TEST PIT LOG

CLIENT: Johnson Property Group
PROJECT: Trinity Point Marina & Tourist Resort
LOCATION: Morisset Park

SURFACE LEVEL: 0.96 m AHD
EASTING: 363790.057
NORTHING: 6334179.819
DIP/AZIMUTH: 90°/--

PIT No: 301
PROJECT No: 39823A
DATE: 03 Oct 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
0	0.3	SILTY SAND: Brown fine to medium grained silty sand with rootlets and gravels, humid		D	0.1				
		SAND: Light brown medium grained sand, moist		D	0.5				
		- wet below 0.6m							
	0.9	- layer of shells at 0.85m							
	1	CLAYEY SAND: Yellow brown and grey medium to coarse grained clayey sand with trace shells, wet		D	1.0				1
-1				D	1.5				
	2			D	2.0				2
	2.1	GRAVELLY SAND: Light grey medium to coarse grained gravelly sand with trace silt, wet		D	2.5				
-2	2.6	Pit discontinued at 2.6m. Pit collapse							3
	3								
-3									

Dynamic Penetrometer Test (blows per mm): 5, 10, 15, 20

RIG: 4 tonne Excavator with 450mm bucket

LOGGED: Kerry

WATER OBSERVATIONS: Groundwater Seepage at ~1.5m

REMARKS: Coordinates are MGA

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U$_x$	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ⧩ Water level

CHECKED	
Initials:	
Date:	

Douglas Partners
Geotechnics · Environment · Groundwater

TEST PIT LOG

CLIENT: Johnson Property Group
PROJECT: Trinity Point Marina & Tourist Resort
LOCATION: Morisset Park

SURFACE LEVEL: 0.965 m AHD
EASTING: 363815.964
NORTHING: 6334153.651
DIP/AZIMUTH: 90°/--

PIT No: 302
PROJECT No: 39823A
DATE: 03 Oct 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
0	0.3	SILTY SAND: Brown fine to medium grained silty sand with rootlets and gravels, humid		D	0.1				
		SAND: Light brown to dark brown medium grained sand with some gravel, moist		D	0.5				
	0.8	- layer of shells at 0.75m							
		CLAYEY SAND: Yellow brown and grey medium to coarse grained clayey sand with trace shells, wet		D	1.0				
-1				D	1.5				
				D	2.0				
		- trace of gravel from 2.1m							
	2.5	Pit discontinued at 2.5m. Pit collapse		D	2.5				
-2									
-3									

Dynamic Penetrometer Test (blows per mm): 5, 10, 15, 20; 1, 2, 3

RIG: 4 tonne Excavator with 450mm bucket

LOGGED: Kerry

WATER OBSERVATIONS: Groundwater Seepage at ~1.3m

REMARKS: Coordinates are MGA

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ⧩ Water level

CHECKED	
Initials:	
Date:	

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TEST PIT LOG

CLIENT: Johnson Property Group
PROJECT: Trinity Point Marina & Tourist Resort
LOCATION: Morisset Park

SURFACE LEVEL: 1.205 m AHD
EASTING: 363841.3
NORTHING: 6334166.143
DIP/AZIMUTH: 90°/--

PIT No: 303
PROJECT No: 39823A
DATE: 03 Oct 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
1	0.35	SILTY SAND: Brown fine to medium grained silty sand with rootlets and gravels, humid		D	0.1				
		SAND: Light brown medium grained sand, moist		D	0.5				
	0.85	CLAYEY SAND: Yellow brown and grey medium to coarse grained clayey sand with trace shells, wet		D	1.0				1
0	1.2	- layer of shells at 1.15m							
	1.35	SANDY GRAVEL: Light brown grey medium sandy gravel, wet							
		CLAYEY SAND: Grey medium grained clayey sand, wet		D	1.5				
-1	1.7	GRAVELLY SAND: Light grey medium to coarse grained gravelly sand with trace silt, wet		D	2.0				2
				D	2.5				
-2	2.8	Pit discontinued at 2.8m. Pit collapse							3

RIG: 4 tonne Excavator with 450mm bucket

LOGGED: Kerry

WATER OBSERVATIONS: Groundwater Seepage at ~1.4m

REMARKS: Coordinates are MGA

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U$_x$	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ⊻ Water level

CHECKED	
Initials:	
Date:	

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TEST PIT LOG

CLIENT: Johnson Property Group
PROJECT: Trinity Point Marina & Tourist Resort
LOCATION: Morisset Park

SURFACE LEVEL: 1.16 m AHD
EASTING: 363872.673
NORTHING: 6334140.639
DIP/AZIMUTH: 90°/--

PIT No: 304
PROJECT No: 39823A
DATE: 03 Oct 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
1	0.3	SILTY SAND: Brown fine to medium grained silty sand with rootlets and gravels, humid		D	0.1				
		SAND: Brown and grey medium grained sand, moist		D	0.5				
0	0.9	SANDY GRAVEL: Light orange brwon grey medium grained sandy gravel with trace silt, wet		D	1.0				1
	1.4	GRAVELLY CLAYEY SAND: Grey medium grained gravelly clayey sand, wet		D	1.5				
-1	1.6	SANDY GRAVEL: Light grey medium grained sandy gravel, wet							
	2.0	Pit discontinued at 2.0m. Pit collapse		D	2.0				2
-2									3

Dynamic Penetrometer Test (blows per mm): 5, 10, 15, 20

RIG: 4 tonne Excavator with 450mm bucket

LOGGED: Kerry

WATER OBSERVATIONS: Groundwater Seepage at ~1.0m

REMARKS: Coordinates are MGA

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U$_x$	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▼ Water level

CHECKED
Initials:
Date:

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TEST PIT LOG

CLIENT: Johnson Property Group
PROJECT: Trinity Point Marina & Tourist Resort
LOCATION: Morisset Park

SURFACE LEVEL: 1.145 m AHD
EASTING: 363892.75
NORTHING: 6334115.794
DIP/AZIMUTH: 90°/--

PIT No: 305
PROJECT No: 39823A
DATE: 03 Oct 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
1	0.2	SILTY SAND: Brown fine to medium grained silty sand with rootlets and gravels, humid		D	0.1				
		GRAVELLY SAND: Brown fine to medium grained gravelly sand, moist		D	0.5				
0	1			D	1.0				1
				D	1.5				
	1.6	SAND: Grey medium grained sand with some clay and gravel, wet							
-1	2 2.0	Pit discontinued at 2.0m. Pit collapse		D	2.0				2
	3								3
-2									

5 10 15 20

RIG: 4 tonne Excavator with 450mm bucket

LOGGED: Kerry

WATER OBSERVATIONS: Groundwater Seepage at ~1.0m

REMARKS: Coordinates are MGA. Some H_2S "Egg gas" odours

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U$_x$	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ⧩ Water level

CHECKED	
Initials:	
Date:	

Douglas Partners
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TEST PIT LOG

CLIENT: Johnson Property Group
PROJECT: Trinity Point Marina & Tourist Resort
LOCATION: Morisset Park

SURFACE LEVEL: 1.115 m AHD
EASTING: 363905.646
NORTHING: 6334088.408
DIP/AZIMUTH: 90°/--

PIT No: 306
PROJECT No: 39823A
DATE: 03 Oct 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm) 5 10 15 20
1		SILTY SAND: Brown fine to medium grained silty sand with rootlets and gravels, humid		D	0.1				
	0.3	GRAVELLY SAND: Light brown grey medium grained gravelly sand, moist		D	0.5				
	0.9	GRAVELLY SAND: Orange grey medium grained gravelly sand with some clay, moist to wet		D	1.0				1
0		- grey at 1.5m		D	1.5				
	2.0	Pit discontinued at 2.0m. Pit collapse		D	2.0				2
-1									
									3
-2									

RIG: 4 tonne Excavator with 450mm bucket

LOGGED: Kerry

WATER OBSERVATIONS: Groundwater Seepage at ~1.1m

REMARKS: Coordinates are MGA. Some H_2S "Egg gas" odours

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U$_x$	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ⧩ Water level

CHECKED	
Initials:	
Date:	

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TEST PIT LOG

CLIENT: Johnson Property Group
PROJECT: Trinity Point Marina & Tourist Resort
LOCATION: Morisset Park

SURFACE LEVEL: 1.775 m AHD
EASTING: 363911.911
NORTHING: 4334061.065
DIP/AZIMUTH: 90°/--

PIT No: 307
PROJECT No: 39823A
DATE: 03 Oct 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
1	0.0	FILLING: Brown sandy silt with rootlets mixed red brown grey silty clay, M<Wp with gravels and inclusions of bricks coal chitter and clay pipe , M<Wp		D	0.1				
				D	0.5				
	0.7	CLAYEY GRAVELLY SAND: Light grey and brown medium to coarse grained sand, wet							
	1			D	1.0				1
		- grading to light grey mottled orange brown sandy gravelly clay, M<Wp		D	1.5				
0	1.7	CLAYEY SAND: Grey mottled red brown medium grained clayey sand with trace of small gravel, moist							
	2			D	2.0				2
	2.2	SILTY CLAY: Very stiff light grey medium plasticity silty clay, M>Wp							
-1				D, pp	2.5		350-400kPa		
		- some sand at 3.0m							
	3 3.0	Pit discontinued at 3.0m. Limit of investigation		D	3.0				3
-2									

RIG: 4 tonne Excavator with 450mm bucket

LOGGED: Kerry

WATER OBSERVATIONS: Minor seepage at 1.5m

REMARKS: Coordinates are MGA

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U$_x$	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ⧩ Water level

CHECKED	
Initials:	
Date:	

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TEST PIT LOG

CLIENT: Johnson Property Group
PROJECT: Trinity Point Marina & Tourist Resort
LOCATION: Morisset Park

SURFACE LEVEL: 2.60 m AHD
EASTING: 363917.353
NORTHING: 6334032.813
DIP/AZIMUTH: 90°/--

PIT No: 308
PROJECT No: 39823A
DATE: 03 Oct 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
2	0.0	FILLING: Brown fine grained silty clayey sand with some gravels and trace of roots		D	0.1				
	0.4	SILTY SAND: Dark brown fine to medium grained silty sand with trace of rootlets, moist		D	0.5				
1	0.95	SAND: Light grey medium grained sand with trace of silt and clay, moist		D	1.0				1
	1.3	SANDY CLAY: Stiff to very stiff grey mottled orange brown low to medium plasticity sandy clay with some small gravel, M~Wp		D	1.5				
0	2			D	2.0				2
				D, pp	2.5		220-250kPa		
	2.7	SILTY CLAY: Very stiff light grey medium plasticity silty clay, M~Wp							
-1	3 3.0	Pit discontinued at 3.0m. Limit of investigation		D, pp	3.0		350-380kPa		3

RIG: 4 tonne Excavator with 450mm bucket

LOGGED: Kerry

WATER OBSERVATIONS: No Free Groundwater Observed

REMARKS: Coordinates are MGA

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U$_x$	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ⧩ Water level

CHECKED	
Initials:	
Date:	

Douglas Partners
Geotechnics · Environment · Groundwater

TEST PIT LOG

CLIENT: Johnson Property Group
PROJECT: Trinity Point Marina & Tourist Resort
LOCATION: Morisset Park

SURFACE LEVEL: 3.00 m AHD
EASTING: 363930.136
NORTHING: 6333975.397
DIP/AZIMUTH: 90°/--

PIT No: 309
PROJECT No: 39823A
DATE: 03 Oct 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm) 5 10 15 20
3		SILTY SAND: Brown medium grained silty sand with rootlets and gravels, humid		D	0.1				
				D	0.5				
	0.65	SILTY SAND CLAY: Grey mottled red brown low to medium plasticity silty sandy clay, M<Wp							
2	1	- grading to clayey sand/extremely weathered sandstone at 1.0m		D	1.0				1
				D	1.5				
	1.8	Pit discontinued at 1.8m. Refusal							
1	2								2
0	3								3

RIG: 4 tonne Excavator with 450mm bucket

LOGGED: Kerry

WATER OBSERVATIONS: No Free Groundwater Observed

REMARKS: Coordinates are MGA

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U$_x$	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ⧩ Water level

CHECKED
Initials:
Date:

Douglas Partners
Geotechnics · Environment · Groundwater

TEST PIT LOG

CLIENT: Johnson Property Group
PROJECT: Trinity Point Marina & Tourist Resort
LOCATION: Morisset Park

SURFACE LEVEL: 4.00 m AHD
EASTING: 363741.902
NORTHING: 6333901.569
DIP/AZIMUTH: 90°/--

PIT No: 310
PROJECT No: 39823A
DATE: 03 Oct 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
4		FILLING: Light orange brown sandy clay filling mixed with bricks, tiles and concrete and trace of metal and plastic sheeting, humid		D	0.1				
				D	0.5				
	0.8	SANDY CLAY: Stiff, light grey mottled orange brown medium plasticity sandy clay with trace gravels, M~Wp							
3	1			D	1.0				1
				D, pp	1.5		170-220kPa		
2	2	- grading to clayey sand/sandy clay at 2.0m, moist		D	2.0				2
	2.5	Pit discontinued at 2.5m. Limit of investigation		D	2.5				
1	3								3

5 10 15 20

RIG: 4 tonne Excavator with 450mm bucket

LOGGED: Kerry

WATER OBSERVATIONS: No Free Groundwater Observed

REMARKS: Coordinates are MGA

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U$_x$	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ⧩ Water level

CHECKED
Initials:
Date:

Douglas Partners
Geotechnics · Environment · Groundwater

23 October 2007 **TEST REPORT**

Douglas Partners Pty Ltd
Box 324
Hunter Region Mail Centre
NSW 2310

Your Reference: 39823B, Trinity Point (pHF & pHFoxSoils)
Report Number: 55469C

Attention: Julie Wharton

Dear Julie
The following samples were received from you on the date indicated.

Samples: Qty.	15 Soils
Date of Receipt of Samples:	27/09/07 & 28/09/07
Date of Receipt of Instructions:	18/10/07@9.00am
Date Preliminary Report Emailed:	Not Issued

These samples were analysed in accordance with your written instructions.
A copy of the instructions is attached with the analytical report.

The results and associated quality control are contained in the following pages of this report. Unless otherwise stated, solid samples are expressed on a dry weight basis (moisture has been supplied for your information only), air and liquid samples as received.

Should you have any queries regarding this report please contact the undersigned.

Yours faithfully
SGS ENVIRONMENTAL SERVICES

Edward Ibrahim
Lab Manager

SGS Australia Pty Ltd
ABN 44 000 964 278
Environmental Services Unit 16, 33 Maddox Street, Alexandria Australia
t (02) 8594 0400 f (02) 8594 0499
www.au.sgs.com
Member of the SGS Group

Inorganics Our Reference: Your Reference Sample Type Date Sampled	UNITS ---------- ----------	55469C-1 SS1 Soil 25/09/2007	55469C-2 SS2 Soil 25/09/2007	55469C-3 SS3 Soil 25/09/2007	55469C-4 SS4 Soil 25/09/2007	55469C-5 SS5 Soil 25/09/2007
pHF (1:2 soil:water)	pH Units	7.2	7.5	7.6	7.6	7.9
pHFOX (1:2 soil:30%peroxide)	pH Units	4.9	5.0	5.1	6.3	6.3

Inorganics Our Reference: Your Reference Sample Type Date Sampled	UNITS ---------- ----------	55469C-6 SS6 Soil 25/09/2007	55469C-7 SS7 Soil 25/09/2007	55469C-8 SS8 Soil 25/09/2007	55469C-9 SS9 Soil 25/09/2007	55469C-10 SS10 Soil 25/09/2007
pHF (1:2 soil:water)	pH Units	8.0	7.8	7.7	7.7	7.7
pHFOX (1:2 soil:30%peroxide)	pH Units	6.0	6.5	6.5	6.4	6.5

Inorganics Our Reference: Your Reference Sample Type Date Sampled	UNITS ---------- ----------	55469C-11 SS11 Soil 25/09/2007	55469C-12 SS12 Soil 25/09/2007	55469C-13 SS13 Soil 25/09/2007	55469C-14 SS14 Soil 25/09/2007	55469C-15 SS15 Soil 25/09/2007
pHF (1:2 soil:water)	pH Units	7.8	8.0	7.8	7.9	7.8
pHFOX (1:2 soil:30%peroxide)	pH Units	6.3	6.5	6.8	6.9	6.5

Method ID	Methodology Summary
ASSMAC 21BF	pH - Measured using pH meter and electrode. Soil is oxidised with Hydrogen Peroxide. Based on ASSMAC August 1998 Method PH21BF.

QUALITY CONTROL Inorganics	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD
pH_F (1:2 soil:water)	pH Units		ASSMAC 21BF	[NT]	55469C-1	7.2 || 7.1 || RPD: 1
pH_{FOX} (1:2 soil:30%peroxide)	pH Units		ASSMAC 21BF	[NT]	55469C-1	4.9 || 4.9 || RPD: 0

Result Codes

[INS]	:	Insufficient Sample for this test	[HBG]	:	Results not Reported due to High Background Interference
[NR]	:	Not Requested	*	:	Not part of NATA Accreditation
[NT]	:	Not tested	[N/A]	:	Not Applicable

Result Comments

Date Organics extraction commenced: N/A
NATA Corporate Accreditation No. 2562, Site No 4354
Note: Test results are not corrected for recovery (excluding Dioxins/Furans* and PAH in XAD and PUF).
This document is issued, on the Client's behalf, by the Company under its General Conditions of Service available on request and accessible at http://www.sgs.com/terms_and_conditions.htm. The Client's attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

Any other holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents.

Quality Control Protocol

Reagent Blank: Sample free reagents carried through the preparation/extraction/digestion procedure and analysed at the beginning of every sample batch analysis. For larger projects, a reagent blank is prepared and analysed with every 20 samples.
Duplicate: A separate portion of a sample being analysed which is treated the same as the other samples in the batch. A duplicate is prepared at least every 10 samples.
Matrix Spike Duplicates: Sample replicates spiked with identical concentrations of target analyte(s). The spiking occurs during the sample preparation and prior to the extraction/digestion procedure. They are used to document the precision and bias of a method in a given sample matrix. Where there is not enough sample available to prepare a spiked sample, another known soil/sand or water (or Milli-Q water) may be used. A duplicate spiked sample is prepared at least every 20 samples.
Surrogate Spike: Added to all samples requiring analysis for organics (where relevant) prior to extraction. Used to determine the extraction efficiency. They are organic compounds which are similar to the target analyte(s) in chemical composition and behaviour in the analytical process, but which are not normally found in environmental samples.
Internal Standard: Added to all samples requiring analysis for organics (where relevant) after the extraction process; the compounds serve to give a standard of retention time and response, which is invariant from run-to-run with the instruments.
Control Standards: Prepared from a source independent of the calibration standards. At least one control standard is included in each run to confirm calibration validity.
Additional QC Samples: A calibration standard and blank are run after every 20 samples of an instrumental analysis run to assess analytical drift.

23 October 2007 **TEST REPORT**

Douglas Partners Pty Ltd
Box 324
Hunter Region Mail Centre
NSW 2310

Your Reference: 39823B, Trinity Point (pHF & pHFoxSoils)
Report Number: 55936

Attention: Julie Wharton

Dear Julie
The following samples were received from you on the date indicated.

Samples: Qty.	7 Soils
Date of Receipt of Samples:	18/10/07
Date of Receipt of Instructions:	18/10/07
Date Preliminary Report Emailed:	Not Issued

These samples were analysed in accordance with your written instructions.
A copy of the instructions is attached with the analytical report.

The results and associated quality control are contained in the following pages of this report. Unless otherwise stated, solid samples are expressed on a dry weight basis (moisture has been supplied for your information only), air and liquid samples as received.

Should you have any queries regarding this report please contact the undersigned.

Yours faithfully
SGS ENVIRONMENTAL SERVICES

Edward Ibrahim
Lab Manager

SGS Australia Pty Ltd
ABN 44 000 964 278
Environmental Services Unit 16, 33 Maddox Street, Alexandria Australia
t (02) 8594 0400 f (02) 8594 0499
www.au.sgs.com
Member of the SGS Group

Inorganics Our Reference: Your Reference Sample Type	UNITS ---------- ----------	55936-1 201/1.0 Soil	55936-2 201/3.9 Soil	55936-3 201/5.5 Soil	55936-4 201/2.4 Soil	55936-5 202/2.5 Soil
pHF (1:2 soil:water)	pH Units	7.7	5.0	5.2	7.0	7.4
pHFOX (1:2 soil:30%peroxide)	pH Units	6.1	4.5	4.6	6.9	7.1

Inorganics Our Reference: Your Reference Sample Type	UNITS ---------- ----------	55936-6 203/4.0 Soil	55936-7 203/6.5 Soil
pHF (1:2 soil:water)	pH Units	6.9	5.1
pHFOX (1:2 soil:30%peroxide)	pH Units	7.3	4.5

Moisture Our Reference: Your Reference Sample Type	UNITS ---------- ----------	55936-1 201/1.0 Soil	55936-2 201/3.9 Soil	55936-3 201/5.5 Soil	55936-4 201/2.4 Soil	55936-5 202/2.5 Soil
Moisture	%	37	16	16	17	19

Moisture Our Reference: Your Reference Sample Type	UNITS ---------- ----------	55936-6 203/4.0 Soil	55936-7 203/6.5 Soil
Moisture	%	19	12

Method ID	Methodology Summary
ASSMAC 21BF	pH - Measured using pH meter and electrode. Soil is oxidised with Hydrogen Peroxide. Based on ASSMAC August 1998 Method PH21BF.
AN002	Preparation of soils, sediments and sludges undergo analysis by either air drying, compositing, subsampling and 1:5 soil water extraction where required. Moisture content is determined by drying the sample at 105 ± 5°C.

