
EPA HIL-A (mg/kg)				-	-	-	-	-	-	-	-	-	10	50	200	10	100	20	12%	1,000	300	15	600	7000	
Phytotoxicity Levels				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	200	-	-	-	400	
Laboratory Level of Reporting (mg/kg)				25	50	100	100	0.5	0.5	0.5	1.0	0.2	0.2	0.2	0.2	1.0	0.5	0.2	0.2	0.2	0.2	0.2	0.2	0.2	
	B1-1	0.14-0.22	Concrete/ Fill	-	-	-	-	-	-	-	-	-	<LOR	<LOR	<LOR	<0.01	5.6	<0.5	11	5.6	2	<0.2	7.9	17	
	B1-4	0.95-1.5	Phyllite	-	-	-	-	-	-	-	-	-	-	-	-	-	12	<0.5	13	36	28	<0.2	18	79	
	B2-1	0.1-0.5	Concrete/ Fill	-	-	-	-	-	-	-	-	-	-	-	-	-	13	<0.5	17	39	44	<0.2	20	91	
	B2-3	0.8-1.0	Phyllite	-	-	-	-	-	-	-	-	-	-	-	-	-	13	<0.5	19	41	30	<0.2	31	79	
	B4-1	0.1-0.2	Concrete/ Fill	-	-	-	-	-	-	-	-	-	-	-	-	-	1	<0.5	5.9	3.4	2	<0.2	5.6	13	
	B4-3	0.5-0.95	Phyllite	<25	<50	<100	<100	<0.5	<0.5	<0.5	<LOR	-	<LOR	<LOR	<LOR	<0.01	8.9	<0.5	7	16	110	<0.2	5.3	57	
	B4-4	1.0-1.3	Phyllite	-	-	-	-	-	-	-	-	-	-	-	-	-	11	<0.5	9.6	24	81	<0.2	12	71	
	B6-1	0.5-0.65	Phyllite	-	-	-	-	-	-	-	-	-	<LOR	<LOR	<LOR	<0.01	8.3	<0.5	12	36	31	<0.2	33	120	
	B7-1	0.5-0.9	Fill	-	-	-	-	-	-	-	-	-	<LOR	<LOR	<LOR	<0.01	11	<0.5	7.4	30	22	<0.2	16	66	
	B7-2	0.9-1.0	Fill	-	-	-	-	-	-	-	-	-	-	-	-	-	12	2	10	28	690	<0.2	8.6	210	
	B7-4	1.5-2.0	Fill	<25	<50	<100	<100	<0.5	<0.5	<0.5	<LOR	-	<LOR	<LOR	<LOR	<0.01	8.6	2	11	23	520	<0.2	6.2	140	
	B7-6	2.5-3.0	Fill	-	-	-	-	-	-	-	-	-	-	-	-	-	9.9	<0.5	11	19	150	<0.2	6.5	53	
	B7-7	3.0-3.5	Fill	<25	<50	<100	<100	<0.5	<0.5	<0.5	<LOR	-	-	-	-	-	8.4	<0.5	12	16	110	<0.2	5.6	44	
	B7-9	3.8-4.0	Fill	-	-	-	-	-	-	-	-	-	<LOR	<LOR	<LOR	<0.01	10	<0.5	16	21	39	<0.2	8.2	55	
	B8-1	0.1-0.5	Fill	<25	<50	<100	<100	<0.5	<0.5	<0.5	<LOR	-	<LOR	<LOR	<LOR	<0.01	19	<0.5	12	51	27	<0.2	25	90	
	B8-2	0.5-0.85	Fill	-	-	-	-	-	-	-	-	-	-	-	-	-	14	<0.5	5.6	40	29	<0.2	22	98	
	B9-1	0.1-0.3	Fill	-	-	-	-	-	-	-	-	-	-	-	-	-	6.4	<0.5	13	20	12	<0.2	<16.5	50	
	B9-2	0.3-0.5	Fill	<25	<50	<100	<100	<0.5	<0.5	<0.5	<LOR	-	-	-	-	-	11	<0.5	6.1	31	23	<0.2	10	55	
	B10-1	0.1-0.5	Fill	-	-	-	-	-	-	-	-	-	-	-	-	-	13	<0.5	11	36	25	<0.2	23	82	
	B10-2	0.5-0.8	Fill	<25	<50	<100	<100	<0.5	<0.5	<0.5	<LOR	-	-	-	-	-	16	<0.5	6.5	32	34	<0.2	13	67	
	B11-2	0.5-1.0	Fill	<25	<50	<100	<100	<0.5	<0.5	<0.5	<LOR	-	<LOR	<LOR	<LOR	<0.01	16	<0.5	5.7	31	34	<0.2	11	66	
	B11-4	1.7-2.0	Phyllite	-	-	-	-	-	-	-	-	-	-	-	-	-	3.3	<0.5	1.9	16	11	<0.2	4.3	26	
	B12-1	0.1-0.5	Fill	-	-	-	-	-	-	-	-	-	-	-	-	-	13	<0.5	8	35	44	<0.2	16	81	
	B12-3	1.0-1.5	Fill	-	-	-	-	-	-	-	-	-	-	-	-	-	9.3	<0.5	7.7	14	18	<0.2	3.7	24	
	B12-4	1.6-1.8	Phyllite	-	-	-	-	-	-	-	-	-	-	-	-	-	20	<0.5	10	28	32	<0.2	15	76	
	B13-1	0.1-0.5	Fill	<25	<50	<100	<100	<0.5	<0.5	<0.5	<LOR	-	-	-	-	-	15	<0.5	9.6	38	30	<0.2	28	86	
	B13-2	0.5-1.0	Fill	-	-	-	-	-	-	-	-	-	-	-	-	-	13	<0.5	6.2	43	32	<0.2	19	82	
	B13-5	2.1-2.3	Phyllite	-	-	-	-	-	-	-	-	-	-	-	-	-	21	<0.5	9.8	26	37	<0.2	11	50	
	B14-2	0.5-1.0	Fill	-	-	-	-	-	-	-	-	-	-	-	-	-	11	<0.5	13	27	41	<0.2	9.8	99	
	B14-4	1.5-1.7	Fill	-	-	-	-	-	-	-	-	-	<LOR	<LOR	<LOR	<0.01	14	<0.5	13	34	35	<0.2	25	91	
	B15-1	0.1-0.4	Fill	-	-	-	-	-	-	-	-	-	-	-	-	-	7.6	<0.5	10	12	16	<0.2	11	40	
	B15-2	0.5-1.0	Fill	<25	<50	<100	<100	<0.5	<0.5	<0.5	<LOR	-	-	-	-	-	2.2	<0.5	7.2	5.5	3.8	<0.2	8.7	23	
	B15-3	1.0-1.2	Fill	-	-	-	-	-	-	-	-	-	<LOR	<LOR	<LOR	<0.01	2.2	<0.5	8.7	4.6	2.7	<0.2	9.4	20	
	B15-4	1.2-1.3	Phyllite	-	-	-	-	-	-	-	-	-	-	-	-	-	12	<0.5	9.2	24	35	<0.2	26	86	
	B16-1	0.1-0.4	Fill	<25	<50	<100	<100	<0.5	<0.5	<0.5	<LOR	-	-	-	-	-	2.6	<0.5	8.4	17	29	<0.2	5.2	41	
	B16-2	0.5-0.8	Fill	-	-	-	-	-	-	-	-	-	-	-	-	-	15	<0.5	5.6	24	22	<0.2	7.3	41	
	B16-3	0.9-1.2	Phyllite	-	-	-	-	-	-	-	-	-	-	-	-	-	13	<0.5	13	32	39	<0.2	30	95	
	B17-2	0.5-0.8	Fill	-	-	-	-	-	-	-	-	-	<LOR	<LOR	<LOR	<0.01	14	<0.5	10	29	110	<0.2	13	81	
	B17-3	1.0-1.2	Phyllite	-	-	-	-	-	-	-	-	-	-	-	-	-	13	<0.5	3.6	30	36	<0.2	6.8	42	
	B18-1	0.3-0.5	Fill	-	-	-	-	-	-	-	-	-	<LOR	<LOR	<LOR	<0.01	15	<0.5	13	24	35	<0.2	11	51	
	B18-4	1.6-1.9	Fill	-	-	-	-	-	-	-	-	-	-	-	-	-	11	<0.5	8.1	29	30	<0.2	16	65	
	B18-5	2.0-2.3	Phyllite	-	-	-	-	-	-	-	-	-	-	-	-	-	22	<0.5	3.7	38	27	<0.2	7.1	37	
	B19-1	0.1-0.4	Fill	-	-	-	-	-	-	-	-	-	-	-	-	-	14	<0.5	7.8	24	35	<0.2	<13.5	57	
	B19-3	1.0-1.3	Fill	-	-	-	-	-	-	-	-	-	<LOR	<LOR	<LOR	<0.01	8.5	<0.5	6.3	25	54	<0.2	13	71	
	B19-4	1.5-1.6	Phyllite	-	-	-	-	-	-	-	-	-	-	-	-	-	4.1	<0.5	8	15	15	<0.2	12	48	
	DUP01 (B15-2 DUP)			<25	<50	<100	<100	<0.5	<0.5	<0.5	<LOR	-	-	-	-	-	2.5	<0.5	12	4.8	4.2	<0.2	11	25	
	DUP02 (B16-2 DUP)			-	-	-	-	-	-	-	-	-	-	-	-	-	16	<0.5	4.6	35	33	<0.2	14	50	
	DUP03 (B19-3 DUP)			-	-	-	-	-	-	-	-	-	<LOR	<LOR	<LOR	<0.01	16	<0.5	4	35	30	<0.2	26	87	
	DUP04 (B2-3 DUP)			-	-	-	-	-	-	-	-	-	-	-	-	-	15	<0.5	21	41	40	<0.2	32	82	
	DUP05 (B7-4)			-	-	-	-	-	-	-	-	-	-	-	-	-	8.7	1	5.8	21	410	<0.2	6.7	130	

NOTES:
1 Analyte exceeds the EIL Guideline Criteria
<LOR Analyte exceeds the HIL-A Guideline Criteria
100¹ Below the limit of reporting
- QLD EPA Draft Investigation Thresholds for Underground Storage Tanks - January 1999
Not analysed

6.3 Discussion

Two separate bore locations, B13-5 (depth 2.1m to 2.3m) and B18-5 (depth 2.0m to 2.3m) reported arsenic exceeding the EIL criterion of 20 mg/kg, however these values were within the background level of 30 mg/kg listed by the EPA and are not considered to be significant.

Two samples at location B7 (B7-2 and B7-4) reported lead exceeding the EIL and HIL 'A' criterion of 300 mg/kg at a depth of 0.9m to 2.0m. However, the lead was not present at the next sample analysed in this bore at a depth of 2.5m. Lateral delineation of the lead impact has not been undertaken.

6.4 Conclusions

Based on the results of the Stage 1 ESA undertaken by Butler Partners, the following conclusions are made:

- Lot 1 on RP154234 is listed on the EPA's EMR;
- the site has been filled with sands and gravelly clays and covered with concrete hardstand;
- potentially contaminating activities identified on site include operation of a service station with associated underground fuel storage;
- laboratory testing of the soil samples taken by Butler Partners indicate the presence of concentrations of arsenic in samples B13-5 and B18-5 at depths between 2m to 3m above the EIL but within background concentrations;
- laboratory testing of the soil samples taken by Butler Partners indicate the presence of elevated levels of Lead in samples B7-2 and B7-4 between 0.9m and 2.0m depth exceeding the EIL/HIL-A criterion;
- the extent of identified contamination has been limited vertically at 2.5m depth; and
- all other soil samples analysed from across the site for TPH, BTEX and OCPs returned concentrations below the EIL criteria.

6.5 Recommendations

In order to assess if the lead impact at bore B7 is significant it is recommended that sampling of shallow soils be undertaken close to the location to assess whether the impact is extensive.

If the impact is of limited extent it may not be significant and therefore, not require further contaminated land management. Based on the findings where there is no significant impact, an application may then be made to the EPA for approval to remove the site from the EMR.

Alternately, if the impact extends to a point where more than 10m³ to 20m³ of impacted soil is calculated to be present, a remediation plan to remove the impacted material and validate remaining material will be required.

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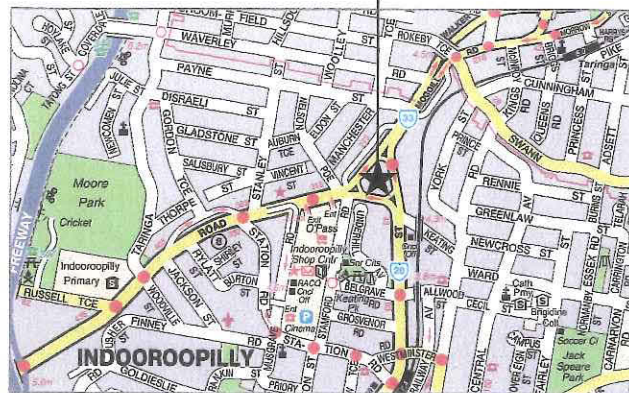
Sch4p4(6) Personal information

Senior Environmental Scientist

Sch4p4(6) Personal information

Principal

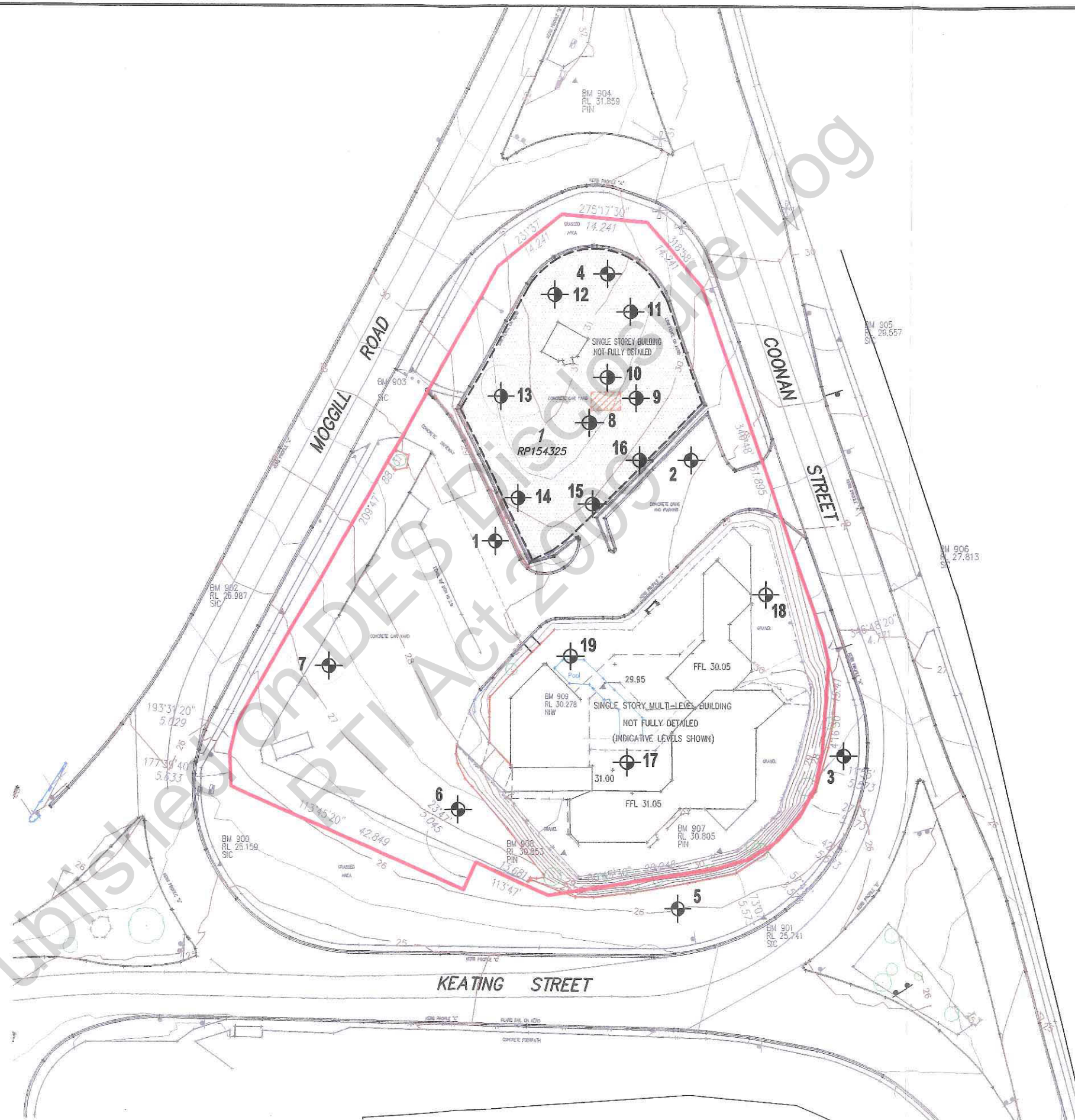
SITE



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UBD Reference: Map 178 Ref K3 (50th Edition) N.T.S.

