mgt LabMark ENVIRONMENTAL LABORATORIES

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Sample Receipt Advice

Company name: **Coffey Geotechnics Pty Ltd Chatswood**

Contact name: Matthew Locke
Client job number: SICEEP GEOTLCOV24303AF
COC number: 103797-99
Turn around time: 5 Day
Date/Time received: Dec 19, 2012 3:30 PM
mgt-LabMark reference: **363975**

Sample information

☑ A detailed list of analytes logged into our LIMS, is included in the attached summary table.

☑ Sample Temperature of a random sample selected from the batch as recorded by mgt-LabMark Sample Receipt : 5.5 degrees Celsius.

☑ All samples have been received as described on the above COC.

☑ COC has been completed correctly.

☑ Attempt to chill was evident.

☑ Appropriately preserved sample containers have been used.

☑ All samples were received in good condition.

☑ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.

☑ Organic samples had Teflon liners.

☑ Some samples have been subcontracted.

N/A Custody Seals intact (if used).

Notes

Samples QC33A & QC35A sent to Envirolab as requested | Asbestos analysis condcuted by ASET

Contact notes

If you have any questions with respect to these samples please contact:

Jean Heng on Phone : (+61) (2) 9900 8400 or by e.mail: jean.heng@mgtlabmark.com.au

Results will be delivered electronically via e.mail to Matthew Locke - Matthew_Locke@coffey.com.

mgt-LabMark Sample Receipt

mgt LabMark ENVIRONMENTAL LABORATORIES

Certificate of Analysis

Coffey Geotechnics Pty Ltd Chatswood
Level 18, Tower B, Citadel Tower 799 Pacific Highway
Chatswood
NSW 2067

NATA Accredited
Accreditation Number 1261
Site Number 18217

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

Attention:Matthew Locke

Report	**363975-S**
Client Reference	SICEEP GEOTLCOV24303AF
Received Date	Dec 19, 2012

Client Sample ID			**BH110A_(1.0-1.1m)**	**BH110A_(1.0-1.1m)_A**	**BH110A_(2-2.1M)**	**QC32**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
mgt-LabMark Sample No.			**S12-De17184**	**S12-De17185**	**S12-De17187**	**S12-De17188**
Date Sampled			**Dec 17, 2012**	**Dec 17, 2012**	**Dec 17, 2012**	**Dec 17, 2012**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	10	mg/kg	< 10	< 10	< 10	< 10
TRH C10-C14	50	mg/kg	< 50	< 50	< 50	< 50
TRH C15-C28	100	mg/kg	< 100	< 100	< 100	< 100
TRH C29-C36	100	mg/kg	< 100	< 100	< 100	< 100
TRH C10-36 (Total)	100	mg/kg	< 100	< 100	< 100	< 100
BTEX						
Benzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Ethylbenzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
m&p-Xylenes	1	mg/kg	< 1	< 1	< 1	< 1
o-Xylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Xylenes - Total	1.5	mg/kg	< 1.5	< 1.5	< 1.5	< 1.5
Total BTEX	1.5	mg/kg	< 1.5	< 1.5	< 1.5	< 1.5
4-Bromofluorobenzene (surr.)	1	%	82	89	91	94
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions *						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
Polyaromatic Hydrocarbons (PAH)						
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	0.6
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	0.7
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	2.2	2.9
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	2.2	3.0
Benzo(b)fluoranthene & Benzo(k)fluoranthene	1	mg/kg	< 1	< 1	3.8	5.1
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	1.6	2.1
Chrysene	0.5	mg/kg	< 0.5	< 0.5	1.8	2.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	3.6	5.0
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	1.4	1.8
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5

Client Sample ID			BH110A_(1.0-1.1m)	BH110A_(1.0-1.1m)_A	BH110A_(2-2.1M)	QC32
Sample Matrix			Soil	Soil	Soil	Soil
mgt-LabMark Sample No.			S12-De17184	S12-De17185	S12-De17187	S12-De17188
Date Sampled			Dec 17, 2012	Dec 17, 2012	Dec 17, 2012	Dec 17, 2012
Test/Reference	LOR	Unit				
Polyaromatic Hydrocarbons (PAH)						
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	1.4	2.0
Pyrene	0.5	mg/kg	< 0.5	< 0.5	3.9	5.2
Total PAH	1	mg/kg	< 1	< 1	22	31
2-Fluorobiphenyl (surr.)	1	%	102	103	102	101
p-Terphenyl-d14 (surr.)	1	%	90	90	91	92
Heavy Metals						
Arsenic	2	mg/kg	< 2	< 2	5.9	-
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	-
Chromium	5	mg/kg	7.5	< 5	< 5	-
Copper	5	mg/kg	14	11	27	-
Lead	5	mg/kg	19	7.3	340	-
Mercury	0.05	mg/kg	< 0.05	< 0.05	0.17	-
Nickel	5	mg/kg	15	12	15	-
Zinc	5	mg/kg	31	23	110	-
% Moisture	0.1	%	8.4	6.9	15	14
Asbestos			See attached	-	See attached	-

Client Sample ID			BH110A_(3.0-3.1m)	BH110A_(3.9-4.0m)	BH110A_(3.9-4.0m)_A	BH110A_(5.0-5.1m)
Sample Matrix			Soil	Soil	Soil	Soil
mgt-LabMark Sample No.			S12-De17191	S12-De17193	S12-De17194	S12-De17196
Date Sampled			Dec 17, 2012	Dec 17, 2012	Dec 17, 2012	Dec 17, 2012
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	10	mg/kg	< 10	< 10	< 10	< 10
TRH C10-C14	50	mg/kg	< 50	< 50	< 50	< 50
TRH C15-C28	100	mg/kg	< 100	< 100	< 100	< 100
TRH C29-C36	100	mg/kg	< 100	< 100	< 100	< 100
TRH C10-36 (Total)	100	mg/kg	< 100	< 100	< 100	< 100
BTEX						
Benzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Ethylbenzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
m&p-Xylenes	1	mg/kg	< 1	< 1	< 1	< 1
o-Xylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Xylenes - Total	1.5	mg/kg	< 1.5	< 1.5	< 1.5	< 1.5
Total BTEX	1.5	mg/kg	< 1.5	< 1.5	< 1.5	< 1.5
4-Bromofluorobenzene (surr.)	1	%	87	85	83	86
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions *						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	< 50

Client Sample ID			BH110A_(3.0-3.1m)	BH110A_(3.9-4.0m)	BH110A_(3.9-4.0m)_A	BH110A_(5.0-5.1m)
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
mgt-LabMark Sample No.			**S12-De17191**	**S12-De17193**	**S12-De17194**	**S12-De17196**
Date Sampled			**Dec 17, 2012**	**Dec 17, 2012**	**Dec 17, 2012**	**Dec 17, 2012**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions *						
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
Polyaromatic Hydrocarbons (PAH)						
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	0.8	1.3	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	1.2	1.5	< 0.5
Benzo(b)fluoranthene & Benzo(k)fluoranthene	1	mg/kg	< 1	1.8	2.5	< 1
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	0.9	1.2	< 0.5
Chrysene	0.5	mg/kg	< 0.5	0.5	0.9	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	0.9	1.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	0.6	0.9	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	0.6	< 0.5
Pyrene	0.5	mg/kg	< 0.5	1.9	2.1	< 0.5
Total PAH	1	mg/kg	< 1	8.6	13	< 1
2-Fluorobiphenyl (surr.)	1	%	98	101	102	91
p-Terphenyl-d14 (surr.)	1	%	85	88	91	78
% Moisture	0.1	%	20	24	31	14

Client Sample ID			BH110A_(5.9-6.0m)	QC33	BH120_(0.03-0.13m)	BH120_(0.03-0.13m)_A
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
mgt-LabMark Sample No.			**S12-De17199**	**S12-De17200**	**S12-De17201**	**S12-De17202**
Date Sampled			**Dec 17, 2012**	**Dec 17, 2012**	**Dec 18, 2012**	**Dec 18, 2012**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	10	mg/kg	< 10	< 10	< 10	< 10
TRH C10-C14	50	mg/kg	< 50	< 50	< 50	< 50
TRH C15-C28	100	mg/kg	< 100	< 100	< 100	< 100
TRH C29-C36	100	mg/kg	< 100	< 100	< 100	< 100
TRH C10-36 (Total)	100	mg/kg	< 100	< 100	< 100	< 100
BTEX						
Benzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Ethylbenzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
m&p-Xylenes	1	mg/kg	< 1	< 1	< 1	< 1
o-Xylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Xylenes - Total	1.5	mg/kg	< 1.5	< 1.5	< 1.5	< 1.5
Total BTEX	1.5	mg/kg	< 1.5	< 1.5	< 1.5	< 1.5
4-Bromofluorobenzene (surr.)	1	%	88	82	84	87

Client Sample ID			BH110A_(5.9-6.0m)	QC33	BH120_(0.03-0.13m)	BH120_(0.03-0.13m)_A
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
mgt-LabMark Sample No.			**S12-De17199**	**S12-De17200**	**S12-De17201**	**S12-De17202**
Date Sampled			**Dec 17, 2012**	**Dec 17, 2012**	**Dec 18, 2012**	**Dec 18, 2012**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions *						
Naphthalene[N02]	0.5	mg/kg	3.6	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
Polyaromatic Hydrocarbons (PAH)						
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	1.0	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	1.0	0.6	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	0.6	< 0.5	< 0.5	< 0.5
Benzo(b)fluoranthene & Benzo(k)fluoranthene	1	mg/kg	1.3	< 1	< 1	< 1
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	0.8	0.5	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	1.8	1.0	< 0.5	< 0.5
Fluorene	0.5	mg/kg	1.1	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	3.4	0.9	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	3.0	1.3	< 0.5	< 0.5
Pyrene	0.5	mg/kg	1.7	0.9	< 0.5	< 0.5
Total PAH	1	mg/kg	16	5.2	< 1	< 1
2-Fluorobiphenyl (surr.)	1	%	93	95	100	100
p-Terphenyl-d14 (surr.)	1	%	84	83	88	88
Heavy Metals						
Arsenic	2	mg/kg	-	-	4.0	-
Cadmium	0.4	mg/kg	-	-	< 0.4	-
Chromium	5	mg/kg	-	-	110	-
Copper	5	mg/kg	-	-	43	-
Lead	5	mg/kg	-	-	6.2	-
Mercury	0.05	mg/kg	-	-	< 0.05	-
Nickel	5	mg/kg	-	-	120	-
Zinc	5	mg/kg	-	-	79	-
% Moisture	0.1	%	20	18	5.4	4.7
Asbestos			-	-	See attached	-

Client Sample ID			BH120_(1.0-1.1m)	BH120_(1.5-1.6m)	BH120_(1.5-1.6m)_A	BH120_(2.4-2.5m)
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
mgt-LabMark Sample No.			**S12-De17204**	**S12-De17205**	**S12-De17206**	**S12-De17208**
Date Sampled			**Dec 18, 2012**	**Dec 18, 2012**	**Dec 18, 2012**	**Dec 18, 2012**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	10	mg/kg	< 10	< 10	< 10	< 10
TRH C10-C14	50	mg/kg	< 50	< 50	< 50	< 50
TRH C15-C28	100	mg/kg	< 100	390	160	< 100
TRH C29-C36	100	mg/kg	< 100	< 100	< 100	< 100
TRH C10-36 (Total)	100	mg/kg	< 100	390	160	< 100
BTEX						
Benzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Ethylbenzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
m&p-Xylenes	1	mg/kg	< 1	< 1	< 1	< 1
o-Xylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Xylenes - Total	1.5	mg/kg	< 1.5	< 1.5	< 1.5	< 1.5
Total BTEX	1.5	mg/kg	< 1.5	< 1.5	< 1.5	< 1.5
4-Bromofluorobenzene (surr.)	1	%	86	84	85	80
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions *						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	410	170	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
Polyaromatic Hydrocarbons (PAH)						
Acenaphthene	0.5	mg/kg	< 0.5	4.1	0.7	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	8.9	< 0.5
Benz(a)anthracene	0.5	mg/kg	1.2	12	5.6	< 0.5
Benzo(a)pyrene	0.5	mg/kg	1.4	8.7	3.9	< 0.5
Benzo(b)fluoranthene & Benzo(k)fluoranthene	1	mg/kg	2.2	15	7.1	< 1
Benzo(g.h.i)perylene	0.5	mg/kg	1.0	4.6	2.0	< 0.5
Chrysene	0.5	mg/kg	1.2	9.6	4.8	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	1.9	27	12	< 0.5
Fluorene	0.5	mg/kg	< 0.5	3.8	0.7	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	0.8	4.1	1.8	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	1.4	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	1.1	31	9.1	< 0.5
Pyrene	0.5	mg/kg	2.1	23	10	< 0.5
Total PAH	1	mg/kg	13	140	67	< 1
2-Fluorobiphenyl (surr.)	1	%	96	97	90	92
p-Terphenyl-d14 (surr.)	1	%	83	99	94	98
Heavy Metals						
Arsenic	2	mg/kg	6.1	-	-	-
Cadmium	0.4	mg/kg	< 0.4	-	-	-
Chromium	5	mg/kg	6.7	-	-	-
Copper	5	mg/kg	51	-	-	-
Lead	5	mg/kg	250	-	-	-