QUALITY CONTROL Inorganics	UNITS	PQL	METHOD	Blank
pHF (1:2 soil:water)	pH Units		ASSMAC 21BF	[NT]
pHFOX (1:2 soil:30%peroxide)	pH Units		ASSMAC 21BF	[NT]
QUALITY CONTROL Moisture	UNITS	PQL	METHOD	Blank
Moisture	%	1	AN002	[NT]

Result Codes

[INS]	:	Insufficient Sample for this test	[HBG]	:	Results not Reported due to High Background Interference
[NR]	:	Not Requested	*	:	Not part of NATA Accreditation
[NT]	:	Not tested	[N/A]	:	Not Applicable

Result Comments

Date Organics extraction commenced: N/A
NATA Corporate Accreditation No. 2562, Site No 4354
Note: Test results are not corrected for recovery (excluding Dioxins/Furans* and PAH in XAD and PUF).
This document is issued, on the Client's behalf, by the Company under its General Conditions of Service available on request and accessible at http://www.sgs.com/terms_and_conditions.htm. The Client's attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

Any other holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents.

Quality Control Protocol

Reagent Blank: Sample free reagents carried through the preparation/extraction/digestion procedure and analysed at the beginning of every sample batch analysis. For larger projects, a reagent blank is prepared and analysed with every 20 samples.
Duplicate: A separate portion of a sample being analysed which is treated the same as the other samples in the batch. A duplicate is prepared at least every 10 samples.
Matrix Spike Duplicates: Sample replicates spiked with identical concentrations of target analyte(s). The spiking occurs during the sample preparation and prior to the extraction/digestion procedure. They are used to document the precision and bias of a method in a given sample matrix. Where there is not enough sample available to prepare a spiked sample, another known soil/sand or water (or Milli-Q water) may be used. A duplicate spiked sample is prepared at least every 20 samples.
Surrogate Spike: Added to all samples requiring analysis for organics (where relevant) prior to extraction. Used to determine the extraction efficiency. They are organic compounds which are similar to the target analyte(s) in chemical composition and behaviour in the analytical process, but which are not normally found in environmental samples.
Internal Standard: Added to all samples requiring analysis for organics (where relevant) after the extraction process; the compounds serve to give a standard of retention time and response, which is invariant from run-to-run with the instruments.
Control Standards: Prepared from a source independent of the calibration standards. At least one control standard is included in each run to confirm calibration validity.
Additional QC Samples: A calibration standard and blank are run after every 20 samples of an instrumental analysis run to assess analytical drift.

19 October 2007 **TEST REPORT**

Douglas Partners Pty Ltd
Box 324
Hunter Region Mail Centre
NSW 2310

Your Reference: 39823A,Trinity Point-Acid Sulphate Soil
Report Number: 55754

Attention: Brent Kerry

Dear Brent
The following samples were analysed as received.

Samples:	Qty.	8 Soils
Date of Receipt of Samples:		11/10/07
Date of Receipt of Instructions:		11/10/07
Date Preliminary Report Faxed:		Not Issued

Should you have any queries regarding this report please contact the undersigned.

For and behalf of
SGS Environmental Services
Terms and conditions are available from www.au.sgs.com

LABORATORY REPORT COVERSHEET

Date: 19 October 2007

To: Douglas Partners Pty Ltd
Unit D, 7 Donaldson St
WYONG NORTH NSW 2259

Attention: Brent Kerry

Your Reference:	55754 - 39823A Trinity Point
Laboratory Report No:	57325
Samples Received:	15/10/2007
Samples / Quantity:	8 Soils

The above samples were received intact and analysed according to your written instructions. Unless otherwise stated, solid samples are reported on a dry weight basis and liquid samples as received.

Shey Goddard
Administration Manager
CAIRNS

Jon Dicker
Manager
CAIRNS

SGS Australia Pty Ltd
ABN 44 000 964 278
Environmental Services Unit 2, 58 Comport Street, Portsmith 4870 QLD Australia www.au.sgs.com
t +61 (0)7 4035 5111 f +61 (0)7 4035 5122

CLIENT: Douglas Partners Pty Ltd **Laboratory Report No:** 57325
PROJECT: 55754 - 39823A Trinity Point

LABORATORY REPORT

SPOCAS Our Reference Your Reference	Units	57325-1 55754-1	57325-2 55754-2	57325-3 55754-3
Moisture *	% w/w	16	25	20
pH KCl	pH Units	5.9	5.6	5.8
TAA pH 6.5	moles H^+/tonne	<5	6	<5
s-TAA pH 6.5	% w/w S	<0.01	0.01	<0.01
pH Ox	pH Units	5.6	2.0	2.5
TPA pH 6.5	moles H^+/tonne	<5	410	160
s-TPA pH 6.5	% w/w S	<0.01	0.65	0.26
TSA pH 6.5	moles H^+/tonne	<5	400	160
s-TSA pH 6.5	% w/w S	<0.01	0.64	0.26
ANCE	% $CaCO_3$	<0.01	<0.01	<0.01
a-ANCE	moles H^+/tonne	<5	<5	<5
s-ANCE	% w/w S	<0.01	<0.01	<0.01
S KCl ^	% w/w	<0.005	<0.005	<0.005
S P ^	% w/w	<0.005	0.71	0.19
S POS ^	% w/w	<0.005	0.71	0.19
a-S POS ^	moles H^+/tonne	<5	440	120
Ca KCl ^	% w/w	<0.005	0.072	0.021
Ca P ^	% w/w	<0.005	0.077	0.020
Ca A ^	% w/w	<0.005	<0.005	<0.005
Mg KCl ^	% w/w	<0.005	0.019	<0.005
Mg P ^	% w/w	<0.005	0.027	<0.005
Mg A ^	% w/w	<0.005	0.008	<0.005
SHCl ^	% w/w	NA	NA	NA
S NAS ^	% w/w	NA	NA	NA
a-S NAS ^	moles H^+/tonne	NA	NA	NA
s-S NAS ^	% w/w S	NA	NA	NA
s-Net Acidity	% w/w S	<0.01	0.72	0.20
a-Net Acidity	moles H^+/tonne	<5	450	120
Liming Rate	kg $CaCO_3$/tonne	NA	34	9.3
Verification s-Net Acidity	% w/w S	NA	0.24	0.07
a-Net Acidity without ANCE	moles H^+/tonne	<5	450	120
Liming Rate without ANCE	kg $CaCO_3$/tonne	NA	34	9.3

CLIENT: Douglas Partners Pty Ltd **Laboratory Report No:** 57325

PROJECT: 55754 - 39823A Trinity Point

LABORATORY REPORT

SPOCAS Our Reference Your Reference	Units	57325-4 55754-4	57325-5 55754-5	57325-6 55754-6
Moisture *	% w/w	77	14	18
pH KCl	pH Units	8.2	4.9	4.5
TAA pH 6.5	moles H^+/tonne	<5	30	47
s-TAA pH 6.5	% w/w S	<0.01	0.05	0.08
pH Ox	pH Units	2.7	2.0	4.7
TPA pH 6.5	moles H^+/tonne	91	460	59
s-TPA pH 6.5	% w/w S	0.15	0.74	0.09
TSA pH 6.5	moles H^+/tonne	91	430	11
s-TSA pH 6.5	% w/w S	0.15	0.69	0.02
ANCE	% $CaCO_3$	<0.01	<0.01	<0.01
a-ANCE	moles H^+/tonne	<5	<5	<5
s-ANCE	% w/w S	<0.01	<0.01	<0.01
S KCl ^	% w/w	<0.005	<0.005	<0.005
S P ^	% w/w	0.45	0.68	<0.005
S POS ^	% w/w	0.45	0.68	<0.005
a-S POS ^	moles H^+/tonne	280	420	<5
Ca KCl ^	% w/w	0.18	<0.005	<0.005
Ca P ^	% w/w	0.39	<0.005	<0.005
Ca A ^	% w/w	0.20	<0.005	<0.005
Mg KCl ^	% w/w	<0.005	<0.005	0.019
Mg P ^	% w/w	0.008	<0.005	0.018
Mg A ^	% w/w	<0.005	<0.005	<0.005
SHCl ^	% w/w	NA	NA	NA
S NAS ^	% w/w	NA	NA	NA
a-S NAS ^	moles H^+/tonne	NA	NA	NA
s-S NAS ^	% w/w S	NA	NA	NA
s-Net Acidity	% w/w S	0.45	0.72	0.08
a-Net Acidity	moles H^+/tonne	280	450	47
Liming Rate	kg $CaCO_3$/tonne	21	34	3.6
Verification s-Net Acidity	% w/w S	0.15	0.23	NA
a-Net Acidity without ANCE	moles H^+/tonne	280	450	47
Liming Rate without ANCE	kg $CaCO_3$/tonne	21	34	3.6

CLIENT: Douglas Partners Pty Ltd **Laboratory Report No:** 57325
PROJECT: 55754 - 39823A Trinity Point

LABORATORY REPORT

SPOCAS Our Reference Your Reference	Units	57325-7 55754-7	57325-8 55754-8
Moisture *	% w/w	10	14
pH KCl	pH Units	5.3	4.6
TAA pH 6.5	moles H^+/tonne	14	45
s-TAA pH 6.5	% w/w S	0.02	0.07
pH Ox	pH Units	5.3	5.1
TPA pH 6.5	moles H^+/tonne	<5	44
s-TPA pH 6.5	% w/w S	<0.01	0.07
TSA pH 6.5	moles H^+/tonne	<5	<5
s-TSA pH 6.5	% w/w S	<0.01	<0.01
ANCE	% $CaCO_3$	<0.01	<0.01
a-ANCE	moles H^+/tonne	<5	<5
s-ANCE	% w/w S	<0.01	<0.01
S KCl ^	% w/w	<0.005	<0.005
S P ^	% w/w	<0.005	<0.005
S POS ^	% w/w	<0.005	<0.005
a-S POS ^	moles H^+/tonne	<5	<5
Ca KCl ^	% w/w	<0.005	<0.005
Ca P ^	% w/w	<0.005	<0.005
Ca A ^	% w/w	<0.005	<0.005
Mg KCl ^	% w/w	<0.005	<0.005
Mg P ^	% w/w	<0.005	<0.005
Mg A ^	% w/w	<0.005	<0.005
SHCl ^	% w/w	NA	NA
S NAS ^	% w/w	NA	NA
a-S NAS ^	moles H^+/tonne	NA	NA
s-S NAS ^	% w/w S	NA	NA
s-Net Acidity	% w/w S	0.02	0.07
a-Net Acidity	moles H^+/tonne	14	45
Liming Rate	kg $CaCO_3$/tonne	NA	3.4
Verification s-Net Acidity	% w/w S	NA	NA
a-Net Acidity without ANCE	moles H^+/tonne	14	45
Liming Rate without ANCE	kg $CaCO_3$/tonne	NA	3.4

CLIENT: Douglas Partners Pty Ltd **Laboratory Report No:** 57325

PROJECT: 55754 - 39823A Trinity Point

LABORATORY REPORT

TEST PARAMETERS	UNITS	LOR	METHOD
SPOCAS			
Moisture *	% w/w	0.1	AN002
pH KCl	pH Units	0.1	ASSMAC_23A / CEI-401
TAA pH 6.5	moles H^+/tonne	5	ASSMAC_23F / CEI-401
s-TAA pH 6.5	% w/w S	0.01	ASSMAC_S_23F/CEI-401
pH Ox	pH Units	0.1	ASSMAC_23B / CEI-406
TPA pH 6.5	moles H^+/tonne	5	ASSMAC_23G / CEI-406
s-TPA pH 6.5	% w/w S	0.01	ASSMAC_S_23G/CEI-406
TSA pH 6.5	moles H^+/tonne	5	ASSMAC_23H
s-TSA pH 6.5	% w/w S	0.01	ASSMAC_S_23H
ANCE	% $CaCO_3$	0.01	ASSMAC_23Q
a-ANCE	moles H^+/tonne	5	ASSMAC_A_23Q
s-ANCE	% w/w S	0.01	ASSMAC_S_23Q
S KCl ^	% w/w	0.005	ASSMAC_23Ce
S P ^	% w/w	0.005	ASSMAC_23De
S POS ^	% w/w	0.005	ASSMAC_23Ee
a-S POS ^	moles H^+/tonne	5	ASSMAC_A_23Ee
Ca KCl ^	% w/w	0.005	ASSMAC_23Vh
Ca P ^	% w/w	0.005	ASSMAC_23Wh
Ca A ^	% w/w	0.005	ASSMAC_23Xh
Mg KCl ^	% w/w	0.005	ASSMAC_23Sm
Mg P ^	% w/w	0.005	ASSMAC_23Tm
Mg A ^	% w/w	0.005	ASSMAC_23Um
SHCl ^	% w/w	0.005	ASSMAC_20B
S NAS ^	% w/w	0.005	ASSMAC_20J
a-S NAS ^	moles H^+/tonne	5	ASSMAC_A_20J
s-S NAS ^	% w/w S	0.01	ASSMAC_S_20J
s-Net Acidity	% w/w S	0.01	Calculation
a-Net Acidity	moles H^+/tonne	5	Calculation
Liming Rate	kg $CaCO_3$/tonne	0.1	ASSMAC_23H
Verification s-Net Acidity	% w/w S		Calculation
a-Net Acidity without ANCE	moles H^+/tonne	5	Calculation
Liming Rate without ANCE	kg $CaCO_3$/tonne	0.1	ASSMAC_23H

CLIENT: Douglas Partners Pty Ltd **Laboratory Report No:** 57325

PROJECT: 55754 - 39823A Trinity Point

LABORATORY REPORT

QUALITY CONTROL	UNITS	Blank	Replicate Sm#	Replicate Sample||Replicate
Moisture *	% w/w	[NT]	57325-1	16 || [N/T]
pH KCl	pH Units	[NT]	57325-1	5.9 || 6.0 || RPD: 2
TAA pH 6.5	moles H^+/tonne	[NT]	57325-1	<5 || <5
s-TAA pH 6.5	% w/w S	[NT]	57325-1	<0.01 || <0.01
pH Ox	pH Units	[NT]	57325-1	5.6 || 5.7 || RPD: 2
TPA pH 6.5	moles H^+/tonne	[NT]	57325-1	<5 || <5
s-TPA pH 6.5	% w/w S	[NT]	57325-1	<0.01 || <0.01
TSA pH 6.5	moles H^+/tonne	[NT]	57325-1	<5 || <5
s-TSA pH 6.5	% w/w S	[NT]	57325-1	<0.01 || <0.01
ANCE	% $CaCO_3$	[NT]	57325-1	<0.01 || <0.01
a-ANCE	moles H^+/tonne	[NT]	57325-1	<5 || <5
s-ANCE	% w/w S	[NT]	57325-1	<0.01 || <0.01
S KCl ^	% w/w	[NT]	57325-1	<0.005 || <0.005
S P ^	% w/w	[NT]	57325-1	<0.005 || <0.005
S POS ^	% w/w	[NT]	57325-1	<0.005 || <0.005
a-S POS ^	moles H^+/tonne	[NT]	57325-1	<5 || <5
Ca KCl ^	% w/w	[NT]	57325-1	<0.005 || <0.005
Ca P ^	% w/w	[NT]	57325-1	<0.005 || <0.005
Ca A ^	% w/w	[NT]	57325-1	<0.005 || <0.005
Mg KCl ^	% w/w	[NT]	57325-1	<0.005 || <0.005
Mg P ^	% w/w	[NT]	57325-1	<0.005 || <0.005
Mg A ^	% w/w	[NT]	57325-1	<0.005 || <0.005
SHCl ^	% w/w	[NT]	57325-1	NA || NA
S NAS ^	% w/w	[NT]	57325-1	NA || NA
a-S NAS ^	moles H^+/tonne	[NT]	57325-1	NA || NA
s-S NAS ^	% w/w S	[NT]	57325-1	NA || NA
s-Net Acidity	% w/w S	[NT]	57325-1	<0.01 || <0.01
a-Net Acidity	moles H^+/tonne	[NT]	57325-1	<5 || <5
Liming Rate	kg $CaCO_3$/tonne	[NT]	57325-1	NA || NA
Verification s-Net Acidity	% w/w S	[NT]	57325-1	NA || NA
a-Net Acidity without ANCE	moles H^+/tonne	[NT]	57325-1	<5 || <5
Liming Rate without ANCE	kg $CaCO_3$/tonne	[NT]	57325-1	NA || NA

CLIENT: Douglas Partners Pty Ltd **Laboratory Report No:** 57325
PROJECT: 55754 - 39823A Trinity Point

LABORATORY REPORT

NOTES:
LOR - Limit of Reporting.
* This test is not covered by our current NATA accreditation.
^ Sulphur, Calcium and Magnesium results are determined at our Toowoomba Laboratory, (214 McDougal St, Toowoomba, QLD) who have NATA accreditation for these parameters.

Liming rate calculated using a Fineness factor of 1.5 (which is equivalent to finely divided Ag Lime <0.5mm) and Neutralising Value (NV) of 100%
If using Liming Material <100% NV, then Liming Rate can be adusted as follows:
Actual Liming Rate equals Calculated Liming Rate times 100 divided by NV of actual Liming Material

Bulk Density of Material of 1g/cm3 assumed.
If Bulk Density differs from 1g/cm3 then Liming rate can be adjusted as follows:
Actual Liming Rate equals Calculated Liming Rate times Actual Bulk Density

Analysis Date: **Between** 15/10/07 **and** 19/10/07

30 October 2007 **TEST REPORT**

Douglas Partners Pty Ltd
Box 324
Hunter Region Mail Centre
NSW 2310

Your Reference: 39823B, Trinity Point
Report Number: 55936A

Attention: Julie Wharton

Dear Julie
The following samples were analysed as received.

Samples:	Qty.	2 Soils
Date of Receipt of Samples:		18/10/07
Date of Receipt of Instructions:		24/10/07
Date Preliminary Report Faxed:		Not Issued

Should you have any queries regarding this report please contact the undersigned.

Analysis carried out by SGS Cairns, report No. 57446 (Results attached)

For and behalf of
SGS Environmental Services
Terms and conditions are available from www.au.sgs.com

LABORATORY REPORT COVERSHEET

Date: 30 October 2007

To: Douglas Parnters Pty Ltd
Box 324
Hunter Region NSW 2310

Attention: Julie Wharton

Your Reference:	39823B Trinity Point (Syd 55936)
Laboratory Report No:	57446
Samples Received:	25/10/2007
Samples / Quantity:	2 Soil

The above samples were received intact and analysed according to your written instructions. Unless otherwise stated, solid samples are reported on a dry weight basis and liquid samples as received.