LEGEND

-  1 Bore
-  8 Environmental Bore
-  17 Environmental Bore (Small Rig)
-  Site Boundary
-  Approximate Location of Former Service Station
-  Approximate Location of Former UFSTs



CLIENT:
PROPERTY SOLUTIONS
(AUSTRALIA) PTY LTD

BUTLER
PARTNERS

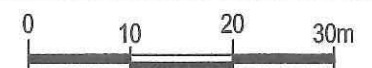
79 Doggett Street, Newstead
Queensland 4006 Australia
Telephone 61 7 3852 3800
Facsimile 61 7 3852 3808

COMMERCIAL AND RETAIL DEVELOPMENT

CORNER KEATING STREET AND MOGGILL ROAD, INDOOROOPILLY

LOCALITY PLAN AND TEST LOCATIONS

NORTH



SCALE: 1:750 (A3)

DATE: MARCH 2007

DRAWN BY: FD

APPROVED: Release

PROJECT No: 06253A

DRAWING No: 1 REV: B

Reference: PMM Pty Ltd's 'Detail Survey', Drawing No.21454det.dwg, dated 28.11.06



CLIENT:
PROPERTY SOLUTIONS
(AUSTRALIA) PTY LTD

**BUTLER
PARTNERS**

79 Doggett Street, Newstead
Queensland 4006 Australia
Telephone 61 7 3852 3800
Facsimile 61 7 3852 3808

COMMERCIAL AND RETAIL DEVELOPMENT

CORNER KEATING STREET AND MOGGILL ROAD, INDOORPOOLLY

SUMMARY OF RESULTS EXCEEDING THE EIL CRITERIA

NORTH



0 10 20 30m

SCALE: 1:750 (A3)

DATE: MARCH 2007

DRAWN BY: FD

APPROVED: sch4p4(6) Perso

PROJECT No: 06253A

DRAWING No: 2 REV: A



LEGEND

- 1 Bore
- 8 Environmental Bore
- 17 Environmental Bore (Small Rig)
- Site Boundary

B18		- Test Location / Sample Number
Depth (m)	As	- Analyte
2.0 - 2.3	22	- Analyte Value (mg/kg)

Analyte Exceeds EIL Guideline Criteria
Analyte Exceeds Adopted Clean Fill
EIL / HIL-A Criteria (Pb only)

ANALYTE

Pb - Lead
As - Arsenic

B7	
Depth (m)	Pb
0.9 - 1.0	690
1.5 - 2.0	520

B13	
Depth (m)	As
2.1 - 2.3	21

B18	
Depth (m)	As
2.0 - 2.3	22

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RTI Act 2009

APPENDIX A

CURRENT AND HISTORICAL TITLES AND EPA REGISTERS SEARCH RESPONSE

CURRENT TITLE SEARCH

NATURAL RESOURCES AND WATER, QUEENSLAND

Request No: 118593796
Search Date: 28/03/2007 09:25

Title Reference: 15667040
Date Created: 20/07/1977

Previous Title: 13686001
14318079
14318080
14348220
15601206

REGISTERED OWNER

DENMAC NOMINEES PTY LTD

ESTATE AND LAND

Estate in Fee Simple

LOT 1 REGISTERED PLAN 154325
County of STANLEY Parish of INDOOROOPIILLY
Local Government: BRISBANE CITY

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10004121 (POR 47)
2. MORTGAGE No 702554477 11/03/1998 at 15:00
NATIONAL AUSTRALIA BANK LIMITED A.C.N. 004 044 937
3. LEASE No 702810559 27/07/1998 at 16:06
SUMMIT DENMAC PTY LIMITED A.C.N. 057 890 865
4. TRANSFER No 705083675 02/10/2001 at 11:48
LEASE: 702810559
BRISBANE RJV PTY LTD A.C.N. 094 332 519

ADMINISTRATIVE ADVICES - NIL
UNREGISTERED DEALINGS - NIL

CERTIFICATE OF TITLE ISSUED - No

Caution - Charges do not necessarily appear in order of priority

** End of Current Title Search **

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Requested By: PUBLIC ACCESS CITEC CONFIRM



QLD ENVIRONMENTAL PROTECTION AGENCY
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 880432 EMR Site Id: 896 13 November
2006

This response relates to a search request received for the site:
Lot: 1 Plan: RP154325

EMR RESULT

The above site IS included on the Environmental Management Register.

Lot: 1 Plan: RP154325

Address: CNR MOGGILL RD AND COONAN STS
INDOOROPILLY 4068

The site has been subject to the following Notifiable Activity pursuant to
section 374 of the *Environmental Protection Act 1994*.

SERVICE STATIONS - operating a commercial service station.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

Note: Searches may be conducted online through the State Government
Website www.smartservice.qld.gov.au or Citec Confirm
www.confirm.com.au.

Alternatively, searches may be posted to Smart Service Queensland
(Contaminated Land Search, PO Box 10817, Brisbane Adelaide Street,
Queensland 4001) or fax (07) 3 405 0965 or 1300 300 768.

If you have any queries in relation to this search please phone (07) 3227
7370.

Lindi Bowen
Registrar, Contaminated Land Unit

Published on DES Disclosure Log
RTI Act 2009

APPENDIX B

BORE REPORTS WITH EXPLANATORY NOTES

BORE REPORT

**BUTLER
PARTNERS**

Client: Property Solutions Group Australia Pty Ltd

Project: Commercial Development

Location: Cnr Keating Street and Moggill Road, Indooroopilly

Project No: 06253

BORE 1

Page No: 1 of 1

Date: 6 December 2006

Ground Surface Level: RL 28.9m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Sample Depth (m)	Sample ID	Test Results
0	CONCRETE - 140mm thick pavement	28.9					
	FILL - fine to coarse grained sand			E	0.14	B1-1	
	- grey, clayey weathered phyllite			E	0.22	B1-2	
				S/E	0.5	B1-3	4,4,4 N=8
1	PHYLLITE (XW) - extremely low to very low strength, grey and brown	28.0		E	0.95	B1-4	
				E	1.5	B1-5	
2	PHYLLITE (MW) - medium strength, grey and white with brown	27.0		S	2.0		30 for 90mm
					2.09		
3	End of Bore at 3 m	26.0					

D Disturbed Sample

B Bulk Sample

U Undisturbed Tube (50mm diameter)

pp Pocket Penetrometer Test (kPa)

E Environmental Sample

S Standard Penetrometer Test (SPT)

SPT Hammer Bouncing

() No Sample Recovery

C NMLC Coring

Is(50) Point Load Test Result (MPa)

(d) Diametral Point Load Strength Test

(a) Axial Point Load Strength Test

Rig: Mobile B40L

Drilling Method: Auger to 2.0m, then NMLC core

Groundwater: No free groundwater encountered during auger drilling

Remarks: * Approximate ground surface level interpolated from PMM Brisbane Pty Ltd's survey drawing, Reference 21454-

BORE REPORT

**BUTLER
PARTNERS**

Client: Property Solutions Group Australia Pty Ltd

Project: Commercial Development

Location: Cnr Keating Street and Moggill Road, Indooroopilly

Project No: 06253

BORE 2

Page No: 1 of 1

Date: 6 December 2006

Ground Surface Level: RL 29.1m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Sample Depth (m)	Sample ID	Test Results
0	CONCRETE - 100mm thick pavement	29.1			0.1	B2-1	11,30 for 105mm (HB)
	FILL - grey, gravelly clay, moist			E	0.5	B2-2	
				S/E	0.755	B2-3	
				E	0.8	B2-3 (dup4)	
	PHYLLITE (XW) - very low to medium strength, light grey and brown				1.0		
1		28.0					
	PHYLLITE (MW/SW) - medium strength with zones of high strength						
2		27.0					
3	End of Bore at 3 m	26.0					

D Disturbed Sample

B Bulk Sample

U Undisturbed Tube (50mm diameter)

pp Pocket Penetrometer Test (kPa)

E Environmental Sample

S Standard Penetrometer Test (SPT)

SPT Hammer Bouncing

() No Sample Recovery

C NMLC Coring

Is(50) Point Load Test Result (MPa)

(d) Diametral Point Load Strength Test

(a) Axial Point Load Strength Test

Rig: Mobile B40L

Drilling Method: Auger to 1.35m, then NMLC core

Groundwater: No free groundwater encountered during auger drilling

Remarks: * Approximate ground surface level interpolated from PMM Brisbane Pty Ltd's survey drawing, Reference 21454-

BORE REPORT

**BUTLER
PARTNERS**

Client: Property Solutions Group Australia Pty Ltd

Project: Commercial Development

Location: Cnr Keating Street and Moggill Road, Indooroopilly

Project No: 06253

BORE 3

Page No: 1 of 1

Date: 7 December 2006

Ground Surface Level: RL 26.4m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Sample Depth (m)	Sample ID	Test Results
0	FILL - brown, clayey silt, with organics - brown-grey, clayey gravel, fine to coarse grained	26.4					
		26.0					
	PHYLLITE (XW) - very low strength, grey and brown			S	0.5		30 for 150mm
					0.65		
1	PHYLLITE (MW) - low to high strength, grey and brown - medium strength						
		25.0					
2							
		24.0					
3	End of Bore at 3 m						

D Disturbed Sample

B Bulk Sample

U Undisturbed Tube (50mm diameter)

pp Pocket Penetrometer Test (kPa)

E Environmental Sample

S Standard Penetrometer Test (SPT)

SPT Hammer Bouncing

() No Sample Recovery

C NMLC Coring

Is(50) Point Load Test Result (MPa)

(d) Diametral Point Load Strength Test

(a) Axial Point Load Strength Test

Rig: Mobile B40L

Drilling Method: Auger to 0.9m, then NMLC core

Groundwater: No free groundwater encountered during auger drilling

Remarks: * Approximate ground surface level interpolated from PMM Brisbane Pty Ltd's survey drawing, Reference 21454-

BORE REPORT

**BUTLER
PARTNERS**

Client: Property Solutions Group Australia Pty Ltd

Project: Commercial Development

Location: Cnr Keating Street and Moggill Road, Indooroopilly

Project No: 06253

BORE 4

Page No: 1 of 1

Date: 8 December 2006

Ground Surface Level: RL 31.0m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Sample Depth (m)	Sample ID	Test Results
0	CONCRETE - 110mm thick pavement	31.0					
	FILL - fine to coarse sand - brown, clayey, weathered phyllite (possibly natural at 1.0m)			E/D	0.1	B4-1	
				E/D	0.2	B4-2	
				E/D/S	0.5	B4-3	2,2,4 N=6
1		30.0		E/D	0.95 1.0	B4-4	
	PHYLLITE (XW) - extremely low to low strength, grey and brown				1.3		
2	PHYLLITE (DW) - low strength with bands of high strength, grey and brown	29.0					
3	End of Bore at 3 m	28.0					

D Disturbed Sample

B Bulk Sample

U Undisturbed Tube (50mm diameter)

pp Pocket Penetrometer Test (kPa)

E Environmental Sample

S Standard Penetrometer Test (SPT)

SPT Hammer Bouncing

() No Sample Recovery

C NMLC Coring

Is(50) Point Load Test Result (MPa)

(d) Diametral Point Load Strength Test

(a) Axial Point Load Strength Test

Rig: Mobile B40L

Drilling Method: Auger to 1.86m, then NMLC core

Groundwater: No free groundwater encountered during auger drilling

Remarks: * Approximate ground surface level interpolated from PMM Brisbane Pty Ltd's survey drawing, Reference 21454-

BORE REPORT

**BUTLER
PARTNERS**

Client: Property Solutions Group Australia Pty Ltd

Project: Commercial Development

Location: Cnr Keating Street and Moggill Road, Indooroopilly

Project No: 06253

BORE 5

Page No: 1 of 1

Date: 13 December 2006

Ground Surface Level: RL 26.0m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Sample Depth (m)	Sample ID	Test Results
0	FILL - light brown, clayey weathered phyllite	26.0					
	PHYLLITE (DW) - very low to low strength, grey and light brown			S	0.5 0.58		30 for 80mm
1	- low to medium strength	25.0					
2		24.0					
3	End of Bore at 3 m	23.0					

D Disturbed Sample

B Bulk Sample

U Undisturbed Tube (50mm diameter)

pp Pocket Penetrometer Test (kPa)

E Environmental Sample

S Standard Penetrometer Test (SPT)

SPT Hammer Bouncing

() No Sample Recovery

C NMLC Coring

Is(50) Point Load Test Result (MPa)

(d) Diametral Point Load Strength Test

(a) Axial Point Load Strength Test

Rig: Mobile B40L

Drilling Method: Auger to 0.5m, wash bore to 0.7m, then NMLC core. Casing installed to 0.7m

Groundwater: No free groundwater encountered during auger drilling

Remarks: * Approximate ground surface level interpolated from PMM Brisbane Pty Ltd's survey drawing, Reference 21454-. Standpipe installed

BORE REPORT

**BUTLER
PARTNERS**

Client: Property Solutions Group Australia Pty Ltd

Project: Commercial Development

Location: Cnr Keating Street and Moggill Road, Indooroopilly

Project No: 06253

BORE 6

Page No: 1 of 1

Date: 11 December 2006

Ground Surface Level: RL 27.2m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Sample Depth (m)	Sample ID	Test Results
0	CONCRETE - 100mm thick	27.2					
	FILL - grey-brown, clayey gravel - light brown, clayey, weathered phyllite	27.0					
	PHYLLITE (DW) - very low strength, grey and light brown			S/E	0.5 0.65	B6-1	30 for 150mm
1	- low strength with zones of medium strength, brown and grey	26.0					
2	- very low strength	25.0					
	- medium to high strength, light grey and brown						
3	End of Bore at 3 m	24.0					

D Disturbed Sample

B Bulk Sample

U Undisturbed Tube (50mm diameter)

pp Pocket Penetrometer Test (kPa)

E Environmental Sample

S Standard Penetrometer Test (SPT)

SPT Hammer Bouncing

() No Sample Recovery

C NMLC Coring

Is(50) Point Load Test Result (MPa)