Client Sample ID			BH120_(1.0-1.1m)	BH120_(1.5-1.6m)	BH120_(1.5-1.6m)_A	BH120_(2.4-2.5m)
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
mgt-LabMark Sample No.			**S12-De17204**	**S12-De17205**	**S12-De17206**	**S12-De17208**
Date Sampled			**Dec 18, 2012**	**Dec 18, 2012**	**Dec 18, 2012**	**Dec 18, 2012**
Test/Reference	LOR	Unit				
Heavy Metals						
Mercury	0.05	mg/kg	0.57	-	-	-
Nickel	5	mg/kg	< 5	-	-	-
Zinc	5	mg/kg	190	-	-	-
% Moisture	0.1	%	9.2	22	17	17
Asbestos			See attached	-	-	-

Client Sample ID			BH120_(3.5-3.6m)	BH121_(0.5-0.6m)	BH121_(0.5-0.6m)_A	BH121A_(0.5-0.6m)
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
mgt-LabMark Sample No.			**S12-De17211**	**S12-De17214**	**S12-De17215**	**S12-De17217**
Date Sampled			**Dec 18, 2012**	**Dec 18, 2012**	**Dec 18, 2012**	**Dec 18, 2012**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	10	mg/kg	< 10	< 10	< 10	< 10
TRH C10-C14	50	mg/kg	< 50	< 50	< 50	< 50
TRH C15-C28	100	mg/kg	< 100	< 100	< 100	< 100
TRH C29-C36	100	mg/kg	< 100	< 100	< 100	< 100
TRH C10-36 (Total)	100	mg/kg	< 100	< 100	< 100	< 100
BTEX						
Benzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Ethylbenzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
m&p-Xylenes	1	mg/kg	< 1	< 1	< 1	< 1
o-Xylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Xylenes - Total	1.5	mg/kg	< 1.5	< 1.5	< 1.5	< 1.5
Total BTEX	1.5	mg/kg	< 1.5	< 1.5	< 1.5	< 1.5
4-Bromofluorobenzene (surr.)	1	%	85	85	85	85
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions *						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
Polyaromatic Hydrocarbons (PAH)						
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	1.2	1.1	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	0.7
Benzo(a)pyrene	0.5	mg/kg	< 0.5	0.8	0.7	0.5
Benzo(b)fluoranthene & Benzo(k)fluoranthene	1	mg/kg	< 1	< 1	1.4	1.1
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	0.8	0.6

Client Sample ID			BH120_(3.5-3.6m)	BH121_(0.5-0.6m)	BH121_(0.5-0.6m)_A	BH121A_(0.5-0.6m)
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
mgt-LabMark Sample No.			**S12-De17211**	**S12-De17214**	**S12-De17215**	**S12-De17217**
Date Sampled			**Dec 18, 2012**	**Dec 18, 2012**	**Dec 18, 2012**	**Dec 18, 2012**
Test/Reference	LOR	Unit				
Polyaromatic Hydrocarbons (PAH)						
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	2.3	2.0	0.9
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	1.2	1.2	< 0.5
Pyrene	0.5	mg/kg	< 0.5	2.0	1.7	1.0
Total PAH	1	mg/kg	< 1	7.5	8.9	4.8
2-Fluorobiphenyl (surr.)	1	%	102	88	93	94
p-Terphenyl-d14 (surr.)	1	%	111	96	99	102
Semivolatile Organic Compounds (SVOC)						
2-Chloronaphthalene	0.5	mg/kg	< 0.5	-	-	-
2-Chlorophenol	0.5	mg/kg	< 0.5	-	-	-
2-Methylnaphthalene	0.5	mg/kg	< 0.5	-	-	-
2-Methylphenol (o-Cresol)	0.5	mg/kg	< 0.5	-	-	-
2-Naphthylamine	0.5	mg/kg	< 0.5	-	-	-
2-Nitroaniline	1	mg/kg	< 1	-	-	-
2-Nitrophenol	0.5	mg/kg	< 0.5	-	-	-
3&4-Methylphenol (m&p-Cresol)	1	mg/kg	< 1	-	-	-
3-Methylcholanthrene	0.5	mg/kg	< 0.5	-	-	-
4-Aminobiphenyl	0.5	mg/kg	< 0.5	-	-	-
4-Bromophenyl phenyl ether	0.5	mg/kg	< 0.5	-	-	-
4-Chloro-3-methylphenol	0.5	mg/kg	< 0.5	-	-	-
4-Chlorophenyl phenyl ether	0.5	mg/kg	< 0.5	-	-	-
4-Nitrophenol	0.5	mg/kg	< 0.5	-	-	-
4.4""-DDD	0.5	mg/kg	< 0.5	-	-	-
4.4""-DDE	0.5	mg/kg	< 0.5	-	-	-
4.4""-DDT	1	mg/kg	< 1	-	-	-
Acenaphthene	0.5	mg/kg	< 0.5	-	-	-
Acenaphthylene	0.5	mg/kg	< 0.5	-	-	-
Acetophenone	0.5	mg/kg	< 0.5	-	-	-
Aldrin	0.5	mg/kg	< 0.5	-	-	-
Aniline	0.5	mg/kg	< 0.5	-	-	-
Anthracene	0.5	mg/kg	< 0.5	-	-	-
Benz(a)anthracene	0.5	mg/kg	< 0.5	-	-	-
Benzo(a)pyrene	0.5	mg/kg	< 0.5	-	-	-
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	-	-	-
Bis(2-chloroethoxy)methane	0.5	mg/kg	< 0.5	-	-	-
Bis(2-ethylhexyl)phthalate	5	mg/kg	< 5	-	-	-
Butyl benzyl phthalate	0.5	mg/kg	< 0.5	-	-	-
Chlorpyrifos	0.5	mg/kg	< 0.5	-	-	-
Chrysene	0.5	mg/kg	< 0.5	-	-	-
Coumaphos	0.5	mg/kg	< 0.5	-	-	-
d-BHC	0.5	mg/kg	< 0.5	-	-	-
Demeton-O	0.5	mg/kg	< 0.5	-	-	-
Demeton-S	0.5	mg/kg	< 0.5	-	-	-
Di-n-butyl phthalate	0.5	mg/kg	< 0.5	-	-	-
Di-n-octyl phthalate	0.5	mg/kg	< 0.5	-	-	-
Diazinon	0.5	mg/kg	< 0.5	-	-	-

Client Sample ID			BH120_(3.5-3.6m)	BH121_(0.5-0.6m)	BH121_(0.5-0.6m)_A	BH121A_(0.5-0.6m)
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
mgt-LabMark Sample No.			**S12-De17211**	**S12-De17214**	**S12-De17215**	**S12-De17217**
Date Sampled			**Dec 18, 2012**	**Dec 18, 2012**	**Dec 18, 2012**	**Dec 18, 2012**
Test/Reference	LOR	Unit				
Semivolatile Organic Compounds (SVOC)						
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	-	-	-
Dibenzofuran	0.5	mg/kg	< 0.5	-	-	-
Dichlorvos	0.5	mg/kg	< 0.5	-	-	-
Dieldrin	0.5	mg/kg	< 0.5	-	-	-
Diethyl phthalate	0.5	mg/kg	< 0.5	-	-	-
Dimethoate	0.5	mg/kg	< 0.5	-	-	-
Dimethyl phthalate	0.5	mg/kg	< 0.5	-	-	-
Diphenylamine	0.5	mg/kg	< 0.5	-	-	-
Disulfoton	0.5	mg/kg	< 0.5	-	-	-
Endosulfan sulphate	0.5	mg/kg	< 0.5	-	-	-
Endrin	0.5	mg/kg	< 0.5	-	-	-
Endrin aldehyde	0.5	mg/kg	< 0.5	-	-	-
Endrin ketone	0.5	mg/kg	< 0.5	-	-	-
Ethoprop	0.5	mg/kg	< 0.5	-	-	-
Fenitrothion	0.5	mg/kg	< 0.5	-	-	-
Fensulfothion	0.5	mg/kg	< 0.5	-	-	-
Fenthion	0.5	mg/kg	< 0.5	-	-	-
Fluoranthene	0.5	mg/kg	< 0.5	-	-	-
Fluorene	0.5	mg/kg	< 0.5	-	-	-
g-BHC (Lindane)	0.5	mg/kg	< 0.5	-	-	-
Heptachlor	0.5	mg/kg	< 0.5	-	-	-
Heptachlor epoxide	0.5	mg/kg	< 0.5	-	-	-
Hexachlorobenzene	0.5	mg/kg	< 0.5	-	-	-
Hexachlorobutadiene	0.5	mg/kg	< 0.5	-	-	-
Hexachlorocyclopentadiene	1	mg/kg	< 1	-	-	-
Hexachloroethane	0.5	mg/kg	< 0.5	-	-	-
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	-	-	-
Malathion	0.5	mg/kg	< 0.5	-	-	-
Methoxychlor	0.5	mg/kg	< 0.5	-	-	-
Methyl azinphos	0.5	mg/kg	< 0.5	-	-	-
Methyl parathion	0.5	mg/kg	< 0.5	-	-	-
Mevinphos	0.5	mg/kg	< 0.5	-	-	-
Monocrotophos	10	mg/kg	< 10	-	-	-
N-Nitrosodibutylamine	0.5	mg/kg	< 0.5	-	-	-
N-Nitrosodipropylamine	0.5	mg/kg	< 0.5	-	-	-
N-Nitrosopiperidine	0.5	mg/kg	< 0.5	-	-	-
Naphthalene	0.5	mg/kg	< 0.5	-	-	-
Nitrobenzene	0.5	mg/kg	< 0.5	-	-	-
Parathion	0.5	mg/kg	< 0.5	-	-	-
Pentachlorobenzene	0.5	mg/kg	< 0.5	-	-	-
Pentachloronitrobenzene	0.5	mg/kg	< 0.5	-	-	-
Pentachlorophenol	1	mg/kg	< 1	-	-	-
Phenanthrene	0.5	mg/kg	< 0.5	-	-	-
Phenol	0.5	mg/kg	< 0.5	-	-	-
Phorate	0.5	mg/kg	< 0.5	-	-	-
Profenofos	0.5	mg/kg	< 0.5	-	-	-
Prothiofos	0.5	mg/kg	< 0.5	-	-	-
Pyrene	0.5	mg/kg	< 0.5	-	-	-
Ronnel	0.5	mg/kg	< 0.5	-	-	-

Client Sample ID			BH120_(3.5-3.6m)	BH121_(0.5-0.6m)	BH121_(0.5-0.6m)_A	BH121A_(0.5-0.6m)
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
mgt-LabMark Sample No.			**S12-De17211**	**S12-De17214**	**S12-De17215**	**S12-De17217**
Date Sampled			**Dec 18, 2012**	**Dec 18, 2012**	**Dec 18, 2012**	**Dec 18, 2012**
Test/Reference	LOR	Unit				
Semivolatile Organic Compounds (SVOC)						
Stirophos	0.5	mg/kg	< 0.5	-	-	-
Trichloronate	0.5	mg/kg	< 0.5	-	-	-
Phenol-d6 (surr.)	1	%	68	-	-	-
Nitrobenzene-d5 (surr.)	1	%	80	-	-	-
p-Terphenyl-d14 (surr.)	1	%	111	-	-	-
2-Fluorobiphenyl (surr.)	1	%	102	-	-	-
Heavy Metals						
Arsenic	2	mg/kg	-	8.7	-	14
Cadmium	0.4	mg/kg	-	< 0.4	-	< 0.4
Chromium	5	mg/kg	-	42	-	11
Copper	5	mg/kg	-	130	-	93
Lead	5	mg/kg	-	79	-	160
Mercury	0.05	mg/kg	-	0.41	-	0.59
Nickel	5	mg/kg	-	51	-	14
Zinc	5	mg/kg	-	120	-	150
% Moisture	0.1	%	31	8.0	9.2	11
Asbestos			-	See attached	-	See attached

Client Sample ID			BH121A_(1.0-1.1m)	BH121A_(1.0-1.1m)_A	BH121A_(1.5-1.6m)	QC35
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
mgt-LabMark Sample No.			**S12-De17218**	**S12-De17219**	**S12-De17220**	**S12-De17221**
Date Sampled			**Dec 18, 2012**	**Dec 18, 2012**	**Dec 18, 2012**	**Dec 18, 2012**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	10	mg/kg	< 10	< 10	< 10	< 10
TRH C10-C14	50	mg/kg	< 50	< 50	< 50	< 50
TRH C15-C28	100	mg/kg	520	1300	350	160
TRH C29-C36	100	mg/kg	270	810	270	< 100
TRH C10-36 (Total)	100	mg/kg	790	2100	620	160
BTEX						
Benzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Ethylbenzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
m&p-Xylenes	1	mg/kg	< 1	< 1	< 1	< 1
o-Xylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Xylenes - Total	1.5	mg/kg	< 1.5	< 1.5	< 1.5	< 1.5
Total BTEX	1.5	mg/kg	< 1.5	< 1.5	< 1.5	< 1.5
4-Bromofluorobenzene (surr.)	1	%	82	83	86	86
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions *						
Naphthalene[N02]	0.5	mg/kg	0.6	1.0	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50