Shey Goddard
Administration Manager
CAIRNS

Jon Dicker
Manager
CAIRNS

SGS Australia Pty Ltd
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Environmental Services Unit 2, 58 Comport Street, Portsmith 4870 QLD Australia www.au.sgs.com
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Member of the SGS Group

CLIENT: Douglas Parnters Pty Ltd **Laboratory Report No:** 57446

PROJECT: 39823B Trinity Point (Syd 55936)

LABORATORY REPORT

SPOCAS Our Reference Your Reference	Units	57446-1 55936A-2 201/3.9	57446-2 55936A-7 203/6.5
Moisture *	% w/w	16	12
pH KCl	pH Units	4.7	5.7
TAA pH 6.5	moles H^+/tonne	20	10
s-TAA pH 6.5	% w/w S	0.03	0.02
pH Ox	pH Units	6.0	6.4
TPA pH 6.5	moles H^+/tonne	12	<5
s-TPA pH 6.5	% w/w S	0.02	<0.01
TSA pH 6.5	moles H^+/tonne	<5	<5
s-TSA pH 6.5	% w/w S	<0.01	<0.01
ANCE	% $CaCO_3$	<0.01	<0.01
a-ANCE	moles H^+/tonne	<5	<5
s-ANCE	% w/w S	<0.01	<0.01
S KCl ^	% w/w	0.033	0.014
S P ^	% w/w	0.032	0.020
S POS ^	% w/w	<0.005	0.006
a-S POS ^	moles H^+/tonne	<5	<5
Ca KCl ^	% w/w	0.011	<0.005
Ca P ^	% w/w	0.010	<0.005
Ca A ^	% w/w	<0.005	<0.005
Mg KCl ^	% w/w	0.052	0.027
Mg P ^	% w/w	0.052	0.029
Mg A ^	% w/w	<0.005	<0.005
SHCl ^	% w/w	NA	NA
S NAS ^	% w/w	NA	NA
a-S NAS ^	moles H^+/tonne	NA	NA
s-S NAS ^	% w/w S	NA	NA
s-Net Acidity	% w/w S	0.03	0.02
a-Net Acidity	moles H^+/tonne	20	13
Liming Rate	kg $CaCO_3$/tonne	1.5	NA
Verification s-Net Acidity	% w/w S	NA	NA
a-Net Acidity without ANCE	moles H^+/tonne	20	13
Liming Rate without ANCE	kg $CaCO_3$/tonne	1.5	NA

CLIENT: Douglas Parnters Pty Ltd **Laboratory Report No:** 57446

PROJECT: 39823B Trinity Point (Syd 55936)

LABORATORY REPORT

TEST PARAMETERS	UNITS	LOR	METHOD
SPOCAS			
Moisture *	% w/w	0.1	AN002
pH KCl	pH Units	0.1	ASSMAC_23A / CEI-401
TAA pH 6.5	moles H^+/tonne	5	ASSMAC_23F / CEI-401
s-TAA pH 6.5	% w/w S	0.01	ASSMAC_S_23F/CEI-401
pH Ox	pH Units	0.1	ASSMAC_23B / CEI-406
TPA pH 6.5	moles H^+/tonne	5	ASSMAC_23G / CEI-406
s-TPA pH 6.5	% w/w S	0.01	ASSMAC_S_23G/CEI-406
TSA pH 6.5	moles H^+/tonne	5	ASSMAC_23H
s-TSA pH 6.5	% w/w S	0.01	ASSMAC_S_23H
ANCE	% $CaCO_3$	0.01	ASSMAC_23Q
a-ANCE	moles H^+/tonne	5	ASSMAC_A_23Q
s-ANCE	% w/w S	0.01	ASSMAC_S_23Q
S KCl ^	% w/w	0.005	ASSMAC_23Ce
S P ^	% w/w	0.005	ASSMAC_23De
S POS ^	% w/w	0.005	ASSMAC_23Ee
a-S POS ^	moles H^+/tonne	5	ASSMAC_A_23Ee
Ca KCl ^	% w/w	0.005	ASSMAC_23Vh
Ca P ^	% w/w	0.005	ASSMAC_23Wh
Ca A ^	% w/w	0.005	ASSMAC_23Xh
Mg KCl ^	% w/w	0.005	ASSMAC_23Sm
Mg P ^	% w/w	0.005	ASSMAC_23Tm
Mg A ^	% w/w	0.005	ASSMAC_23Um
SHCl ^	% w/w	0.005	ASSMAC_20B
S NAS ^	% w/w	0.005	ASSMAC_20J
a-S NAS ^	moles H^+/tonne	5	ASSMAC_A_20J
s-S NAS ^	% w/w S	0.01	ASSMAC_S_20J
s-Net Acidity	% w/w S	0.01	Calculation
a-Net Acidity	moles H^+/tonne	5	Calculation
Liming Rate	kg $CaCO_3$/tonne	0.1	ASSMAC_23H
Verification s-Net Acidity	% w/w S		Calculation
a-Net Acidity without ANCE	moles H^+/tonne	5	Calculation
Liming Rate without ANCE	kg $CaCO_3$/tonne	0.1	ASSMAC_23H

CLIENT: Douglas Parnters Pty Ltd **Laboratory Report No:** 57446
PROJECT: 39823B Trinity Point (Syd 55936)

LABORATORY REPORT

NOTES:
LOR - Limit of Reporting.
* This test is not covered by our current NATA accreditation.
^ Sulphur, Calcium and Magnesium results are determined at our Toowoomba Laboratory, (214 McDougal St, Toowoomba, QLD) who have NATA accreditation for these parameters.

Liming rate calculated using a Fineness factor of 1.5 (which is equivalent to finely divided Ag Lime <0.5mm) and Neutralising Value (NV) of 100%
If using Liming Material <100% NV, then Liming Rate can be adusted as follows:
Actual Liming Rate equals Calculated Liming Rate times 100 divided by NV of actual Liming Material

Bulk Density of Material of 1g/cm3 assumed.
If Bulk Density differs from 1g/cm3 then Liming rate can be adjusted as follows:
Actual Liming Rate equals Calculated Liming Rate times Actual Bulk Density

Analysis Date: **Between** 25/10/07 **and** 30/10/07

29 October 2007 **TEST REPORT**

Douglas Partners Pty Ltd
Box 324
Hunter Region Mail Centre
NSW 2310

Your Reference: 39823B, Trinity Point
Report Number: 55469D

Attention: Julie Wharton

Dear Julie
The following samples were analysed as received.

Samples:	Qty.	2 Soils
Date of Receipt of Samples:		27-28/09/07
Date of Receipt of Instructions:		24/10/07
Date Preliminary Report Faxed:		Not Issued

Should you have any queries regarding this report please contact the undersigned.

Analysis carried out by SGS Cairns, report No. 57448 (Report attached).

For and behalf of
SGS Environmental Services
Terms and conditions are available from www.au.sgs.com

LABORATORY REPORT COVERSHEET

Date: 29 October 2007

To: Douglas Partners Pty Ltd
PO Box 324
Hunter Region MC NSW 2310

Attention: Julie Wharton

Your Reference:	Douglas Partners 39823B Trinity Point 55469D
Laboratory Report No:	57448
Samples Received:	25/10/2007
Samples / Quantity:	2 Soil

The above samples were received intact and analysed according to your written instructions. Unless otherwise stated, solid samples are reported on a dry weight basis and liquid samples as received.

Shey Goddard
Administration Manager
CAIRNS

Jon Dicker
Manager
CAIRNS

SGS Australia Pty Ltd
ABN 44 000 964 278
Environmental Services Unit 2, 58 Comport Street, Portsmith 4870 QLD Australia www.au.sgs.com
t +61 (0)7 4035 5111 f +61 (0)7 4035 5122

CLIENT: Douglas Partners Pty Ltd **Laboratory Report No:** 57448

PROJECT: Douglas Partners 39823B Trinity Point 55469D

LABORATORY REPORT

Chromium Suite - Acid Base Accounting Our Reference Your Reference	Units	57448-1 SS2 55469D-2	57448-2 SS8 55469D-8
Moisture *	% w/w	33	65
pH KCl	pH Units	7.4	8.1
s-TAA pH 6.5	% w/w S	<0.01	<0.01
TAA pH 6.5	moles H^+/tonne	<5	<5
Chromium Reducible Sulfur (SCR)	% w/w	0.23	0.64
a-Chromium Reducible Sulfur	moles H^+ / tonne	140	400
SHCl ^	% w/w	NA	NA
S KCl ^	% w/w	NA	NA
S NAS ^	% w/w	NA	NA
Acid Neutralisation Capacity	% $CaCO_3$	1.0	6.0
s-ANC	% w/w S	0.32	1.9
a-ANC	moles H^+ / tonne	200	1,200
s-Net Acidity	% w/w S	0.01	<0.01
a-Net Acidity	moles H^+/tonne	7.1	<5
Liming Rate	kg $CaCO_3$/tonne	NA	NA
Verification s-Net Acidity	% w/w S	0.01	-0.65
a-Net Acidity without ANC	moles H^+/tonne	140	400
Liming Rate without ANC	kg $CaCO_3$/tonne	10	30

CLIENT: Douglas Partners Pty Ltd **Laboratory Report No:** 57448

PROJECT: Douglas Partners 39823B Trinity Point 55469D

LABORATORY REPORT

TEST PARAMETERS	UNITS	LOR	METHOD
Chromium Suite - Acid Base Accounting			
Moisture *	% w/w	0.1	AN002
pH KCl	pH Units	0.1	ASSMAC_23A / CEI-401
s-TAA pH 6.5	% w/w S	0.01	ASSMAC_S_23F/CEI-401
TAA pH 6.5	moles H^+/tonne	5	ASSMAC_23F / CEI-401
Chromium Reducible Sulfur (SCR)	% w/w	0.005	ASSMAC_22B / CEI-405
a-Chromium Reducible Sulfur	moles H^+ / tonne	5	ASSMAC_22B / CEI-405
SHCl ^	% w/w	0.005	ASSMAC_20B
S KCl ^	% w/w	0.005	ASSMAC_23Ce
S NAS ^	% w/w	0.005	ASSMAC_20J
Acid Neutralisation Capacity	% $CaCO_3$	0.01	AN214 CEI-402
s-ANC	% w/w S	0.01	AN214 CEI-402
a-ANC	moles H^+ / tonne	5	AN214 CEI-402
s-Net Acidity	% w/w S	0.01	Calculation
a-Net Acidity	moles H^+/tonne	5	Calculation
Liming Rate	kg $CaCO_3$/tonne	0.1	ASSMAC_23H
Verification s-Net Acidity	% w/w S		Calculation
a-Net Acidity without ANC	moles H^+/tonne	5	Calculation
Liming Rate without ANC	kg $CaCO_3$/tonne	0.1	ASSMAC_23H

CLIENT: Douglas Partners Pty Ltd **Laboratory Report No:** 57448
PROJECT: Douglas Partners 39823B Trinity Point 55469D

LABORATORY REPORT

NOTES:
LOR - Limit of Reporting.
* This test is not covered by our current NATA accreditation.
^ Sulphur, Calcium and Magnesium results are determined at our Toowoomba Laboratory, (214 McDougal St, Toowoomba, QLD) who have NATA accreditation for these parameters.

Liming rate calculated using a Fineness factor of 1.5 (which is equivalent to finely divided Ag Lime <0.5mm) and Neutralising Value (NV) of 100%
If using Liming Material <100% NV, then Liming Rate can be adusted as follows:
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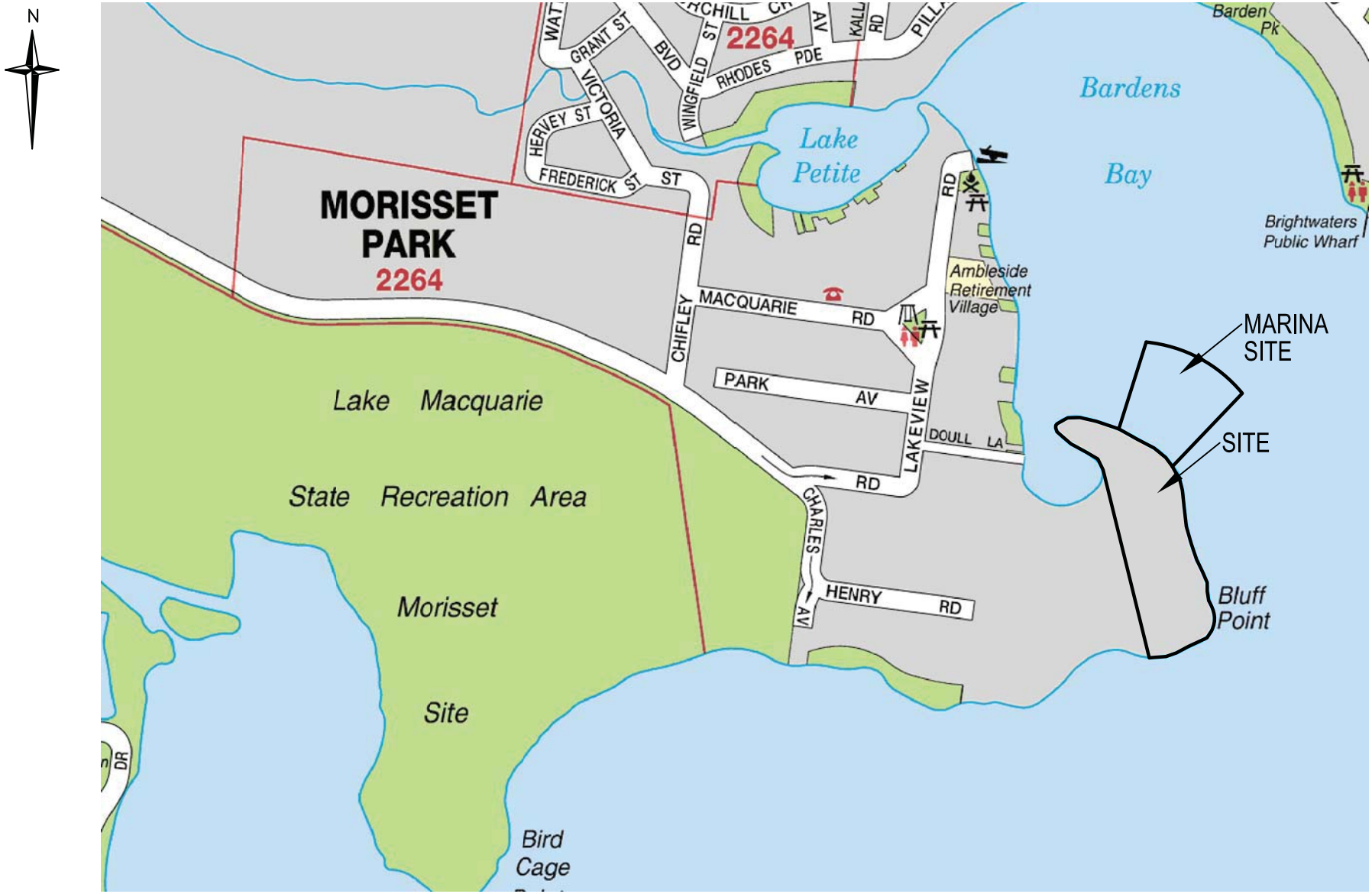
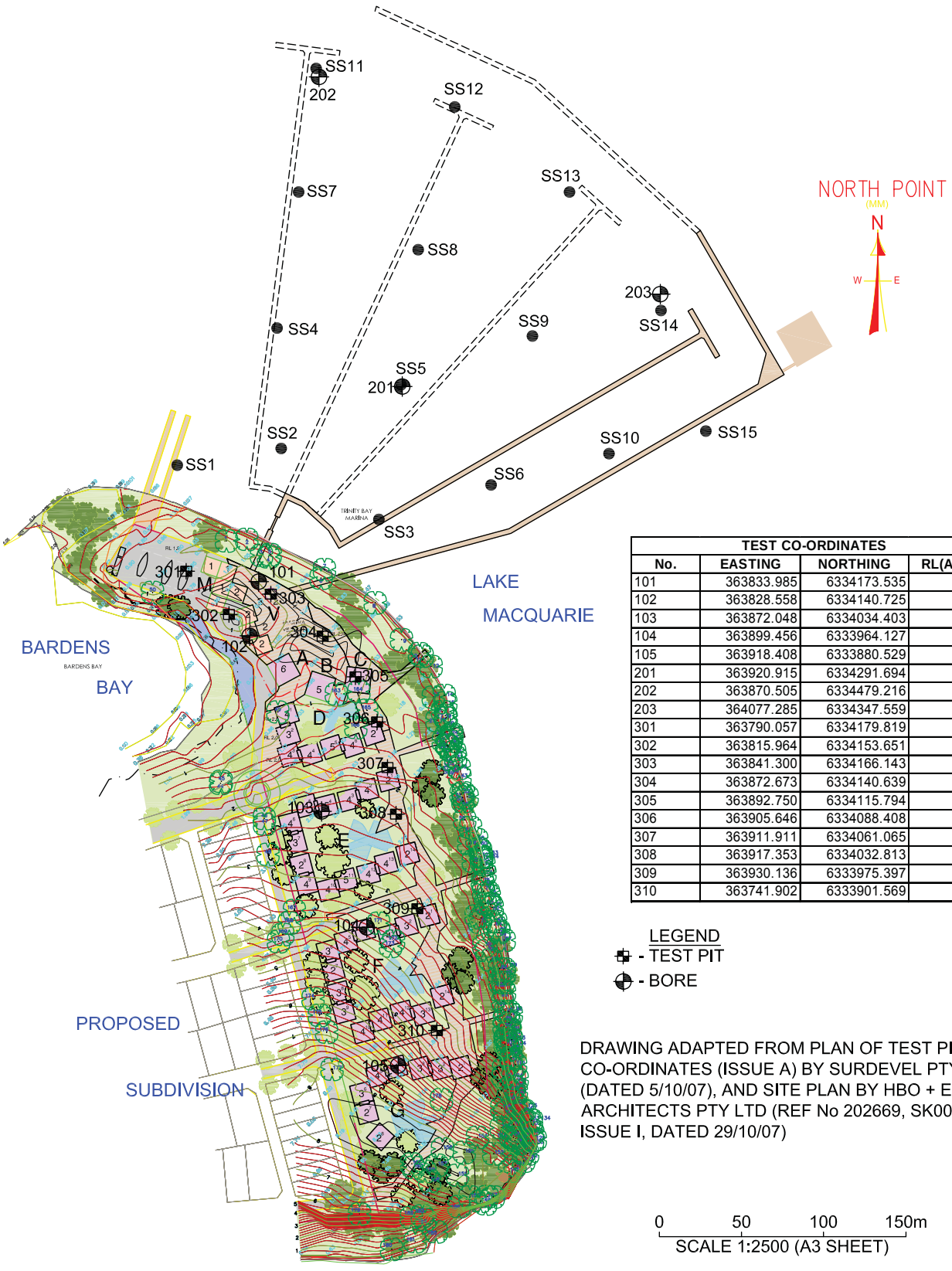
Bulk Density of Material of 1g/cm3 assumed.
If Bulk Density differs from 1g/cm3 then Liming rate can be adjusted as follows:
Actual Liming Rate equals Calculated Liming Rate times Actual Bulk Density

Analysis Date: **Between** 25/10/07 **and** 29/10/07



Douglas Partners Geotechnics Environment Groundwater	Sydney, Newcastle, Brisbane, Melbourne, Perth, Wyong, Campbelltown, Townsville, Cairns, Wollongong, Darwin	TITLE: LOCALITY PLAN PROPOSED TRINITY POINT MARINA & TOURIST RESORT 49 LAKEVIEW ROAD, MORISSET PARK	CLIENT: JOHNSON PROPERTY GROUP PTY LTD	
			DRAWN BY: PLH / SCALE: NTS / PROJECT No: 39823A	OFFICE: NEWCASTLE
			APPROVED BY: / DATE:	DRAWING No: 1



TEST CO-ORDINATES			
No.	EASTING	NORTHING	RL(A.H.D)
101	363833.985	6334173.535	1.270
102	363828.558	6334140.725	0.885
103	363872.048	6334034.403	2.465
104	363899.456	6333964.127	3.820
105	363918.408	6333880.529	6.620
201	363920.915	6334291.694	-5.860
202	363870.505	6334479.216	-5.150
203	364077.285	6334347.559	-5.350
301	363790.057	6334179.819	0.960
302	363815.964	6334153.651	0.965
303	363841.300	6334166.143	1.205
304	363872.673	6334140.639	1.160
305	363892.750	6334115.794	1.145
306	363905.646	6334088.408	1.115
307	363911.911	6334061.065	1.775
308	363917.353	6334032.813	2.600
309	363930.136	6333975.397	3.000
310	363741.902	6333901.569	4.400

LEGEND
- TEST PIT
- BORE

DRAWING ADAPTED FROM PLAN OF TEST PIT CO-ORDINATES (ISSUE A) BY SURDEVEL PTY LTD (DATED 5/10/07), AND SITE PLAN BY HBO + EMTB ARCHITECTS PTY LTD (REF No 202669, SK000, ISSUE I, DATED 29/10/07)

0 50 100 150m
SCALE 1:2500 (A3 SHEET)

Douglas Partners
Geotechnics Environment Groundwater

Sydney, Newcastle, Brisbane, Melbourne, Perth, Wyong,

Wollongong, Campbelltown, Townsville, Cairns, Darwin

TITLE: TEST LOCATION PLAN - ACID SULPHATE ASSESSMENT
PROPOSED TRINITY POINT MARINA AND TOURIST DEVELOPMENT
49 LAKEVIEW ROAD, MORISSET PARK

CLIENT: JOHNSON PROPERTY GROUP PTY LTD			OFFICE: NEWCASTLE
DRAWN BY: PLH	SCALE: 1:2500	PROJECT No. 39823A	
APPROVED BY:		DATE:	DRAWING No: 2

APPENDIX D
ACID SULFATE SOILS MANAGEMENT PLAN

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Geotechnics • Environment • Groundwater

Integrated Practical Solutions

ACID SULPHATE SOIL MANAGEMENT PLAN

PROPOSED TRINITY POINT MARINA AND TOURIST DEVELOPMENT
49 LAKEVIEW ROAD, MORISSET PARK

Prepared for
JOHNSON PROPERTY GROUP PTY LTD

Project 39823A
DECEMBER 2007

Douglas Partners
Geotechnics • Environment • Groundwater

ACID SULPHATE SOIL MANAGEMENT PLAN

PROPOSED TRINITY POINT MARINA AND TOURIST DEVELOPMENT 49 LAKEVIEW ROAD, MORISSET PARK

Prepared for

JOHNSON PROPERTY GROUP PTY LTD

Project 39823A

DECEMBER 2007

Douglas Partners Pty Ltd
ABN 75 053 980 117

Box 324
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NSW 2310 Australia

15 Callistemon Close
Warabrook, NEWCASTLE

Phone: 02 4960 9600
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newcastle@douglaspartners.com.au

ACEA
ASSOCIATION OF CONSULTING ENGINEERS AUSTRALIA
MEMBER

DOUGLAS PARTNERS 40 1963-2003

TABLE OF CONTENTS

ATTACHMENTS

JAW:kd

Project No: 39823A

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4 December 2007

ACID SULPHATE SOIL MANAGEMENT PLAN
PROPOSED TRINITY POINT MARINA AND TOURIST DEVELOPMENT
49 LAKEVIEW ROAD, MORISSET PARK

1. INTRODUCTION

This Acid Sulphate Soil Management Plan (ASSMP) has been prepared for the proposed Trinity Point Marina and Tourist Development. The work was undertaken for Johnson Property Group Pty Ltd.

The ASSMP was prepared to provide the following information:

- acid sulphate soil management strategies;
- monitoring program for soil and water quality; and
- contingency procedure.