(d) Diametral Point Load Strength Test

(a) Axial Point Load Strength Test

Rig: Mobile B40L

Drilling Method: Auger to 0.9m, then NMLC core. Casing installed to 0.9m

Groundwater: No free groundwater encountered during auger drilling

Remarks: * Approximate ground surface level interpolated from PMM Brisbane Pty Ltd's survey drawing, Reference 21454-

BORE REPORT

**BUTLER
PARTNERS**

Client: Property Solutions Group Australia Pty Ltd

Project: Commercial Development

Location: Cnr Keating Street and Moggill Road, Indooroopilly

Project No: 06253

BORE 7

Page No: 1 of 2

Date: 12 December 2006

Ground Surface Level: RL 27.2m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Sample Depth (m)	Sample ID	Test Results
0	CONCRETE - 110mm thick	27.2					
	FILL - grey and brown, silty clay with fine gravel (weathered phyllite)	27.0					
				S/E	0.5	B7-1	4,2,3 N=5
				E	0.9	B7-2	
1				E	1.0		
	- light brown and grey	26.0		E		B7-3	
				E	1.5	B7-4	
2				S/E	2.0	B7-5	3,3,3 N=6
		25.0			2.45		
				E	2.5	B7-6	
3					3.0		
		24.0					

D Disturbed Sample

B Bulk Sample

U Undisturbed Tube (50mm diameter)

pp Pocket Penetrometer Test (kPa)

E Environmental Sample

S Standard Penetrometer Test (SPT)

SPT Hammer Bouncing

() No Sample Recovery

C NMLC Coring

Is(50) Point Load Test Result (MPa)

(d) Diametral Point Load Strength Test

(a) Axial Point Load Strength Test

Rig: Mobile B40L

Drilling Method: Auger to 4.5m, then NMLC core. Casing installed to 4.5m

Groundwater: No free groundwater encountered during auger drilling

Remarks: * Approximate ground surface level interpolated from PMM Brisbane Pty Ltd's survey drawing, Reference 21454-

BORE REPORT

**BUTLER
PARTNERS**

Client: Property Solutions Group Australia Pty Ltd

Project: Commercial Development

Location: Cnr Keating Street and Moggill Road, Indooroopilly

Project No: 06253

BORE 7

Page No: 2 of 2

Date: 12 December 2006

Ground Surface Level: RL 27.2m*

Depth (m)	Description	RL (m)	Lithology	Sample Type	Sample Depth (m)	Sample ID	Test Results
4		23.0		E	3.5	B7-7	pp=340
				U/E	3.8	B7-8	
				E	4.0	B7-9	
				E	4.5	B7-10	
	End of Bore at 4.5 m						
5		22.0					
6		21.0					

D Disturbed Sample

B Bulk Sample

U Undisturbed Tube (50mm diameter)

pp Pocket Penetrometer Test (kPa)

E Environmental Sample

S Standard Penetrometer Test (SPT)

SPT Hammer Bouncing

() No Sample Recovery

C NMLC Coring

Is(50) Point Load Test Result (MPa)

(d) Diametral Point Load Strength Test

(a) Axial Point Load Strength Test

Rig: Mobile B40L

Drilling Method: Auger to 4.5m, then NMLC core. Casing installed to 4.5m

Groundwater: No free groundwater encountered during auger drilling

Remarks: * Approximate ground surface level interpolated from PMM Brisbane Pty Ltd's survey drawing, Reference 21454-

BORE REPORT

**BUTLER
PARTNERS**

Client: Property Solutions Group Australia Pty Ltd

Project: Retail/Commercial Development

Location: Moggill Road and Keating Street, Indooroopilly

Project No: 06253A

BORE 8

Page No: 1 of 1

Date: 6 December 2006

Ground Surface Level: RL

Depth (m)	Description	RL (m)	Lithology	Sample Type	Sample Depth (m)	Sample ID	Test Results
0	CONCRETE - 100mm thick	0.0			0.1		
	FILL - brown, clayey gravel, phyllite, moist			E		B8-1	
	- gravelly clay, moist			E	0.5	B8-2	
	End of Bore at 0.85 m (due to refusal)				0.85		
1		-1.0					
2		-2.0					
3		-3.0					

D Disturbed Sample

B Bulk Sample

U Undisturbed Tube (50mm diameter)

pp Pocket Penetrometer Test (kPa)

E Environmental Sample

S Standard Penetrometer Test (SPT)

SPT Hammer Bouncing

() No Sample Recovery

C NMLC Coring

Is(50) Point Load Test Result (MPa)

(d) Diametral Point Load Strength Test

(a) Axial Point Load Strength Test

Rig: Geoprobe 6620DT

Drilling Method: Pushtube

Groundwater: No free groundwater encountered during drilling

Remarks: * Approximate ground surface level interpolated from

BORE REPORT

**BUTLER
PARTNERS**

Client: Property Solutions Group Australia Pty Ltd

Project: Retail/Commercial Development

Location: Moggill Road and Keating Street, Indooroopilly

Project No: 06253A

BORE 9

Page No: 1 of 1

Date: 6 December 2006

Ground Surface Level: RL

Depth (m)	Description	RL (m)	Lithology	Sample Type	Sample Depth (m)	Sample ID	Test Results
0	CONCRETE - 100mm thick	0.0			0.1	B9-1	
	FILL - brown, clayey gravel, phyllite - gravelly clay			E	0.3	B9-2	
				E	0.6		
	End of Bore at 0.65 m (due to refusal)						
1		-1.0					
2		-2.0					
3		-3.0					

D Disturbed Sample

B Bulk Sample

U Undisturbed Tube (50mm diameter)

pp Pocket Penetrometer Test (kPa)

E Environmental Sample

S Standard Penetrometer Test (SPT)

SPT Hammer Bouncing

() No Sample Recovery

C NMLC Coring

Is(50) Point Load Test Result (MPa)

(d) Diametral Point Load Strength Test

(a) Axial Point Load Strength Test

Rig: Geoprobe 6620DT

Drilling Method: Pushtube

Groundwater: No free groundwater encountered during drilling

Remarks: * Approximate ground surface level interpolated from

BORE REPORT

**BUTLER
PARTNERS**

Client: Property Solutions Group Australia Pty Ltd

Project: Retail/Commercial Development

Location: Moggill Road and Keating Street, Indooroopilly

Project No: 06253A

BORE 10

Page No: 1 of 1

Date: 6 December 2006

Ground Surface Level: RL

Depth (m)	Description	RL (m)	Lithology	Sample Type	Sample Depth (m)	Sample ID	Test Results
0	CONCRETE - 100mm thick	0.0			0.1	B10-1	
	FILL - brown, clayey gravel, phyllite			E	0.5	B10-2	
	- gravelly clay			E	0.8		
1	End of Bore at 0.8 m (due to refusal)	-1.0					
2		-2.0					
3		-3.0					

D Disturbed Sample

B Bulk Sample

U Undisturbed Tube (50mm diameter)

pp Pocket Penetrometer Test (kPa)

E Environmental Sample

S Standard Penetrometer Test (SPT)

SPT Hammer Bouncing

() No Sample Recovery

C NMLC Coring

Is(50) Point Load Test Result (MPa)

(d) Diametral Point Load Strength Test

(a) Axial Point Load Strength Test

Rig: Geoprobe 6620DT

Drilling Method: Pushtube

Groundwater: No free groundwater encountered during drilling

Remarks: * Approximate ground surface level interpolated from

BORE REPORT

**BUTLER
PARTNERS**

Client: Property Solutions Group Australia Pty Ltd

Project: Retail/Commercial Development

Location: Moggill Road and Keating Street, Indooroopilly

Project No: 06253A

BORE 11

Page No: 1 of 1

Date: 6 December 2006

Ground Surface Level: RL

Depth (m)	Description	RL (m)	Lithology	Sample Type	Sample Depth (m)	Sample ID	Test Results
0	CONCRETE - 100mm thick	0.0			0.1	B11-1	
	FILL - brown, gravelly clay, phyllite fill			E	0.3		
					0.5		
				E		B11-2	
1	- dark grey-brown, clayey sand with gravel, phyllite rockfill	-1.0			1.0		
				E		B11-3	
					1.5		
	PHYLLITE (XW) - light brown, with clay				1.7		
				E		B11-4	
2		-2.0			2.0		
	End of Bore at 2.35 m (due to refusal)						
3		-3.0					

D Disturbed Sample

B Bulk Sample

U Undisturbed Tube (50mm diameter)

pp Pocket Penetrometer Test (kPa)

E Environmental Sample

S Standard Penetrometer Test (SPT)

SPT Hammer Bouncing

() No Sample Recovery

C NMLC Coring

Is(50) Point Load Test Result (MPa)

(d) Diametral Point Load Strength Test

(a) Axial Point Load Strength Test

Rig: Geoprobe 6620DT

Drilling Method: Pushtube

Groundwater: No free groundwater encountered during drilling

Remarks: * Approximate ground surface level interpolated from

BORE REPORT

**BUTLER
PARTNERS**

Client: Property Solutions Group Australia Pty Ltd

Project: Retail/Commercial Development

Location: Moggill Road and Keating Street, Indooroopilly

Project No: 06253A

BORE 13

Page No: 1 of 1

Date: 6 December 2006

Ground Surface Level: RL

Depth (m)	Description	RL (m)	Lithology	Sample Type	Sample Depth (m)	Sample ID	Test Results
0	CONCRETE - 100mm thick	0.0			0.1		
	FILL - brown, clayey gravel, phyllite/greywacke fill			E		B13-1	
				E	0.5		
				E		B13-2	
1	- gravelly clay	-1.0		E	1.0		
				E	1.4		
				E	1.7		
2	PHYLLITE (XW) - brown-grey, with clay	-2.0		E	2.0		
				E	2.1		
					2.3	B13-5	
3	End of Bore at 3 m	-3.0					

D Disturbed Sample

B Bulk Sample

U Undisturbed Tube (50mm diameter)

pp Pocket Penetrometer Test (kPa)

E Environmental Sample

S Standard Penetrometer Test (SPT)

SPT Hammer Bouncing

() No Sample Recovery

C NMLC Coring

Is(50) Point Load Test Result (MPa)

(d) Diametral Point Load Strength Test

(a) Axial Point Load Strength Test

Rig: Geoprobe 6620DT

Drilling Method: Pushtube

Groundwater: No free groundwater encountered during drilling

Remarks: * Approximate ground surface level interpolated from

BORE REPORT

**BUTLER
PARTNERS**

Client: Property Solutions Group Australia Pty Ltd

Project: Retail/Commercial Development

Location: Moggill Road and Keating Street, Indooroopilly

Project No: 06253A

BORE 14

Page No: 1 of 1

Date: 6 December 2006

Ground Surface Level: RL

Depth (m)	Description	RL (m)	Lithology	Sample Type	Sample Depth (m)	Sample ID	Test Results
0	CONCRETE - 100mm thick	0.0			0.1		
	FILL - brown, clayey gravel, phyllite fill			E		B14-1	
					0.5		
				E		B14-2	
1		-1.0			1.0		
				E		B14-3	
				E	1.5		
				E	1.7	B14-4	
2	End of Bore at 1.7 m (due to refusal)	-2.0					
3		-3.0					

D Disturbed Sample

B Bulk Sample

U Undisturbed Tube (50mm diameter)

pp Pocket Penetrometer Test (kPa)

E Environmental Sample

S Standard Penetrometer Test (SPT)

SPT Hammer Bouncing

() No Sample Recovery

C NMLC Coring

Is(50) Point Load Test Result (MPa)

(d) Diametral Point Load Strength Test

(a) Axial Point Load Strength Test

Rig: Geoprobe 6620DT

Drilling Method: Pushtube

Groundwater: No free groundwater encountered during drilling

Remarks: * Approximate ground surface level interpolated from

BORE REPORT

**BUTLER
PARTNERS**

Client: Property Solutions Group Australia Pty Ltd

Project: Retail/Commercial Development

Location: Moggill Road and Keating Street, Indooroopilly

Project No: 06253A

BORE 15

Page No: 1 of 1

Date: 6 December 2006

Ground Surface Level: RL

Depth (m)	Description	RL (m)	Lithology	Sample Type	Sample Depth (m)	Sample ID	Test Results
0	CONCRETE - 100mm thick	0.0			0.1	B15-1	
	FILL - brown, gravelly clay, phyllite fill			E	0.4		
	- medium to coarse grained sand				0.5		
				E		B15-2 DUP01	
1		-1.0		E	1.0	B15-3	
	PHYLLITE (XW) - light grey			E	1.2	B15-4	
					1.3		
	End of Bore at 1.3 m (due to refusal)						
2		-2.0					
3		-3.0					

D Disturbed Sample

B Bulk Sample

U Undisturbed Tube (50mm diameter)

pp Pocket Penetrometer Test (kPa)

E Environmental Sample

S Standard Penetrometer Test (SPT)

SPT Hammer Bouncing

() No Sample Recovery

C NMLC Coring

Is(50) Point Load Test Result (MPa)

(d) Diametral Point Load Strength Test

(a) Axial Point Load Strength Test

Rig: Geoprobe 6620DT

Drilling Method: Pushtube

Groundwater: No free groundwater encountered during drilling

Remarks: * Approximate ground surface level interpolated from

BORE REPORT

**BUTLER
PARTNERS**

Client: Property Solutions Group Australia Pty Ltd

Project: Retail/Commercial Development

Location: Moggill Road and Keating Street, Indooroopilly

Project No: 06253A

BORE 17

Page No: 1 of 1

Date: 6 December 2006

Ground Surface Level: RL

Depth (m)	Description	RL (m)	Lithology	Sample Type	Sample Depth (m)	Sample ID	Test Results
0	CONCRETE - 100mm thick	0.0			0.15	B17-1	
	FILL - brown, clayey gravel, phyllite fill			E	0.5	B17-2	
				E	0.8		
1	PHYLLITE (XW) - white-brown	-1.0		E	1.0	B17-3	
					1.2		
	End of Bore at 1.5 m (due to refusal)						
2		-2.0					
3		-3.0					

D Disturbed Sample

B Bulk Sample

U Undisturbed Tube (50mm diameter)

pp Pocket Penetrometer Test (kPa)

E Environmental Sample

S Standard Penetrometer Test (SPT)

SPT Hammer Bouncing

() No Sample Recovery

C NMLC Coring

Is(50) Point Load Test Result (MPa)

(d) Diametral Point Load Strength Test

(a) Axial Point Load Strength Test

Rig: Geoprobe 6620DT

Drilling Method: Pushtube

Groundwater: No free groundwater encountered during drilling

Remarks: * Approximate ground surface level interpolated from

BORE REPORT

**BUTLER
PARTNERS**

Client: Property Solutions Group Australia Pty Ltd

Project: Retail/Commercial Development

Location: Moggill Road and Keating Street, Indooroopilly

Project No: 06253A

BORE 18

Page No: 1 of 1

Date: 6 December 2006

Ground Surface Level: RL

Depth (m)	Description	RL (m)	Lithology	Sample Type	Sample Depth (m)	Sample ID	Test Results
0	FILL - brown, clayey gravel with sand	0.0					
				E	0.3	B18-1	
					0.5		
				E	0.7	B18-2	
1		-1.0			1.0		
				E	1.2	B18-3	
	- brown-grey, gravelly clay, sand				1.5		
				E	1.6	B18-4	
2	PHYLLITE (XW) - light brown	-2.0			1.9		
				E	2.0	B18-5	
					2.3		
3	End of Bore at 3 m	-3.0					

D Disturbed Sample

B Bulk Sample

U Undisturbed Tube (50mm diameter)

pp Pocket Penetrometer Test (kPa)

E Environmental Sample

S Standard Penetrometer Test (SPT)

SPT Hammer Bouncing

() No Sample Recovery

C NMLC Coring

Is(50) Point Load Test Result (MPa)

(d) Diametral Point Load Strength Test

(a) Axial Point Load Strength Test

Rig: Geoprobe 6620DT

Drilling Method: Pushtube

Groundwater: No free groundwater encountered during drilling

Remarks: * Approximate ground surface level interpolated from

BORE REPORT

**BUTLER
PARTNERS**

Client: Property Solutions Group Australia Pty Ltd

Project: Retail/Commercial Development

Location: Moggill Road and Keating Street, Indooroopilly

Project No: 06253A

BORE 19

Page No: 1 of 1

Date: 6 December 2006

Ground Surface Level: RL

Depth (m)	Description	RL (m)	Lithology	Sample Type	Sample Depth (m)	Sample ID	Test Results
0	CONCRETE - 100mm thick	0.0			0.1		
	FILL - brown, gravelly clay, phyllite fill			E		B19-1	
	- clayey gravel, phyllite				0.4		
				E	0.5	B19-2	
					0.8		
1		-1.0		E	1.0	B19-3 DUP03	
					1.3		
	PHYLLITE (XW) - light brown			E	1.5	B19-4	
					1.6		
	End of Bore at 1.6 m (due to refusal)						
2		-2.0					
3		-3.0					

D Disturbed Sample

B Bulk Sample

U Undisturbed Tube (50mm diameter)

pp Pocket Penetrometer Test (kPa)

E Environmental Sample

S Standard Penetrometer Test (SPT)

SPT Hammer Bouncing

() No Sample Recovery

C NMLC Coring

Is(50) Point Load Test Result (MPa)

(d) Diametral Point Load Strength Test

(a) Axial Point Load Strength Test

Rig: Geoprobe 6620DT

Drilling Method: Pushtube

Groundwater: No free groundwater encountered during drilling

Remarks: * Approximate ground surface level interpolated from

Notes on Description and Classification of Soil

The methods of description and classification of soils used in this report are generally based on Australian Standard AS1726-1993 "Geotechnical Site Investigations".