Client Sample ID			BH121A_(1.0-1.1m)	BH121A_(1.0-1.1m)_A	BH121A_(1.5-1.6m)	QC35
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
mgt-LabMark Sample No.			**S12-De17218**	**S12-De17219**	**S12-De17220**	**S12-De17221**
Date Sampled			**Dec 18, 2012**	**Dec 18, 2012**	**Dec 18, 2012**	**Dec 18, 2012**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions *						
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	680	1800	490	200
TRH >C34-C40	100	mg/kg	< 100	320	130	< 100
Polyaromatic Hydrocarbons (PAH)						
Acenaphthene	0.5	mg/kg	< 5	< 5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 5	< 5	1.4	0.8
Anthracene	0.5	mg/kg	14	7.9	3.6	< 0.5
Benz(a)anthracene	0.5	mg/kg	18	31	10	< 0.5
Benzo(a)pyrene	0.5	mg/kg	13	22	7.8	4.7
Benzo(b)fluoranthene & Benzo(k)fluoranthene	1	mg/kg	21	39	13	8.0
Benzo(g.h.i)perylene	0.5	mg/kg	6.6	11	3.8	2.4
Chrysene	0.5	mg/kg	14	23	8.0	5.0
Dibenz(a.h)anthracene	0.5	mg/kg	< 5	< 5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	30	55	18	11
Fluorene	0.5	mg/kg	< 5	< 5	1.2	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 5	9.8	3.5	2.1
Naphthalene	0.5	mg/kg	< 5	< 5	0.8	0.5
Phenanthrene	0.5	mg/kg	14	28	14	6.4
Pyrene	0.5	mg/kg	31	53	17	10
Total PAH	1	mg/kg	160	280	100	51
2-Fluorobiphenyl (surr.)	1	%	78	74	95	93
p-Terphenyl-d14 (surr.)	1	%	83	83	96	94
Heavy Metals						
Arsenic	2	mg/kg	-	-	14	-
Cadmium	0.4	mg/kg	-	-	< 0.4	-
Chromium	5	mg/kg	-	-	27	-
Copper	5	mg/kg	-	-	350	-
Lead	5	mg/kg	-	-	2700	-
Mercury	0.05	mg/kg	-	-	3.4	-
Nickel	5	mg/kg	-	-	62	-
Zinc	5	mg/kg	-	-	310	-
% Moisture	0.1	%	15	110	22	20
Asbestos			-	-	See attached	-

Client Sample ID			BH121A_(2.5-2.6m)	BH121_(3.4-3.5m)
Sample Matrix			**Soil**	**Soil**
mgt-LabMark Sample No.			**S12-De17223**	**S12-De17226**
Date Sampled			**Dec 18, 2012**	**Dec 18, 2012**
Test/Reference	LOR	Unit		
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				
TRH C6-C9	10	mg/kg	< 10	< 10
TRH C10-C14	50	mg/kg	< 50	< 50
TRH C15-C28	100	mg/kg	< 100	< 100

Client Sample ID			BH121A_(2.5-2.6m)	BH121_(3.4-3.5m)
Sample Matrix			Soil	Soil
mgt-LabMark Sample No.			S12-De17223	S12-De17226
Date Sampled			Dec 18, 2012	Dec 18, 2012
Test/Reference	LOR	Unit		
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				
TRH C29-C36	100	mg/kg	< 100	< 100
TRH C10-36 (Total)	100	mg/kg	< 100	< 100
BTEX				
Benzene	0.5	mg/kg	< 0.5	< 0.5
Toluene	0.5	mg/kg	< 0.5	< 0.5
Ethylbenzene	0.5	mg/kg	< 0.5	< 0.5
m&p-Xylenes	1	mg/kg	< 1	< 1
o-Xylene	0.5	mg/kg	< 0.5	< 0.5
Xylenes - Total	1.5	mg/kg	< 1.5	< 1.5
Total BTEX	1.5	mg/kg	< 1.5	< 1.5
4-Bromofluorobenzene (surr.)	1	%	86	87
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions *				
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100
Polyaromatic Hydrocarbons (PAH)				
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5
Benzo(b)fluoranthene & Benzo(k)fluoranthene	1	mg/kg	< 1	< 1
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	0.8	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5
Pyrene	0.5	mg/kg	0.8	< 0.5
Total PAH	1	mg/kg	1.6	< 1
2-Fluorobiphenyl (surr.)	1	%	92	94
p-Terphenyl-d14 (surr.)	1	%	100	102
% Moisture	0.1	%	17	29

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.

Description	Testing Site	Extracted	Holding Time
mgt-LabMark Suite 4			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	Dec 20, 2012	14 Day
- Method: E004 Petroleum Hydrocarbons (TPH)			
BTEX	Sydney	Dec 20, 2012	14 Day
- Method: E029/E016 BTEX			
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions *	Sydney	Dec 20, 2012	14 Day
- Method: LM-LTM-ORG2010			
Polyaromatic Hydrocarbons (PAH)	Sydney	Dec 20, 2012	14 Day
- Method: E007 Polyaromatic Hydrocarbons (PAH)			
Semivolatile Organic Compounds (SVOC)	Sydney	Dec 20, 2012	14 Day
- Method: E017 Semivolatile Organic Compounds (SVOC)			
Metals M8	Sydney	Dec 20, 2012	28 Day
- Method: E022 Acid Extractable metals in Soils & E026 Mercury			
% Moisture	Sydney	Dec 20, 2012	28 Day
- Method: E005 Moisture Content			

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Murarrie QLD 4172
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NATA # 1261 Site # 20794

Company Name:	Coffey Geotechnics Pty Ltd Chatswood	**Order No.:**	
Address:	Level 18, Tower B, Citadel Tower 799 Pacific Highway Chatswood NSW 2067	**Report #:**	363975
		Phone:	+61 2 9406 1000
		Fax:	+61 2 9406 1002
Client Job No.:	SICEEP GEOTLCOV24303AF		

Received:	Dec 19, 2012 3:30 PM
Due:	Jan 2, 2013
Priority:	5 Day
Contact Name:	Matthew Locke

mgt-LabMark Client Manager: Jean Heng

Sample Detail	% Moisture	Asbestos	HOLD	Metals M8	mgt-LabMark Suite 4	Semivolatile Organic Compounds (SVOC)
Laboratory where analysis is conducted						
Melbourne Laboratory - NATA Site # 1254 & 14271						
Sydney Laboratory - NATA Site # 18217	X		X	X	X	X
Brisbane Laboratory - NATA Site # 20794						
External Laboratory		X				

Sample ID	Sample Date	Sampling Time	Matrix	LAB ID						
BH110A_(1.0-1.1m)	Dec 17, 2012		Soil	S12-De17184	X	X		X	X	
BH110A_(1.0-1.1m)_A	Dec 17, 2012		Soil	S12-De17185	X			X	X	
BH110A_(1.5-1.6m)	Dec 17, 2012		Soil	S12-De17186			X			
BH110A_(2-2.1M)	Dec 17, 2012		Soil	S12-De17187	X	X		X	X	
QC32	Dec 17, 2012		Soil	S12-De17188	X				X	
BH110A_(2.5-2.6m)	Dec 17, 2012		Soil	S12-De17189			X			

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Site # 1254 & 14271

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NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Company Name:	Coffey Geotechnics Pty Ltd Chatswood	**Order No.:**	
Address:	Level 18, Tower B, Citadel Tower 799 Pacific Highway Chatswood NSW 2067	**Report #:** **Phone:** **Fax:**	363975 +61 2 9406 1000 +61 2 9406 1002
Client Job No.:	SICEEP GEOTLCOV24303AF		

Received:	Dec 19, 2012 3:30 PM
Due:	Jan 2, 2013
Priority:	5 Day
Contact Name:	Matthew Locke

mgt-LabMark Client Manager: Jean Heng

Sample Detail					% Moisture	Asbestos	HOLD	Metals M8	mgt-LabMark Suite 4	Semivolatile Organic Compounds (SVOC)
Laboratory where analysis is conducted										
Melbourne Laboratory - NATA Site # 1254 & 14271										
Sydney Laboratory - NATA Site # 18217					X		X	X	X	X
Brisbane Laboratory - NATA Site # 20794										
External Laboratory						X				
BH110A_(2.5-2.6m)_A	Dec 17, 2012		Soil	S12-De17190			X			
BH110A_(3.0-3.1m)	Dec 17, 2012		Soil	S12-De17191	X				X	
BH110A_(3.5-3.6m)	Dec 17, 2012		Soil	S12-De17192			X			
BH110A_(3.9-4.0m)	Dec 17, 2012		Soil	S12-De17193	X				X	
BH110A_(3.9-4.0m)_A	Dec 17, 2012		Soil	S12-De17194	X				X	
BH110A_(4.5-4.6m)	Dec 17, 2012		Soil	S12-De17195			X			
BH110A_(5.0-5.1m)	Dec 17, 2012		Soil	S12-De17196	X				X	

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Contact Name:	Matthew Locke	

mgt-LabMark Client Manager: Jean Heng

Sample Detail					% Moisture	Asbestos	HOLD	Metals M8	mgt-LabMark Suite 4	Semivolatile Organic Compounds (SVOC)
Laboratory where analysis is conducted										
Melbourne Laboratory - NATA Site # 1254 & 14271										
Sydney Laboratory - NATA Site # 18217					X		X	X	X	X
Brisbane Laboratory - NATA Site # 20794										
External Laboratory						X				
BH110A_(5.5-5.6m)	Dec 17, 2012		Soil	S12-De17197			X			
BH110A_(5.5-5.6m)_A	Dec 17, 2012		Soil	S12-De17198			X			
BH110A_(5.9-6.0m)	Dec 17, 2012		Soil	S12-De17199	X				X	
QC33	Dec 17, 2012		Soil	S12-De17200	X				X	
BH120_(0.03-0.13m)	Dec 18, 2012		Soil	S12-De17201	X	X		X	X	
BH120_(0.03-0.13m)_A	Dec 18, 2012		Soil	S12-De17202	X				X	
BH120_(0.5-0.6m)	Dec 18, 2012		Soil	S12-De17203			X			

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Company Name: Coffey Geotechnics Pty Ltd Chatswood
Address: Level 18, Tower B, Citadel Tower 799 Pacific Highway
Chatswood
NSW 2067

Client Job No.: SICEEP GEOTLCOV24303AF

Order No.:
Report #: 363975
Phone: +61 2 9406 1000
Fax: +61 2 9406 1002

Received: Dec 19, 2012 3:30 PM
Due: Jan 2, 2013
Priority: 5 Day
Contact Name: Matthew Locke

mgt-LabMark Client Manager: Jean Heng

Sample Detail					% Moisture	Asbestos	HOLD	Metals M8	mgt-LabMark Suite 4	Semivolatile Organic Compounds (SVOC)
Laboratory where analysis is conducted										
Melbourne Laboratory - NATA Site # 1254 & 14271										
Sydney Laboratory - NATA Site # 18217					X		X	X	X	X
Brisbane Laboratory - NATA Site # 20794										
External Laboratory						X				
BH120_(1.0-1.1m)	Dec 18, 2012		Soil	S12-De17204	X	X		X	X	
BH120_(1.5-1.6m)	Dec 18, 2012		Soil	S12-De17205	X				X	
BH120_(1.5-1.6m)_A	Dec 18, 2012		Soil	S12-De17206	X				X	
BH120_(2.0-2.1m)	Dec 18, 2012		Soil	S12-De17207			X			
BH120_(2.4-2.5m)	Dec 18, 2012		Soil	S12-De17208	X				X	
BH120_(2.8-3.0m)	Dec 18, 2012		Soil	S12-De17209			X			
QC34	Dec 18, 2012		Soil	S12-De17210			X			

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Address:	Level 18, Tower B, Citadel Tower 799 Pacific Highway Chatswood NSW 2067	**Report #:** **Phone:** **Fax:**	363975 +61 2 9406 1000 +61 2 9406 1002
Client Job No.:	SICEEP GEOTLCOV24303AF		

Received:	Dec 19, 2012 3:30 PM
Due:	Jan 2, 2013
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Contact Name:	Matthew Locke

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Sample Detail					% Moisture	Asbestos	HOLD	Metals M8	mgt-LabMark Suite 4	Semivolatile Organic Compounds (SVOC)
Laboratory where analysis is conducted										
Melbourne Laboratory - NATA Site # 1254 & 14271										
Sydney Laboratory - NATA Site # 18217					X		X	X	X	X
Brisbane Laboratory - NATA Site # 20794										
External Laboratory						X				
BH120_(3.5-3.6m)	Dec 18, 2012		Soil	S12-De17211	X				X	X
BH120_(3.9-4.0m)	Dec 18, 2012		Soil	S12-De17212			X			
BH121_(0.03-0.13m)	Dec 18, 2012		Soil	S12-De17213			X			
BH121_(0.5-0.6m)	Dec 18, 2012		Soil	S12-De17214	X	X		X	X	
BH121_(0.5-0.6m)_A	Dec 18, 2012		Soil	S12-De17215	X				X	
BH121A_(0.03-0.13m)	Dec 18, 2012		Soil	S12-De17216			X			
BH121A_(0.5-0.6m)	Dec 18, 2012		Soil	S12-De17217	X	X		X	X	

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Sample Detail					% Moisture	Asbestos	HOLD	Metals M8	mgt-LabMark Suite 4	Semivolatile Organic Compounds (SVOC)
Laboratory where analysis is conducted										
Melbourne Laboratory - NATA Site # 1254 & 14271										
Sydney Laboratory - NATA Site # 18217					X		X	X	X	X
Brisbane Laboratory - NATA Site # 20794										
External Laboratory						X				
BH121A_(1.0-1.1m)	Dec 18, 2012		Soil	S12-De17218	X				X	
BH121A_(1.0-1.1m)_A	Dec 18, 2012		Soil	S12-De17219	X				X	
BH121A_(1.5-1.6m)	Dec 18, 2012		Soil	S12-De17220	X	X		X	X	
QC35	Dec 18, 2012		Soil	S12-De17221	X				X	
BH121A_(2.0-2.1m)	Dec 18, 2012		Soil	S12-De17222			X			
BH121A_(2.5-2.6m)	Dec 18, 2012		Soil	S12-De17223	X				X	
BH121A_(2.5-2.6m)_A	Dec 18, 2012		Soil	S12-De17224			X			

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Sample Detail					% Moisture	Asbestos	HOLD	Metals M8	mgt-LabMark Suite 4	Semivolatile Organic Compounds (SVOC)
Laboratory where analysis is conducted										
Melbourne Laboratory - NATA Site # 1254 & 14271										
Sydney Laboratory - NATA Site # 18217					X		X	X	X	X
Brisbane Laboratory - NATA Site # 20794										
External Laboratory						X				
BH121A_(2.8-3.0m)_A	Dec 18, 2012		Soil	S12-De17225			X			
BH121_(3.4-3.5m)	Dec 18, 2012		Soil	S12-De17226	X				X	

mgt-LabMark Internal Quality Control Review

General

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

Holding Times

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

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

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

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

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

UNITS

mg/kg: milligrams per Kilogram

ug/l: micrograms per litre

ppb: Parts per billion

org/100ml: Organisms per 100 millilitres

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

mg/l: milligrams per litre

ppm: Parts per million

%: Percentage

NTU: Units

TERMS

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

QC - ACCEPTANCE CRITERIA

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

Results <10 times the LOR : No Limit

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

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

Surrogate Recoveries : Recoveries must lie between 50-150% - Phenols 20-130%.