The results of the acid sulphate soil assessment undertaken at the site (Ref 1) have been used in formulating this Acid Sulphate Soil Management Plan (ASSMP). Reference has also been made to the NSW Acid Sulphate Soil Management Advisory Committee (ASSMAC), August 1998 (Ref 2) and the Queensland Acid Sulphate Soil Technical Manual, Soil Management Guidelines (QASSIT), November 2002 (Ref 3), and recent experience with similar works in acid sulphate soils.

A plan showing the location of the site is shown on Drawing 1, attached.

2. PROPOSED DEVELOPMENT

2.1 General

The Trinity Point Marina and Tourist Resort comprises a number of features, including the Marina, Marina Village and clusters of multi-storey accommodation buildings (Blocks A to G).

The Marina and Marina Village development will include an approximately 300 berth marina, along with an associated breakwater, boat maintenance facilities (travel lift, hardstand and workshop), and other related commercial infrastructure such as café, restaurant and function facilities.

Immediately south of the Marina Village will be a cluster of multi storey buildings, up to six stories in height for short to medium term tourist accommodation. These areas are shown as Blocks A, B, C and D on the attached Drawing 2. These buildings will include under-croft car parking beneath.

Another three clusters of multi-storey accommodation buildings are located further to the south (shown as Blocks E, F and G on attached Drawing 2). These three clusters comprise apartment style accommodation, in two to five storey buildings, associated car parking (underground parking), access roadways, footpaths, boardwalks, jetties and landscaping.

2.2 Proposed Marina Village Centre and Floating Marina Berths

The proposed marina and village centre will include a 308 berth marina consisting of up to four arms of floating pontoons, a floating helipad pontoon, marina administration offices, a breakwater, a travel lift with associated hardstand area for boat repairs and maintenance, and a workshop. It is understood that the marina has been configured to avoid dredging.

The marina will comprise a system of floating walkways, and associated berths. The floating walkways would be located between vertical piles driven into the lake bed. It is understood that the preferred pile type is driven tubular steel piles.

The marina will incorporate a breakwater around the southern and eastern boundaries. The proposed breakwater will consist of two rows of parallel tubular steel piles driven in to the lake bed, with timber slats supported on outer side of each row of piles. The breakwater will also have a timber walkway, allowing access around the perimeter of the marina, and for access to the helipad.

The helipad will be an approximately 25 m by 25 m floating steel pontoon anchored to the lake bed, with an access gangway directly from the breakwater walkway. The current preference is that the anchors would be steel piles driven into the lake bed similar to piles for the breakwater and pontoons; however the piles would be cut off at the lake bed level.

In addition to the marina, there will be an associated on-shore village centre incorporating a café, restaurant, function centres, chandlery, general store and commercial offices.

2.3 Proposed Tourist/Accommodation Development

The southern portion of the site will incorporate apartment style accommodation (serviced tourist and permanent residential) with two to five storey buildings arranged in a series of three building clusters (Blocks E, F and G).

2.4 Pavements

Proposed pavement areas for the site include access roads and parking areas. It is understood that the majority of parking for Blocks A to D will be offered via under-croft parking beneath the proposed multi-storey buildings. It is understood that the under-croft parking in this area of the site will be at about RL 1.2 (AHD).

Blocks E to G will include basement car parking with preliminary basement floor levels ranging from 0.35 m to 4.85 m AHD.

2.5 Cut/Fill

Preliminary levels for under-croft car parking and basement car parking floor levels suggest approximate cut and fill depths could be in the order of the following:

Building Cluster	Approximate Ground Surface Level (AHD)	Preliminary Under-croft/Basement Floor Level (AHD)	Preliminary Approx Fill Depth (m)	Preliminary Approx Excavation Depth (m)
A	0.8	1.2	0.4	-
B	0.9	1.2	0.3	-
C	0.9	1.2	0.3	-
D	0.9 – 1.9	1.2	0.3	0.7
E	1.6 – 3.4	0.35	-	1.25 – 3.05
F	2.6 – 6.8	1.65 to 3.53	-	0.95 – 3.29
G	4.0 – 8.5	4.85	0.85	3.65

It is anticipated that excavations could also be required for installation of utilities, and also for swimming pool construction, although the final locations of these features are unknown at this time.

3. SUMMARY OF ACID SULPHATE SOIL CONDITIONS

An acid sulphate soil assessment for the site has been undertaken by Douglas Partners Pty Ltd (DP) (Ref 1). The results of detailed laboratory testing indicate the presence of actual and potential acid sulphate soils at the site, and therefore the proposed development will need to consider the presence of acid sulphate soils, particularly in the low-lying portions of the on-land marina development.

All excavations within the portion of the site that includes the Marina, Marina Village and Blocks A, B, C and D should be considered as having the potential to disturb acid sulphate soils, and should be undertaken with specific reference to this Acid Sulphate Soil Management Plan.

It is understood that dredging is not proposed in the marina area, and that driven piles will be utilised. Therefore, the current project proposal does not indicate that lake bed sediments will be exposed to oxidising conditions during construction.

Dewatering of excavations, if required, also have the potential to oxidise acid sulphate soils, and will also need to be undertaken with reference to this Acid Sulphate Management Plan.

Some excavations within other areas of the site could also encounter acid sulphate soils, eg. the excavation to RL 0.15 for the basement of the Block E building. The risk is likely to diminish as surface elevations increase to the south. Additional targeted acid sulphate soil investigations has been recommended to be undertaken during the design stage of the project to further delineate the presence of acid sulphate soils (Ref 1). The additional work will assist in assessing which portions of the site around Blocks E, F and G will require consideration of acid sulphate soils, and hence an acid sulphate soil management plan for proposed excavations.

The acid sulphate soil assessment (Ref 1) found subsurface conditions beneath the water table generally comprised sands with varying proportions of gravel and clay.

Details of the acid sulphate soil assessment undertaken, along with copies of borehole logs are found in Reference 1. A copy of the test location plan from Reference 1 is attached.

4. POTENTIAL FOR OXIDISING ACID SULPHATE SOILS

The following activities may expose acid sulphate soils to oxidising conditions during construction:

- installation of underground services;
- construction of shallow foundations;

- bored pile installation;
- construction of swimming pools;
- dewatering of excavations, if required during the construction works.
- general excavation;

It is understood that excavation or dredging of the lake bed sediments are not proposed, and hence these soils have not been considered further.

5. MANAGEMENT STRATEGY

5.1 Soil Treatment

Neutralisation of PASS should be undertaken in accordance with the ASSMAC and QASSIT guidelines, as discussed below.

The excavated material should be contained within a suitable bunded area with an impermeable base and appropriately neutralised prior to backfilling.

The location of the bunded area should be selected in order to minimise the potential for impact on nearby sensitive receptors, such as the adjacent Lake Macquarie. Any leachate produced in the bunded area should be contained for monitoring and treatment as discussed below.

Suitable neutralising agents for acid sulphate or potential acid sulphate soils include agricultural lime ($CaCO_3$), calcined magnesia (MgO or $Mg(OH)_2$), and dolomite ($MgCO_3.CaCO_3$).

An assessment of the dosing rate for lime treatment can be calculated from the results of detailed laboratory testing, using the following equation, which includes a factor of safety.

Alkali Material Required (kg)

$$\textit{per unit volume of soil } (m^3) = \left(\frac{\%\,S \times 623.7}{19.98}\right) \times \frac{100}{ENV(\%)} \; x\; D\; x\; FOS$$

Where: *%S = net acidity (% S units);*

623.7 = % S to mol H^+/t;

19.98 = mol H^+/t to kg $CaCO_3$/t;

D = Bulk density of soil (t/m^3);

FOS = safety factor (usually 1.5);

ENV = Effective Neutralising Value (eg. 80% for Grade 1 Agricultural lime).

Note: *The ENV is calculated based on the molecular weight, particle size and purity of the neutralising agent and should be assessed for proposed materials in accordance with QASSIT (Ref 5).*

It is recommended that Grade 1 agricultural lime is used for the neutralisation of potential acid sulphate soils excavated during the construction.

The following liming/monitoring procedures for the treatment of PASS are recommended:

- all excavated soil should be contained within a suitably bunded area and kept moist to minimise oxidation, prior to treatment with lime. Progressive neutralisation will minimise the area required for bunding;
- the base of the excavation should be treated with approximately 1 kg/m^2 of agricultural lime;
- stockpiled soil should be limed at an average rate of about 55 kg/m^3 of soil (30 kg lime/tonne of soil) for neutralisation as soon as practicable following excavation. Lime treatment rates based on the detailed laboratory testing undertaken in Reference 1 ranged from 10 kg/m^3 of soil to 75 kg/m^3 of soil for Grade 1 agricultural lime. The average value should be used initially and refined based on monitoring results as construction proceeds;
- the neutralising agent and acid sulphate soils should be thoroughly mixed and aerated using, for example, an agricultural lime spreader and excavator. The soil should be treated in layers up to 300 mm thick to encourage aeration (ie. incorporate treatment with progressive reuse of soil or disposal at a suitably licensed landfill);

- it should be noted that the actual lime rate required will also depend on the results of monitoring during neutralisation. Additional lime will be required if monitoring results indicate that appropriate neutralisation has not been achieved. Conversely the liming rate may decrease if monitoring suggests over liming is occurring;
- sampling and testing should be undertaken in accordance with Section 6.1 to verify the neutralisation treatment. The acceptance criteria are discussed in Section 6.2. Depending on the results of testing, reapplication of lime may be necessary to gain adequate neutralisation;
- upon verification of treatment, the neutralised acid sulphate soils should be either progressively reused on site or disposed of at a licensed landfill following confirmation of the waste classification by an appropriately qualified consultant.

5.2 Neutralising Leachate

Leachate water collected from the bunded area (in a multi stage sedimentation tank, if required) should be neutralised as necessary before release. Calcined magnesia (magnesium hydroxide, burnt magnesite, or magnesia) is the recommended neutralising agent as it produces a two-step reaction, which proceeds rapidly at acidic pH and slows down as higher pH is approached, and hence reduces the potential for over neutralisation to occur.

The amount of neutraliser required to be added to the leachate can be calculated from the equation below:

$$\textit{Alkali Material Required (kg)} = \frac{M_{Alkali} \times 10^{-pH\ initial}}{2 \times 10^{3}} \times V$$

Where: *pH initial = initial pH of leachate*

V = volume of leachate (litres)

M_{Alkali} = molecular weight of alkali material (g/mole)

Note: *molecular weight of calcined magnesia (M_{MgO}) = 40 g/mole.*

The alkali should be added to the leachate as a slurry. Mixing of the slurry is best achieved using an agitator.

Notwithstanding regulatory authority requirements, the leachate should meet the water quality criteria presented in Section 6.2 prior to discharge.

5.3 Dewatering

Based on previous experience, the following procedure is recommended in order to minimise potential adverse impacts resulting from excavation and dewatering of acid sulphate soils during construction:

- minimise the dewatering depth required for installation (ie. as close as practicable to the invert level of the excavation);
- minimise the time and volume of exposed acid sulphate soils (ie. stage excavation and dewatering);
- collection of extracted groundwater in a multi stage sedimentation tank and neutralise as necessary prior to release;
- the extracted groundwater could then be discharged to a bunded area away from the dewatering site (ie. evaporation/infiltration), or discharged to stormwater/sewer, subject to regulatory requirements;
- the pH of the extracted water should be monitored prior to discharge. Neutralisation should be undertaken, as discussed in Section 5.2, if discharge water pH falls below natural groundwater levels (evaporation/infiltration) or regulatory requirements (stormwater disposal);
- dose the base of the excavation at a rate of approximately 1 kg/m^2 of Agricultural lime in order to counteract the generation of acidic leachate following groundwater recovery;
- treat acid sulphate soils excavated during construction as discussed in Section 5.1;
- undertake monitoring as recommended in Section 6 below.

6. MONITORING STRATEGIES

6.1 Procedures

Monitoring programs for the various construction and treatment methods discussed are outlined below.

6.1.1 Soil Neutralisation/Management

It is recommended that the following inspections and monitoring be undertaken when excavating acid sulphate soil materials, based on guidelines presented in the ASSMAC and QASSIT manuals:

- daily inspection of liming operations during excavation;
- sampling and testing after lime treatment (ie. measurements of soil pH in distilled water and pH in peroxide) should be undertaken at a frequency of at least one sample per 50 m^3 excavated soil, or daily, to verify the neutralisation treatment and confirm oxidation of acid sulphate soils is not occurring.

6.1.2 Leachate Management

Leachate collected within the bunded area should be temporarily stored (in a multi stage sedimentation tank, if required) and neutralised as necessary. The pH of the leachate should be monitored daily, and prior to discharge. The leachate could be discharged overland (ie. evaporation/infiltration), or discharged to stormwater/sewer, subject to regulatory requirements and licences.

Neutralisation should be undertaken if discharge water pH falls below natural background groundwater levels (evaporation/infiltration) or regulatory requirements (stormwater or sewer discharge).

A contingency procedure should be in place to allow lime dosing and monitoring to confirm neutralisation prior to discharge.

6.1.3 Dewatering

Extracted groundwater should be temporarily stored in a multi stage sedimentation tank, and neutralised as necessary. The pH of extracted water associated with areas of acid sulphate soils should be monitored twice daily (am, pm) prior to discharge. The groundwater could be discharged overland (ie. evaporation/infiltration), or discharged to stormwater/sewer subject to regulatory requirements and licences.

Neutralisation should be undertaken if discharge water pH falls below natural background groundwater levels (evaporation/infiltration) or regulatory requirements (stormwater or sewer discharge). Natural groundwater pH should be confirmed at the commencement of dewatering.

A contingency procedure should be in place to allow lime dosing and monitoring to confirm neutralisation prior to discharge. Similarly nearby creeks/drains should be periodically monitored for pH prior to and during construction.

6.1.4 Reporting

A record of treatment of acid sulphate soil and leachate should be maintained by the contractor and should include the following details:

- date;
- location;
- time of excavation and reuse or disposal (ie. time stockpile has been exposed);
- neutralisation process undertaken;
- lime rate utilised;
- results of monitoring of soil, leachate, and groundwater.

A record of dewatering activities should also include the following:

- groundwater pH at commencement of dewatering;
- daily pH monitoring of discharge water and surface waters in the vicinity of discharge (ie. upstream and downstream).

A record should also be maintained confirming contingency measures and additional treatment if undertaken.

A final report should be issued upon completion of the works presenting the monitoring regime and results, and confirming that no adverse environmental impact has occurred during the works.

6.2 Acceptance Criteria

Water

Notwithstanding regulatory requirements, it is recommended that the ANZECC Guidelines for Fresh and Marine Water Quality, 2000 (Ref 4) be met before discharging any leachate to the environment.

Table 4 – ANZECC – Water Discharge Criteria

Indicator	Marine Water Trigger Values
pH[1]	8.0 – 8.4
Turbidity[1]	0.5 - 10 NTU
Al (Total)[2]	55μg/L for pH>6.5
	NA for pH<6.5

Notes to Table 4:

Guidelines from ANZECC Guidelines for Fresh and Marine Water Quality (Ref 4)
NA – Not Applicable
NTU – Nephelometric Turbidity Units
1 – Trigger values for physical and chemical stressors for south-east Australia for slightly disturbed Ecosystems (Tables 3.3.2 and 3.3.3 in Ref 4)
2 – Trigger value for slightly to moderately disturbed system

Soil

Further treatment may be required if monitoring of the material reveals any of the following properties:

- pH of soil in water is less than background groundwater values (ie. between about pH 4 to 8 – Ref 1);
- pH in water minus pH in hydrogen peroxide is greater than 1 and pH in water is less than background values.

Depending on the results of testing, reapplication of lime may be necessary to gain adequate neutralisation. Care should be taken to ensure over liming does not occur.

7. CONTINGENCY PLAN

Remedial action will be required if the agreed standards or acceptance criteria are not being achieved. Remedial action shall comprise mixing of additional lime through the excavated material and neutralisation of leachate. The required mixing rate to remediate the soil or leachate should be confirmed by monitoring tests.

If overland discharge of groundwater is proposed, a contingency plan should be in place to allow neutralisation and confirmation monitoring prior to injection if pH levels are low or fall below natural background levels.

During periods of heavy or prolonged rainfall, stockpiling of acid sulphate soils should be appropriately contained/bunded to collect leachate for testing and neutralisation (if required) prior to disposal (see Section 5). Alternatively backfilling of acid sulphate soils could be undertaken to prevent the migration of leachate.

Sufficient lime should be stored on site during construction for the neutralisation of acid sulphate soils and contingency measures.

8. LIMITATIONS

Conditions on site different to those identified during this assessment may exist. Therefore DP cannot provide unqualified warranties nor does DP assume any liability for site conditions not recorded in the data available for this assessment.

This report and associated documentation and the information herein have been prepared solely for the use of Johnson Property Group Pty Ltd. Any reliance on this report assumed by other parties shall be at such party's own risk. Any ensuing liability resulting from use of the report by other parties cannot be transferred to DP.

DOUGLAS PARTNERS PTY LTD

Reviewed by:

Julie Wharton
Associate

John Harvey
Principal

REFERENCES

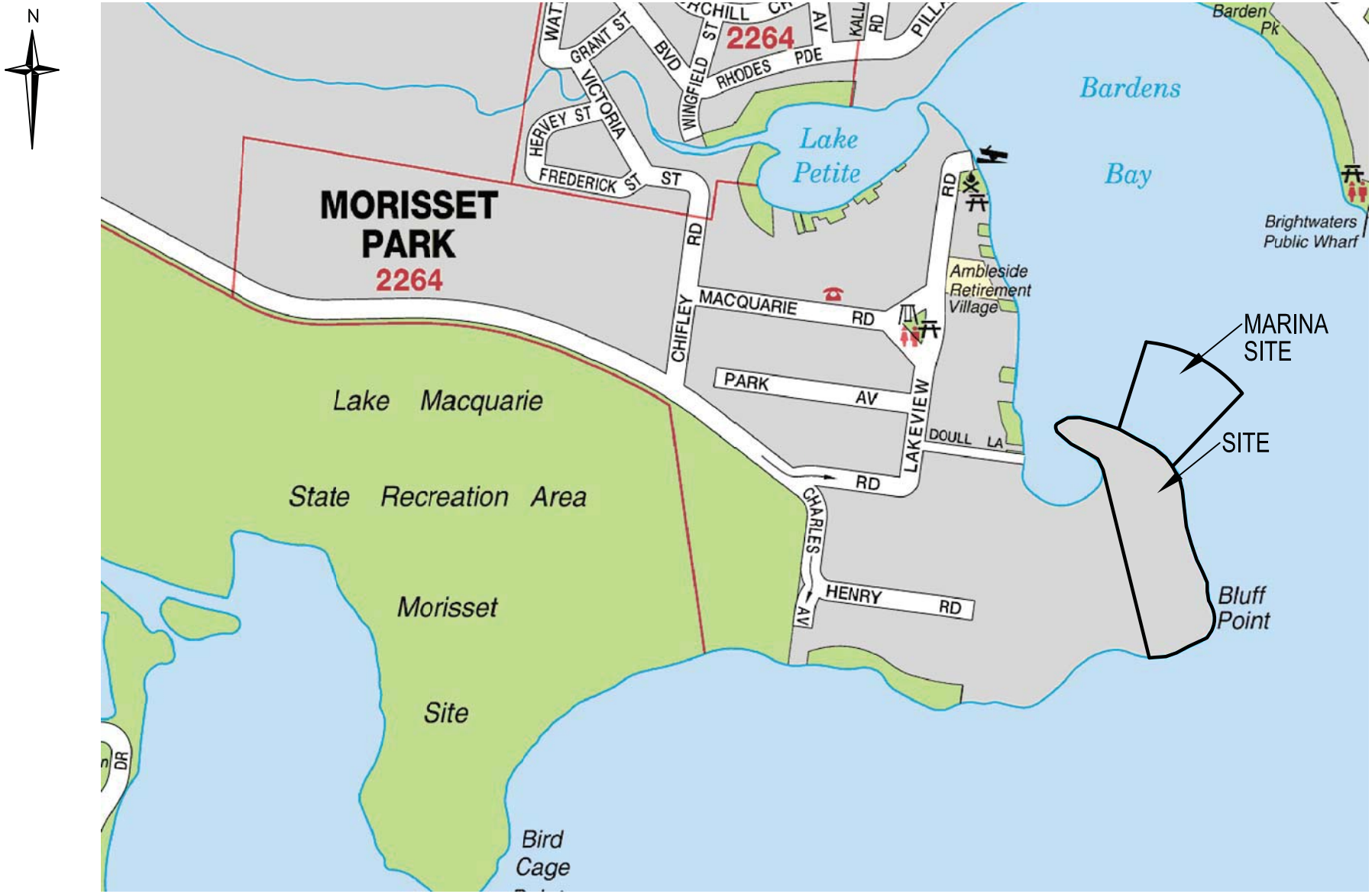
1. Douglas Partners Pty Ltd “Report on Acid Sulphate Soil Assessment, Proposed Trinity Point Marina and Tourist Development, 49 Lakeview Road, Morisset Park”, Project 39823A, December 2007.

2. ASSMAC “ASSMAC Acid Sulphate Soil Manual”, New South Wales Acid Sulphate Soil Management Advisory Committee, August 1998.