Soil description is based on an assessment of disturbed samples, as recovered from bores and excavations, or from undisturbed materials as seen in excavations and exposures or in undisturbed samples. Descriptions given on report sheets are an interpretation of the conditions encountered at the time of investigation.

In the case of cone or piezocone penetrometer tests, actual soil samples are not recovered and soil description is inferred based on published correlations, past experience and comparison with bore and/or test pit data (if available).

Soil classification is based on the particle size distribution of the soil and the plasticity of the portion of the material finer than 0.425mm. The description of particle size distribution and plasticity is based on the results of visual field estimation, laboratory testing or both. When assessed in the field, the properties of the soil are estimated; precise description will always require laboratory testing to define soil properties.

Where soil can be clearly identified as FILL this will be noted as the main soil type followed by a description of the composition of the fill (eg. FILL – yellow-brown, fine to coarse grained gravelly clay fill with concrete rubble). If the soil is assessed as possibly being fill this will be noted as an additional observation.

Soils are generally described using the following sequence of terms. In certain instances, not all of the terms will be included in the soil description.

MAIN SOIL TYPE (CLASSIFICATION GROUP SYMBOL)

- strength/density, colour, structure/grain size, secondary and minor components, additional observations

Information on the definition of descriptive and classification terms follows.

SOIL TYPE and CLASSIFICATION GROUP SYMBOLS

	Major Divisions	Particle Size	Classification Group Symbol	Typical Names
COARSE GRAINED SOILS (more than half of material is larger than 0.075 mm)	BOULDERS	> 200mm		
	COBBLES	63 – 200mm		
	GRAVELS (more than half of coarse fraction is larger than 2.36 mm)	Coarse: 20 – 63 mm Medium: 6 – 20 mm Fine: 2.36 – 6 mm	GW	Well graded gravels, gravel-sand mixtures, little or no fines.
			GP	Poorly graded gravels and gravel-sand mixtures, little or no fines, uniform gravels.
			GM	Silty gravels, gravel-sand-silt mixtures.
			GC	Clayey gravels, gravel-sand-clay mixtures.
	SANDS (more than half of coarse fraction is smaller than 2.36mm)	Coarse: 0.6 – 2.36 mm Medium: 0.2 – 0.6 mm Fine: 0.075 – 0.2 mm	SW	Well graded sands, gravelly sands, little or no fines.
			SP	Poorly graded sands and gravelly sands; little or no fines, uniform sands.
			SM	Silty sands, sand-silt mixtures.
			SC	Clayey sands, sand-clay mixtures.
FINE GRAINED SOILS (more than half of material is smaller than 0.075 mm)	SILTS & CLAYS (liquid limit <50 %)		ML	Inorganic silts and very fine sands, silty/clayey fine sands or clayey silts with low plasticity.
			CL and CI	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays.
			OL	Organic silts and organic silty clays of low plasticity.
	SILTS & CLAYS (liquid limit >50 %)		MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils.
			CH	Inorganic clays of high plasticity.
			OH	Organic clays of medium to high plasticity, organic silts.
	HIGHLY ORGANIC SOILS		Pt	Peat and other highly organic soils.

Notes on Description and Classification of Rock

The methods of description and classification of rock used in this report are generally based on Australian Standard AS1726-1993 "Geotechnical Site Investigations".

Rock description is based on an assessment of disturbed samples, as recovered from bores and excavations, or from undisturbed materials as seen in excavations and exposures, or in core samples. Descriptions given on report sheets are an interpretation of the conditions encountered at the time of investigation.

Notes outlining the method and terminology adopted for the description of rock defects are given below, however, detailed information on defects can generally only be determined where rock core is taken, or excavations or exposures allow detailed observation and measurement.

Rocks are generally described using the following sequence of terms. In certain instances not all of the terms will be included in the rock description.

ROCK TYPE (WEATHERING SYMBOL), strength, colour, grain size, defect frequency

Information on the definition of descriptive and classification terms follows.

ROCK TYPE

In general, simple rock names are used rather than precise geological classifications.

ROCK MATERIALS WEATHERING CLASSIFICATION

Term	Weathering Symbol	Definition
Residual soil	RS	Soil developed from extremely weathered rock; the mass structure and substance fabrics are no longer evident; there is a large change in volume but the soil has not been significantly transported.
Extremely weathered	XW	Rock is weathered to such an extent that it has 'soil' properties, ie. it either disintegrates or can be remoulded in water.
Distinctly weathered *	DW	Rock strength usually changed by weathering. The rock may be highly discoloured, usually by ironstaining. Porosity may be increased by leaching, or may be decreased due to deposition of weathering products in pores.
Highly weathered	HW	Rock substance affected by weathering to the extent that limonite staining or bleaching affects the whole of the rock substance and other signs of chemical or physical decomposition are evident. Porosity and strength may be increased or decreased compared to the fresh rock, usually as a result of iron leaching or deposition. The colour and strength of the original fresh rock substance is no longer recognisable.
Moderately weathered	MW	Rock substance affected by weathering to the extent that staining extends throughout the whole of the rock substance and the original colour of the fresh rock may be no longer recognisable.
Slightly weathered	SW	Rock is slightly discoloured but shows little or no change of strength from fresh rock.
Fresh	FR	Rock shows no sign of decomposition or staining.

* Subdivision of this weathering grade into highly and moderately may be used where applicable.

STRENGTH OF ROCK MATERIAL

Term	Symbol	Point Load Index Is (50)	Field guide to strength
Extremely low	EL	< 0.03 MPa	Easily remoulded by hand to a material with soil properties.
Very low	VL	0.03 – 0.1 MPa	Material crumbles under firm blows with sharp end of pick; can be peeled with knife; too hard to cut a triaxial sample by hand. Pieces up to 30mm thick can be broken by finger pressure.
Low	L	0.1 – 0.3 MPa	Easily scored with a knife; indentations 1mm to 3mm show in the specimen with firm blows of the pick point; has dull sound under hammer. A piece of core 150mm long 50mm diameter may be broken by hand. Sharp edges of core may be friable and break during handling.
Medium	M	0.3 – 1.0 MPa	Readily scored with a knife; a piece of core 150mm long by 50mm diameter can be broken by hand with difficulty.
High	H	1.0 – 3.0 MPa	A piece of core 150mm long by 50mm diameter cannot be broken by hand but can be broken by a pick with a single firm blow; rock rings under hammer.
Very high	VH	3.0 – 10.0 MPa	Hand specimen breaks with pick after more than one blow; rock rings under hammer.
Extremely high	EH	> 10 MPa	Specimen requires many blows with geological pick to break through intact material; rock rings under hammer.

Notes:

1. These terms refer to the strength of the rock material and not to the strength of the rock mass which may be considerably weaker due to the effect of rock defects.
2. The field guide visual assessment for rock strength may be used for preliminary assessment or when point load testing is not available.
3. Anisotropy of rock may affect the field assessment of strength.

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APPENDIX C

LABORATORY TEST RESULT SHEETS



Australian Government
National Measurement Institute

SAMPLE RECEIPT NOTIFICATION

COMPANY:

BULUN

ATTENTION:

sch4p4(6) Pers

FAX No:

07 3852 3808

DATE/TIME:

14/12 1030

FROM:

sch4p4(6) Personal in

CLIENT JOB / PROJECT Name / Number

SAMPLE NO:

15

Incomplete or unclear information about samples or required tests
will delay the start of analytical work.

SAMPLE

Samples were received at time

1000

on date

14/12

Sampling Date documented on COC? Yes / No

Samples received: frozen ☐ cool (ice packs) ☒ room temperature ☐

DOCUMENTS

Complete documentation received for all samples.

[/]

No documents received. Please advise us quickly of your requirements. []

NMI Quotation Number included: Yes ☐ No ☐

COMMENTS

OK

Signed:

sch4p4(6) Pers

ENQUIRIES

Contact our Sample Management Team on (02) 9449 0135 or fax (02) 9440 0610 regarding sample
condition, arrival, numbering, damage, documentation etc. File C

Please direct turnaround or technical enquiries to our Customer Services Team, Brian Woodward (02) 9449 0151.

Butler Partners Pty Ltd

PO Box 2167 (38 Doggett Street), Fortitude Valley BC Qld 4006

Ph: 3852 3800

Fax: 3852 3808

Job No:

06253A

Order No:

LA77

NMI

Australian Government National Measurement Institute

1 Soakio St, PYMBLE NSW 2073

Ph: (02) 9449 0111

Fax: (02) 9449 1633

Project Manager: <u>SKW</u>						TPH	BTEX	PAH	OC/OP	TOTAL PHENOLS	TOTAL CYANIDE	As, Cd, Cr, Cu, Hg, Ni, Pb, Zn	OC Pesticides	PCB	Cr (VI)	
Sampled By: <u>MB</u>																
Results To: <u>MB</u>																
Relinquished by: <u>MB</u>																
Due Date: <u>19 Dec 06</u>																
NMI Sample ID	Sample Reference	Sample Depth	Sample Type	No. of Jars/Vials	Date Sampled											
B4-1			Soil	1	8-Dec-06							X	X			
B4-2			Soil	1	8-Dec-06							Hold				
B4-3			Soil	1	8-Dec-06	X	X					X				
B4-4			Soil	1	8-Dec-06							X				
B6-1			Soil	1	11-Dec-06							X	X			
B7-1			Soil	1	12-Dec-06							X	X			
B7-2			Soil	1	12-Dec-06							X				
B7-3			Soil	1	12-Dec-06							Hold				
B7-4			Soil	1	12-Dec-06	X	X					X	X			
B7-5			Soil	1	12-Dec-06							Hold				
B7-6			Soil	1	12-Dec-06							X				
B7-7			Soil	1	12-Dec-06	X	X					X				
B7-8			Soil	1	12-Dec-06							Hold				
B7-9			Soil	1	12-Dec-06							X	X			
Dup05			Soil	1	12-Dec-06							X				
<div style="border: 1px solid black; padding: 5px; display: inline-block;">TAT: COB TUESDAY</div> <div style="border: 1px solid black; padding: 5px; display: inline-block; margin-left: 20px;">RECEIVED 14 DEC 2006</div>																
TOTALS:						3	3					11	5			
Relinquished by:						Received by:						Release				
Organisation: Butler Partners						Organisation: NMI						Date: 14/12/06				
Special Instructions:												Time: 10:00				



Australian Government

National Measurement Institute

REPORT OF ANALYSIS

Page: 1 of 2

Report No. RN589704

Client	: BUTLER PARTNERS P/L 79 DOGETT STREET FORTITUDE VALLEY QLD 4006	Job No.	: BUTL01/061214
		Quote No.	: QT-00782
		Order No.	: LA77
		Date Sampled	:
		Date Received	: 14-DEC-2006
Attention	: sch4p4(6) Personal	Sampled By	: CLIENT
Project Name	:		
Your Client Services Manager	: sch4p4(6) Personal informa	Phone	: (02) 94490151

Lab Reg No.	Sample Ref	Sample Description
N06/042924	B4-3	SOIL JOB 06253A 8/12/06
N06/042933	B7-7	SOIL JOB 06253A 12/12/06

Lab Reg No.		N06/042924	N06/042933		
Sample Reference		B4-3	B7-7		
	Units				Method
BTEX					
Benzene	mg/kg	<0.5	<0.5		NGCMS_1121
Toluene	mg/kg	<0.5	<0.5		NGCMS_1121
Ethyl Benzene	mg/kg	<0.5	<0.5		NGCMS_1121
m, p - Xylene	mg/kg	<1	<1		NGCMS_1121
o - Xylene	mg/kg	<0.5	<0.5		NGCMS_1121
Total Petroleum Hydrocarbons					
TPH C6 - C9	mg/kg	<25	<25		NGCMS_1121
TPH C10 - C14	mg/kg	<50	<50		NGCMS_1112
TPH C15 - C28	mg/kg	<100	<100		NGCMS_1112
TPH C29 - C36	mg/kg	<100	<100		NGCMS_1112
Surrogate					
Surrogate volatile Rec	%	104	99		
Dates					
Date extracted		14-DEC-2006	14-DEC-2006		
Date analysed		15-DEC-2006	15-DEC-2006		

sch4p4(6) Personal information

sch4p4(6) Personal information
Section Manager
Organics - NSW (Accreditation No. 198)

19-DEC-2006

REPORT OF ANALYSIS

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Report No. RN589704

Lab Reg No.		N06/042924	N06/042933			
Sample Reference		B4-3	B7-7			
	Units					Method
Trace Elements						
Arsenic	mg/kg	8.9	8.4			NT2_49
Cadmium	mg/kg	<0.5	<0.5			NT2_49
Chromium	mg/kg	7	12			NT2_49
Copper	mg/kg	16	16			NT2_49
Lead	mg/kg	110	110			NT2_49
Mercury	mg/kg	<0.2	<0.2			NT2_49
Nickel	mg/kg	5.3	5.6			NT2_49
Zinc	mg/kg	57	44			NT2_49
Total Solids	%	85.5	83.7			NT2_49

sch4p4(6) Personal information

sch4p4(6) Personal information

Section Manager

Inorganics - NSW (Accreditation No. 198)

19-DEC-2006

All results are expressed on a dry weight basis.