QC DATA GENERAL COMMENTS

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxophene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxophene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Arochlor 1260 in Matrix Spikes and LCS's.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPD's are calculated from raw analytical data thus it is possible to have two sets of data.

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions E004 Petroleum Hydrocarbons (TPH)							
TRH C6-C9	mg/kg	< 10			10	Pass	
TRH C10-C14	mg/kg	< 50			50	Pass	
TRH C15-C28	mg/kg	< 100			100	Pass	
TRH C29-C36	mg/kg	< 100			100	Pass	
Method Blank							
BTEX E029/E016 BTEX							
Benzene	mg/kg	< 0.5			0.5	Pass	
Toluene	mg/kg	< 0.5			0.5	Pass	
Ethylbenzene	mg/kg	< 0.5			0.5	Pass	
m&p-Xylenes	mg/kg	< 1			1	Pass	
o-Xylene	mg/kg	< 0.5			0.5	Pass	
Xylenes - Total	mg/kg	< 1.5			1.5	Pass	
Total BTEX	mg/kg	< 1.5			1.5	Pass	
Method Blank							
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions * LM-LTM-ORG2010							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH C6-C10 less BTEX (F1)	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
Polyaromatic Hydrocarbons (PAH) E007 Polyaromatic Hydrocarbons (PAH)							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b)fluoranthene & Benzo(k)fluoranthene	mg/kg	< 1			1	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Semivolatile Organic Compounds (SVOC) E017 Semivolatile Organic Compounds (SVOC)							
2-Chloronaphthalene	mg/kg	< 0.5			0.5	Pass	
2-Chlorophenol	mg/kg	< 0.5			0.5	Pass	
2-Methylnaphthalene	mg/kg	< 0.5			0.5	Pass	
2-Methylphenol (o-Cresol)	mg/kg	< 0.5			0.5	Pass	
2-Naphthylamine	mg/kg	< 0.5			0.5	Pass	
2-Nitroaniline	mg/kg	< 1			1	Pass	
2-Nitrophenol	mg/kg	< 0.5			0.5	Pass	
3&4-Methylphenol (m&p-Cresol)	mg/kg	< 1			1	Pass	
3-Methylcholanthrene	mg/kg	< 0.5			0.5	Pass	
4-Aminobiphenyl	mg/kg	< 0.5			0.5	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
4-Bromophenyl phenyl ether	mg/kg	< 0.5			0.5	Pass	
4-Chloro-3-methylphenol	mg/kg	< 0.5			0.5	Pass	
4-Chlorophenyl phenyl ether	mg/kg	< 0.5			0.5	Pass	
4-Nitrophenol	mg/kg	< 0.5			0.5	Pass	
4.4""-DDD	mg/kg	< 0.5			0.5	Pass	
4.4""-DDE	mg/kg	< 0.5			0.5	Pass	
4.4""-DDT	mg/kg	< 1			1	Pass	
Acetophenone	mg/kg	< 0.5			0.5	Pass	
Aldrin	mg/kg	< 0.5			0.5	Pass	
Aniline	mg/kg	< 0.5			0.5	Pass	
Bis(2-chloroethoxy)methane	mg/kg	< 0.5			0.5	Pass	
Bis(2-ethylhexyl)phthalate	mg/kg	< 5			5	Pass	
Butyl benzyl phthalate	mg/kg	< 0.5			0.5	Pass	
Chlorpyrifos	mg/kg	< 0.5			0.5	Pass	
Coumaphos	mg/kg	< 0.5			0.5	Pass	
d-BHC	mg/kg	< 0.5			0.5	Pass	
Demeton-O	mg/kg	< 0.5			0.5	Pass	
Demeton-S	mg/kg	< 0.5			0.5	Pass	
Di-n-butyl phthalate	mg/kg	< 0.5			0.5	Pass	
Di-n-octyl phthalate	mg/kg	< 0.5			0.5	Pass	
Diazinon	mg/kg	< 0.5			0.5	Pass	
Dibenzofuran	mg/kg	< 0.5			0.5	Pass	
Dichlorvos	mg/kg	< 0.5			0.5	Pass	
Dieldrin	mg/kg	< 0.5			0.5	Pass	
Diethyl phthalate	mg/kg	< 0.5			0.5	Pass	
Dimethoate	mg/kg	< 0.5			0.5	Pass	
Dimethyl phthalate	mg/kg	< 0.5			0.5	Pass	
Diphenylamine	mg/kg	< 0.5			0.5	Pass	
Disulfoton	mg/kg	< 0.5			0.5	Pass	
Endosulfan sulphate	mg/kg	< 0.5			0.5	Pass	
Endrin	mg/kg	< 0.5			0.5	Pass	
Endrin aldehyde	mg/kg	< 0.5			0.5	Pass	
Endrin ketone	mg/kg	< 0.5			0.5	Pass	
Ethoprop	mg/kg	< 0.5			0.5	Pass	
Fenitrothion	mg/kg	< 0.5			0.5	Pass	
Fensulfothion	mg/kg	< 0.5			0.5	Pass	
Fenthion	mg/kg	< 0.5			0.5	Pass	
g-BHC (Lindane)	mg/kg	< 0.5			0.5	Pass	
Heptachlor	mg/kg	< 0.5			0.5	Pass	
Heptachlor epoxide	mg/kg	< 0.5			0.5	Pass	
Hexachlorobenzene	mg/kg	< 0.5			0.5	Pass	
Hexachlorobutadiene	mg/kg	< 0.5			0.5	Pass	
Hexachlorocyclopentadiene	mg/kg	< 1			1	Pass	
Hexachloroethane	mg/kg	< 0.5			0.5	Pass	
Malathion	mg/kg	< 0.5			0.5	Pass	
Methoxychlor	mg/kg	< 0.5			0.5	Pass	
Methyl azinphos	mg/kg	< 0.5			0.5	Pass	
Methyl parathion	mg/kg	< 0.5			0.5	Pass	
Mevinphos	mg/kg	< 0.5			0.5	Pass	
Monocrotophos	mg/kg	< 10			10	Pass	
N-Nitrosodibutylamine	mg/kg	< 0.5			0.5	Pass	
N-Nitrosodipropylamine	mg/kg	< 0.5			0.5	Pass	
N-Nitrosopiperidine	mg/kg	< 0.5			0.5	Pass	
Nitrobenzene	mg/kg	< 0.5			0.5	Pass	
Parathion	mg/kg	< 0.5			0.5	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Pentachlorobenzene	mg/kg	< 0.5			0.5	Pass	
Pentachloronitrobenzene	mg/kg	< 0.5			0.5	Pass	
Pentachlorophenol	mg/kg	< 1			1	Pass	
Phenol	mg/kg	< 0.5			0.5	Pass	
Phorate	mg/kg	< 0.5			0.5	Pass	
Profenofos	mg/kg	< 0.5			0.5	Pass	
Prothiofos	mg/kg	< 0.5			0.5	Pass	
Ronnel	mg/kg	< 0.5			0.5	Pass	
Stirophos	mg/kg	< 0.5			0.5	Pass	
Trichloronate	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Metals M8 E022 Acid Extractable metals in Soils & E026 Mercury							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.05			0.05	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions E004 Petroleum Hydrocarbons (TPH)							
TRH C6-C9	%	110			70-130	Pass	
TRH C10-C14	%	103			70-130	Pass	
LCS - % Recovery							
BTEX E029/E016 BTEX							
Benzene	%	106			70-130	Pass	
Toluene	%	105			70-130	Pass	
Ethylbenzene	%	105			70-130	Pass	
m&p-Xylenes	%	106			70-130	Pass	
o-Xylene	%	107			70-130	Pass	
Xylenes - Total	%	106			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions * LM-LTM-ORG2010							
Naphthalene	%	92			70-130	Pass	
TRH C6-C10	%	100			70-130	Pass	
TRH >C10-C16	%	96			70-130	Pass	
LCS - % Recovery							
Polyaromatic Hydrocarbons (PAH) E007 Polyaromatic Hydrocarbons (PAH)							
Acenaphthene	%	103			70-130	Pass	
Acenaphthylene	%	108			70-130	Pass	
Anthracene	%	111			70-130	Pass	
Benz(a)anthracene	%	101			70-130	Pass	
Benzo(a)pyrene	%	97			70-130	Pass	
Benzo(b)fluoranthene & Benzo(k)fluoranthene	%	102			70-130	Pass	
Benzo(g.h.i)perylene	%	114			70-130	Pass	
Chrysene	%	103			70-130	Pass	
Dibenz(a.h)anthracene	%	114			70-130	Pass	
Fluoranthene	%	111			70-130	Pass	
Fluorene	%	105			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	117			70-130	Pass	
Naphthalene	%	111			70-130	Pass	
Phenanthrene	%	105			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Pyrene	%	111			70-130	Pass	
LCS - % Recovery							
Semivolatile Organic Compounds (SVOC) E017 Semivolatile Organic Compounds (SVOC)							
2-Chlorophenol	%	99			70-130	Pass	
Chlorpyrifos	%	101			70-130	Pass	
Coumaphos	%	73			70-130	Pass	
Demeton-O	%	100			70-130	Pass	
Demeton-S	%	93			70-130	Pass	
Diazinon	%	96			70-130	Pass	
Dichlorvos	%	104			70-130	Pass	
Dimethoate	%	86			70-130	Pass	
Disulfoton	%	96			70-130	Pass	
Ethoprop	%	95			70-130	Pass	
Fenitrothion	%	86			70-130	Pass	
Fensulfothion	%	91			70-130	Pass	
Fenthion	%	95			70-130	Pass	
Malathion	%	92			70-130	Pass	
Methyl azinphos	%	93			70-130	Pass	
Methyl parathion	%	89			70-130	Pass	
Mevinphos	%	95			70-130	Pass	
Monocrotophos	%	89			70-130	Pass	
N-Nitrosodipropylamine	%	70			70-130	Pass	
Parathion	%	98			70-130	Pass	
Pentachlorophenol	%	0.0000000			70-130	Fail	
Phenol	%	96			70-130	Pass	
Phorate	%	97			70-130	Pass	
Profenofos	%	92			70-130	Pass	
Prothiofos	%	97			70-130	Pass	
Ronnel	%	101			70-130	Pass	
Stirophos	%	95			70-130	Pass	
Trichloronate	%	101			70-130	Pass	
LCS - % Recovery							
Metals M8 E022 Acid Extractable metals in Soils & E026 Mercury							
Arsenic	%	95			70-130	Pass	
Cadmium	%	99			70-130	Pass	
Chromium	%	96			70-130	Pass	
Copper	%	97			70-130	Pass	
Lead	%	103			70-130	Pass	
Mercury	%	103			70-130	Pass	
Nickel	%	101			70-130	Pass	
Zinc	%	110			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	S12-De17184	CP	%	75			70-130	Pass	
TRH C10-C14	S12-De17184	CP	%	92			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S12-De17184	CP	%	85			70-130	Pass	
Toluene	S12-De17184	CP	%	85			70-130	Pass	
Ethylbenzene	S12-De17184	CP	%	86			70-130	Pass	
m&p-Xylenes	S12-De17184	CP	%	86			70-130	Pass	
o-Xylene	S12-De17184	CP	%	88			70-130	Pass	
Xylenes - Total	S12-De17184	CP	%	87			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions *				Result 1					
Naphthalene	S12-De17184	CP	%	91			70-130	Pass	
TRH C6-C10	S12-De17184	CP	%	75			70-130	Pass	
TRH >C10-C16	S12-De17184	CP	%	86			70-130	Pass	
Spike - % Recovery									
Polyaromatic Hydrocarbons (PAH)				Result 1					
Acenaphthene	S12-De17184	CP	%	101			70-130	Pass	
Acenaphthylene	S12-De17184	CP	%	106			70-130	Pass	
Anthracene	S12-De17184	CP	%	100			70-130	Pass	
Benz(a)anthracene	S12-De17184	CP	%	114			70-130	Pass	
Benzo(a)pyrene	S12-De17184	CP	%	98			70-130	Pass	
Benzo(b)fluoranthene & Benzo(k)fluoranthene	S12-De17184	CP	%	102			70-130	Pass	
Benzo(g.h.i)perylene	S12-De17184	CP	%	111			70-130	Pass	
Chrysene	S12-De17184	CP	%	101			70-130	Pass	
Dibenz(a.h)anthracene	S12-De17184	CP	%	114			70-130	Pass	
Fluoranthene	S12-De17184	CP	%	105			70-130	Pass	
Fluorene	S12-De17184	CP	%	105			70-130	Pass	
Indeno(1.2.3-cd)pyrene	S12-De17184	CP	%	110			70-130	Pass	
Naphthalene	S12-De17184	CP	%	106			70-130	Pass	
Phenanthrene	S12-De17184	CP	%	110			70-130	Pass	
Pyrene	S12-De17184	CP	%	106			70-130	Pass	
Spike - % Recovery									
Metals M8				Result 1					
Chromium	S12-De15763	NCP	%	112			70-130	Pass	
Copper	S12-De15763	NCP	%	127			70-130	Pass	
Lead	S12-De15763	NCP	%	110			70-130	Pass	
Nickel	S12-De15763	NCP	%	116			70-130	Pass	
Zinc	S12-De16263	NCP	%	101			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	S12-De17201	CP	%	85			70-130	Pass	
TRH C10-C14	S12-De17201	CP	%	113			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S12-De17201	CP	%	93			70-130	Pass	
Toluene	S12-De17201	CP	%	93			70-130	Pass	
Ethylbenzene	S12-De17201	CP	%	92			70-130	Pass	
m&p-Xylenes	S12-De17201	CP	%	92			70-130	Pass	
o-Xylene	S12-De17201	CP	%	93			70-130	Pass	
Xylenes - Total	S12-De17201	CP	%	92			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions *				Result 1					
Naphthalene	S12-De17201	CP	%	98			70-130	Pass	
TRH C6-C10	S12-De17201	CP	%	84			70-130	Pass	
TRH >C10-C16	S12-De17201	CP	%	109			70-130	Pass	
Spike - % Recovery									
Metals M8				Result 1					
Arsenic	S12-De17214	CP	%	104			70-130	Pass	
Cadmium	S12-De17214	CP	%	92			70-130	Pass	
Mercury	S12-De17214	CP	%	112			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S12-De17218	CP	%	79			70-130	Pass	
Toluene	S12-De17218	CP	%	80			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Ethylbenzene	S12-De17218	CP	%	80			70-130	Pass	
m&p-Xylenes	S12-De17218	CP	%	81			70-130	Pass	
o-Xylene	S12-De17218	CP	%	81			70-130	Pass	
Xylenes - Total	S12-De17218	CP	%	81			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions *				Result 1					
Naphthalene	S12-De17218	CP	%	82			70-130	Pass	
TRH C6-C10	S12-De17218	CP	%	71			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	S12-De17184	CP	mg/kg	< 10	< 10	<1	30%	Pass	
TRH C10-C14	S12-De17184	CP	mg/kg	< 50	< 50	10	30%	Pass	
TRH C15-C28	S12-De17184	CP	mg/kg	< 100	< 100	17	30%	Pass	
TRH C29-C36	S12-De17184	CP	mg/kg	< 100	< 100	26	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S12-De17184	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Toluene	S12-De17184	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Ethylbenzene	S12-De17184	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
m&p-Xylenes	S12-De17184	CP	mg/kg	< 1	< 1	<1	30%	Pass	
o-Xylene	S12-De17184	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Xylenes - Total	S12-De17184	CP	mg/kg	< 1.5	< 1.5	<1	30%	Pass	
Total BTEX	S12-De17184	CP	mg/kg	< 1.5	< 1.5	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions *				Result 1	Result 2	RPD			
Naphthalene	S12-De17184	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S12-De17184	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C6-C10 less BTEX (F1)	S12-De17184	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH >C10-C16	S12-De17184	CP	mg/kg	< 50	< 50	10	30%	Pass	
TRH >C16-C34	S12-De17184	CP	mg/kg	< 100	< 100	19	30%	Pass	
TRH >C34-C40	S12-De17184	CP	mg/kg	< 100	< 100	24	30%	Pass	
Duplicate									
Polyaromatic Hydrocarbons (PAH)				Result 1	Result 2	RPD			
Acenaphthene	S12-De17184	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S12-De17184	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S12-De17184	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S12-De17184	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	S12-De17184	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b)fluoranthene & Benzo(k)fluoranthene	S12-De17184	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Benzo(g.h.i)perylene	S12-De17184	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	S12-De17184	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	S12-De17184	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S12-De17184	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	S12-De17184	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S12-De17184	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	S12-De17184	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	S12-De17184	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	S12-De17184	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	S12-De17201	CP	mg/kg	< 10	< 10	<1	30%	Pass	
TRH C10-C14	S12-De17201	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C15-C28	S12-De17201	CP	mg/kg	< 100	< 100	<1	30%	Pass	

Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C29-C36	S12-De17201	CP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S12-De17201	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Toluene	S12-De17201	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Ethylbenzene	S12-De17201	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
m&p-Xylenes	S12-De17201	CP	mg/kg	< 1	< 1	<1	30%	Pass	
o-Xylene	S12-De17201	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Xylenes - Total	S12-De17201	CP	mg/kg	< 1.5	< 1.5	<1	30%	Pass	
Total BTEX	S12-De17201	CP	mg/kg	< 1.5	< 1.5	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions *				Result 1	Result 2	RPD			
Naphthalene	S12-De17201	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S12-De17201	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C6-C10 less BTEX (F1)	S12-De17201	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH >C10-C16	S12-De17201	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	S12-De17201	CP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	S12-De17201	CP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
Metals M8				Result 1	Result 2	RPD			
Arsenic	S12-De17204	CP	mg/kg	6.1	7.8	23	30%	Pass	
Cadmium	S12-De17204	CP	mg/kg	< 0.4	< 0.4	1.0	30%	Pass	
Chromium	S12-De17204	CP	mg/kg	6.7	7.3	9.0	30%	Pass	
Copper	S12-De17204	CP	mg/kg	51	60	17	30%	Pass	
Lead	S12-De17204	CP	mg/kg	250	290	15	30%	Pass	
Mercury	S12-De17204	CP	mg/kg	0.57	0.57	<1	30%	Pass	
Nickel	S12-De17204	CP	mg/kg	< 5	5.2	4.0	30%	Pass	
Zinc	S12-De17204	CP	mg/kg	190	250	28	30%	Pass	
Duplicate									
Semivolatile Organic Compounds (SVOC)				Result 1	Result 2	RPD			
Chlorpyrifos	S12-De15156	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Coumaphos	S12-De15156	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Demeton-O	S12-De15156	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Demeton-S	S12-De15156	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Diazinon	S12-De15156	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dichlorvos	S12-De15156	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dimethoate	S12-De15156	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Disulfoton	S12-De15156	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Ethoprop	S12-De15156	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fenitrothion	S12-De15156	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fensulfothion	S12-De15156	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fenthion	S12-De15156	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Malathion	S12-De15156	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Methyl azinphos	S12-De15156	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Methyl parathion	S12-De15156	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Mevinphos	S12-De15156	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Monocrotophos	S12-De15156	NCP	mg/kg	< 10	< 10	<1	30%	Pass	
Parathion	S12-De15156	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phorate	S12-De15156	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Profenofos	S12-De15156	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Prothiofos	S12-De15156	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Ronnel	S12-De15156	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Stirophos	S12-De15156	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Trichloronate	S12-De15156	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S12-De17218	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Toluene	S12-De17218	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Ethylbenzene	S12-De17218	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
m&p-Xylenes	S12-De17218	CP	mg/kg	< 1	< 1	<1	30%	Pass	
o-Xylene	S12-De17218	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Xylenes - Total	S12-De17218	CP	mg/kg	< 1.5	< 1.5	<1	30%	Pass	
Total BTEX	S12-De17218	CP	mg/kg	< 1.5	< 1.5	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions *				Result 1	Result 2	RPD			
Naphthalene	S12-De17218	CP	mg/kg	0.6	0.7	14	30%	Pass	
TRH C6-C10	S12-De17218	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C6-C10 less BTEX (F1)	S12-De17218	CP	mg/kg	< 20	< 20	<1	30%	Pass	

Comments

Please note: Asbestos analysed by ASET (Job : ASET32008/35188/1-7) NATA Accreditation : 14484

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Organic samples had Teflon liners	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	Yes

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.

Authorised By

Jean Heng	Client Services
Laura Schofield	Senior Analyst-Volatile (NSW)
Ryan Hamilton	Senior Analyst-Organic (NSW)
James Norford	Senior Analyst-Metal (NSW)

Dr. Bob Symons

Laboratory Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Uncertainty data is available on request

AUSTRALIAN SAFER ENVIRONMENT & TECHNOLOGY PTY LTD
ABN 36 088 095 112

Our ref: ASET32008/ 35188 / 1 - 7
Your ref: 363975
NATA Accreditation No: 14484

29 January 2013

MGT- Labmark Environmental Pty Ltd
Unit F3, Building F, 16, Mars Road
Lane Cove
NSW 2066

Attn: Mr Robert Symons,

Dear Robert,

Asbestos Identification
This report presents the results of seven samples, forwarded by MGT- Labmark Environmental Pty Ltd on 21 December 2012, for analysis for asbestos. This report supersedes the report issued on 2 January 2013.

1.Introduction: Seven samples forwarded were examined and analysed for the presence of asbestos.

2. Methods : The samples were examined under a Stereo Microscope and selected fibres were analysed by Polarized Light Microscopy in conjunction with Dispersion Staining method. **(Safer Environment Method 1.)**

3. Results :

Sample No. 1. ASET32008 / 35188 / 1. BH110A - (1.0 - 1.1m) - De17184.
Approx dimensions 5.6 cm x 4.3 cm x 4.2 cm
The sample consisted of a mixture of soil, stones and plant matter.
No asbestos detected.

Sample No. 2. ASET32008 / 35188 / 2. BH110A - (2.0 - 2.1m) - De17187.
Approx dimensions 5.6 cm x 4.2 cm x 4.1 cm
The sample consisted of a mixture of soil, stones, plant matter, fragments of plaster, brick and glass.
No asbestos detected.

Sample No. 3. ASET32008 / 35188 / 3. BH120 - (0.03 - 0.13m) - De17201.
Approx dimensions 5.2 cm x 4.6 cm x 4.3 cm
The sample consisted of a mixture of soil, stones, plant matter and fragments of bitumen.
No asbestos detected.

Sample No. 4. ASET32008 / 35188 / 4. BH120 - (1.0 - 1.1m) - De17204.
Approx dimensions 5.2 cm x 4.5 cm x 4.2 cm
The sample consisted of a mixture of soil, stones, plant matter, fragments of bitumin and glass.
No asbestos detected.

Sample No. 5. ASET32008 / 35188 / 5. BH121A - (0.5 - 0.6m) - De17214.
Approx dimensions 5.3 cm x 4.5 cm x 4.2 cm
The sample consisted of a mixture of soil, stones, plant matter, fragments of plaster and bitumin.
No asbestos detected.

Sample No. 6. ASET32008 / 35188 / 6. BH121A - (0.5 - 0.6m) - De17217.
Approx dimensions 4.7 cm x 4.6 cm x 4.3 cm
The sample consisted of a mixture of soil, stones, plant matter, fragments of plaster and bitumin.
No asbestos detected.

Sample No. 7. ASET32008 / 35188 / 7. BH121A - (1.5 - 1.6m) - De17220.
Approx dimensions 5.1 cm x 4.6 cm x 4.2 cm
The sample consisted of a mixture of soil, stones, plant matter, fragments of plaster, bitumin, coal like material and glass.
No asbestos detected.

Analysed and reported by,

Laxman Dias. BSc
Analyst / Approved Identifier.
Approved Signatory

This document is issued in accordance with NATA's Accreditation requirements. Accredited for compliance with ISO/IEC 17025.

Appendix E
Environmental Desk Study: Proposed Sydney International Convention and Entertainment Centre, Darling Harbour (Coffey Geotechnics; July 2011)

Overarching Remedial Action Plan
Haymarket Precinct, Darling Harbour, Sydney NSW

coffey geotechnics
SPECIALISTS MANAGING THE EARTH

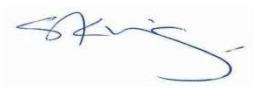
ENVIRONMENTAL DESK STUDY
SYDNEY INTERNATIONAL CONVENTION AND ENTERTAINMENT CENTRE

Prepared for:

Sydney Harbour Foreshore Authority
Level 6, 66 Harrington Street
The Rocks NSW 2000

Report Date: 13 July 2011
Project Ref: GEOTLCOV24303AA

Written/Submitted by:



Sally King
Senior Environmental Scientist

Written/Submitted by:

Nalin De Silva
Senior Associate

Reviewed by:

Sam Gunasekera
Principal

Coffey Geotechnics Pty Ltd ABN 93 056 929 483
8/12 Mars Road Lane Cove West NSW 2066 Australia
GEOTLCOV24303AA-AC_Final.docx

13 July 2011

Sydney Harbour Foreshore Authority
Level 6, 66 Harrington Street
The Rocks NSW 2000

Attention: Tom Kennedy

Dear Tom

RE: Environmental Desk Study
Sydney International Convention and Entertainment Centre

Please find attached our environmental desk study report for the above project. The work was commissioned by Sydney Harbour Foreshore Authority (SHFA) and was carried out in accordance with our proposal GEOTLCOV24303AA dated 16 May 2011.

Please contact Nalin De Silva (8083 1777) should you have any queries regarding this report.