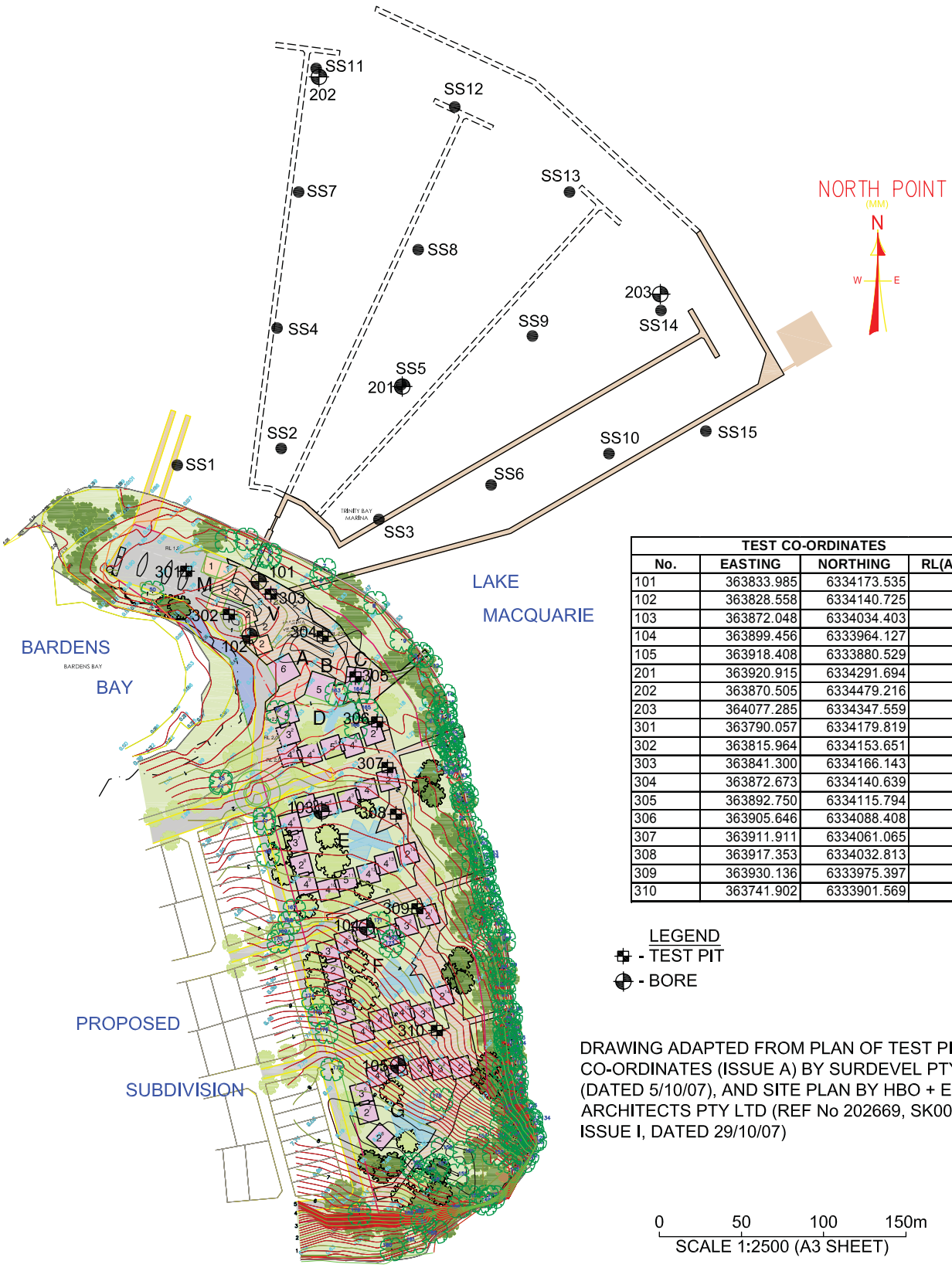
3. Dear SE, Moore NG, Dobos SK, Watling KM and Ahern CR “Soil Management Guidelines” in “Queensland Acid Sulphate Soil Technical Manual”, Department of Natural Resources and Mines, November 2002.

4. ANZECC (2000): Australian Water Quality Guidelines for Fresh and Marine Waters, November 2000.

5. Ahern CR, Sullivan LA and McElnea AE “Acid Sulphate Soils Laboratory Methods Guidelines” in “Queensland Acid Sulphate Soil Technical Manual”, Department of Natural Resources and Mines, June 2004.



Douglas Partners Geotechnics Environment Groundwater	Sydney, Newcastle, Brisbane, Melbourne, Perth, Wyong, Campbelltown, Townsville, Cairns, Wollongong, Darwin	TITLE: LOCALITY PLAN PROPOSED TRINITY POINT MARINA & TOURIST RESORT 49 LAKEVIEW ROAD, MORISSET PARK	CLIENT: JOHNSON PROPERTY GROUP PTY LTD	
			DRAWN BY: PLH / SCALE: NTS / PROJECT No: 39823A	OFFICE: NEWCASTLE
			APPROVED BY: / DATE:	DRAWING No: 1



TEST CO-ORDINATES			
No.	EASTING	NORTHING	RL(A.H.D)
101	363833.985	6334173.535	1.270
102	363828.558	6334140.725	0.885
103	363872.048	6334034.403	2.465
104	363899.456	6333964.127	3.820
105	363918.408	6333880.529	6.620
201	363920.915	6334291.694	-5.860
202	363870.505	6334479.216	-5.150
203	364077.285	6334347.559	-5.350
301	363790.057	6334179.819	0.960
302	363815.964	6334153.651	0.965
303	363841.300	6334166.143	1.205
304	363872.673	6334140.639	1.160
305	363892.750	6334115.794	1.145
306	363905.646	6334088.408	1.115
307	363911.911	6334061.065	1.775
308	363917.353	6334032.813	2.600
309	363930.136	6333975.397	3.000
310	363741.902	6333901.569	4.400

LEGEND
- TEST PIT
- BORE

DRAWING ADAPTED FROM PLAN OF TEST PIT CO-ORDINATES (ISSUE A) BY SURDEVEL PTY LTD (DATED 5/10/07), AND SITE PLAN BY HBO + EMTB ARCHITECTS PTY LTD (REF No 202669, SK000, ISSUE I, DATED 29/10/07)

0 50 100 150m
SCALE 1:2500 (A3 SHEET)

Douglas Partners
Geotechnics Environment Groundwater

Sydney, Newcastle, Brisbane, Melbourne, Perth, Wyong,

Wollongong, Campbelltown, Townsville, Cairns, Darwin

TITLE: TEST LOCATION PLAN - ACID SULPHATE ASSESSMENT
PROPOSED TRINITY POINT MARINA AND TOURIST DEVELOPMENT
49 LAKEVIEW ROAD, MORISSET PARK

CLIENT: JOHNSON PROPERTY GROUP PTY LTD			OFFICE: NEWCASTLE
DRAWN BY: PLH	SCALE: 1:2500	PROJECT No. 39823A	
APPROVED BY:		DATE:	DRAWING No: 2

APPENDIX E
REPORT ON GEOCHEMICAL TESTING

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REPORT
on
GEOCHEMICAL ASSESSMENT

PROPOSED TRINITY POINT MARINA
MORISSET PARK
LAKE MACQUARIE

Prepared for

JOHNSON PROPERTY GROUP PTY LTD

Project 39823B

DECEMBER 2007

Douglas Partners
Geotechnics • Environment • Groundwater

REPORT
on
GEOCHEMICAL ASSESSMENT

PROPOSED TRINITY POINT MARINA
MORISSET PARK
LAKE MACQUARIE

Prepared for

JOHNSON PROPERTY GROUP PTY LTD

Project 39823B

DECEMBER 2007

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TABLE OF CONTENTS

ATTACHMENTS

Notes Relating to this Report
Sample Record Sheet
Laboratory Test Results
- SGS Report No 55469B-R
- SGS Report No 55469-R
- NMI Report No RN641461
- SGS Report No 55469A

QA/QC
Chain of Custody Forms
Drawing 1 – Locality Plan
Drawing 2 – Test Location Plan

JAW:kd

Project No: 39823B

P:\39823B\Docs\39823B.doc

6 December 2007

REPORT ON
GEOCHEMICAL ASSESSMENT
PROPOSED TRINITY POINT MARINA
MORISSET PARK, LAKE MACQUARIE

1. INTRODUCTION

This report presents the results of geochemical testing of lake bed sediment and lake waters in the vicinity of the proposed Trinity Point Marina and Tourist Development. The project is to be constructed at 49 Lakeview Road, Morisset Park, (Lot 31, Part Lot 32 and Part Lot 33, DP 1117408). The work was carried out for Johnson Property Group (JPG), in consultation with the client's marina design consultant, Worley Parsons Pty Ltd (WP) incorporating Patterson Britton & Partners Pty Ltd.

The purpose of the investigation was to collect samples of lake bed sediment and undertake geochemical testing so that the results could be compared to the sediment quality guidelines from the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (Ref 1). Samples of lake water were also tested to provide background data for future reference.

The scope of work includes presentation of the factual data in this report with the results of testing to be used by others to assess the impact of proposed construction activities within the project area.

For the purpose of the investigation, the client supplied concept plans of the proposed development, along with site survey plans. The concept plan used in the preparation of this report is the Site Plan by HBO + EMTB Architects Pty Ltd (Ref No 202669, SK000, Issue I dated 29 October 2007). The site survey plan was prepared by Surdevel Pty Ltd, (Ref 1320, dated 30 November 2006). A hydrographic survey of the proposed marina area had been undertaken by another consultant, however the contours were provided to Douglas Partners Pty Ltd (DP) on a plan by Patterson Britton & Partners (Ref 6759.10-GA, dated 17 September 2007).

2. PROPOSED DEVELOPMENT

The Trinity Point Marina and Tourist Development comprises a number of components including the Marina, Marina Village and clusters of multi-storey accommodation buildings (Blocks A to G).

The Marina development will include an approximately 300 berth marina, along with an associated breakwater, boat maintenance facilities (travel lift, hardstand and workshop). Other related commercial infrastructure such as café, restaurant and function facilities are proposed for the Marina Village, however these are not covered in this report.

Immediately south of the Marina Village will be several clusters of multi storey buildings, up to six stories in height. These are likewise not covered in this report.

This report only covers geochemical testing of lake bed sediment and lake water undertaken in the off-shore portions of the proposed marina development.

3. SITE DESCRIPTION AND REGIONAL GEOLOGY

The proposed Trinity Point development is located to the north of, and on, Bluff Point on the Morisset Peninsula of the western shores of Lake Macquarie. The property is described as 49 Lakeview Road, Morisset Park (Lot 31, Part Lot 32 and Part Lot 33, DP 1117408), but the project area also includes adjoining portions of Lake Macquarie, where the marina is proposed.

The portion of the project area which is the subject of this report is the off-shore area, north-east of the northern part of the property, and is herein referred to as the 'site'. A plan showing the approximate location of the site is shown on Drawing 1, attached.

Reference to the hydrographic survey contours indicate that water depths of up to about 5.8 m can be expected within the proposed marina area. Lake Macquarie is a coastal lake, and hence is tidal.

The following photographs show the general site area at the time of the sampling.

Photo 1– view of proposed Marina area

Photo 2 – drill rig set up on modular barge, in proposed marina area

4. FIELD WORK

4.1 Methods

A systematic sampling procedure was conducted, with the coordinates of proposed sample locations provided by WP. The field work was undertaken on 25 September 2007 and included the collection of 15 samples (SS1 to SS15) of lake bed sediment from within the project area. The approximate sample locations are shown on Drawing 2, attached.

The sediment samples were collected by professional divers as arranged by WP and the client. The dive boat was equipped with a GPS, and the locations were set out using the provided MGA coordinates.

The divers were provided with stainless steel sampling equipment, and two environmental engineers from DP were on hand to recover the samples from the divers. In addition to collecting

the samples, the engineers made a visual classification of each sample, the results of which are presented on the attached Sample Record Sheet.

Samples of lake water were collected by DP at 15 locations, corresponding to the position of each sediment sample location, and hence assigned sample numbers SS1 to SS15.

Two of the samples of lake water were submitted for geochemical analysis to provide background water quality data.

In addition to the sediment sampling, over-water drilling was also undertaken for other components of the project, the results of which are presented separately. However several sediment samples collected as part of the over-water drilling programme were submitted for geotechnical laboratory testing to supplement the data collected during the sediment sampling, and are presented herein.

All sampling data was recorded on DP chain of custody sheets, and the general sampling procedure comprised:

- decontamination of all sampling equipment using a 3% solution of phosphate free detergent (Decon 90) and tap water prior to collecting each sample;
- the use of disposable gloves for each sampling event.
- transfer of soil samples into laboratory-prepared glass jars, and capping immediately;
- collection of replicate samples for QA/QC purposes;
- collection of replicate soil samples in zip-lock plastic bags at each depth for PID screening;
- collection of water samples in laboratory-prepared plastic bottles, and capping immediately;
- labelling of sample containers with individual and unique identification, including project number, sample location and sample depth; and
- placement of the sample jars and replicate sample bags into a cooled, insulated and sealed container for transport to the laboratory;
- inclusion of a laboratory provided trip blank soil sample in the transported sample batch, to assess cross-contamination between samples during transport;

- use of chain of custody (C-O-C) documentation ensuring that sample tracking and custody could be cross-checked at any point in the transfer of samples from the field to the laboratory.

Copies of completed sample record sheets and COC documentation are attached.

Replicate samples for each sample were screened for the presence of volatile organic compounds (VOCs), using a Microtip HL-2000 photo-ionisation detector (PID) with a 10.6 eV lamp, calibrated to 100 ppm Isobutylene. The PID is capable of detecting over 300 VOCs. The results of the PID testing are presented on the attached Sample Record Sheet.

The work was undertaken in accordance with the DP quality system and procedures for geochemical sampling as presented in the company's field procedures manual. A list of the procedures used and other information on quality assurance and quality control, including analysis of replicate samples, is attached.

The approximate locations of each sample are shown on Drawing 2, attached. Each sediment sample was given the prefix 'SS'. A visual identification was made of each sample, the results of which are presented in the attached Sample Record Sheet. The attached general notes, which explain the descriptive terms and classifications methods used, should be read in conjunction with this report.

4.2 Data Quality Objectives (DQOs)

Table 1 summarises data quality objectives (DQOs) and the procedures designed to enable achievement of the DQOs.

Table 1 – Data Quality Objectives

DQO	Achievement Evaluation Procedure
Documentation completeness	Completion of field sample record sheet and laboratory chain of custody documentation.
Data comparability	Use of NATA certified laboratory, use of consistent sampling technique.
Precision and accuracy for sampling and analysis	Achievement of 50% RPD for replicate analysis, acceptable levels for laboratory QC criteria.

5. FIELD AND LABORATORY TESTING PROGRAMME

Field testing of lake waters was undertaken by an environmental engineer from DP, using Troll 9500 multi-parameter water quality meter to measure pH, EC, Red-ox Potential, Dissolved Oxygen (DO) and turbidity (NTU) of the lake water at each of the 15 sediment sample locations.

Laboratory testing was undertaken by SGS Environmental Services Pty Ltd (SGS), a laboratory registered with the National Association of Testing Authorities, Australia (NATA). Some tests were subcontracted by SGS to the National Measurement Institute (NMI), formerly the government analytical laboratories.

A total of 17 soil samples (one from each of the 15 sediment sample locations plus one QA/QC sample, and one trip blank) were selected to provide a preliminary assessment of lake bed sediment conditions. The purpose of the testing was to compare the geochemistry of the lake bed sediments in the project area to the Sediment Quality Guidelines (Ref 1).

The selected sediment samples were analysed for the following potential contaminants:

- Polycyclic Aromatic Hydrocarbons (PAH):
- Organochlorine Pesticides (OCP's);
- Organophosphorus Pesticides (OPP's);
- Polychlorinated Biphenyls (PCB);
- Metals: Arsenic (As); Antimony (Sb); Cadmium (Cd); Chromium (Cr); Copper (Cu); Lead (Pb); Nickel (Ni); Silver (Ag); Selenium (Se); Zinc (Zn); and Mercury (Hg);

- Tributyltin (TBT);
- Total Organic Carbon (TOC);

Quality Control/Quality Assurance (QA/QC) testing comprised one soil replicate (sample QA1), and one trip blank (TB1) the results of which are attached.

Two samples of lake water were tested for the following:

- Metals: Arsenic (As); Antimony (Sb); Barium (Ba); Beryllium (Be); Boron (B); Cadmium (Cd); Chromium (Cr); Copper (Cu); Cobalt (Co); Lead (Pb); Manganese (Mn); Molybdenum (Mo); Nickel (Ni); Selenium (Se); Zinc (Zn); and Mercury (Hg);
- Nitrite, Nitrate, Chloride, Sulphate;
- Total Phosphorous; Total Nitrogen.

In addition, two samples of lake bed sediment, collected during the over water drilling, were submitted to DP's laboratory for particle size distribution tests, including hydrometer analysis.

6. FIELD AND LABORATORY TEST RESULTS

The results of laboratory analysis of soil and water samples are presented in the attached laboratory report sheets, and are summarised in the following sections. Data from field testing is also presented in the following sections.

It is noted that some of the laboratory detection limits (PQLs) are higher than the respective guideline trigger values. They are however within laboratory Limits of Detection acknowledged by the NSW Department of Environment and Climate Change (formerly EPA).

Table 2 – Summary of Sediment Laboratory Results

Sample Location	PID (ppm)	Moisture Content (%)	Total Organic Carbon (%)	Metal/Metalloid (mg/kg)											Tributyltin (µg Sn/kg
				Antimony	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Silver	Selenium	Zinc	Arsenic	
SS1	1.1	42	2	<PQL	1.5	4.9	12	7	<PQL	3	<PQL	<PQL	46	6	NT
SS2	0.8	33	1	<PQL	0.6	7.6	13	9.9	<PQL	3.7	<PQL	<PQL	48	16	NT
SS3	1.1	35	1	<PQL	0.7	7.8	14	10	<PQL	3.9	<PQL	<PQL	51	18	<PQL
SS4	0.9	38	0.8	<PQL	0.6	6.7	10	9.1	<PQL	3.9	<PQL	<PQL	47	**22**	NT
SS5	1.1	26	1	<PQL	0.6	6.4	9.4	8	<PQL	3.5	<PQL	<PQL	44	15	<PQL
SS6	1.1	33	1	<PQL	<PQL	8	14	9.8	<PQL	3.8	<PQL	<PQL	56	12	NT
SS7	1.7	66	2	<PQL	1.3	17	22	18	<PQL	7.5	<PQL	4	110	18	NT
SS8	1.2	65	3	<PQL	**1.6**	18	23	20	<PQL	7.9	<PQL	<PQL	130	15	NT
SS9	0.8	66	3	<PQL	1.4	18	33	23	<PQL	7.7	<PQL	2	140	15	NT
SS10	1.2	65	4	<PQL	1.4	17	30	22	<PQL	7.1	<PQL	2	140	13	NT
SS11	0.9	69	3	<PQL	**1.9**	23	37	28	<PQL	9.4	<PQL	3	170	18	NT
SS12	1.3	65	3	<PQL	**1.7**	19	22	21	<PQL	8.5	<PQL	3	120	17	<PQL
SS13	1.2	66	4	<PQL	**1.7**	21	34	25	<PQL	8.9	<PQL	2	160	17	NT
SS14	1.2	62	3	<PQL	0.8	15	14	14	<PQL	7.3	<PQL	2	72	15	NT
SS15	0.8	63	3	<PQL	**1.8**	21	31	26	<PQL	8.6	<PQL	3	160	16	NT
QA1	-	33	0.7	<PQL	0.7	7.6	10	9.6	<PQL	4.3	<PQL	<PQL	52	20	NT
TB1	-	1	<PQL	<PQL	<PQL	0.6	0.6	<PQL	<PQL	<PQL	<PQL	<PQL	0.93	<PQL	NT
Laboratory PQL		1	0.05	2	0.5	0.5	0.5	2	0.15	0.2	1	2	0.5	3	0.5
ANZECC Sediment Quality Guidelines ISQG – Low Trigger Value	-	-	-	2	1.5	80	65	50	0.15	21	1	NC	200	20	5
ANZECC Sediment Quality Guidelines ISQG – High Trigger Value	-	-	-	25	10	370	270	220	1	52	3.7	NC	410	70	70

Notes to Table 2:

All results expressed on a dry weight basis
NC – No Criteria
PQL – Laboratory Practical Quantitation Limit
Shaded results indicate exceedence of ANZECC Sediment Quality ISQG Low Trigger Value (Ref 1)
QA1 – Replicate sample of SS5
TB1 – Trip Blank sample

Table 3 – Summary of Sediment Laboratory Results for OCP, OPP, PCB and PAH in Soil