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This Report supersedes reports: RN589616 RN589671



Australian Government

National Measurement Institute

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Report No. RN589705

Client	: BUTLER PARTNERS P/L 79 DOGETT STREET FORTITUDE VALLEY QLD 4006	Job No.	: BUTL01/061214
		Quote No.	: QT-00782
		Order No.	: LA77
		Date Sampled	:
Attention	: sch4p4(6) Person	Date Received	: 14-DEC-2006
Project Name	:	Sampled By	: CLIENT
Your Client Services Manager	: sch4p4(6) Personal informat	Phone	: (02) 94490151

Lab Reg No.	Sample Ref	Sample Description
N06/042925	B4-4	SOIL JOB 06253A 8/12/06
N06/042928	B7-2	SOIL JOB 06253A 12/12/06
N06/042932	B7-6	SOIL JOB 06253A 12/12/06
N06/042936	DUP05	SOIL JOB 06253A 12/12/06

Lab Reg No.		N06/042925	N06/042928	N06/042932	N06/042936	
Sample Reference		B4-4	B7-2	B7-6	DUP05	
	Units					Method
Trace Elements						
Arsenic	mg/kg	11	12	9.9	8.7	NT2_49
Cadmium	mg/kg	<0.5	1.7	<0.5	1.4	NT2_49
Chromium	mg/kg	9.6	10	11	5.8	NT2_49
Copper	mg/kg	24	28	19	21	NT2_49
Lead	mg/kg	81	690	150	410	NT2_49
Mercury	mg/kg	<0.2	<0.2	<0.2	<0.2	NT2_49
Nickel	mg/kg	12	8.6	6.5	6.7	NT2_49
Zinc	mg/kg	71	210	53	130	NT2_49
Total Solids	%	88	86	85.9	84	NT2_49

sch4p4(6) Personal information

Dr. sch4p4(6) Personal Section Manager
Inorganics - NSW (Accreditation No. 198)

19-DEC-2006

All results are expressed on a dry weight basis.



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Report No. RN589705

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Australian Government

National Measurement Institute

REPORT OF ANALYSIS

Page: 1 of 3

Report No. RN589707

Client	: BUTLER PARTNERS P/L 79 DOGETT STREET FORTITUDE VALLEY QLD 4006	Job No.	: BUTL01/061214
		Quote No.	: QT-00782
		Order No.	: LA77
		Date Sampled	:
Attention	: sch4p4(6) Persona	Date Received	: 14-DEC-2006
Project Name	:	Sampled By	: CLIENT
Your Client Services Manager	: sch4p4(6) Personal informatio	Phone	: (02) 94490151

Lab Reg No.	Sample Ref	Sample Description
N06/042922	B4-1	SOIL JOB 06253A 8/12/06
N06/042926	B6-1	SOIL JOB 06253A 11/12/06
N06/042927	B7-1	SOIL JOB 06253A 12/12/06
N06/042935	B7-9	SOIL JOB 06253A 12/12/06

Lab Reg No.		N06/042922	N06/042926	N06/042927	N06/042935	
Sample Reference		B4-1	B6-1	B7-1	B7-9	
	Units					Method
Organochlorine (OC) Pesticides						
HCB	mg/kg	<0.01	<0.01	<0.01	<0.01	NR_19
Heptachlor	mg/kg	<0.01	<0.01	<0.01	<0.01	NR_19
Heptachlor epoxide	mg/kg	<0.01	<0.01	<0.01	<0.01	NR_19
Aldrin	mg/kg	<0.01	<0.01	<0.01	<0.01	NR_19
gamma-BHC (Lindane)	mg/kg	<0.01	<0.01	<0.01	<0.01	NR_19
alpha-BHC	mg/kg	<0.01	<0.01	<0.01	<0.01	NR_19
beta-BHC	mg/kg	<0.01	<0.01	<0.01	<0.01	NR_19
delta-BHC	mg/kg	<0.01	<0.01	<0.01	<0.01	NR_19
trans-Chlordane	mg/kg	<0.01	<0.01	<0.01	<0.01	NR_19
cis-Chlordane	mg/kg	<0.01	<0.01	<0.01	<0.01	NR_19
Oxychlordane	mg/kg	<0.01	<0.01	<0.01	<0.01	NR_19
Dieldrin	mg/kg	<0.01	<0.01	<0.01	<0.01	NR_19
pp-DDE	mg/kg	<0.01	<0.01	<0.01	<0.01	NR_19
pp-DDD	mg/kg	<0.01	<0.01	<0.01	<0.01	NR_19
pp-DDT	mg/kg	<0.01	<0.01	<0.01	<0.01	NR_19
Endrin	mg/kg	<0.01	<0.01	<0.01	<0.01	NR_19
Endrin Aldehyde	mg/kg	<0.01	<0.01	<0.01	<0.01	NR_19
Endrin Ketone	mg/kg	<0.01	<0.01	<0.01	<0.01	NR_19
alpha-Endosulfan	mg/kg	<0.01	<0.01	<0.01	<0.01	NR_19
beta-Endosulfan	mg/kg	<0.01	<0.01	<0.01	<0.01	NR_19
Endosulfan Sulfate	mg/kg	<0.01	<0.01	<0.01	<0.01	NR_19
Methoxychlor	mg/kg	<0.01	<0.01	<0.01	<0.01	NR_19
Surrogate						
Surrogate OC Rec.	%	104	112	120	130	NR_19
Dates						
Date extracted		14-DEC-2006	14-DEC-2006	14-DEC-2006	14-DEC-2006	
Date analysed		19-DEC-2006	19-DEC-2006	19-DEC-2006	19-DEC-2006	

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Report No. RN589707

Lab Reg No.		N06/042922	N06/042926	N06/042927	N06/042935	
Sample Reference	Units	B4-1	B6-1	B7-1	B7-9	Method

sch4p4(6) Personal inf

sch4p4(6) Perso
Section Manager
Organics - NSW (Accreditation No. 198)

19-DEC-2006

Lab Reg No.		N06/042922	N06/042926	N06/042927	N06/042935	
Sample Reference	Units	B4-1	B6-1	B7-1	B7-9	Method
Trace Elements						
Arsenic	mg/kg	1	8.3	11	10	NT2_49
Cadmium	mg/kg	<0.5	<0.5	<0.5	<0.5	NT2_49
Chromium	mg/kg	5.9	12	7.4	16	NT2_49
Copper	mg/kg	3.4	36	30	21	NT2_49
Lead	mg/kg	2	31	22	39	NT2_49
Mercury	mg/kg	<0.2	<0.2	<0.2	<0.2	NT2_49
Nickel	mg/kg	5.6	33	16	8.2	NT2_49
Zinc	mg/kg	13	120	66	55	NT2_49
Total Solids	%	96.1	96.1	89.5	85.8	NT2_49

sch4p4(6) Personal information

Dr. sch4p4(6) Personal
Section Manager
Inorganics - NSW (Accreditation No. 198)

19-DEC-2006

All results are expressed on a dry weight basis.



This report is issued in accordance with NATA's accreditation requirements.
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REPORT OF ANALYSIS

Page: 3 of 3
Report No. RN589707

This Report supersedes reports: *RN589616* *RN589671*

Published on DES Disclosure Log
RTI Act 2009



Australian Government

National Measurement Institute

REPORT OF ANALYSIS

Page: 1 of 3

Report No. RN589711

Client	: BUTLER PARTNERS P/L 79 DOGGETT STREET FORTITUDE VALLEY QLD 4006	Job No.	: BUTL01/O61214
		Quote No.	: QT-00782
		Order No.	: LA77
		Date Sampled	:
Attention	: sch4p4(6) Personal infor	Date Received	: 14-DEC-2006
Project Name	:	Sampled By	: CLIENT
Your Client Services Manager	: sch4p4(6) Personal informat	Phone	: (02) 94490151

Lab Reg No.	Sample Ref	Sample Description
N06/042930	B7-4	SOIL JOB 06253A 12/12/06

Lab Reg No.	Sample Reference	Units	N06/042930	B7-4	Method
Organochlorine (OC) Pesticides					
HCB	mg/kg	<0.01			NR_19
Heptachlor	mg/kg	<0.01			NR_19
Heptachlor epoxide	mg/kg	<0.01			NR_19
Aldrin	mg/kg	<0.01			NR_19
gamma-BHC (Lindane)	mg/kg	<0.01			NR_19
alpha-BHC	mg/kg	<0.01			NR_19
beta-BHC	mg/kg	<0.01			NR_19
delta-BHC	mg/kg	<0.01			NR_19
trans-Chlordane	mg/kg	<0.01			NR_19
cis-Chlordane	mg/kg	<0.01			NR_19
Oxychlordane	mg/kg	<0.01			NR_19
Dieldrin	mg/kg	<0.01			NR_19
pp-DDE	mg/kg	<0.01			NR_19
pp-DDD	mg/kg	<0.01			NR_19
pp-DDT	mg/kg	<0.01			NR_19
Endrin	mg/kg	<0.01			NR_19
Endrin Aldehyde	mg/kg	<0.01			NR_19
Endrin Ketone	mg/kg	<0.01			NR_19
alpha-Endosulfan	mg/kg	<0.01			NR_19
beta-Endosulfan	mg/kg	<0.01			NR_19
Endosulfan Sulfate	mg/kg	<0.01			NR_19
Methoxychlor	mg/kg	<0.01			NR_19
BTEX					
Benzene	mg/kg	<0.5			NGCMS_1121
Toluene	mg/kg	<0.5			NGCMS_1121
Ethyl Benzene	mg/kg	<0.5			NGCMS_1121
m, p - Xylene	mg/kg	<1			NGCMS_1121
o - Xylene	mg/kg	<0.5			NGCMS_1121
Total Petroleum Hydrocarbons					
TPH C6 - C9	mg/kg	<25			NGCMS_1121
TPH C10 - C14	mg/kg	<50			NGCMS_1112

REPORT OF ANALYSIS

Page: 2 of 3
Report No. RN589711

Lab Reg No.		N06/042930				
Sample Reference		B7-4				
	Units					Method
Total Petroleum Hydrocarbons						
TPH C15 - C28	mg/kg	<100				NGCMS_1112
TPH C29 - C36	mg/kg	<100				NGCMS_1112
Surrogate						
Surrogate volatile Rec	%	97				
Surrogate OC Rec.	%	136				NR_19
Dates						
Date extracted		14-DEC-2006				
Date analysed		15-DEC-2006				

sch4p4(6) Personal information

sch4p4(6) Pers
Section Manager
Organics - NSW (Accreditation No. 198)

19-DEC-2006

Lab Reg No.		N06/042930				
Sample Reference		B7-4				
	Units					Method
Trace Elements						
Arsenic	mg/kg	8.6				NT2_49
Cadmium	mg/kg	1.6				NT2_49
Chromium	mg/kg	11				NT2_49
Copper	mg/kg	23				NT2_49
Lead	mg/kg	520				NT2_49
Mercury	mg/kg	<0.2				NT2_49
Nickel	mg/kg	6.2				NT2_49
Zinc	mg/kg	140				NT2_49
Total Solids	%	86.6				NT2_49

sch4p4(6) Personal information

Dr. sch4p4(6) Persona
Section Manager
Inorganics - NSW (Accreditation No. 198)

19-DEC-2006

REPORT OF ANALYSIS

Page: 3 of 3
Report No. RN589711

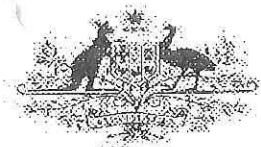
All results are expressed on a dry weight basis.



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This Report supersedes reports: *RN589616* *RN589671*

Published on DES Disclosure Log
RTI Act 2009



Australian Government
National Measurement Institute

QUALITY ASSURANCE REPORT

Client: BUTLER PARTNERS P/L

NMI QA Report No: BUTL01/061214

Sample Matrix: Soil

Analyte	Method	LOR	Blank	Sample Duplicates			Recoveries	
				Sample	Duplicate	RPD	LCS	Matrix Spike
		mg/kg	mg/kg	mg/kg	mg/kg	%	%	%
Organics Section								
BTEX								
Benzene	NGCMS_1121	0.5	<0.5	NA	NA	NA	91	NA
Toluene	NGCMS_1121	0.5	<0.5	NA	NA	NA	106	NA
Ethyl Benzene	NGCMS_1121	0.5	<0.5	NA	NA	NA	118	NA
m, p - Xylene	NGCMS_1121	1	<1	NA	NA	NA	116	NA
o-Xylene	NGCMS_1121	0.5	<0.5	NA	NA	NA	117	NA
TPH								
TPH C6-C9	NGCMS_1121	25	<25	NA	NA	NA	110	NA
TPH C10-C14	NGCMS_1112	50	<50	NA	NA	NA	104	NA
TPH C15-C28	NGCMS_1112	100	<100	NA	NA	NA	101	NA
TPH C29-C36	NGCMS_1112	100	<100	NA	NA	NA	-	NA
Surrogate Volatile Recovery		-	-	NA	NA	NA	102	NA

Results expressed in percentage (%) or mg/kg wherever appropriate.

Acceptable Spike recovery is 70-130% (BTEX and TPH C₆-C₉); 50-150% (TPH C10-C36)

Acceptable RPDs on spikes and duplicates is 40%.

'NA' = Not Applicable.

RPD= Relative Percentage Difference.

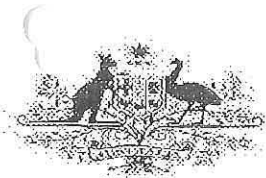
This report shall not be reproduced except in full.

Signed:

Date:

sch4p4(6) Personal information

Organics Manager, NMI-Pymble
 18/12/2006



Australian Government
National Measurement Institute

QUALITY ASSURANCE REPORT

Client: BUTLER PARTNERS P/L

NMI QA Report No: BUTL01/061214

Sample Matrix: Soil

Analyte	Method	LOR	Blank	Sample Duplicates			Recoveries	
				Sample	Duplicate	RPD	LCS	Matrix Spike
		mg/kg	mg/kg	mg/kg	mg/kg	%	%	%
Organics Section								
OC Pesticides								
HCB	NR19	0.01	<0.01	NA	NA	NA	-	NA
Heptachlor	NR19	0.01	<0.01	NA	NA	NA	102	NA
Heptachlor epoxide	NR19	0.01	<0.01	NA	NA	NA	-	NA
Aldrin	NR19	0.01	<0.01	NA	NA	NA	132	NA
gamma-BHC (Lindane)	NR19	0.01	<0.01	NA	NA	NA	88	NA
alpha-BHC	NR19	0.01	<0.01	NA	NA	NA	-	NA
beta-BHC	NR19	0.01	<0.01	NA	NA	NA	-	NA
delta-BHC	NR19	0.01	<0.01	NA	NA	NA	-	NA
is-Chlordane	NR19	0.01	<0.01	NA	NA	NA	-	NA
cis-Chlordane	NR19	0.01	<0.01	NA	NA	NA	-	NA
Oxychlordane	NR19	0.01	<0.01	NA	NA	NA	-	NA
Dieldrin	NR19	0.01	<0.01	NA	NA	NA	100	NA
pp-DDE	NR19	0.01	<0.01	NA	NA	NA	-	NA
pp-DDD	NR19	0.01	<0.01	NA	NA	NA	-	NA
pp-DDT	NR19	0.01	<0.01	NA	NA	NA	103	NA
Endrin	NR19	0.01	<0.01	NA	NA	NA	92	NA
Endrin Aldehyde	NR19	0.01	<0.01	NA	NA	NA	-	NA
Endrin Ketone	NR19	0.01	<0.01	NA	NA	NA	-	NA
alpha-Endosulfan	NR19	0.01	<0.01	NA	NA	NA	-	NA
beta-Endosulfan	NR19	0.01	<0.01	NA	NA	NA	-	NA
Endosulfan Sulfate	NR19	0.01	<0.01	NA	NA	NA	-	NA
Methoxychlor	NR19	0.01	<0.01	NA	NA	NA	-	NA
Surrogate OC Rec.	NR19	-	-	NA	NA	NA	90	NA

Results expressed in percentage (%) or mg/kg wherever appropriate.