For and on behalf of Coffey Geotechnics Pty Ltd

Sara Somasundaram
Senior Geotechnical Engineer

Nalin De Silva
Senior Associate

Distribution: Original held by Coffey Geotechnics Pty Ltd
1 copy held by Coffey Geotechnics Pty Ltd
3 hard copies and electronic copy to SHFA

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1 INTRODUCTION

An environmental desk study has been carried out for the proposed Sydney International Convention and Entertainment Centre (SICEC) at Darling Harbour South, on the site bounded by Darling Drive to the west, Hay Street to the south, Harbour Street to the east and Pier Street overpass (viaduct) to the north (Figure 1). This environmental desk study forms a part of the contamination investigations being undertaken for the SICEC development.

The site has an area of approximately 7.2 hectares. The environmental desk study was commissioned by the Sydney Harbour Foreshore Authority (SHFA) in response to a proposal by Coffey Geotechnics Pty Ltd (Coffey) on 16 May 2011.

This report presents the findings of the environmental desk study.

1.1 Background

The proposed SICEC is an iconic development with distinctive landmark quality and world class architecture. The proposed SICEC will include:

- A flexible plenary and entertainment auditorium with fixed tiered seating of 6000 seats;
- A multifunction exhibition hall of 8000m^2 expandable to 12,000 m^2 for special events;
- In excess of 15 meeting rooms and hospitality suites;
- Ballroom and banqueting capabilities for up to 4,500 people;
- 400 car parking spaces;
- three levels of basements up to 18m below ground level; and
- Underground access tunnel (from Harbour Street).

We understand that the existing Sydney Entertainment Centre (SEC) and adjoining car park are to be demolished to facilitate the development. The monorail line and other site infrastructure may require relocation. At present, the site contains the existing SEC, a 1,900 space car park immediately west of the SEC, the Novotel Rockford Hotel located to the north-east and the Pumphouse Bar located to the north. Pier Street crosses the site on the northern end and the Monorail and Metro light rail lines cross the site at the southern end. A monorail station is located at the southern end of the site. In addition, utility services such as major storm water culverts and electrical conduits are located within the site. Large portions of the public domain within the site are paved with asphalt or brick. Figure 1 presents a plan showing the location of the site.

A contamination assessment is required to identify and mitigate any potential contamination risk that may be encountered during the proposed development. This environmental desk study aims to provide a framework for a suitable contamination assessment for the site. The final Director General's Requirements (dated 16 June 2011, Ref: MP11_0024) indicates that the contamination assessment should demonstrate that the site is suitable for the proposed commercial and industrial land use or if remediation is required, the contamination assessment should enable the preparation of a suitable remediation strategy, including the management of potentially contaminated subsurface water (groundwater). An Environmental Management Plan is also required to be implemented during the remediation works.

1.2 Objectives

The objectives of this environmental desk study were to:

- identify current and historical activities that may have caused contamination of the soil and groundwater at the site;
- assess the potential areas of environmental concern (AEC) and contaminants of concern (COC); and
- assess the likelihood of the presence of significant soil and groundwater contamination at the site.

1.3 Scope of Works

Coffey undertook the following scope of work as part of the environmental desktop study:

- Site walkover by a Senior Coffey environmental scientist to visually assess general site conditions and visible evidence of contamination at the site;
- Review of NSW Office of Environment and Heritage (OEH) register of contaminated sites by undertaking a search of EPA notices which may have been issued with respect to contamination;
- Review of soils, geological and hydrogeological/groundwater maps pertaining to the site;
- Review of historical information to identify whether potentially contaminating activities were conducted on the site or in the surrounding properties, including:
    - Information from Sydney City Council's local library ;
    - Aerial photographs from Department of Lands to assist in identifying historical activities with potential for contamination at the site or properties surrounding the site; and
- Review of NSW WorkCover records of Dangerous Goods stored on the site.

2 SITE DESCRIPTION

2.1 Site Condition and Infrastructure

The site is located at the southern end of the Darling Harbour Precinct and covers an area of approximately 7.2 hectares. The site is bound by Darling Drive to the west, Hay Street to the south, Harbour Street to the east and Pier Street overpass (viaduct) to the north.

The Sydney Entertainment Centre is located in the eastern half of the site, while a multilevel 1,900 space car park is located in the western half. The Novotel Rockford Hotel and Pumphouse Bar are located in the north eastern corner of the site.

Pier Street crosses the northern end of the site, and the Monorail and Metro light rail lines cross the southern end. Paddy's Market monorail station is located at the southern end of the site.

The open areas of the site are paved with a combination of concrete, asphalt and brick pavers, with a few grassed areas. No evidence of contamination such as oil staining or odours was observed during the site walkover. No potentially contaminating activities were evident during the site walkover.

On-site vegetation is limited to mature trees adjacent to the Novotel Rockford Hotel, and at the south eastern, south western and north western corners of the site and the grassed areas. No evidence of vegetation stress or die-back was observed.

2.2 Surrounding Land Use

The land use immediately surrounding the site includes the following:

North: Pier Street, with Chinese Garden of Friendship, Tumbalong Park and Sydney Convention and Exhibition Centre beyond.

East: Harbour Street, with the Holiday Inn Hotel and Chinatown beyond.

South: Hay Street and light rail line, with Market City, Paddy's Market and University of Technology beyond.

West: Darling Drive and light rail line, with the Powerhouse Museum beyond.

Based on the above surrounding land uses, Coffey consider that the potential for contamination to migrate on to the site from the immediate surroundings is likely to be low.

2.3 Topography and Hydrology

Inspection of the site revealed that the site is a relatively level parcel of land.

Review of the 1:25,000 Botany Bay Topographic Map (91302-3-S) indicates that the site lies at an elevation of between 0m and 10m Australian Height Datum (AHD). The surrounding land generally exhibits an increasing elevation towards the south, east and west.

The site is located approximately 500m to the south of the foreshore of Darling Harbour. No other waterways are located in close proximity to the site.

2.4 Geology and Hydrogeology

It is understood that the site is founded over what was originally known as Cockle Bay based on MacQuarie's Map of 1822. The former bay and its tributaries originally extended almost 1km inland from the southern boundary of the existing harbour.

The existing shoreline has been progressively formed by man-made fill since the 1820s. Review of 1:250,000 Sydney Geological Series Sheet (S1 56-5) indicates that the fill comprises Quaternary-aged alluvium, gravel, sand, silt and clay deposits. These deposits are further underlain by residual soil and rock of Triassic-aged Hawkesbury Sandstone.

The geology at the site is complex, comprising an infilled palaeochannel, high groundwater level and an igneous dyke. The infill materials overlying the eroded sandstone valley floor comprise slopewash, estuarine deposits and manmade filling. Rock levels are expected to vary significantly within the site.

The upper 1~3m from ground level is expected to consist of manmade fill. Below the fill, estuarine sediments and alluvial back-swamp deposits consisting of loose clayey sands and plastic clays with occasional shell layers would be expected. Beneath the estuarine deposits, there may be variable thickness of slopewash/colluvial deposits over a usually thin layer of residual soil and the eroded rock surface. The slopewash is expected to comprise a mixture of clayey sand, sandy clay, and clay that varies from loose to medium dense or firm to very stiff and is expected to extend to typically about -10m AHD with further depth at some locations. The residual soil is generally clayey sand or sandy clay in a medium dense or stiff condition.

The igneous dyke is known as the "Great Sydney Dyke". It comprises extremely weathered dolerite with stiff clay properties, and crosses the site on a northwest to southeast direction. The weathered clay material extends about -16m to -24m AHD before dolerite rock of better quality is encountered. The interface of the dyke and adjacent sandstone country rock may be affected during the intrusion process, and may form potential water flow conduits.

A review of the New South Wales Natural Resource Atlas (http://nratlas.nsw.gov.au) indicated that no registered groundwater bores are located within a 500m radius of the site.

Given the location of the site, is it anticipated that underlying groundwater would range between -0.5m and 1.5m AHD and may be subject to tidal influences. In addition, it is possible that groundwater may perch at higher levels where shallow bedrock is present, and the depth to groundwater may decrease during periods of heavy and/or prolonged rainfall.

2.5 Acid Sulfate Soil

A review of acid sulfate soil (ASS) risk maps presented on the Australian Soil Resource Information System (ASRIS) website (http://www.asris.csiro.au/index_ie.html#) indicate a low probability for the presence of ASS beneath the site.

The maps indicate, however that there is a high probability of ASS in the sediments in Darling Harbour and Sydney Harbour. There is evidence that the site and surrounding area has been reclaimed using harbour sediment (refer to Section 3.2), possibly along with other sources of fill material. As such, it is possible that the fill material at the site could contain ASS.

3 REVIEW OF HISTORICAL INFORMATION

3.1 Little Pier Street Precinct

Coffey conducted a library search at the State Library of NSW to obtain historical information pertaining to the site. Whilst no information directly relevant to the site was obtained during the search, Coffey did review a report titled "*Little Pier St Precinct Archaeological Assessment".* This report was prepared by Godden Mackay Pty Ltd for Darling Harbour Authority, and is dated August 1991. This report provided useful information pertaining to the history of the site and surrounding areas.

The Little Pier Street Precinct lies between Little Pier Street and Pier Street. The following provides a chronological history of the land use:

1813:	Commenced use of the land for grinding corn, soap making, brewing, and salting beef.
Circa 1826:	Reclamation of Darling Harbour shoreline commenced.
1831-1836:	Construction of a mill/warehouse was completed on the reclaimed land.
1840s-1860s:	The land was leased to several tenants and used for various purposes including storage, and manufacture and bottling of soda water.
1868:	Lease of the land was transferred to Simon Zollner and a galvanising iron works established. Additional metal works were also conducted on-site throughout this period.
Circa 1890:	Most of the land had been covered and was used as storage space. Darling Harbour Railway had been established to the north of Pier Street.
1905-1925:	A Salvation Army shelter was established on the site.
1932-1937:	Most of the site was demolished to allow construction of a Council Depot.
1949:	The land comprising the site (i.e. including the Sydney Entertainment Centre and adjacent car park) was the location of City Markets No. 4.
1983:	Sydney Entertainment Centre was officially opened.

3.2 Reclamation of Darling Harbour

Historical parish maps (Appendix A) encompassing the site were obtained from the Land and Property Management Authority (http://www.lpma.nsw.gov.au/survey_and_maps/maps_and_imagery/parish_maps). A review of the maps indicated that Darling Harbour, initially called Long Cove, extended south beyond Hay Street.

A review of historical newspapers articles pertaining to the reclamation of Darling Harbour was also carried out. An article published in the Daily Telegraph on 12 May 1894 stated the following:

> "The portion of the harbour which it is proposed to reclaim will give an area of 14.5 acres available for railway or other business purposes.
>
> The material for reclamation, sand and silt, would be obtained by dredging in various parts of the harbour, the material being deposited where possible..."

Given that the harbour sediments have a high probability of occurrence of ASS (Refer to Section 2.5), it is possible that some of the fill material at the site contains ASS. Additionally, heavy metals and organic contaminants that are typically present in Sydney Harbour sediments could also be expected to be present in the fill materials at the site.

3.3 Aerial Photographs

Current and historical aerial photographs of the site were obtained from the Land and Property Management Authority to identify changes in land use over time (Appendix B). Table 3.1 provides a summary of the changes in land use observed on the site and in the immediate surrounding area.

Table 3.1: Summary of Aerial Photographs

Year	Site Observations	Surrounding Area
1930	The site is dissected by several roadways and is covered by various buildings and structures that appear to be commercial/industrial in nature.	Rail yards, including railway sidings, are present to the immediate north/northwest of the site beyond Pier Street. A railway line is present to the immediate west of the site, with sheds that appear to be associated with the rail yards beyond. A large warehouse, or similar, of unknown purpose is present to the immediate south beyond Hay Street. Reclamation of Darling Harbour foreshores to the north of the site appears to be completed (i.e. based on the location of the current foreshore).
1951	The majority of the site is covered by a large building that is likely to house the City Markets No. 4 (as described in Section 3.1). Additional buildings of unknown purpose are located along the Pier Street and Darling Drive site boundaries.	Additional infrastructure, including sheds and additional sidings, are present within the rail yards to the north/northwest of the site. No significant change to the remainder of the surrounding area is visible.
1955	No significant change to the site is visible.	No significant change to the surrounding area is visible.
1965	No significant change to the site is visible.	Additional buildings, likely to be used for train maintenance purposes, have been constructed within the rail yards to the north/northwest of the site. No significant change to the remainder of the surrounding area is visible.
1968	No significant change to the site is visible.	No significant change to the surrounding area is visible.

Year	Site Observations	Surrounding Area
1972	No significant change to the site is visible.	A railway overpass has been constructed immediately to the northwest of the site to allow vehicle access from the western side of the railway corridor to Pier Street. No significant change to the remainder of the surrounding area is visible.
1983	The City Markets No. 4 building has been removed and the Sydney Entertainment Centre and associated landscaping constructed. The building located along the Darling Drive boundary has also been removed and replaced by a multi-level car park. The buildings along Pier Street remain.	Buildings located to the southwest and east of the site have been removed and the construction phase of replacement buildings is visible. No significant change to the remainder of the surrounding area is visible.
1995	The multi-level car park located along the Darling Drive boundary has been extended towards the west. Some of the buildings along Pier Street have been removed and replaced with landscaping. Some structures still remain in this portion of the site.	The rail yards located to the north/northwest of the site have been removed and replaced by the existing Sydney Convention and Exhibition Centre, Tumbalong Park and Chinese Garden. The railway line located to the west of the site has been removed and the former rail corridor converted roadways. The Powerhouse Museum has been constructed to the west of the site beyond the former railway corridor, and the monorail is visible.
1997	The remainder of the buildings located along Pier Street have been removed with the exception of the Pumphouse building.	The Market City building and University of Technology campus have been constructed to the south of the site beyond Hay Street. No significant change to the remainder of the surrounding area is visible.
1999	The Novotel Rockford Hotel has been constructed on the northeast corner of the site immediately adjacent to the Pumphouse which has been converted to a restaurant and bar.	The Holiday Inn Hotel has been constructed to the east of the site on Harbour Street. No significant change to the remainder of the surrounding area is visible.
2004	No significant change to the site is visible.	No significant change to the surrounding area is visible.