Sample Location	Organics (µg/kg)																						
	Acenaphthene	Acenaphtalene	2 – Methylnaphthalene	Anthracene	Fluorene	Naphthalene	Phenanthrene	Low Molecular Weight PAHs	Benzo(a)anthreacene	Benzo(a)pyrene	Dibenzo(a,h)anthracene	Chrysene	Fluroanthene	Pyrene	High Molecular Weight PAHs	Total PAHs	Total DDT	p,p'-DDE	o,p'-+p,p'-DDD	Chlordane	Dieldrin	Endrin	Lindane	Total PCBs
SS1	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	20	<80	10	20	<PQL	10	20	20	<90	<170	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL
SS2	<PQL	<PQL	10	<PQL	<PQL	<PQL	20	<80	10	20	<PQL	20	30	20	<110	<190	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL
SS3	<PQL	<PQL	10	<PQL	<PQL	<PQL	20	<80	10	20	<PQL	20	30	20	<110	<190	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL
SS4	<PQL	<PQL	10	<PQL	<PQL	<PQL	20	<80	10	20	<PQL	20	30	20	<110	<190	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL
SS5	<PQL	<PQL	10	10	<PQL	<PQL	40	<100	20	30	<PQL	30	50	40	<180	<280	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL
SS6	<PQL	<PQL	20	10	<PQL	<PQL	10	<80	20	20	<PQL	30	40	40	<160	<240	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL
SS7	<20	<20	30	<20	<20	<20	60	<190	30	40	<20	40	80	60	<270	<460	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL
SS8	<20	<20	20	<20	<20	<20	70	<190	30	40	<20	50	90	70	<300	<490	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL
SS9	<20	<20	60	30	<20	<20	140	<310	70	80	<20	90	160	130	<550	<860	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL
SS10	<20	<20	60	30	<20	20	130	<300	50	60	<20	80	140	110	<460	<760	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL
SS11	<20	<20	50	30	<20	<20	120	<280	60	70	<20	80	140	180	<550	<830	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL
SS12	<20	<20	30	<20	<20	<20	60	<190	30	50	<20	50	90	80	<320	<510	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL
SS13	<20	<20	40	30	<20	<20	110	<260	60	70	<20	70	130	110	<460	<720	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL
SS14	<20	<20	20	<20	<20	<20	50	<170	20	30	<20	40	60	50	<220	<390	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL
SS15	<20	<20	40	30	<20	<20	100	<250	50	60	<20	70	130	110	<440	<690	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL
QA1	<PQL	<PQL	20	<PQL	<PQL	<PQL	30	<100	20	20	<PQL	20	40	30	<140	<240	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL
TB1	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL
Laboratory PQL	10	10	10	10	10	10	10	70	10	10	10	10	10	10	60	130		1	1	1	1	1	1	10
ANZECC Sediment Quality Guidelines ISQG – Low Trigger Value (Ref 1)	16	44	NC	85	19	160	240	552	261	430	63	384	600	665	1700	4000	1.6	2.2	2	0.5	0.02	0.02	0.32	23
ANZECC Sediment Quality Guidelines ISQG – High Trigger Value (Ref 1)	500	640	NC	1100	540	2100	1500	3160	1600	1600	260	2800	5100	2600	9600	45000	46	27	20	6	8	8	1	NC

Notes to Table 3:

All results expressed on a dry weight basis
NC – No Criteria
PQL – Laboratory Practical Quantitation Limit
Shaded results indicate exceedence of ANZECC Sediment Quality ISQG Low Trigger Value (Ref 1)
QA1 – Replicate sample of SS5
TB1 – Trip Blank sample

Table 4 – Summary of Particle Size Distribution Tests

Location	Depth (m)	% Sand and Gravel (coarser than 75 μm sieve)	% Silt and Clay (finer than 75 μm sieve)	Description
201	0 – 0.45	55	45	Silty sand/sandy silt
202	0 – 0.45	38	62	Sandy clayey silt

Table 5 – Results of Field Testing on Lake Water

Location	Parameter				
	pH	ORP (mv)	EC (μS/cm)	DO (μg/L)	Turbidity (NTU)
SS1	7.94	175	42,570	9783	6.5
SS2	8.02	164	42,640	8324	41.9
SS3	8.02	177	42,560	8349	6
SS4	8.04	191	42,510	9535	5.6
SS5	8.05	196	42,350	9940	7.9
SS6	8.04	199	42,820	9347	5.4
SS7	8.04	199	42,780	9428	5.7
SS8	8.05	210	42,960	9572	15.2
SS9	7.94	237	42,200	9420	15.5
SS10	8.04	205	42,860	9610	14.1
SS11	8.04	247	42,560	9470	6.3
SS12	8.05	259	42,410	9516	3.1
SS13	8.05	237	42,840	9523	9.7
SS14	8.05	267	42,400	9487	5.5
SS15	8.06	268	42,371	9045	87.7
Minimum	7.94	164	42,200	8324	3.1
Maximum	8.06	268	42,960	9940	87.7
Average	8.03	215	42,589	9357	16

Notes to Table 5:

ORP – Oxidation reduction potential
EC – Electrical conductivity
DO – Dissolved oxygen

Table 6 – Summary of Laboratory Results for Lake Water Chemistry

Location	Analyte (µg/L)																Analyte (mg/L)				
	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium	Copper	Cobalt	Lead	Manganese	Molybdenum	Nickel	Selenium	Zinc	Tin	Mercury	Nitrate as N	Chloride, Cl	Sulphate, SO4	Total Phosphorus as P	Total Nitrogen
SS3	1.4	2.8	11	<PQL	5700	0.11	12	2.6	2.6	<PQL	<PQL	9.3	5.2	8.5	15	<PQL	<PQL	<PQL	17,000	2,500	<PQL	<PQL
SS12	2.0	2.7	11	<PQL	5700	<PQL	12	2.8	2.6	<PQL	<PQL	9.7	5.1	9.5	15	0.03	<PQL	<PQL	18,000	2,500	<PQL	<PQL
Laboratory PQL	1	1	1	1	1	0.1	1	1	1	1	1	1	1	2	1	0.03	5E-04	1	1	1	1	10

7. STATISTICAL ANALYSIS OF RESULTS FOR LAKE BED SEDIMENT

Some minor exceedences were observed within individual results for the heavy metals testing of lake bed sediment. Therefore, a statistical analysis has been undertaken of the heavy metals results, and the 95% upper confidence limit (UCL) calculated using the programme ProUCL 4.0.

The 95% UCL uses the laboratory results to calculate the arithmetic average contaminant concentration which has a 95% probability of not being exceeded. The NSW EPA Sampling Design Guidelines (Ref 2) allows the use of the 95% UCL as a means to compare a batch of results to the relevant guidelines or trigger values.

The 95% UCL was not calculated for the suite of PAH, PCB, OCP and OPP results, as there were no individual exceedences of the Sediment Quality Guidelines (Ref 1).

The 95% UCL was calculated using the 15 laboratory test results from samples SS1 to SS15, and excluded the result of the blind duplicate sample collected for QA-QC purposes (Sample QA1). A statistical summary and the results are presented in the following table:

Table 7 – Summary of Statistical Analysis of Lake Bed Sediments

Analyte	PQL (mg/kg)	ISQG-Low (Trigger Value)[1]	Min Value (mg/kg)	Max Value (mg/kg)	95% UCL Value[2] (mg/kg)
Arsenic	3	20	6	22	17.1
Antimony	2	2	<PQL	<PQL	NA (<2)
Cadmium	0.5	1.5	<PQL	1.9	1.4
Chromium	0.5	80	4.9	23	21.2
Copper	0.5	65	9.4	37	25.6
Lead	2	50	7	28	20.1
Nickel	0.2	21	3	9.4	7.4
Silver	1	1	<PQL	<PQL	NA (<1)
Selenium	2	NC	<PQL	4	3.0
Zinc	0.5	200	44	170	128
Mercury	0.15	0.15	<PQL	<PQL	NA (<0.15)

Notes to Table 8:

1 – Recommended Sediment Quality Guidelines from Australia and New Zealand Guidelines for Fresh and Marine Water Quality, 2000 (Ref 1)
2 – 95% UCL calculated using computer programme ProUCL 4.0 from the US EPA
PQL – Practical Quantification Limit
NA – Not Applicable
NC – No criteria
Bold and Shaded results exceed the ISQG – Low trigger value (Ref 1)

8. COMMENTS

The statistical analysis of the laboratory results for the lake bed sediment shows that while individual results exceed the trigger values for both Arsenic and Cadmium, the calculated 95% UCL for each of these analytes was below the ANZECC ISQG-Low trigger values (Ref 1). All results were below the ISQG-High values (Ref 1).

None of the results for individual species of the PAHs exceeded the ISQG – Low trigger values (Ref 1). All of the results for OCPs, OPPs and PCBs returned values below the respective detection limits, and similarly do not exceed the ISQG – Low trigger values (Ref 1).

The results of testing on samples of lake water have not been compared to any guidelines at this point in time. The purpose of these results is to provide background water data for future reference.

9. LIMITATIONS

DP has performed investigation and consulting services for this project in general accordance with current professional and industry standards for geochemical sampling and assessment.

Conditions different to those identified during field and laboratory sampling and testing may exist. Therefore DP, or any other reputable consultant, cannot provide unqualified warranties nor does DP assume any liability for site conditions not observed or accessible during the time of the investigations.

Despite all reasonable care and diligence, the conditions encountered and concentrations of contaminants measured may not be representative of conditions between the locations sampled and investigated. In addition, site characteristics may change over time in response to variations in natural conditions, chemical reactions and other events, eg. sediment movement and/or spillages of contaminating substances. These changes may occur subsequent to DP's investigations and assessment.

This report and associated documentation and the information herein have been prepared solely for the use of Johnson Property Group Pty Ltd and any reliance assumed by other parties on this report shall be at such parties own risk. Any ensuing liability resulting from use of the report by other parties cannot be transferred to DP.

DOUGLAS PARTNERS PTY LTD

Reviewed by:

Julie Wharton
Associate

John Harvey
Principal

REFERENCES

1. ANZECC (2000) “Australian and New Zealand Guidelines for Fresh and Marine Water Quality”, October 2000.

2. Contaminated Sites: Sampling Design Guidelines, NSW EPA, September 1995.

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NOTES RELATING TO THIS REPORT

Introduction

These notes have been provided to amplify the geotechnical report in regard to classification methods, specialist field procedures and certain matters relating to the Discussion and Comments section. Not all, of course, are necessarily relevant to all reports.

Geotechnical reports are based on information gained from limited subsurface test boring and sampling, supplemented by knowledge of local geology and experience. For this reason, they must be regarded as interpretive rather than factual documents, limited to some extent by the scope of information on which they rely.

Description and Classification Methods

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

Soil types are described according to the predominating particle size, qualified by the grading of other particles present (eg. sandy clay) on the following bases:

Soil Classification	Particle Size
Clay	less than 0.002 mm
Silt	0.002 to 0.06 mm
Sand	0.06 to 2.00 mm
Gravel	2.00 to 60.00 mm

Cohesive soils are classified on the basis of strength either by laboratory testing or engineering examination. The strength terms are defined as follows.

Classification	Undrained Shear Strength kPa
Very soft	less than 12
Soft	12—25
Firm	25—50
Stiff	50—100
Very stiff	100—200
Hard	Greater than 200

Non-cohesive soils are classified on the basis of relative density, generally from the results of standard penetration tests (SPT) or Dutch cone penetrometer tests (CPT) as below:

Relative Density	SPT "N" Value (blows/300 mm)	CPT Cone Value (q_c — MPa)
Very loose	less than 5	less than 2
Loose	5—10	2—5
Medium dense	10—30	5—15
Dense	30—50	15—25
Very dense	greater than 50	greater than 25

Rock types are classified by their geological names. Where relevant, further information regarding rock classification is given on the following sheet.

Sampling

Sampling is carried out during drilling to allow engineering examination (and laboratory testing where required) of the soil or rock.

Disturbed samples taken during drilling provide information on colour, type, inclusions and, depending upon the degree of disturbance, some information on strength and structure.

Undisturbed samples are taken by pushing a thin-walled sample tube into the soil and withdrawing with a sample of the soil in a relatively undisturbed state. Such samples yield information on structure and strength, and are necessary for laboratory determination of shear strength and compressibility. Undisturbed sampling is generally effective only in cohesive soils.

Details of the type and method of sampling are given in the report.

Drilling Methods.

The following is a brief summary of drilling methods currently adopted by the Company and some comments on their use and application.

Test Pits — these are excavated with a backhoe or a tracked excavator, allowing close examination of the in-situ soils if it is safe to descent into the pit. The depth of penetration is limited to about 3 m for a backhoe and up to 6 m for an excavator. A potential disadvantage is the disturbance caused by the excavation.

Large Diameter Auger (eg. Pengo) — the hole is advanced by a rotating plate or short spiral auger, generally 300 mm or larger in diameter. The cuttings are returned to the surface at intervals (generally of not more than 0.5 m) and are disturbed but usually unchanged in moisture content. Identification of soil strata is generally much more reliable than with continuous spiral flight augers, and is usually supplemented by occasional undisturbed tube sampling.

Continuous Sample Drilling — the hole is advanced by pushing a 100 mm diameter socket into the ground and withdrawing it at intervals to extrude the sample. This is the most reliable method of drilling in soils, since moisture content is unchanged and soil structure, strength, etc. is only marginally affected.

Continuous Spiral Flight Augers — the hole is advanced using 90—115 mm diameter continuous spiral flight augers which are withdrawn at intervals to allow sampling or in-situ testing. This is a relatively economical means of drilling in clays and in sands above the water

table. Samples are returned to the surface, or may be collected after withdrawal of the auger flights, but they are very disturbed and may be contaminated. Information from the drilling (as distinct from specific sampling by SPTs or undisturbed samples) is of relatively lower reliability, due to remoulding, contamination or softening of samples by ground water.

Non-core Rotary Drilling — the hole is advanced by a rotary bit, with water being pumped down the drill rods and returned up the annulus, carrying the drill cuttings. Only major changes in stratification can be determined from the cuttings, together with some information from 'feel' and rate of penetration.

Rotary Mud Drilling — similar to rotary drilling, but using drilling mud as a circulating fluid. The mud tends to mask the cuttings and reliable identification is again only possible from separate intact sampling (eg. from SPT).

Continuous Core Drilling — a continuous core sample is obtained using a diamond-tipped core barrel, usually 50 mm internal diameter. Provided full core recovery is achieved (which is not always possible in very weak rocks and granular soils), this technique provides a very reliable (but relatively expensive) method of investigation.

Standard Penetration Tests

Standard penetration tests (abbreviated as SPT) are used mainly in non-cohesive soils, but occasionally also in cohesive soils as a means of determining density or strength and also of obtaining a relatively undisturbed sample. The test procedure is described in Australian Standard 1289, "Methods of Testing Soils for Engineering Purposes" — Test 6.3.1.

The test is carried out in a borehole by driving a 50 mm diameter split sample tube under the impact of a 63 kg hammer with a free fall of 760 mm. It is normal for the tube to be driven in three successive 150 mm increments and the 'N' value is taken as the number of blows for the last 300 mm. In dense sands, very hard clays or weak rock, the full 450 mm penetration may not be practicable and the test is discontinued.

The test results are reported in the following form.

- In the case where full penetration is obtained with successive blow counts for each 150 mm of say 4, 6 and 7

  as 4, 6, 7
  N = 13

- In the case where the test is discontinued short of full penetration, say after 15 blows for the first 150 mm and 30 blows for the next 40 mm

  as 15, 30/40 mm.

The results of the tests can be related empirically to the engineering properties of the soil.

Occasionally, the test method is used to obtain samples in 50 mm diameter thin walled sample tubes in clays. In such circumstances, the test results are shown on the borelogs in brackets.

Cone Penetrometer Testing and Interpretation

Cone penetrometer testing (sometimes referred to as Dutch cone — abbreviated as CPT) described in this report has been carried out using an electrical friction cone penetrometer. The test is described in Australian Standard 1289, Test 6.4.1.

In the tests, a 35 mm diameter rod with a cone-tipped end is pushed continuously into the soil, the reaction being provided by a specially designed truck or rig which is fitted with an hydraulic ram system. Measurements are made of the end bearing resistance on the cone and the friction resistance on a separate 130 mm long sleeve, immediately behind the cone. Transducers in the tip of the assembly are connected by electrical wires passing through the centre of the push rods to an amplifier and recorder unit mounted on the control truck.

As penetration occurs (at a rate of approximately 20 mm per second) the information is plotted on a computer screen and at the end of the test is stored on the computer for later plotting of the results.

The information provided on the plotted results comprises: —

- Cone resistance — the actual end bearing force divided by the cross sectional area of the cone — expressed in MPa.
- Sleeve friction — the frictional force on the sleeve divided by the surface area — expressed in kPa.
- Friction ratio — the ratio of sleeve friction to cone resistance, expressed in percent.

There are two scales available for measurement of cone resistance. The lower scale (0—5 MPa) is used in very soft soils where increased sensitivity is required and is shown in the graphs as a dotted line. The main scale (0—50 MPa) is less sensitive and is shown as a full line.

The ratios of the sleeve friction to cone resistance will vary with the type of soil encountered, with higher relative friction in clays than in sands. Friction ratios of 1%—2% are commonly encountered in sands and very soft clays rising to 4%—10% in stiff clays.

In sands, the relationship between cone resistance and SPT value is commonly in the range:—

q_c (MPa) = (0.4 to 0.6) N (blows per 300 mm)

In clays, the relationship between undrained shear strength and cone resistance is commonly in the range:—

q_c = (12 to 18) c_u

Interpretation of CPT values can also be made to allow estimation of modulus or compressibility values to allow calculation of foundation settlements.

Inferred stratification as shown on the attached reports is assessed from the cone and friction traces and from experience and information from nearby boreholes, etc. This information is presented for general guidance, but must be regarded as being to some extent interpretive. The test method provides a continuous profile of engineering properties, and where precise information on soil classification is required, direct drilling and sampling may be preferable.

Hand Penetrometers

Hand penetrometer tests are carried out by driving a rod into the ground with a falling weight hammer and measuring the blows for successive 150 mm increments of penetration. Normally, there is a depth limitation of 1.2 m but this may be extended in certain conditions by the use of extension rods.

Two relatively similar tests are used.

- Perth sand penetrometer — a 16 mm diameter flat-ended rod is driven with a 9 kg hammer, dropping 600 mm (AS 1289, Test 6.3.3). This test was developed for testing the density of sands (originating in Perth) and is mainly used in granular soils and filling.
- Cone penetrometer (sometimes known as the Scala Penetrometer) — a 16 mm rod with a 20 mm diameter cone end is driven with a 9 kg hammer dropping 510 mm (AS 1289, Test 6.3.2). The test was developed initially for pavement subgrade investigations, and published correlations of the test results with California bearing ratio have been published by various Road Authorities.

Laboratory Testing

Laboratory testing is carried out in accordance with Australian Standard 1289 "Methods of Testing Soil for Engineering Purposes". Details of the test procedure used are given on the individual report forms.

Bore Logs

The bore logs presented herein are an engineering and/or geological interpretation of the subsurface conditions, and their reliability will depend to some extent on frequency of sampling and the method of drilling. Ideally, continuous undisturbed sampling or core drilling will provide the most reliable assessment, but this is not always practicable, or possible to justify on economic grounds. In any case, the boreholes represent only a very small sample of the total subsurface profile.

Interpretation of the information and its application to design and construction should therefore take into account the spacing of boreholes, the frequency of sampling and the possibility of other than 'straight line' variations between the boreholes.

Ground Water

Where ground water levels are measured in boreholes, there are several potential problems;

- In low permeability soils, ground water although present, may enter the hole slowly or perhaps not at all during the time it is left open.
- A localised perched water table may lead to an erroneous indication of the true water table.
- Water table levels will vary from time to time with seasons or recent weather changes. They may not be the same at the time of construction as are indicated in the report.
- The use of water or mud as a drilling fluid will mask any ground water inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water observations are to be made.

More reliable measurements can be made by installing standpipes which are read at intervals over several days, or perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from a perched water table.

Engineering Reports

Engineering reports are prepared by qualified personnel and are based on the information obtained and on current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal (eg. a three storey building), the information and interpretation may not be relevant if the design proposal is changed (eg. to a twenty storey building). If this happens, the Company will be pleased to review the report and the sufficiency of the investigation work.

Every care is taken with the report as it relates to interpretation of subsurface condition, discussion of geotechnical aspects and recommendations or suggestions for design and construction. However, the Company cannot always anticipate or assume responsibility for:

- unexpected variations in ground conditions — the potential for this will depend partly on bore spacing and sampling frequency
- changes in policy or interpretation of policy by statutory authorities
- the actions of contractors responding to commercial pressures.

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

Site Anomalies

In the event that conditions encountered on site during construction appear to vary from those which were expected from the information contained in the report, the Company requests that it immediately be notified. Most problems are much more readily resolved when conditions are exposed than at some later stage, well after the event.

Reproduction of Information for Contractual Purposes

Attention is drawn to the document "Guidelines for the Provision of Geotechnical Information in Tender Documents", published by the Institution of Engineers, Australia. Where information obtained from this investigation is provided for tendering purposes, it is recommended that all information, including the written report and discussion, be made available. In circumstances where the discussion or comments section

is not relevant to the contractual situation, it may be appropriate to prepare a specially edited document. The Company would be pleased to assist in this regard and/or to make additional report copies available for contract purposes at a nominal charge.

Site Inspection

The Company will always be pleased to provide engineering inspection services for geotechnical aspects of work to which this report is related. This could range from a site visit to confirm that conditions exposed are as expected, to full time engineering presence on site.

AN ENGINEERING CLASSIFICATION OF SEDIMENTARY ROCKS IN THE SYDNEY AREA

This classification system provides a standardized terminology for the engineering description of the sandstone and shales in the Sydney area, but the terms and definitions may be used elsewhere when applicable.