Acceptable Spike recovery is 50-150%

Acceptable RPDs on spikes and duplicates is 40%.

'NA' = Not Applicable.

RPD= Relative Percentage Difference.

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Signed:

FOR

sch4p4(6) Personal informa

Date:

Organics Manager, NMI-Pymble
19/12/2006



Australian Government
National Measurement Institute

QUALITY ASSURANCE REPORT

Client: BUTLER PARTNERS P/L

NMI QA Report No: BUTL01/061214T1

Sample Matrix: Soil

Analyte	Method	LOR	Blank	Duplicates			Recoveries	
				Sample	Duplicate	RPD	LCS	Matrix Spike
		mg/kg	mg/kg	mg/kg	mg/kg	%	%	%
Inorganics Section				N06/042926			AGAL10	N06/042926
Arsenic	NT2.49	0.5	<0.5	8.4	8.4	0.0	106	77
Cadmium	NT2.49	0.5	<0.5	<0.5	<0.5	ND	103	116
Chromium	NT2.49	0.5	<0.5	14	9.6	37.0	91	95
Copper	NT2.49	0.5	<0.5	35	37	5.0	90	78
Lead	NT2.49	0.5	<0.5	32	30	6.0	97	116
Mercury	NT2.49	0.1	<0.1	<0.2	<0.2	ND	112	107
Nickel	NT2.49	0.5	<0.5	33	34	2.0	98	84
Pb	NT2.49	0.5	<0.5	120	130	8.0	103	75

Filename = K:\ICPMS\Trace\QAR2006\Soil\

Legend:

Acceptable recovery is 75-120%.

Acceptable RPDs on duplicates is 44% at concentrations >5 times LOR. Greater RPD may be expected at <5 times LOR.

LOR = Limit Of Reporting

ND = Not Determined

RPD = Relative Percent Difference

NA = Not Applicable

LCS = Laboratory Control Sample.

#: Spike level is less than 50% of the sample's concentration, hence the recovery data is not reliable.

**: reference value not available

* sample was not spiked for this element

Comments:

Results greater than ten times LOR have been rounded to two significant figures.

This report shall not be reproduced except in full.

Signed:

Date:

sch4p4(6) Personal informa

Dr sch4p4(6) Person

Inorganics Manager, NMI-Pymble
18/12/2006

Butler 01/06/214
due 19/12/06

Page 68 of 96



Australian Government
National Measurement Institute

SAMPLE RECEIPT NOTIFICATION

COMPANY: Butler Partners p/l
ATTENTION: sch4p4(6) FAX No: 07 3852 3808
DATE/TIME: 11.30 8/12

FROM: sch4p4(6) P

CLIENT JOB / PROJECT Name / Number

SAMPLE NO: 54

Incomplete or unclear information about samples or required tests
will delay the start of analytical work.

Samples were received at time SAMPLE 10.00 on date 8/12

Sampling Date documented on COC? Yes ☒ No ☐

Samples received: frozen ☐ cool (ice packs) ☒ room temperature ☐

DOCUMENTS

Complete documentation received for all samples. ☒

No documents received. Please advise us quickly of your requirements. ☐

NMI Quotation Number included: Yes ☐ No ☐

COMMENTS

Signed: [Signature]

sch4p4(6) Per

ENQUIRIES

Contact our Sample Management Team on (02) 9449 0135 or fax (02) 9440 0610 regarding sample condition, arrival, numbering, damage, documentation etc.

Please direct turnaround or technical enquiries to our Customer Services Team, Brian Woodward (02) 9449 0151.

Butler Partners Pty Ltd

PO Box 2267 (38 Doggatt Street), Fortitude Valley BC Qld 4006

PK: 3852 3800

Fax: 3852 3808

Job No:

06253A

Order No:

41576

NMI

Australian Government National Measurement Institute

1 Spakm St, PYMBLE NSW 2073

PA: (02) 9469 0118

Fax (82) 9449 1653

Project Manager: SKW

Sampled By: MB

Results To: MB

Relinquished by: MB

Due Date: 15 dec 06

[illegible]

DATE	DESCRIPTION	AMOUNT	BALANCE
1900			
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2025			
2026			

Relinquished by:

Organisations: Butler Partners

Special Instructions:

Received by:

Organisation: NMI

...Date:

Times:

* As advised by client the sample has not any test is for Hald.

Butler Partners Pty Ltd

PO Box 2267 (38 Doggett Street), Fortitude Valley BC Qld 4006

Ph: 3852 3800

Fax: 3852 3808

Job No:

06253A

Order No:

MB76

NMI

Australian Government National Measurement Institute

1 Swakin St, PYMBLE NSW 2073

Ph: (02) 9449 0111

Fax: (02) 9449 1653

Project Manager: SKW

Sampled By: MB

Results To: MB

Relinquished by: MB

Due Date: 15 Dec 06

NMI Sample ID	Sample Reference	Sample Depth	Sample Type	No. of Jars/Vials	Date Sampled	TPH	BTEX	PAH	OC/OP	TOTAL PHENOLS	TOTAL CYANIDE	As, Cd, Cr, Cu, Hg, Ni, Pb, Zn	OC Pesticides	PCB	Cr (VI)				
N06/042014	B12-4		Soil	1	6-Dec-06							X							
N06/042015	B13-1		Soil	1	6-Dec-06	X	X					X							
N06/042016	B13-2		Soil	1	6-Dec-06							X							
N06/042017	B13-3		Soil	1	6-Dec-06							X							
N06/042018	B13-4		Soil	1	6-Dec-06														Hold
N06/042019	B13-5		Soil	1	6-Dec-06							X							Hold
N06/042020	B14-1		Soil	1	6-Dec-06														
N06/042021	B14-2		Soil	1	6-Dec-06							X							Hold
N06/042022	B14-3		Soil	1	6-Dec-06														
N06/042023	B14-4		Soil	1	6-Dec-06														Hold
N06/042024	B15-1		Soil	1	6-Dec-06							X	X						
N06/042025	B15-2		Soil	1	6-Dec-06							X							
N06/042026	B15-3		Soil	1	6-Dec-06	X	X					X							
N06/042027	B15-4		Soil	1	6-Dec-06							X	X						
N06/042028	B16-1		Soil	1	6-Dec-06	X	X					X							
N06/042029	B16-2		Soil	1	6-Dec-06							X							
N06/042030	B16-3		Soil	1	6-Dec-06							X							
N06/042031	BV17-1		Soil	1	6-Dec-06							X							
N06/042032	BV17-2		Soil	1	6-Dec-06														
N06/042033	BV17-3		Soil	1	6-Dec-06							X	X						

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08 DEC 2006

BY:

sch4p4(6)

10:00

TOTALS:

Relinquished by:

Organisation: Butler Partners

Special Instructions:

Received by:

Organisation: NMI

Date:

Time:

Butler Partners Pty Ltd

PO Box 2267 (38 Doggett Street), Fortitude Valley BC Qld 4006

Ph: 3852 3800

Fax: 3852 3808

Job No:

06253A

Order No:

MB76

NMI

Australian Government National Measurement Institute

1 Sackin St, PYMBLE NSW 2073

Ph: (02) 9449 0111

Fax: (02) 9449 1653

Project Manager: SKW

Sampled By: MB

Results To: MB

Relinquished by: MB

Due Date: 15 Dec 06

NMI Sample ID	Sample Reference	Sample Depths	Sample Type	No. of Jars/Vials	Date Sampled	TPH	BTEX	PAH	OC/OP	TOTAL PHENOLS	TOTAL CYANIDE	As, Cd, Cr, Cu, Hg, Ni, Pb, Zn	OC Pesticides	PCB	Cr (VI)		
N06/042034	B18-1		Soil	1	6-Dec-06							X	X				
N06/042035	B18-2		Soil	1	6-Dec-06												
N06/042036	B18-3		Soil	1	6-Dec-06											Held	
N06/042037	B18-4		Soil	1	6-Dec-06							X				Held	
N06/042038	B18-5		Soil	1	6-Dec-06							X					
N06/042039	B19-1		Soil	1	6-Dec-06							X					
N06/042040	B19-2		Soil	1	6-Dec-06							X					
N06/042041	B19-3		Soil	1	6-Dec-06											Held	
N06/042042	B19-4		Soil	1	6-Dec-06							X	X				
N06/042043	Dup01		Soil	1	6-Dec-06	X	X					X					
N06/042044	Dup02		Soil	1	6-Dec-06							X					
N06/042045	Dup03		Soil	1	6-Dec-06							X					
N06/042046	Dup04		Soil	1	6-Dec-06							X	X				
N06/042048	B3-4		Soil	1	6-Dec-06							X				Held	
TOTALS:																	
Relinquished by:						Received by:						Date:					
Organisation: Butler Partners						Organisation: NMI						Time:					
Special Instructions:																	

RECEIVED

06 DEC 2006

BY: Release

10.00



Australian Government

National Measurement Institute

REPORT OF ANALYSIS

Page: 1 of 3

Report No. RN589199

Client	: BUTLER PARTNERS P/L 79 DOGETT STREET FORTITUDE VALLEY QLD 4006	Job No.	: BUTL01/061208
		Quote No.	: QT-01288
		Order No.	: MB76
		Date Sampled	: 6-DEC-2006
		Date Received	: 8-DEC-2006
Attention	: sch4p4(6) Personal in	Sampled By	: CLIENT
Project Name	:		
Your Client Services Manager	: sch4p4(6) Personal informati	Phone	: (02) 94490151

Lab Reg No.	Sample Ref	Sample Description
N06/042001	B8-1	SOIL JOB 06253A
N06/042008	B11-2	SOIL JOB 06253A

Lab Reg No.		N06/042001	N06/042008		
Sample Reference		B8-1	B11-2		
	Units				Method
Organochlorine (OC) Pesticides					
HCB	mg/kg	<0.01	<0.01		NR_19
Heptachlor	mg/kg	<0.01	<0.01		NR_19
Heptachlor epoxide	mg/kg	<0.01	<0.01		NR_19
Aldrin	mg/kg	<0.01	<0.01		NR_19
gamma-BHC (Lindane)	mg/kg	<0.01	<0.01		NR_19
alpha-BHC	mg/kg	<0.01	<0.01		NR_19
beta-BHC	mg/kg	<0.01	<0.01		NR_19
delta-BHC	mg/kg	<0.01	<0.01		NR_19
trans-Chlordane	mg/kg	<0.01	<0.01		NR_19
cis-Chlordane	mg/kg	<0.01	<0.01		NR_19
Oxychlordane	mg/kg	<0.01	<0.01		NR_19
Dieldrin	mg/kg	<0.01	<0.01		NR_19
pp-DDE	mg/kg	<0.01	<0.01		NR_19
pp-DDD	mg/kg	<0.01	<0.01		NR_19
pp-DDT	mg/kg	<0.01	<0.01		NR_19
Endrin	mg/kg	<0.01	<0.01		NR_19
Endrin Aldehyde	mg/kg	<0.01	<0.01		NR_19
Endrin Ketone	mg/kg	<0.01	<0.01		NR_19
alpha-Endosulfan	mg/kg	<0.01	<0.01		NR_19
beta-Endosulfan	mg/kg	<0.01	<0.01		NR_19
Endosulfan Sulfate	mg/kg	<0.01	<0.01		NR_19
Methoxychlor	mg/kg	<0.01	<0.01		NR_19
BTEX					
Benzene	mg/kg	<0.5	<0.5		NGCMS_1121
Toluene	mg/kg	<0.5	<0.5		NGCMS_1121
Ethyl Benzene	mg/kg	<0.5	<0.5		NGCMS_1121
m, p - Xylene	mg/kg	<1	<1		NGCMS_1121
o - Xylene	mg/kg	<0.5	<0.5		NGCMS_1121
Total Petroleum Hydrocarbons					
TPH C6 - C9	mg/kg	<25	<25		NGCMS_1121

REPORT OF ANALYSIS

Page: 2 of 3
Report No. RN589199

Lab Reg No.		N06/042001	N06/042008			
Sample Reference		B8-1	B11-2			
	Units					Method
Total Petroleum Hydrocarbons						
TPH C10 - C14	mg/kg	<50	<50			NGCMS_1112
TPH C15 - C28	mg/kg	<100	<100			NGCMS_1112
TPH C29 - C36	mg/kg	<100	<100			NGCMS_1112
Surrogate						
Surrogate volatile Rec	%	109	107			
Surrogate OC Rec.	%	113	93			NR_19
Dates						
Date extracted		8-DEC-2006	8-DEC-2006			
Date analysed		13-DEC-2006	13-DEC-2006			

sch4p4(6) Personal information

sch4p4(6) Pers Section Manager
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Lab Reg No.		N06/042001	N06/042008			
Sample Reference		B8-1	B11-2			
	Units					Method
Trace Elements						
Arsenic	mg/kg	19	16			NT2_49
Cadmium	mg/kg	<0.5	<0.5			NT2_49
Chromium	mg/kg	12	5.7			NT2_49
Copper	mg/kg	51	31			NT2_49
Lead	mg/kg	27	34			NT2_49
Mercury	mg/kg	<0.2	<0.2			NT2_49
Nickel	mg/kg	25	11			NT2_49
Zinc	mg/kg	90	66			NT2_49
Total Solids	%	92.1	86.8			NT2_49

sch4p4(6) Personal information

Dr. sch4p4(6) Persona Section Manager
Inorganics - NSW (Accreditation No. 198)

15-DEC-2006

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All results are expressed on a dry weight basis.