The above information obtained from the review of the aerial photography is considered consistent with the historical information obtained from other sources.

3.4 Dangerous Goods Search

The records provided by NSW WorkCover (Appendix C) indicated that there no records pertaining to the storage and/or usage of dangerous goods at the site.

3.5 Contaminated Land Register

A review of the NSW Office of Environment and Heritage Contaminated Land Record (http://npws.nsw.gov.au/prclmapp/searchregister.aspx) indicated that the site and immediately surrounding area are not subject any notices under the Contaminated Land Management Act 1997.

4 AREAS AND CONTAMINANTS OF CONCERN

4.1 Areas of Environmental Concern

The environmental desk study did not identify specific areas of environmental concern. Rather, any potential soil contamination resulting from historical land uses at the site, if any, is likely to be associated with the fill material that has been used to reclaim the site and the surrounding area. Sediment from Sydney Harbour typically contains elevated levels of heavy metals and organic compounds. Additionally, any uncontrolled fill material that has been placed in the area could potentially be contaminated with heavy metals and organic compounds. Coffey considers that it is likely that low level contaminants will be present in the fill material at the site, although the probability of significant, widespread soil contamination at the site is low.

The presence of contaminants in soil could potentially impact the waste classification of soils proposed to be excavated and disposed offsite for construction purposes, thereby potentially increasing the cost of disposal of that soil.

The alluvial deposits and the filled harbour sediments could contain ASS. If ASS is present, it should be managed appropriately to minimise opportunities for acidification. Any ASS should be treated prior to disposal offsite. If ASS is identified, an acid sulfate soil management plan should be prepared to manage the ASS.

Groundwater in the Sydney city area is typically impacted with elevated concentrations (compared to natural background levels) of heavy metals, and sometimes with petroleum hydrocarbons. It is possible that groundwater within the site is also impacted. Such contaminants, if present, could impact the method and the cost of dewatering during construction. The quality of the groundwater could become an important factor to be considered in the selection of excavation and dewatering methodologies.

4.2 Contaminants of Potential Concern

Based on the above desk study, together with knowledge of potential contamination associated with subsurface filling and land reclamation, Coffey considers that contaminants of concern (COC) for the site are as follows:

- heavy metals (As, Cd, Cu, Cr, Cd, Hg, Ni, Pb);
- total petroleum hydrocarbons (TPH);
- benzene, toluene, ethylbenzene, xylene (BTEX);
- polycyclic aromatic hydrocarbons (PAH);
- volatile organic compounds (VOC);
- semi volatile organic compounds (SVOC);
- asbestos; and
- acid sulfate soil properties

5 SUMMARY AND CONCLUSIONS

Based on the environmental desk study, Coffey considers the likelihood of widespread, significant soil contamination to be low. Localised pockets of significant contamination however cannot be precluded. Experience at several harbour foreshore and reclaimed sites in and around the city has shown that excavated soil containing low level contamination that precludes it from beneficially being reused as fill elsewhere is common. Such contamination could affect the waste classification of soils requiring disposal offsite, and thus could have a significant impact on the overall cost of spoil management.

Acid sulfate soils may be present in the harbour sediments that have been filled to reclaim the site, and in the alluvial soils underlying the fill. If ASS is identified, it should be managed in accordance with an ASS Management Plan to minimise the risk of acid generation. Identified ASS should also be treated prior to disposal off site.

Groundwater in the Sydney city area is typically impacted with heavy metals and sometimes with organic compounds such as petroleum hydrocarbon, which could likely be due to regional influences. Such contaminants, if present in the groundwater at the site, could impact the method and cost of managing the dewatering that may be required during the excavation and construction. The quality of the groundwater could become an important factor to be considered in the selection of excavation and dewatering methodologies.

Coffey is currently conducting a contamination and geotechnical assessments at the site. The contamination assessment is aimed at assessing the above discussed potential areas of environmental concern, and will be utilised to develop any required remediation strategies in future planning stages.

The contamination assessment involves drilling, sampling and analysis of soil and groundwater samples collected from 20 boreholes drilled within accessible portions of the site. Based on the environmental desk study, we have allowed two selected soil samples from each borehole to be analysed for the following:

- Metals (As, Cd, Cu, Cr, Cd, Hg, Ni, Pb);
- Total petroleum hydrocarbons (TPH);
- Benzene, toluene, ethylbenzene, xylene (BTEX);
- Polyaromatic hydrocarbons (PAH);and
- Asbestos.

Additionally, selected samples will also be analysed for the following broad contaminant suites to assess the presence of volatile and semi volatile organic compounds:

- Volatile organic compounds (VOC); and
- Semi volatile organic compounds (SVOC).

We have allowed for all samples to be screened for acid sulfate soils. Based on the results of the screening, four selected samples will be analysed for acid sulfate soils using the SPOCAS[1] method.

Three of the boreholes will be converted to groundwater monitoring wells to collect groundwater samples. The collected groundwater samples will be analysed for metals, TPH/BTEX, and PAH.

If soil and/or groundwater contamination is observed that precludes the site from future commercial and industrial land use, remediation may be required to render the site to be suitable for the proposed land use. A Remediation Action Plan should be prepared by a suitably qualified environmental consultant, in accordance with NSW EPA (1997) *Guidelines For Consultants Reporting on Contaminated Sites*. If acid sulfate soils are identified on site, an Acid Sulfate Soils Management Plan should be prepared to minimise potential for acidification and harm to the environment during excavation works. If groundwater contamination is identified, a Groundwater Management Plan should be prepared to manage groundwater during the dewatering process.

[1] Suspension peroxide oxidation combined acidity and sulfate method

6 REFERENCES

Godden Mackay (1991) *Little Pier St Precinct Archaeological Assessment.*

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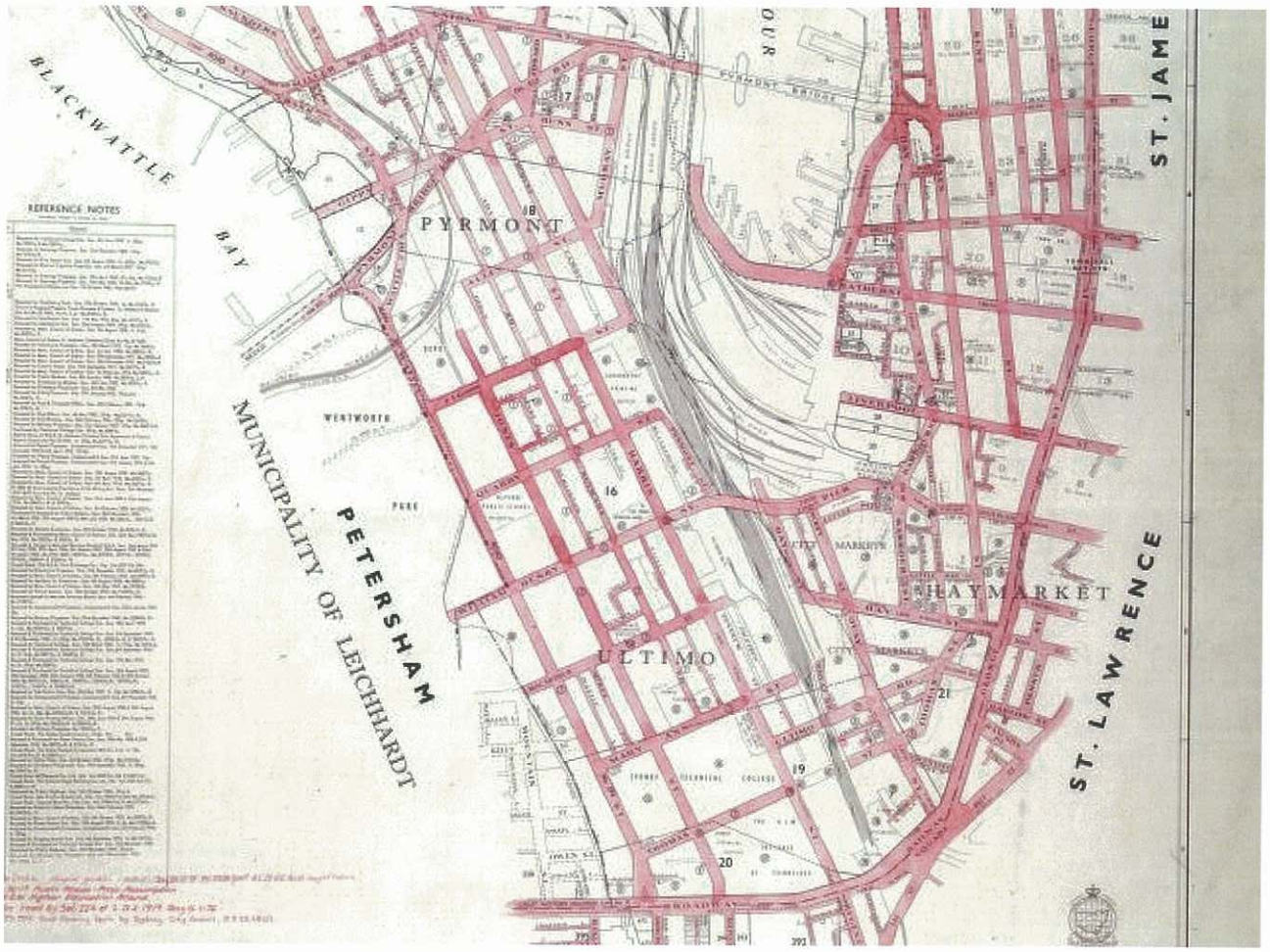
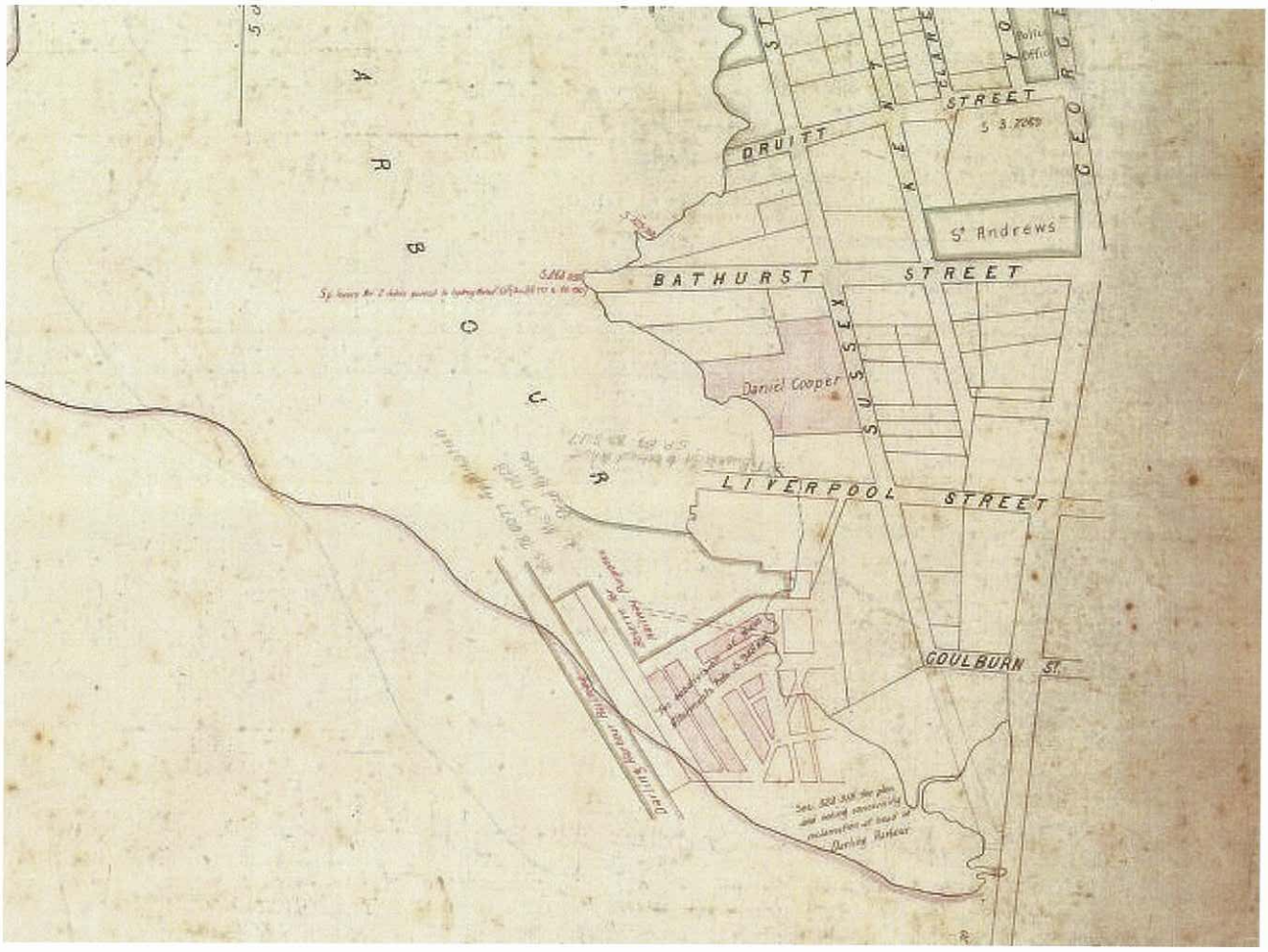
Appendix A
Historical Parish Maps