Under this system rocks are classified by Rock Type, Degree of Weathering, Strength, Stratification Spacing, and Degree of Fracturing. These terms do not cover the full range of engineering properties. Descriptions of rock may also need to refer to other properties (e.g. durability, abrasiveness, etc.) where these are relevant.

ROCK TYPE DEFINITIONS

Rock Type	Definition
Conglomerate:	More than 50% of the rock consists of gravel sized (greater than 2mm) fragments
Sandstone:	More than 50% of the rock consists of sand sized (.06 to 2mm) fragments
Siltstone:	More than 50% of the rock consists of silt-sized (less than 0.06mm) granular particles and the rock is not laminated
Claystone:	More than 50% of the rock consists of clay or sericitic material and the rock is not laminated
Shale:	More than 50% of the rock consists of silt or clay sized particles and the rock is laminated

Rocks possessing characteristics of two groups are described by their predominant particle size with reference also to the minor constituents, e.g. clayey sandstone, sandy shale.

DEGREE OF WEATHERING

Term	Symbol	Definition
Extremely Weathered	EW	Rock substance affected by weathering to the extent that the rock exhibits soil properties - i.e. it can be remoulded and can be classified according to the Unified Classification System, but the texture of the original rock is still evident.
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 or discolouration of the rock substance usually by limonite has taken place. The colour and texture of the fresh rock is no longer recognisable.
Slightly Weathered	SW	Rock substance affected by weathering to the extent that partial staining or discolouration of the rock substance usually by limonite has taken place. The colour and texture of the fresh rock is recognisable.
Fresh	Fs	Rock substance unaffected by weathering, limonite staining along joints.
Fresh	Fr	Rock substance unaffected by weathering.

STRATIFICATION SPACING

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

ROCK STRENGTH

Rock strength is defined by the Point Load Strength Index (Is 50) and refers to the strength of the rock substance in the direction normal to the bedding. The test procedure is described by the International Society of Rock Mechanics (Reference).

Strength Term	Is(50) MPa	Field Guide	Approx. qu MPa*
Extremely Low:	0.03	Easily remoulded by hand to a material with soil properties	0.7
Very Low:	0.1	May be crumbled in the hand. Sandstone is “sugary” and friable.	2.4
Low:	0.3	A piece of core 150 mm long x 50 mm dia. may be broken by hand and easily scored with a knife. Sharp edges of core may be friable and break during handling.	7
Medium:	1	A piece of core 150 mm long x 50 mm dia. can be broken by hand with considerable difficulty. Readily scored with knife.	24
High:	3	A piece of core 150 mm long x 50 mm dia. cannot be broken by unaided hands, can be slightly scratched or scored with knife.	70
Very High:	10	A piece of core 150 mm long x 50 mm dia. may be broken readily with hand held hammer. Cannot be scratched with pen knife.	240
Extremely High:		A piece of core 150 mm long x 50 mm dia. is difficult to break with hand held hammer. Rings when struck with a hammer.	

* The approximate unconfined compressive strength (qu) shownin the table is based on an assumed ratio to the point load index of 24:1. This ratio may vary widely.

DEGREE OF FRACTURING

This classification applies to diamond drill cores and refers to the spacing of all types of natural fractures along which the core is discontinuous. These include bedding plane partings, joints and other rock defects, but exclude known artificial fractures such as drilling breaks

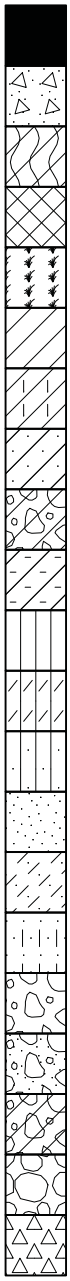
Term	Description
Fragmented:	The core is comprised primarily of fragments of length less than 20 mm, and mostly of width less than the core diameter.
Highly Fractured:	Core lengths are generally less than 20 mm - 40 mm with occasional fragments.
Fractured:	Core lengths are mainly 30 mm - 100 mm with occasional shorter and longer sections.
Slightly Fractured:	Core lengths are generally 300 mm - 1000 mm with occasional longer sections and occasional sections of 100 mm - 300 mm.
Unbroken:	The core does not contain any fracture.

REFERENCE

International Society of Rock Mechanics, Commission on Standardisation of Laboratory and Field Tests, Suggested Methods for Determining the Uniaxial Compressive Strength of Rock Materials and the Point Load Strength Index, Committee on Laboratory Tests Document No. 1 Final Draft October 1972

GRAPHIC SYMBOLS FOR SOIL & ROCK

SOIL



BITUMINOUS CONCRETE

CONCRETE

TOPSOIL

FILLING

PEAT

CLAY

SILTY CLAY

SANDY CLAY

GRAVELLY CLAY

SHALY CLAY

SILT

CLAYEY SILT

SANDY SILT

SAND

CLAYEY SAND

SILTY SAND

GRAVEL

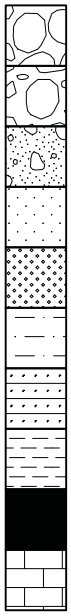
SANDY GRAVEL

CLAYEY GRAVEL

COBBLES/BOULDERS

TALUS

SEDIMENTARY ROCK



BOULDER CONGLOMERATE

CONGLOMERATE

CONGLOMERATIC SANDSTONE

SANDSTONE FINE GRAINED

SANDSTONE COARSE GRAINED

SILTSTONE

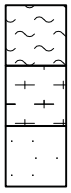
LAMINITE

MUDSTONE, CLAYSTONE, SHALE

COAL

LIMESTONE

METAMORPHIC ROCK

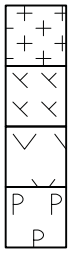


SLATE, PHYLITTE, SCHIST

GNEISS

QUARTZITE

IGNEOUS ROCK



GRANITE

DOLERITE, BASALT

TUFF

PORPHYRY

Douglas Partners
Geotechnics · Environment · Groundwater

CLIENT: Johnson Property Group Pty Ltd
DATE: 25.9.07
PROJECT: Proposed Trinity Point Marina
PROJECT NO: 39823B
LOCATION: Morisset Park, Lake Macquarie

Sample No	Container Type	Sample/Material Description	PID Reading (ppm)	Depth of Water at Time of Sampling (m)
SS1	2 jars and 1L bag and snap lock	Dark grey silty clayey sand, trace shell	1.1	1.8
SS2	2 jars and 1L bag and snap lock	Dark grey fine to medium grained silty clayey sand	0.8	3.3
SS3	2 jars and 1L bag and snap lock 2L water	Dark grey low plasticity silty sand/sandy silt, some clay	1.1	3.3
SS4	2 jars, 1L bag and snap lock and 2L water	Dark grey low plasticity silty sand/sandy silt, some clay	0.9	4.1
SS5/QA1	2 jars, 1L bag and snap lock and 2L water	Dark grey low plasticity silty sand/sandy silt, some clay	1.1	4.8
SS6	2 jars, 1L bag and snap lock and 2L water	Dark grey low plasticity silty sand/sandy silt, some clay	1.1	4.2
SS7	2 jars, 1L bag and snap lock and 2L water	Dark grey sandy clayey silt with trace shells	1.7	5.1
SS8	2 jars, 1L bag and snap lock and 2L water	Dark grey sandy clayey silt with trace shells	1.2	5.2
SS9	2 jars, 1L bag and snap lock and 2L water	Dark grey low plasticity sandy silty clay, trace shells	0.8	5.3
SS10	2 jars, 1L bag and snap lock and 2L water	Dark grey low plasticity sandy silty clay, trace shells	1.2	5.4
SS11	2 jars, 1L bag and snap lock and 2L water	Dark grey low plasticity sandy silty clay, trace shells	0.9	5.1
SS12	2 jars, 1L bag and snap lock and 2L water	Dark grey low plasticity sandy silty clay, trace shells	1.3	5.2
SS13	2 jars, 1L bag and snap lock and 2L water	Dark grey low plasticity sandy silty clay, trace shells	1.2	5.3
SS14	2 jars, 1L bag and snap lock and 2L water	Dark grey low plasticity sandy silty clay, trace shells	1.2	5.3
SS15	2 jars, 1L bag and snap lock and 2L water	Dark grey low plasticity sandy silty clay, trace shells	0.8	5.4

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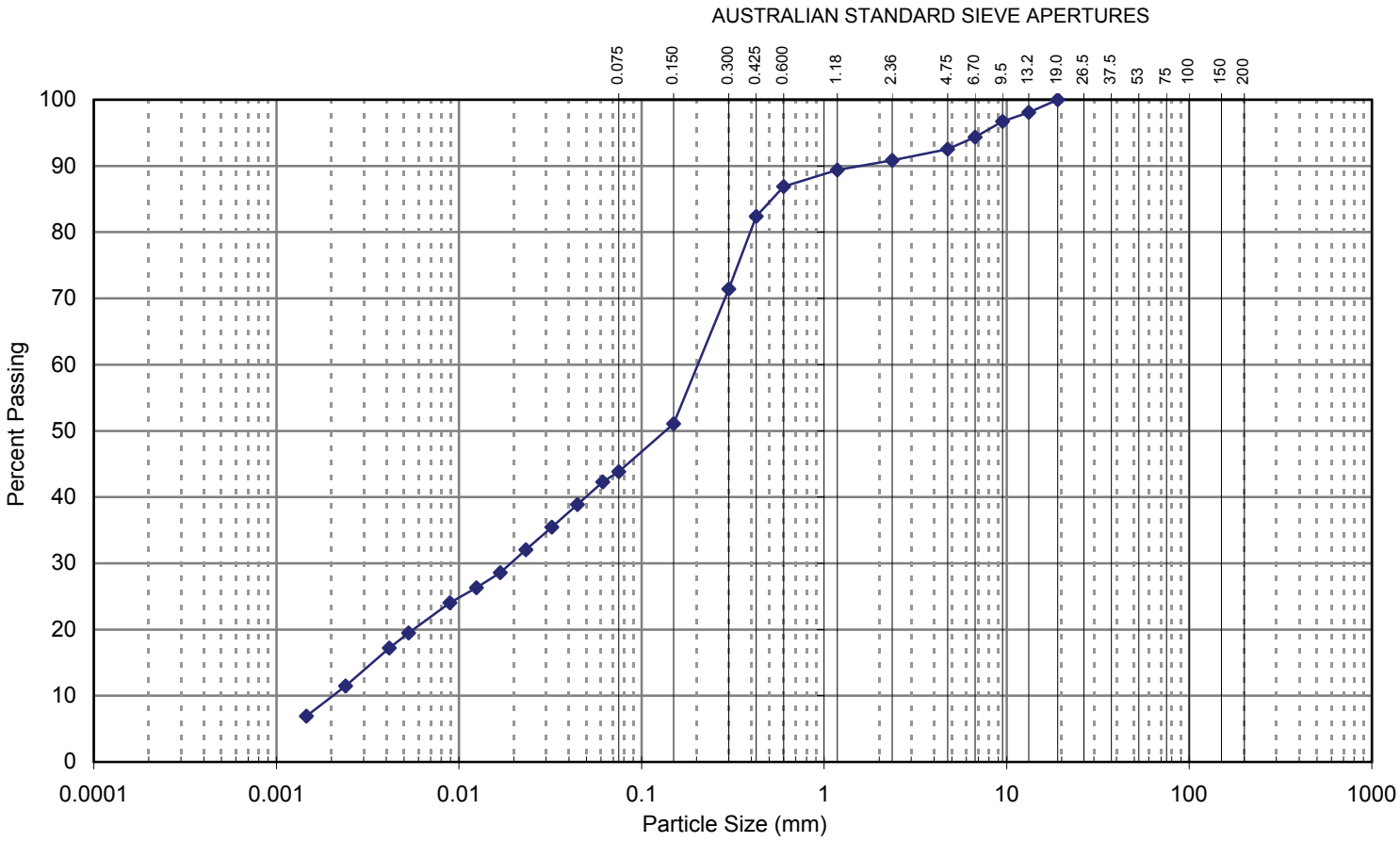
RESULTS OF PARTICLE SIZE DISTRIBUTION TEST

Client :	Johnson Property Group Pty Ltd	**Project No. :**	39823B
		Report No. :	N07-207
Project :	Trinity Point Marina & Mixed Use Resort	**Report Date :**	1/11/2007
Location :	off Henry Street, Morisset	**Date Sampled:**	-
Test Location :	201	**Date of Test:**	26/10/2007
Depth / Layer :	0.0-0.45m	**Page:**	1 of 1



CLAY FRACTION	SILT FRACTION			SAND FRACTION			GRAVEL FRACTION			COBBLES
	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	
0.002	0.006	0.02	0.06	0.2	0.6	2.0	6.0	20	60	

Description: Silty SAND/Sandy SILT

Test Method(s): AS 1289.3.6.3-1995 **Loss in pretreatment:** N/A

Sampling Method(s): AS 1289.1.2.1 (6.2) - 1998, AS 1289.1.1 - 2002 **Type of Hydrometer:** g/l

Method of Dispersion: Sodium Hexametaphosphate

Remarks:

NATA Accredited Laboratory Number: 828
This Document is issued in accordance with NATA's accreditation requirements.
Accredited for compliance with ISO/IEC 17025

Approved Signatory:

Tested:	DR
Checked:	DM

Dave Millard
Laboratory Manager

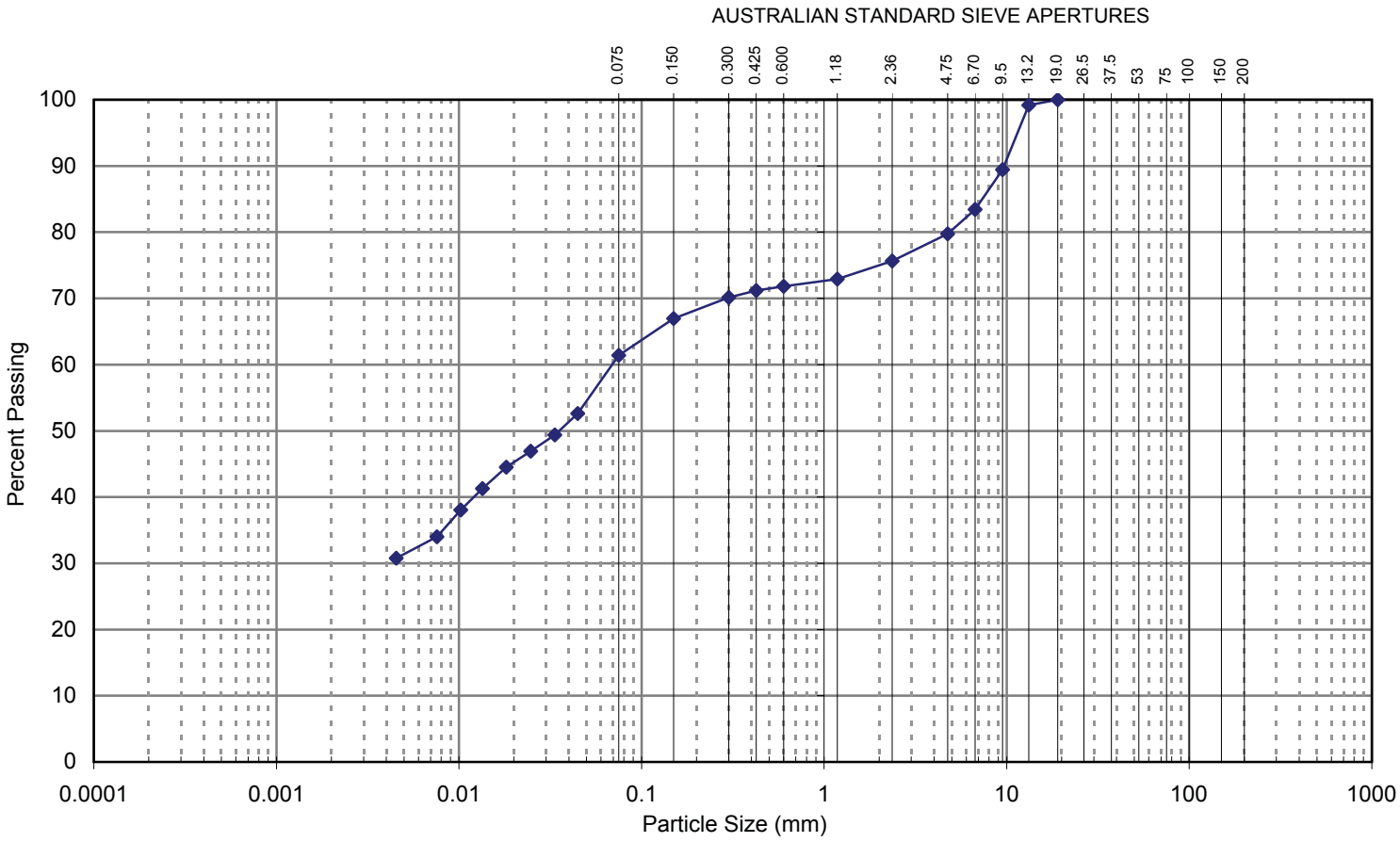
Douglas Partners
Geotechnics · Environment · Groundwater

Douglas Partners Pty Ltd
ABN 75 053 980 117
Box 324
Hunter Region Mail Centre NSW 2310
Australia

15 Callistemon Close
Warabrook NSW 2304
Phone (02) 4960 9600
Fax: (02) 4960 9601
newcastle@douglaspartners.com.au

RESULTS OF PARTICLE SIZE DISTRIBUTION TEST

Client :	Johnson Property Group Pty Ltd	**Project No. :**	39823B
		Report No. :	N07-207b
Project :	Trinity Point Marina & Mixed Use Resort	**Report Date :**	1/11/2007
Location :	off Henry Street, Morisset	**Date Sampled:**	-
Test Location :	202	**Date of Test:**	25/10/2007
Depth / Layer :	0.0-0.45m	**Page:**	1 of 1



CLAY FRACTION	SILT FRACTION			SAND FRACTION			GRAVEL FRACTION			COBBLES
	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	
0.002	0.006	0.02	0.06	0.2	0.6	2.0	6.0	20	60	

Description: Sandy Silty CLAY

Test Method(s): AS 1289.3.6.3-1995 **Loss in pretreatment:** N/A

Sampling Method(s): AS 1289.1.2.1 (6.2) - 1998, AS 1289.1.1 - 2002 **Type of Hydrometer:** g/l

Method of Dispersion: Sodium Hexametaphosphate

Remarks:

NATA Accredited Laboratory Number: 828
This Document is issued in accordance with NATA's accreditation requirements.
Accredited for compliance with ISO/IEC 17025

Approved Signatory:

Tested:	DR
Checked:	DM

Dave Millard
Laboratory Manager

24 October 2007 **TEST REPORT**

Douglas Partners Pty Ltd
Box 324
Hunter Region Mail Centre
NSW 2310

Your Reference: 39823B, Trinity Point (Soils)
Report Number: 55469B-R

Attention: Brent Kerry

Dear Brent
The following samples were received from you on the date indicated.

Samples: Qty.	17 Soils
Date of Receipt of Samples:	27/09/07 & 28/09/07
Date of Receipt of Instructions:	01/10/07@2.16pm
Date Preliminary Report Emailed:	Not Issued

These samples were analysed in accordance with your written instructions.
A copy of the instructions is attached with the analytical report.

The results and associated quality control are contained in the following pages of this report.
Unless otherwise stated, solid samples are expressed on a dry weight basis (moisture has been supplied for your information only), air and liquid samples as received.

Should you have any queries regarding this report please contact the undersigned.