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Report No. RN589203

Client	: BUTLER PARTNERS P/L 79 DOGETT STREET FORTITUDE VALLEY QLD 4006	Job No.	: BUTL01/061208
		Quote No.	: QT-01288
		Order No.	: MB76
		Date Sampled	: 6-DEC-2006
		Date Received	: 8-DEC-2006
		Sampled By	: CLIENT
Attention	: sch4p4(6) Personal informati		
Project Name	:		
Your Client Services Manager	: sch4p4(6) Personal informati	Phone	: (02) 94490151

Lab Reg No.	Sample Ref	Sample Description
N06/041993	B1-1	SOIL JOB 06253A
N06/042023	B14-4	SOIL JOB 06253A
N06/042026	B15-3	SOIL JOB 06253A
N06/042032	BV17-2	SOIL JOB 06253A

Lab Reg No.		N06/041993	N06/042023	N06/042026	N06/042032	
Sample Reference		B1-1	B14-4	B15-3	BV17-2	
	Units					Method
Organochlorine (OC) Pesticides						
HCB	mg/kg	<0.01	<0.01	<0.01	<0.01	NR_19
Heptachlor	mg/kg	<0.01	<0.01	<0.01	<0.01	NR_19
Heptachlor epoxide	mg/kg	<0.01	<0.01	<0.01	<0.01	NR_19
Aldrin	mg/kg	<0.01	<0.01	<0.01	<0.01	NR_19
gamma-BHC (Lindane)	mg/kg	<0.01	<0.01	<0.01	<0.01	NR_19
alpha-BHC	mg/kg	<0.01	<0.01	<0.01	<0.01	NR_19
beta-BHC	mg/kg	<0.01	<0.01	<0.01	<0.01	NR_19
delta-BHC	mg/kg	<0.01	<0.01	<0.01	<0.01	NR_19
trans-Chlordane	mg/kg	<0.01	<0.01	<0.01	<0.01	NR_19
cis-Chlordane	mg/kg	<0.01	<0.01	<0.01	<0.01	NR_19
Oxychlordane	mg/kg	<0.01	<0.01	<0.01	<0.01	NR_19
Dieldrin	mg/kg	<0.01	<0.01	<0.01	<0.01	NR_19
pp-DDE	mg/kg	<0.01	<0.01	<0.01	<0.01	NR_19
pp-DDD	mg/kg	<0.01	<0.01	<0.01	<0.01	NR_19
pp-DDT	mg/kg	<0.01	<0.01	<0.01	<0.01	NR_19
Endrin	mg/kg	<0.01	<0.01	<0.01	<0.01	NR_19
Endrin Aldehyde	mg/kg	<0.01	<0.01	<0.01	<0.01	NR_19
Endrin Ketone	mg/kg	<0.01	<0.01	<0.01	<0.01	NR_19
alpha-Endosulfan	mg/kg	<0.01	<0.01	<0.01	<0.01	NR_19
beta-Endosulfan	mg/kg	<0.01	<0.01	<0.01	<0.01	NR_19
Endosulfan Sulfate	mg/kg	<0.01	<0.01	<0.01	<0.01	NR_19
Methoxychlor	mg/kg	<0.01	<0.01	<0.01	<0.01	NR_19
Surrogate						
Surrogate OC Rec.	%	113	99	98	97	NR_19
Dates						
Date extracted		11-DEC-2006	11-DEC-2006	11-DEC-2006	11-DEC-2006	
Date analysed		15-DEC-2006	15-DEC-2006	15-DEC-2006	15-DEC-2006	

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Lab Reg No.		N06/041993	N06/042023	N06/042026	N06/042032	
Sample Reference		B1-1	B14-4	B15-3	BV17-2	
	Units					Method

sch4p4(6) Personal information

sch4p4(6) Pers Section Manager
Organics - NSW (Accreditation No. 198)

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Lab Reg No.		N06/041993	N06/042023	N06/042026	N06/042032	
Sample Reference		B1-1	B14-4	B15-3	BV17-2	
	Units					Method
Trace Elements						
Arsenic	mg/kg	5.6	14	2.2	14	NT2_49
Cadmium	mg/kg	<0.5	<0.5	<0.5	<0.5	NT2_49
Chromium	mg/kg	11	13	8.7	10	NT2_49
Copper	mg/kg	5.6	34	4.6	29	NT2_49
Lead	mg/kg	2	35	2.7	110	NT2_49
Mercury	mg/kg	<0.2	<0.2	<0.2	<0.2	NT2_49
Nickel	mg/kg	7.9	25	9.4	13	NT2_49
Zinc	mg/kg	17	91	20	81	NT2_49
Total Solids	%	84.8	89.1	93.6	90.5	NT2_49

sch4p4(6) Personal information

Dr. sch4p4(6) Personal Section Manager
Inorganics - NSW (Accreditation No. 198)

5-DEC-2006

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Client : BUTLER PARTNERS P/L 79 DOGGETT STREET FORTITUDE VALLEY QLD 4006 Attention : sch4p4(6) Personal in Project Name : Your Client Services Manager : sch4p4(6) Personal informat	Job No. : BUTL01/061208 Quote No. : QT-01288 Order No. : MB76 Date Sampled : 6-DEC-2006 Date Received : 8-DEC-2006 Sampled By : CLIENT Phone : (02) 94490151
---	---

Lab Reg No.	Sample Ref	Sample Description
N06/042034	B18-1	SOIL JOB 06253A
N06/042041	B19-3	SOIL JOB 06253A
N06/042045	DUP03	SOIL JOB 06253A

Lab Reg No.		N06/042034	N06/042041	N06/042045		
Sample Reference		B18-1	B19-3	DUP03		
	Units					Method
Organochlorine (OC) Pesticides						
HCB	mg/kg	<0.01	<0.01	<0.01		NR 19
Heptachlor	mg/kg	<0.01	<0.01	<0.01		NR 19
Heptachlor epoxide	mg/kg	<0.01	<0.01	<0.01		NR 19
Aldrin	mg/kg	<0.01	<0.01	<0.01		NR 19
gamma-BHC (Lindane)	mg/kg	<0.01	<0.01	<0.01		NR 19
alpha-BHC	mg/kg	<0.01	<0.01	<0.01		NR 19
beta-BHC	mg/kg	<0.01	<0.01	<0.01		NR 19
delta-BHC	mg/kg	<0.01	<0.01	<0.01		NR 19
trans-Chlordane	mg/kg	<0.01	<0.01	<0.01		NR 19
cis-Chlordane	mg/kg	<0.01	<0.01	<0.01		NR 19
Oxychlordane	mg/kg	<0.01	<0.01	<0.01		NR 19
Dieldrin	mg/kg	<0.01	<0.01	<0.01		NR 19
pp-DDE	mg/kg	<0.01	<0.01	<0.01		NR 19
pp-DDD	mg/kg	<0.01	<0.01	<0.01		NR 19
pp-DDT	mg/kg	<0.01	<0.01	<0.01		NR 19
Endrin	mg/kg	<0.01	<0.01	<0.01		NR 19
Endrin Aldehyde	mg/kg	<0.01	<0.01	<0.01		NR 19
Endrin Ketone	mg/kg	<0.01	<0.01	<0.01		NR 19
alpha-Endosulfan	mg/kg	<0.01	<0.01	<0.01		NR 19
beta-Endosulfan	mg/kg	<0.01	<0.01	<0.01		NR 19
Endosulfan Sulfate	mg/kg	<0.01	<0.01	<0.01		NR 19
Methoxychlor	mg/kg	<0.01	<0.01	<0.01		NR 19
Surrogate						
Surrogate OC Rec.	%	98	95	95		NR 19
Dates						
Date extracted		11-DEC-2006	11-DEC-2006	11-DEC-2006		
Date analysed		15-DEC-2006	15-DEC-2006	15-DEC-2006		

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Lab Reg No.		N06/042034	N06/042041	N06/042045		
Sample Reference		B18-1	B19-3	DUP03		
	Units					Method

sch4p4(6) Personal inform

sch4p4(6) Pers
Section Manager
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Lab Reg No.		N06/042034	N06/042041	N06/042045		
Sample Reference		B18-1	B19-3	DUP03		
	Units					Method
Trace Elements						
Arsenic	mg/kg	15	8.5	16		NT2_49
Cadmium	mg/kg	<0.5	<0.5	<0.5		NT2_49
Chromium	mg/kg	13	6.3	4		NT2_49
Copper	mg/kg	24	25	35		NT2_49
Lead	mg/kg	35	54	30		NT2_49
Mercury	mg/kg	<0.2	<0.2	<0.2		NT2_49
Nickel	mg/kg	11	13	26		NT2_49
Zinc	mg/kg	51	71	87		NT2_49
Total Solids	%	84.4	89.5	92		NT2_49

sch4p4(6) Personal informat

Dr. sch4p4(6) Persona
Section Manager
Inorganics - NSW (Accreditation No. 198)

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Report No. RN589204

Client	: BUTLER PARTNERS P/L 79 DOGGETT STREET FORTITUDE VALLEY QLD 4006	Job No.	: BUTL01/061208
		Quote No.	: QT-01288
		Order No.	: MB76
		Date Sampled	: 6-DEC-2006
		Date Received	: 8-DEC-2006
Attention	: sch4p4(6) Personal information	Sampled By	: CLIENT
Project Name	:		
Your Client Services Manager	: sch4p4(6) Personal information	Phone	: (02) 94490151

Lab Reg No.	Sample Ref	Sample Description
N06/042004	B9-2	SOIL JOB 06253A
N06/042006	B10-2	SOIL JOB 06253A
N06/042015	B13-1	SOIL JOB 06253A
N06/042025	B15-2	SOIL JOB 06253A

Lab Reg No.		N06/042004	N06/042006	N06/042015	N06/042025	
Sample Reference		B9-2	B10-2	B13-1	B15-2	
	Units					Method
BTEX						
Benzene	mg/kg	<0.5	<0.5	<0.5	<0.5	NGCMS_1121
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	NGCMS_1121
Ethyl Benzene	mg/kg	<0.5	<0.5	<0.5	<0.5	NGCMS_1121
m, p - Xylene	mg/kg	<1	<1	<1	<1	NGCMS_1121
o - Xylene	mg/kg	<0.5	<0.5	<0.5	<0.5	NGCMS_1121
Total Petroleum Hydrocarbons						
TPH C6 - C9	mg/kg	<25	<25	<25	<25	NGCMS_1121
TPH C10 - C14	mg/kg	<50	<50	<50	<50	NGCMS_1112
TPH C15 - C28	mg/kg	<100	<100	<100	<100	NGCMS_1112
TPH C29 - C36	mg/kg	<100	<100	<100	<100	NGCMS_1112
Surrogate						
Surrogate volatile Rec	%	94	110	110	104	
Dates						
Date extracted		8-DEC-2006	8-DEC-2006	8-DEC-2006	8-DEC-2006	
Date analysed		13-DEC-2006	13-DEC-2006	13-DEC-2006	13-DEC-2006	

sch4p4(6) Personal information

sch4p4(6) Personal information
Section Manager
Organics - NSW (Accreditation No. 198)

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Lab Reg No.		N06/042004	N06/042006	N06/042015	N06/042025	
Sample Reference	Units	B9-2	B10-2	B13-1	B15-2	Method
Trace Elements						
Arsenic	mg/kg	11	16	15	2.2	NT2_49
Cadmium	mg/kg	<0.5	<0.5	<0.5	<0.5	NT2_49
Chromium	mg/kg	6.1	6.5	9.6	7.2	NT2_49
Copper	mg/kg	31	32	38	5.5	NT2_49
Lead	mg/kg	23	34	30	3.8	NT2_49
Mercury	mg/kg	<0.2	<0.2	<0.2	<0.2	NT2_49
Nickel	mg/kg	10	13	28	8.7	NT2_49
Zinc	mg/kg	55	67	86	23	NT2_49
Total Solids	%	84.7	86.5	91.9	94.3	NT2_49

sch4p4(6) Personal information

Dr. sch4p4(6) Personal information Section Manager
Inorganics - NSW (Accreditation No. 198)

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Client	: BUTLER PARTNERS P/L 79 DOGETT STREET FORTITUDE VALLEY QLD 4006	Job No.	: BUTL01/061208
		Quote No.	: QT-01288
		Order No.	: MB76
		Date Sampled	: 6-DEC-2006
		Date Received	: 8-DEC-2006
Attention	: sch4p4(6) Personal	Sampled By	: CLIENT
Project Name	:	Phone	: (02) 94490151
Your Client Services Manager	: sch4p4(6) Personal informati		

Lab Reg No.	Sample Ref	Sample Description
N06/042028	B16-1	SOIL JOB 06253A
N06/042043	DUP01	SOIL JOB 06253A

Lab Reg No.	Sample Reference	Units	N06/042028	N06/042043	Method
			B16-1	DUP01	
BTEX					
Benzene	mg/kg	<0.5	<0.5		NGCMS_1121
Toluene	mg/kg	<0.5	<0.5		NGCMS_1121
Ethyl Benzene	mg/kg	<0.5	<0.5		NGCMS_1121
m, p - Xylene	mg/kg	<1	<1		NGCMS_1121
o - Xylene	mg/kg	<0.5	<0.5		NGCMS_1121
Total Petroleum Hydrocarbons					
TPH C6 - C9	mg/kg	<25	<25		NGCMS_1121
TPH C10 - C14	mg/kg	<50	<50		NGCMS_1112
TPH C15 - C28	mg/kg	<100	<100		NGCMS_1112
TPH C29 - C36	mg/kg	<100	<100		NGCMS_1112
Surrogate					
Surrogate volatile Rec	%	111	99		
Dates					
Date extracted		8-DEC-2006	8-DEC-2006		
Date analysed		13-DEC-2006	13-DEC-2006		

sch4p4(6) Personal informa

sch4p4(6) Person Section Manager
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Lab Reg No.		N06/042028	N06/042043		
Sample Reference		B16-1	DUP01		
	Units				Method
Trace Elements					
Arsenic	mg/kg	2.6	2.5		NT2_49
Cadmium	mg/kg	<0.5	<0.5		NT2_49
Chromium	mg/kg	8.4	12		NT2_49
Copper	mg/kg	17	4.8		NT2_49
Lead	mg/kg	29	4.2		NT2_49
Mercury	mg/kg	<0.2	<0.2		NT2_49
Nickel	mg/kg	5.2	11		NT2_49
Zinc	mg/kg	41	25		NT2_49
Total Solids	%	90.5	95.5		NT2_49

sch4p4(6) Personal information

Dr. sch4p4(6) Personal Section Manager
Inorganics - NSW (Accreditation No. 198)

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Client	: BUTLER PARTNERS P/L 79 DOGETT STREET FORTITUDE VALLEY QLD 4006	Job No.	: BUTL01/061208
		Quote No.	: QT-01288
		Order No.	: MB76
		Date Sampled	: 6-DEC-2006
		Date Received	: 8-DEC-2006
Attention	: sch4p4(6) Personal informa	Sampled By	: CLIENT
Project Name	:		
Your Client Services Manager	: sch4p4(6) Personal information	Phone	: (02) 94490151

Lab Reg No.	Sample Ref	Sample Description
N06/041996	B1-4	SOIL JOB 06253A
N06/041998	B2-1	SOIL JOB 06253A
N06/042000	B2-3	SOIL JOB 06253A
N06/042002	B8-2	SOIL JOB 06253A

Lab Reg No.		N06/041996	N06/041998	N06/042000	N06/042002	
Sample Reference		B1-4	B2-1	B2-3	B8-2	
	Units					Method
Trace Elements						
Arsenic	mg/kg	12	13	13	14	NT2_49
Cadmium	mg/kg	<0.5	<0.5	<0.5	<0.5	NT2_49
Chromium	mg/kg	13	17	19	5.6	NT2_49
Copper	mg/kg	36	39	41	40	NT2_49
Lead	mg/kg	28	44	30	29	NT2_49
Mercury	mg/kg	<0.2	<0.2	<0.2	<0.2	NT2_49
Nickel	mg/kg	18	20	31	22	NT2_49
Zinc	mg/kg	79	91	79	98	NT2_49
Total Solids	%	83.3	85.4	97.2	87.3	NT2_49

sch4p4(6) Personal information

Dr. sch4p4(6) Personal Section Manager
Inorganics - NSW (Accreditation No. 198)

15-DEC-2006

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Client : BUTLER PARTNERS P/L 79 DOGETT STREET FORTITUDE VALLEY QLD 4006 Attention : sch4p4(6) Personal inform Project Name : Your Client Services Manager : sch4p4(6) Personal information	Job No. : BUTL01/061208 Quote No. : QT-01288 Order No. : MB76 Date Sampled : 6-DEC-2006 Date Received : 8-DEC-2006 Sampled By : CLIENT Phone : (02) 94490151
---	---

Lab Reg No.	Sample Ref	Sample Description
N06/042003	B9-1	SOIL JOB 06253A
N06/042005	B10-1	SOIL JOB 06253A
N06/042010	B11-4	SOIL JOB 06253A
N06/042011	B12-1	SOIL JOB 06253A