Environmental Desk Study
Sydney Multifunctional Conventions and Entertainment Centre



PARISH of ST. ANDREW

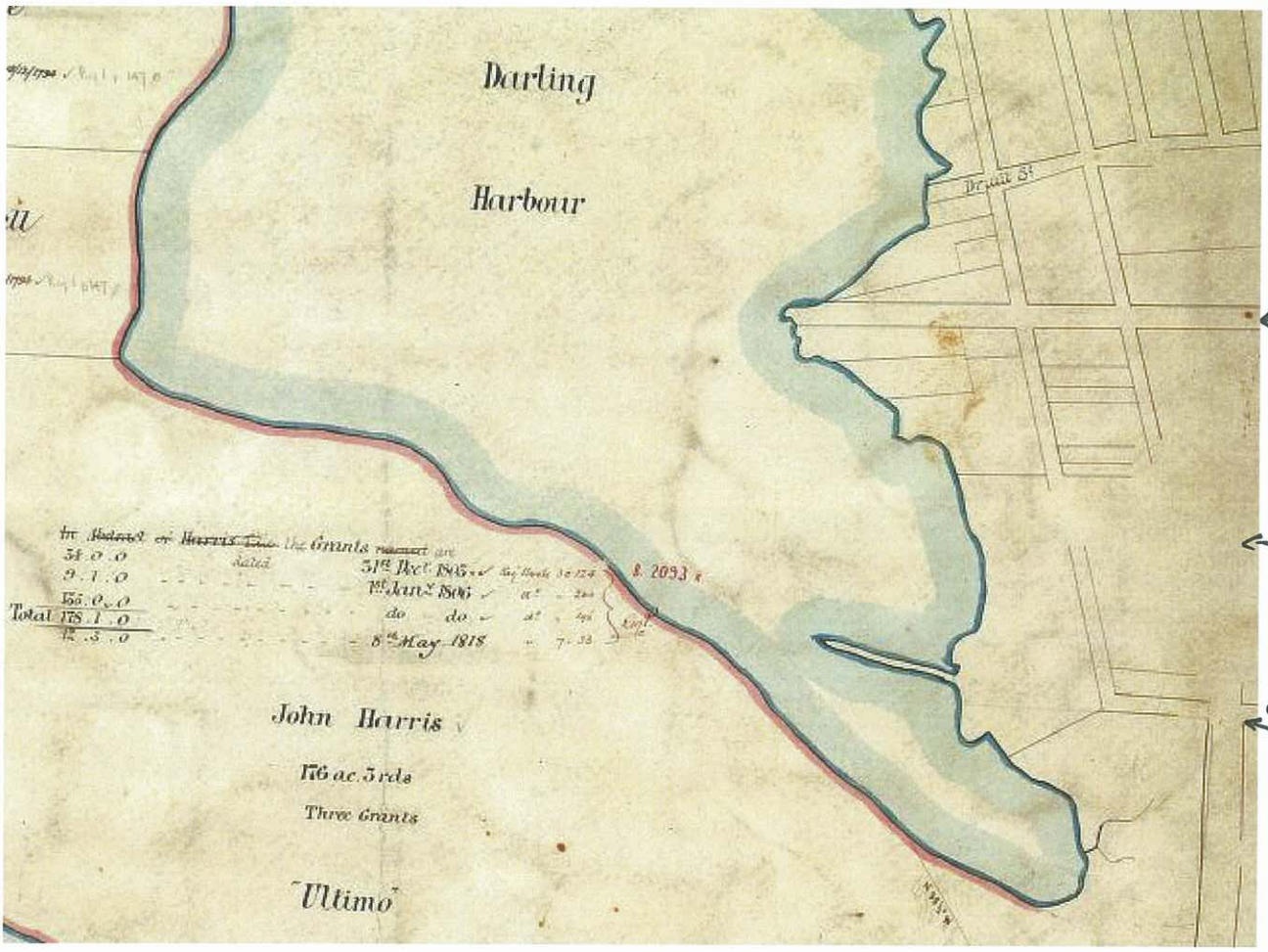
22 May 1970.



PARISH of ST. ANDREW

Date?

Parish of St. Andrew.
Date?



Parish of St. Andrew.

Date ?

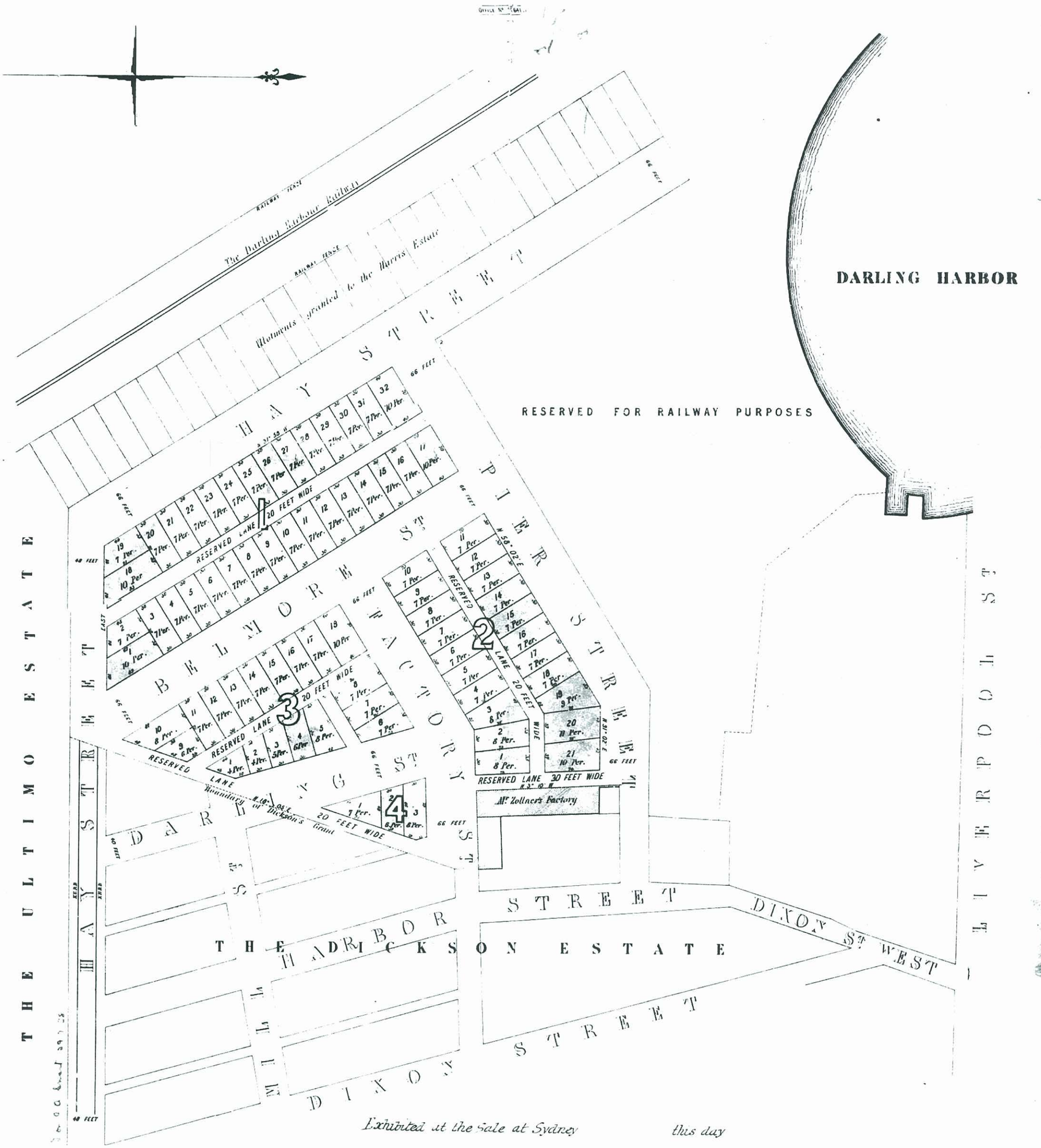
PLAN
OF
ALLOTMENTS IN SECTIONS 1 2 3 & 4
BEING THE RECLAIMED LAND AT THE HEAD OF DARLING HARBOR
PARISH OF ST ANDREW
CITY OF SYDNEY
1870

Sale at Sydney on the 13th December 1870
Town Lots A to PP
Allots 1 to 21 Sec 2, 1 to 13 Sec 3, 1 to 50 Sec 4

Sale at Sydney on the 12th December 1870
Town Lots K to PP
Allots 1 to 32, Section 1

Scale 80 Feet to One Inch

Survey Gen Office Nov 1870

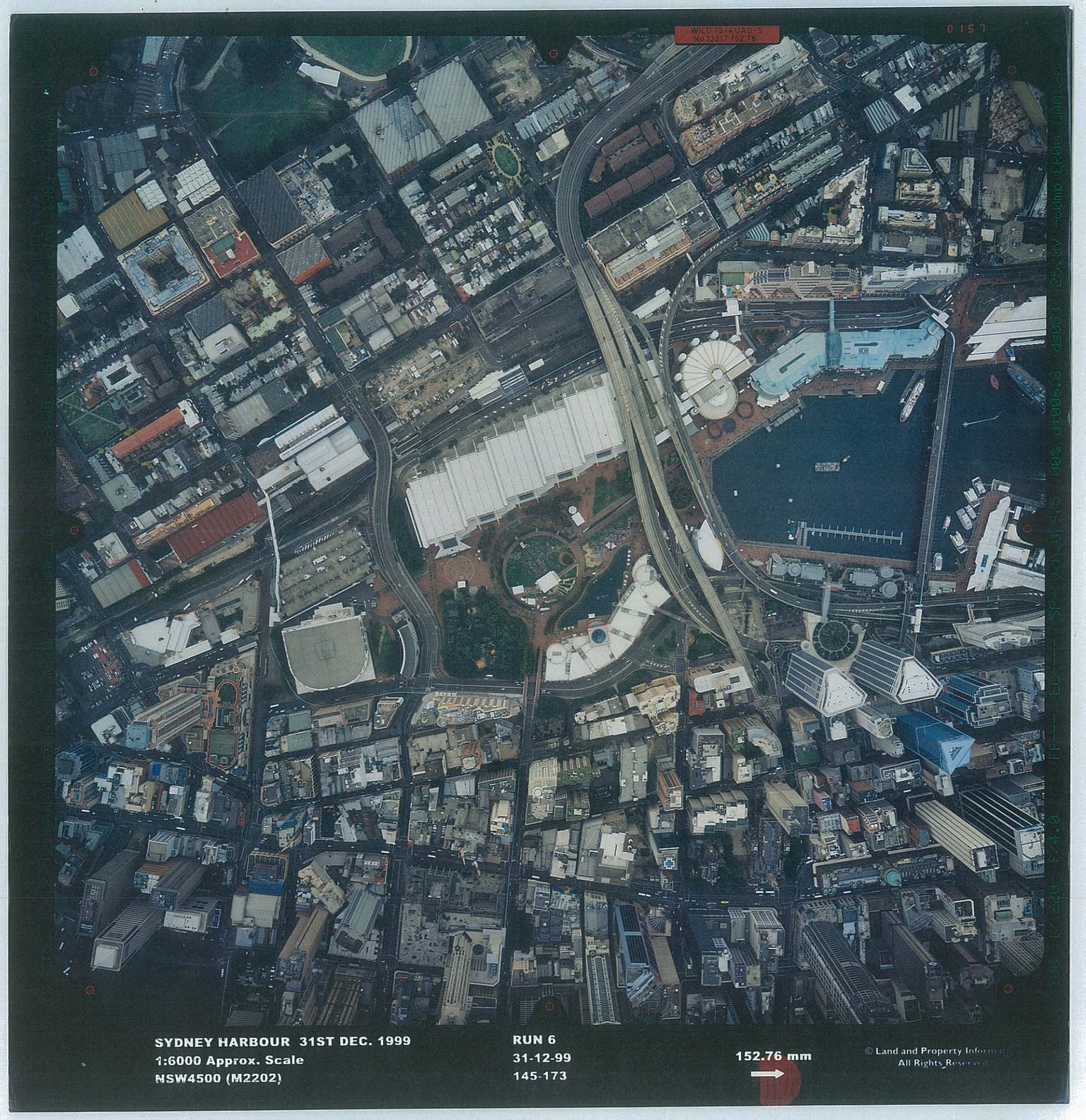


Exhibited at the Sale at Sydney this day

Appendix B
Historical Aerial Photographs

Environmental Desk Study
Sydney Multifunctional Conventions and Entertainment Centre


WILD 15/4 UAG-S
No 13217 152.76
0007
SYDNEY
1:16000 Approx. Scale
NSW4877 (M2451)
RUN 6
08-10-04
01-13
152.76 mm


WILD 15/4 UAG-S
No13217 152.76
0157
SYDNEY HARBOUR 31ST DEC. 1999
1:6000 Approx. Scale
NSW4500 (M2202)
RUN 6
31-12-99
145-173
152.76 mm
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