Lab Reg No.		N06/042003	N06/042005	N06/042010	N06/042011	
Sample Reference		B9-1	B10-1	B11-4	B12-1	
	Units					Method
Trace Elements						
Arsenic	mg/kg	6.4	13	3.3	13	NT2_49
Cadmium	mg/kg	<0.5	<0.5	<0.5	<0.5	NT2_49
Chromium	mg/kg	13	11	1.9	8	NT2_49
Copper	mg/kg	20	36	16	35	NT2_49
Lead	mg/kg	12	25	11	44	NT2_49
Mercury	mg/kg	<0.2	<0.2	<0.2	<0.2	NT2_49
Nickel	mg/kg	16	23	4.3	16	NT2_49
Zinc	mg/kg	50	82	26	81	NT2_49
Total Solids	%	92.5	91	90.8	89.1	NT2_49

sch4p4(6) Personal information

Jr. sch4p4(6) Personal Section Manager
 Inorganics - NSW (Accreditation No. 198)

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Client : BUTLER PARTNERS P/L 79 DOGETT STREET FORTITUDE VALLEY QLD 4006 Attention : sch4p4(6) Personal inform Project Name : Your Client Services Manager : sch4p4(6) Personal information	Job No. : BUTL01/061208 Quote No. : QT-01288 Order No. : MB76 Date Sampled : 6-DEC-2006 Date Received : 8-DEC-2006 Sampled By : CLIENT Phone : (02) 94490151
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Lab Reg No.	Sample Ref	Sample Description
N06/042013	B12-3	SOIL JOB 06253A
N06/042014	B12-4	SOIL JOB 06253A
N06/042016	B13-2	SOIL JOB 06253A
N06/042019	B13-5	SOIL JOB 06253A

Lab Reg No.		N06/042013	N06/042014	N06/042016	N06/042019	
Sample Reference		B12-3	B12-4	B13-2	B13-5	
	Units					Method
Trace Elements						
Arsenic	mg/kg	9.3	20	13	21	NT2_49
Cadmium	mg/kg	<0.5	<0.5	<0.5	<0.5	NT2_49
Chromium	mg/kg	7.7	10	6.2	9.8	NT2_49
Copper	mg/kg	14	28	43	26	NT2_49
Lead	mg/kg	18	32	32	37	NT2_49
Mercury	mg/kg	<0.2	<0.2	<0.2	<0.2	NT2_49
Nickel	mg/kg	3.7	15	19	11	NT2_49
Zinc	mg/kg	24	76	82	50	NT2_49
Total Solids	%	85.6	93	91.3	86.4	NT2_49

sch4p4(6) Personal information

Dr. sch4p4(6) Personal Section Manager
Inorganics - NSW (Accreditation No. 198)

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Report No. RN589205

Client : BUTLER PARTNERS P/L 79 DOGGETT STREET FORTITUDE VALLEY QLD 4006 Attention : sch4p4(6) Personal inf Project Name : Your Client Services Manager : sch4p4(6) Personal informati	Job No. : BUTL01/061208 Quote No. : QT-01288 Order No. : MB76 Date Sampled : 6-DEC-2006 Date Received : 8-DEC-2006 Sampled By : CLIENT Phone : (02) 94490151
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Lab Reg No.	Sample Ref	Sample Description
N06/042021	B14-2	SOIL JOB 06253A
N06/042024	B15-1	SOIL JOB 06253A
N06/042027	B15-4	SOIL JOB 06253A
N06/042029	B16-2	SOIL JOB 06253A

Lab Reg No.		N06/042021	N06/042024	N06/042027	N06/042029	
Sample Reference		B14-2	B15-1	B15-4	B16-2	
	Units					Method
Trace Elements						
Arsenic	mg/kg	11	7.6	12	15	NT2_49
Cadmium	mg/kg	<0.5	<0.5	<0.5	<0.5	NT2_49
Chromium	mg/kg	13	10	9.2	5.6	NT2_49
Copper	mg/kg	27	12	24	24	NT2_49
Lead	mg/kg	41	16	35	22	NT2_49
Mercury	mg/kg	<0.2	<0.2	<0.2	<0.2	NT2_49
Nickel	mg/kg	9.8	11	26	7.3	NT2_49
Zinc	mg/kg	99	40	86	41	NT2_49
Total Solids	%	81.6	87.7	97.9	88.6	NT2_49

sch4p4(6) Personal information

Dr. sch4p4(6) Personal Section Manager
 Inorganics - NSW (Accreditation No. 198)

15-DEC-2006

REPORT OF ANALYSIS

Page: 5 of 7
Report No. RN589205

Client : BUTLER PARTNERS P/L 79 DOGETT STREET FORTITUDE VALLEY QLD 4006 Attention : sch4p4(6) Personal Project Name : Your Client Services Manager : sch4p4(6) Personal informatio	Job No. : BUTL01/061208 Quote No. : QT-01288 Order No. : MB76 Date Sampled : 6-DEC-2006 Date Received : 8-DEC-2006 Sampled By : CLIENT Phone : (02) 94490151
---	---

Lab Reg No.	Sample Ref	Sample Description
N06/042030	B16-3	SOIL JOB 06253A
N06/042033	BV17-3	SOIL JOB 06253A
N06/042037	B18-4	SOIL JOB 06253A
N06/042038	B18-5	SOIL JOB 06253A

Lab Reg No.		N06/042030	N06/042033	N06/042037	N06/042038	
Sample Reference		B16-3	BV17-3	B18-4	B18-5	
	Units					Method
Trace Elements						
Arsenic	mg/kg	13	13	11	22	NT2_49
Cadmium	mg/kg	<0.5	<0.5	<0.5	<0.5	NT2_49
Chromium	mg/kg	13	3.6	8.1	3.7	NT2_49
Copper	mg/kg	32	30	29	38	NT2_49
Lead	mg/kg	39	36	30	27	NT2_49
Mercury	mg/kg	<0.2	<0.2	<0.2	<0.2	NT2_49
Nickel	mg/kg	30	6.8	16	7.1	NT2_49
Zinc	mg/kg	95	42	65	37	NT2_49
Total Solids	%	95.4	94.2	89.1	93.9	NT2_49

sch4p4(6) Personal information

Dr. sch4p4(6) Personal Section Manager
 Inorganics - NSW (Accreditation No. 198)

15-DEC-2006

REPORT OF ANALYSIS

Page: 6 of 7
Report No. RN589205

Client : BUTLER PARTNERS P/L 79 DOGETT STREET FORTITUDE VALLEY QLD 4006 Attention : sch4p4(6) Personal in Project Name : Your Client Services Manager : sch4p4(6) Personal informa	Job No. : BUTL01/061208 Quote No. : QT-01288 Order No. : MB76 Date Sampled : 6-DEC-2006 Date Received : 8-DEC-2006 Sampled By : CLIENT Phone : (02) 94490151
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Lab Reg No.	Sample Ref	Sample Description
N06/042039	B19-1	SOIL JOB 06253A
N06/042042	B19-4	SOIL JOB 06253A
N06/042044	DUP02	SOIL JOB 06253A
N06/042046	DUP04	SOIL JOB 06253A

Lab Reg No.		N06/042039	N06/042042	N06/042044	N06/042046	
Sample Reference		B19-1	B19-4	DUP02	DUP04	
	Units					Method
Trace Elements						
Arsenic	mg/kg	14	4.1	16	15	NT2_49
Cadmium	mg/kg	<0.5	<0.5	<0.5	<0.5	NT2_49
Chromium	mg/kg	7.8	8	4.6	21	NT2_49
Copper	mg/kg	24	15	35	41	NT2_49
Lead	mg/kg	35	15	33	40	NT2_49
Mercury	mg/kg	<0.2	<0.2	<0.2	<0.2	NT2_49
Nickel	mg/kg	13	12	14	32	NT2_49
Zinc	mg/kg	57	48	50	82	NT2_49
Total Solids	%	88.2	92.2	86.5	97.4	NT2_49

sch4p4(6) Personal information

Dr. sch4p4(6) Person Section Manager
Inorganics - NSW (Accreditation No. 198)

15-DEC-2006

All results are expressed on a dry weight basis.



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Results relate only to the sample(s) tested.

REPORT OF ANALYSIS

Page: 7 of 7
Report No. RN589205

This Report supersedes reports: *RN588982*

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Australian Government
National Measurement Institute

QUALITY ASSURANCE REPORT

Client: BUTLER PARTNERS P/L

NMI QA Report No: BUTL01/061208T1

Sample Matrix: Soil

Analyte	Method	LOR	Blank	Duplicates			Recoveries	
				Sample	Duplicate	RPD	LCS	Matrix Spike
				mg/kg	mg/kg	%	%	%
Inorganics Section		mg/kg	mg/kg	N06/042014			AGAL10	N06/042000
Arsenic	NT2.49	0.5	<0.5	20	21	4.0	92	99
Cadmium	NT2.49	0.5	<0.5	<0.5	<0.5	ND	98	114
Chromium	NT2.49	0.5	<0.5	10	10	0.0	94	98
Copper	NT2.49	0.5	<0.5	28	28	0.0	91	96
Lead	NT2.49	0.5	<0.5	32	32	0.0	94	103
Mercury	NT2.49	0.2	<0.2	<0.2	<0.2	ND	95	102
Nickel	NT2.49	0.5	<0.5	15	15	0.0	94	95
inc	NT2.49	0.5	<0.5	76	77	1.0	93	96

Filename = K:\CPMS\Trace\QAR2006\Soil\

Legend:

Acceptable recovery is 75-120%.

Acceptable RPDs on duplicates is 44% at concentrations >5 times LOR. Greater RPD may be expected at <5 times LOR.

LOR = Limit Of Reporting

ND = Not Determined

RPD = Relative Percent Difference

NA = Not Applicable

LCS = Laboratory Control Sample.

#: Spike level is less than 50% of the sample's concentration, hence the recovery data is not reliable.

**: reference value not available

* sample was not spiked for this element

Comments:

Results greater than ten times LOR have been rounded to two significant figures.

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Signed:

sch4p4(6) Personal informat

Dr sch4p4(6) Personal in
Inorganics Manager, NMI-Pymble
15/12/2006

Date:



Australian Government
National Measurement Institute

QUALITY ASSURANCE REPORT

Client: BUTLER PARTNERS P/L

NMI QA Report No: BUTL01/061208

Sample Matrix: Soil

Analyte	Method	LOR	Blank	Sample Duplicates			Recoveries	
				Sample	Duplicate	RPD	LCS	Matrix Spike
		mg/kg	mg/kg	mg/kg	mg/kg	%	%	%
Organics Section								
BTEX								
Benzene	NGCMS_1121	0.5	<0.5	NA	NA	NA	91	NA
Toluene	NGCMS_1121	0.5	<0.5	NA	NA	NA	100	NA
Ethyl Benzene	NGCMS_1121	0.5	<0.5	NA	NA	NA	119	NA
m, p - Xylene	NGCMS_1121	1	<1	NA	NA	NA	119	NA
o-Xylene	NGCMS_1121	0.5	<0.5	NA	NA	NA	116	NA
TPH								
TPH C6-C9	NGCMS_1121	25	<25	NA	NA	NA	109	NA
TPH C10-C14	NGCMS_1112	50	<50	NA	NA	NA	95	NA
TPH C15-C28	NGCMS_1112	100	<100	NA	NA	NA	92	NA
TPH C29-C36	NGCMS_1112	100	<100	NA	NA	NA	-	NA
Surrogate Volatile Recovery		-	-	NA	NA	NA	106	NA

Results expressed in percentage (%) or mg/kg wherever appropriate.

Acceptable Spike recovery is 70-130% (BTEX and TPH C₆-C₉); 50-150% (TPH C10-C36)

Acceptable RPDs on spikes and duplicates is 40%.

'NA' = Not Applicable.

RPD= Relative Percentage Difference.

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Signed:

Sch4p4(6) Personal information

Date:

Organics Manager, NMI-Pymble
 11/12/2006



Australian Government
National Measurement Institute

QUALITY ASSURANCE REPORT

Client: BUTLER PARTNERS P/L

NMI QA Report No: BUTL01/061208

Sample Matrix: Soil

Analyte	Method	LOR	Blank	Sample Duplicates			Recoveries	
				Sample	Duplicate	RPD	LCS	Matrix Spike
		mg/kg	mg/kg	mg/kg	mg/kg	%	%	%
Organics Section								
OC Pesticides								
HCB	NR19	0.01	<0.01	NA	NA	NA	-	NA
Heptachlor	NR19	0.01	<0.01	NA	NA	NA	116	NA
Heptachlor epoxide	NR19	0.01	<0.01	NA	NA	NA	-	NA
Aldrin	NR19	0.01	<0.01	NA	NA	NA	128	NA
gamma-BHC (Lindane)	NR19	0.01	<0.01	NA	NA	NA	112	NA
alpha-BHC	NR19	0.01	<0.01	NA	NA	NA	-	NA
beta-BHC	NR19	0.01	<0.01	NA	NA	NA	-	NA
delta-BHC	NR19	0.01	<0.01	NA	NA	NA	-	NA
trans-Chlordane	NR19	0.01	<0.01	NA	NA	NA	-	NA
cis-Chlordane	NR19	0.01	<0.01	NA	NA	NA	-	NA
Oxychlordane	NR19	0.01	<0.01	NA	NA	NA	-	NA
Dieldrin	NR19	0.01	<0.01	NA	NA	NA	110	NA
pp-DDE	NR19	0.01	<0.01	NA	NA	NA	-	NA
pp-DDD	NR19	0.01	<0.01	NA	NA	NA	-	NA
pp-DDT	NR19	0.01	<0.01	NA	NA	NA	106	NA
Endrin	NR19	0.01	<0.01	NA	NA	NA	112	NA
Endrin Aldehyde	NR19	0.01	<0.01	NA	NA	NA	-	NA
Endrin Ketone	NR19	0.01	<0.01	NA	NA	NA	-	NA
alpha-Endosulfan	NR19	0.01	<0.01	NA	NA	NA	-	NA
beta-Endosulfan	NR19	0.01	<0.01	NA	NA	NA	-	NA
Endosulfan Sulfate	NR19	0.01	<0.01	NA	NA	NA	-	NA
Methoxychlor	NR19	0.01	<0.01	NA	NA	NA	-	NA
Surrogate OC Rec.	NR19	-	-	NA	NA	NA	94	NA

Results expressed in percentage (%) or mg/kg wherever appropriate.

Acceptable Spike recovery is 50-150%

Acceptable RPDs on spikes and duplicates is 40%.

'NA' = Not Applicable.

RPD= Relative Percentage Difference.

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Signed:

sch4p4(6) Personal information

For

Organics Manager, NMI-Pymble
15/12/2006

Date:

Fax: 3852 3808

MB76

1 Suakin St. PYMBLE NSW 2073

Fax: (02) 9449 1653

Due = 15/12/20

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sch4p4(6)

PO Box 2267 (38 Doggett Street), Fortitude Valley BC Qld 4006

Fax: 3852 3808

Job No:

06253A

Order No:

MB76

Australian Government National Measurement Institute

1 Suakin St, PYMBLE NSW 2073

Ph: (02) 9449 0111

Fax: (02) 9449 1653

19-146

PO Box 2267 (38 Doggett Street), Fortitude Valley BC Qld 4006

Ph: 3852 3800

Fax: 3852 3808

Job No:

06253A

Order No:

MB76

NMI

Australian Government National Measurement Institute

1 Suakin St, PYMBLE NSW 2073

Ph: (02) 9449 0111

Fax: (02) 9449 1653

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