This report cancels and supersedes report No. 55469B issued by SGS Environmental Services.
Yours faithfully
SGS ENVIRONMENTAL SERVICES

Ly Kim Ha
Senior Organic Chemist

Edward Ibrahim
Laboratory Services Manager

Alexandra Stenta
Key Account Representative

SGS Australia Pty Ltd
ABN 44 000 964 278
Environmental Services Unit 16, 33 Maddox Street, Alexandria Australia
t (02) 8594 0400 f (02) 8594 0499
www.au.sgs.com
Member of the SGS Group

PAHs in Soil Our Reference: Your Reference Sample Type Date Sampled	UNITS ---------- ----------	55469B-R-1 SS1 Soil 25/09/2007	55469B-R-2 SS2 Soil 25/09/2007	55469B-R-3 SS3 Soil 25/09/2007	55469B-R-4 SS4 Soil 25/09/2007	55469B-R-5 SS5 Soil 25/09/2007
Acenaphthene	µg/kg	<10	<10	<10	<10	<10
Acenaphthylene	µg/kg	<10	<10	<10	<10	<10
2-Methylnaphthalene	µg/kg	<10	10	10	10	10
Anthracene	µg/kg	<10	<10	<10	<10	10
Fluorene	µg/kg	<10	<10	<10	<10	<10
Naphthalene	µg/kg	<10	<10	<10	<10	<10
Phenanthrene	µg/kg	20	20	20	20	40
Low MW PAH's	µg/kg	<80	<80	<80	<80	<100
Benzo[*a*]anthracene	µg/kg	10	10	10	10	20
Benzo[*a*]pyrene	µg/kg	20	20	20	20	30
Dibenzo[*ah*]anthracene	µg/kg	<10	<10	<10	<10	<10
Chrysene	µg/kg	10	20	20	20	30
Fluoranthene	µg/kg	20	30	30	30	50
Pyrene	µg/kg	20	20	20	20	40
High MW PAH's	µg/kg	<90	<110	<110	<110	<180
p -Terphenyl-*d14*	%	106	106	108	108	110

PAHs in Soil Our Reference: Your Reference Sample Type Date Sampled	UNITS ---------- ----------	55469B-R-6 SS6 Soil 25/09/2007	55469B-R-7 SS7 Soil 25/09/2007	55469B-R-8 SS8 Soil 25/09/2007	55469B-R-9 SS9 Soil 25/09/2007	55469B-R-10 SS10 Soil 25/09/2007
Acenaphthene	µg/kg	<10	<20	<20	<20	<20
Acenaphthylene	µg/kg	<10	<20	<20	<20	<20
2-Methylnaphthalene	µg/kg	20	30	20	60	60
Anthracene	µg/kg	10	<20	<20	30	30
Fluorene	µg/kg	<10	<20	<20	<20	<20
Naphthalene	µg/kg	<10	<20	<20	<20	20
Phenanthrene	µg/kg	10	60	70	140	130
Low MW PAH's	µg/kg	<80	<190	<190	<310	<300
Benzo[*a*]anthracene	µg/kg	20	30	30	70	50
Benzo[*a*]pyrene	µg/kg	20	40	40	80	60
Dibenzo[*ah*]anthracene	µg/kg	<10	<20	<20	<20	<20
Chrysene	µg/kg	30	40	50	90	80
Fluoranthene	µg/kg	40	80	90	160	140
Pyrene	µg/kg	40	60	70	130	110
High MW PAH's	µg/kg	<160	<270	<300	<550	<460
p -Terphenyl-*d14*	%	112	108	108	110	112

PAHs in Soil Our Reference: Your Reference Sample Type Date Sampled	UNITS --- ---	55469B-R-11 SS11 Soil 25/09/2007	55469B-R-12 SS12 Soil 25/09/2007	55469B-R-13 SS13 Soil 25/09/2007	55469B-R-14 SS14 Soil 25/09/2007	55469B-R-15 SS15 Soil 25/09/2007
Acenaphthene	µg/kg	<20	<20	<20	<20	<20
Acenaphthylene	µg/kg	<20	<20	<20	<20	<20
2-Methylnaphthalene	µg/kg	50	30	40	20	40
Anthracene	µg/kg	30	<20	30	<20	30
Fluorene	µg/kg	<20	<20	<20	<20	<20
Naphthalene	µg/kg	<20	<20	<20	<20	<20
Phenanthrene	µg/kg	120	60	110	50	100
Low MW PAH's	µg/kg	<280	<190	<260	<170	<250
Benzo[*a*]anthracene	µg/kg	60	30	60	20	50
Benzo[*a*]pyrene	µg/kg	70	50	70	30	60
Dibenzo[*ah*]anthracene	µg/kg	<20	<20	<20	<20	<20
Chrysene	µg/kg	80	50	70	40	70
Fluoranthene	µg/kg	140	90	130	60	130
Pyrene	µg/kg	180	80	110	50	110
High MW PAH's	µg/kg	<550	<320	<460	<220	<440
p -Terphenyl-*d14*	%	104	100	112	102	148

PAHs in Soil Our Reference: Your Reference Sample Type Date Sampled	UNITS --- ---	55469B-R-16 QA1 Soil 25/09/2007	55469B-R-17 TB1 Soil 25/09/2007
Acenaphthene	µg/kg	<10	<10
Acenaphthylene	µg/kg	<10	<10
2-Methylnaphthalene	µg/kg	20	<10
Anthracene	µg/kg	<10	<10
Fluorene	µg/kg	<10	<10
Naphthalene	µg/kg	<10	<10
Phenanthrene	µg/kg	30	<10
Low MW PAH's	µg/kg	<100	<70
Benzo[*a*]anthracene	µg/kg	20	<10
Benzo[*a*]pyrene	µg/kg	20	<10
Dibenzo[*ah*]anthracene	µg/kg	<10	<10
Chrysene	µg/kg	20	<10
Fluoranthene	µg/kg	40	<10
Pyrene	µg/kg	30	<10
High MW PAH's	µg/kg	<140	<60
p -Terphenyl-*d14*	%	108	116

OC Pesticides in Soil Our Reference: Your Reference Sample Type Date Sampled	UNITS ---------- ----------	55469B-R-1 SS1 Soil 25/09/2007	55469B-R-2 SS2 Soil 25/09/2007	55469B-R-3 SS3 Soil 25/09/2007	55469B-R-4 SS4 Soil 25/09/2007	55469B-R-5 SS5 Soil 25/09/2007
OC		#	#	#	#	#

OC Pesticides in Soil Our Reference: Your Reference Sample Type Date Sampled	UNITS ---------- ----------	55469B-R-6 SS6 Soil 25/09/2007	55469B-R-7 SS7 Soil 25/09/2007	55469B-R-8 SS8 Soil 25/09/2007	55469B-R-9 SS9 Soil 25/09/2007	55469B-R-10 SS10 Soil 25/09/2007
OC		#	#	#	#	#

OC Pesticides in Soil Our Reference: Your Reference Sample Type Date Sampled	UNITS ---------- ----------	55469B-R-11 SS11 Soil 25/09/2007	55469B-R-12 SS12 Soil 25/09/2007	55469B-R-13 SS13 Soil 25/09/2007	55469B-R-14 SS14 Soil 25/09/2007	55469B-R-15 SS15 Soil 25/09/2007
OC		#	#	#	#	#

OC Pesticides in Soil Our Reference: Your Reference Sample Type Date Sampled	UNITS ---------- ----------	55469B-R-16 QA1 Soil 25/09/2007	55469B-R-17 TB1 Soil 25/09/2007
OC		#	#

OP Pesticides in Soil Our Reference: Your Reference Sample Type Date Sampled	UNITS ---------- ----------	55469B-R-1 SS1 Soil 25/09/2007	55469B-R-2 SS2 Soil 25/09/2007	55469B-R-3 SS3 Soil 25/09/2007	55469B-R-4 SS4 Soil 25/09/2007	55469B-R-5 SS5 Soil 25/09/2007
OP		#	#	#	#	#

OP Pesticides in Soil Our Reference: Your Reference Sample Type Date Sampled	UNITS ---------- ----------	55469B-R-6 SS6 Soil 25/09/2007	55469B-R-7 SS7 Soil 25/09/2007	55469B-R-8 SS8 Soil 25/09/2007	55469B-R-9 SS9 Soil 25/09/2007	55469B-R-10 SS10 Soil 25/09/2007
OP		#	#	#	#	#

OP Pesticides in Soil Our Reference: Your Reference Sample Type Date Sampled	UNITS ---------- ----------	55469B-R-11 SS11 Soil 25/09/2007	55469B-R-12 SS12 Soil 25/09/2007	55469B-R-13 SS13 Soil 25/09/2007	55469B-R-14 SS14 Soil 25/09/2007	55469B-R-15 SS15 Soil 25/09/2007
OP		#	#	#	#	#

OP Pesticides in Soil Our Reference: Your Reference Sample Type Date Sampled	UNITS ---------- ----------	55469B-R-16 QA1 Soil 25/09/2007	55469B-R-17 TB1 Soil 25/09/2007
OP		#	#

PCBs in Soil Our Reference: Your Reference Sample Type Date Sampled	UNITS ---------- ----------	55469B-R-1 SS1 Soil 25/09/2007	55469B-R-2 SS2 Soil 25/09/2007	55469B-R-3 SS3 Soil 25/09/2007	55469B-R-4 SS4 Soil 25/09/2007	55469B-R-5 SS5 Soil 25/09/2007
PCB		#	#	#	#	#

PCBs in Soil Our Reference: Your Reference Sample Type Date Sampled	UNITS ---------- ----------	55469B-R-6 SS6 Soil 25/09/2007	55469B-R-7 SS7 Soil 25/09/2007	55469B-R-8 SS8 Soil 25/09/2007	55469B-R-9 SS9 Soil 25/09/2007	55469B-R-10 SS10 Soil 25/09/2007
PCB		#	#	#	#	#

PCBs in Soil Our Reference: Your Reference Sample Type Date Sampled	UNITS ---------- ----------	55469B-R-11 SS11 Soil 25/09/2007	55469B-R-12 SS12 Soil 25/09/2007	55469B-R-13 SS13 Soil 25/09/2007	55469B-R-14 SS14 Soil 25/09/2007	55469B-R-15 SS15 Soil 25/09/2007
PCB		#	#	#	#	#

PCBs in Soil Our Reference: Your Reference Sample Type Date Sampled	UNITS ---------- ----------	55469B-R-16 QA1 Soil 25/09/2007	55469B-R-17 TB1 Soil 25/09/2007
PCB		#	#

Organtin Compounds Our Reference: Your Reference Sample Type Date Sampled	UNITS ---------- ----------	55469B-R-3 SS3 Soil 25/09/2007	55469B-R-5 SS5 Soil 25/09/2007	55469B-R-12 SS12 Soil 25/09/2007
Tributyltin	µgSn/kg	<0.5	<0.5	<0.5
Surrogate (Tripropyltin)	%	57	88	95

Inorganics Our Reference: Your Reference Sample Type Date Sampled	UNITS ---------- ----------	55469B-R-1 SS1 Soil 25/09/2007	55469B-R-2 SS2 Soil 25/09/2007	55469B-R-3 SS3 Soil 25/09/2007	55469B-R-4 SS4 Soil 25/09/2007	55469B-R-5 SS5 Soil 25/09/2007
Total Organic Carbon	%	2	1.0	1	0.8	1

Inorganics Our Reference: Your Reference Sample Type Date Sampled	UNITS ---------- ----------	55469B-R-6 SS6 Soil 25/09/2007	55469B-R-7 SS7 Soil 25/09/2007	55469B-R-8 SS8 Soil 25/09/2007	55469B-R-9 SS9 Soil 25/09/2007	55469B-R-10 SS10 Soil 25/09/2007
Total Organic Carbon	%	1	2	3	3	4

Inorganics Our Reference: Your Reference Sample Type Date Sampled	UNITS ---------- ----------	55469B-R-11 SS11 Soil 25/09/2007	55469B-R-12 SS12 Soil 25/09/2007	55469B-R-13 SS13 Soil 25/09/2007	55469B-R-14 SS14 Soil 25/09/2007	55469B-R-15 SS15 Soil 25/09/2007
Total Organic Carbon	%	3	3	4	3	3

Inorganics Our Reference: Your Reference Sample Type Date Sampled	UNITS ---------- ----------	55469B-R-16 QA1 Soil 25/09/2007	55469B-R-17 TB1 Soil 25/09/2007
Total Organic Carbon	%	0.7	<0.05

Method ID	Methodology Summary
Ext-003	Analysis subcontracted to SGS Environmental Perth.
SEO-030	PAHs by GC/MS - Determination of Polynuclear Aromatic Hydrocarbons (PAH's) by Gas Chromatography / Mass Spectrometry following extraction with dichloromethane or dichloromethane/acetone. The surrogate spike used is p-Terphenyl-d14.
Ext-048	Subcontracted analysis to Analytical National Measurement Institute, NSW.
Ext-041	Analysis subcontracted to Advanced Analytical Australia Pty Ltd.
CEI-019	This method is used to then determine the Total Organic Carbon in soils for agricultural purposes.

QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Acenaphthene	µg/kg	10	Ext-003	<10	55469B-2	<10 || <10	[NR]	[NR]
Acenaphthylene	µg/kg	10	Ext-003	<10	55469B-2	<10 || <10	[NR]	[NR]
2-Methylnaphthalene	µg/kg	10	SEO-030	<10	55469B-2	10 || 10 || RPD: 0	[NR]	[NR]
Anthracene	µg/kg	10	Ext-003	<10	55469B-2	<10 || <10	[NR]	[NR]
Fluorene	µg/kg	10	Ext-003	<10	55469B-2	<10 || <10	55469B-15	107 || 102 || RPD: 5
Naphthalene	µg/kg	10	Ext-003	<10	55469B-2	<10 || <10	55469B-15	104 || 92 || RPD: 12
Phenanthrene	µg/kg	10	Ext-003	<10	55469B-2	20 || 30 || RPD: 40	55469B-15	129 || 122 || RPD: 6
Low MW PAH's	µg/kg	70	Ext-003	<70	55469B-2	<80 || <90	[NR]	[NR]
Benzo[*a*]anthracene	µg/kg	10	Ext-003	<10	55469B-2	10 || 10 || RPD: 0	55469B-15	94 || 87 || RPD: 8
Benzo[*a*]pyrene	µg/kg	10	Ext-003	<10	55469B-2	20 || 20 || RPD: 0	55469B-15	93 || 86 || RPD: 8
Dibenzo[*ah*]anthracene	µg/kg	10	Ext-003	<10	55469B-2	<10 || <10	[NR]	[NR]
Chrysene	µg/kg	10	Ext-003	<10	55469B-2	20 || 20 || RPD: 0	[NR]	[NR]
Fluoranthene	µg/kg	10	Ext-003	<10	55469B-2	30 || 30 || RPD: 0	[NR]	[NR]
Pyrene	µg/kg	10	Ext-003	<10	55469B-2	20 || 20 || RPD: 0	55469B-15	104 || 97 || RPD: 7
High MW PAH's	µg/kg	60	Ext-003	<60	55469B-2	<110 || <110	[NR]	[NR]
p -Terphenyl-*d* 14	%	0	Ext-003	110	55469B-2	106 || 118 || RPD: 11	55469B-15	104 || 106 || RPD: 2

QUALITY CONTROL OC Pesticides in Soil	UNITS	PQL	METHOD	Blank
OC			Ext-048	#

QUALITY CONTROL OP Pesticides in Soil	UNITS	PQL	METHOD	Blank
OP			Ext-048	#

QUALITY CONTROL PCBs in Soil	UNITS	PQL	METHOD	Blank
PCB			Ext-048	#

QUALITY CONTROL Organtin Compounds	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Tributyltin	µgSn/kg	0.5	Ext-041	<0.5	55469B-3	<0.5 || <0.5	55469B-3	109 || [N/T]
Surrogate (Tripropyltin)	%		Ext-041	130	55469B-3	57 || 65 || RPD: 13	55469B-3	87 || [N/T]

QUALITY CONTROL Inorganics	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Total Organic Carbon	%	0.05	CEI-019	<0.05	55469B-1	2 || 2 || RPD: 0	55469B-2	89 || [N/T]

QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Acenaphthene	µg/kg	55469B-11	<20 || <20
Acenaphthylene	µg/kg	55469B-11	<20 || <20
2-Methylnaphthalene	µg/kg	55469B-11	50 || 60 || RPD: 18
Anthracene	µg/kg	55469B-11	30 || 30 || RPD: 0
Fluorene	µg/kg	55469B-11	<20 || <20
Naphthalene	µg/kg	55469B-11	<20 || <20
Phenanthrene	µg/kg	55469B-11	120 || 140 || RPD: 15
Low MW PAH's	µg/kg	55469B-11	<280 || <310
Benzo[*a*]anthracene	µg/kg	55469B-11	60 || 70 || RPD: 15
Benzo[*a*]pyrene	µg/kg	55469B-11	70 || 80 || RPD: 13
Dibenzo[*ah*]anthracene	µg/kg	55469B-11	<20 || 20
Chrysene	µg/kg	55469B-11	80 || 90 || RPD: 12
Fluoranthene	µg/kg	55469B-11	140 || 160 || RPD: 13
Pyrene	µg/kg	55469B-11	180 || 130 || RPD: 32
High MW PAH's	µg/kg	55469B-11	<550 || <550
p -Terphenyl-*d14*	%	55469B-11	104 || 108 || RPD: 4

QUALITY CONTROL Inorganics	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Total Organic Carbon	%	55469B-10	4 || 4 || RPD: 0	LCS	93 || [N/T]

Result Codes

[INS]	:	Insufficient Sample for this test	[HBG]	:	Results not Reported due to High Background Interference
[NR]	:	Not Requested	*	:	Not part of NATA Accreditation
[NT]	:	Not tested	[N/A]	:	Not Applicable

Result Comments

Low Level PAH's analysed by SGS Perth, Report No 13627A.

The LOR for sample numbers 7- 15 has been raised by a dilution factor of two due to sample matrix interference.

Low Level OC/OP/PCB's analysed by NMI, Report No. SGSA01/071002 (Report attached)

Tributyltin analysed by Advanced Analytical, Report No A07/2644.

Date Organics extraction commenced: 02/10/07
NATA Corporate Accreditation No. 2562, Site No 4354
Note: Test results are not corrected for recovery (excluding Dioxins/Furans* and PAH in XAD and PUF).

Quality Control Protocol

Reagent Blank: Sample free reagents carried through the preparation/extraction/digestion procedure and analysed at the beginning of every sample batch analysis. For larger projects, a reagent blank is prepared and analysed with every 20 samples.
Duplicate: A separate portion of a sample being analysed which is treated the same as the other samples in the batch. A duplicate is prepared at least every 10 samples.
Matrix Spike Duplicates: Sample replicates spiked with identical concentrations of target analyte(s). The spiking occurs during the sample preparation and prior to the extraction/digestion procedure. They are used to document the precision and bias of a method in a given sample matrix. Where there is not enough sample available to prepare a spiked sample, another known soil/sand or water (or Milli-Q water) may be used. A duplicate spiked sample is prepared at least every 20 samples.
Surrogate Spike: Added to all samples requiring analysis for organics (where relevant) prior to extraction. Used to determine the extraction efficiency. They are organic compounds which are similar to the target analyte(s) in chemical composition and behaviour in the analytical process, but which are not normally found in environmental samples.
Internal Standard: Added to all samples requiring analysis for organics (where relevant) after the extraction process; the compounds serve to give a standard of retention time and response, which is invariant from run-to-run with the instruments.
Control Standards: Prepared from a source independent of the calibration standards. At least one control standard is included in each run to confirm calibration validity.
Additional QC Samples: A calibration standard and blank are run after every 20 samples of an instrumental analysis run to assess analytical drift.

3 October 2007 **TEST REPORT**

Douglas Partners Pty Ltd
Box 324
Hunter Region Mail Centre
NSW 2310

Your Reference: 39823B, Trinity Point (Metals-Soils)
Report Number: 55469-R

Attention: Brent Kerry

Dear Brent
The following samples were received from you on the date indicated.

Samples:	Qty.	17 Soils
Date of Receipt of Samples:		27/09/07 & 28/09/07
Date of Receipt of Instructions:		28/09/07
Date Preliminary Report Emailed:		Not Issued

These samples were analysed in accordance with your written instructions.
A copy of the instructions is attached with the analytical report.

The results and associated quality control are contained in the following pages of this report.
Unless otherwise stated, solid samples are expressed on a dry weight basis (moisture has been supplied for your information only), air and liquid samples as received.

Should you have any queries regarding this report please contact the undersigned.

This report cancels and supersedes report No. 55469 issued by SGS Environmental Services due to incorrect level of reporting for SIlver in previous report.
Yours faithfully
SGS ENVIRONMENTAL SERVICES

Ly Kim Ha
Senior Organic Chemist

Edward Ibrahim
Laboratory Services Manager

Alexandra Stenta
Key Account Representative

Metals in Soil by ICP-OES Our Reference: Your Reference Sample Type Date Sampled	UNITS ---------- ----------	55469-R-1 SS1 Soil 25/09/2007	55469-R-2 SS2 Soil 25/09/2007	55469-R-3 SS3 Soil 25/09/2007	55469-R-4 SS4 Soil 25/09/2007	55469-R-5 SS5 Soil 25/09/2007
Arsenic	mg/kg	6	16	18	22	15
Antimony	mg/kg	<2	<2	<2	<2	<2
Cadmium	mg/kg	1.5	0.6	0.7	0.6	0.6
Chromium	mg/kg	4.9	7.6	7.8	6.7	6.4
Copper	mg/kg	12	13	14	10	9.4
Lead	mg/kg	7	9.9	10	9.1	8
Nickel	mg/kg	3.0	3.7	3.9	3.9	3.5
Silver	mg/kg	<1	<1	<1	<1	<1
Selenium	mg/kg	<2	<2	<2	<2	<2
Zinc	mg/kg	46	48	51	47	44

Metals in Soil by ICP-OES Our Reference: Your Reference Sample Type Date Sampled	UNITS ---------- ----------	55469-R-6 SS6 Soil 25/09/2007	55469-R-7 SS7 Soil 25/09/2007	55469-R-8 SS8 Soil 25/09/2007	55469-R-9 SS9 Soil 25/09/2007	55469-R-10 SS10 Soil 25/09/2007
Arsenic	mg/kg	12	18	15	15	13
Antimony	mg/kg	<2	<2	<2	<2	<2
Cadmium	mg/kg	<0.5	1.3	1.6	1.4	1.4
Chromium	mg/kg	8.0	17	18	18	17
Copper	mg/kg	14	22	23	33	30
Lead	mg/kg	9.8	18	20	23	22
Nickel	mg/kg	3.8	7.5	7.9	7.7	7.1
Silver	mg/kg	<1	<1	<1	<1	<1
Selenium	mg/kg	<2	4	<2	2	2
Zinc	mg/kg	56	110	130	140	140

Metals in Soil by ICP-OES Our Reference: Your Reference Sample Type Date Sampled	UNITS ---------- ----------	55469-R-11 SS11 Soil 25/09/2007	55469-R-12 SS12 Soil 25/09/2007	55469-R-13 SS13 Soil 25/09/2007	55469-R-14 SS14 Soil 25/09/2007	55469-R-15 SS15 Soil 25/09/2007
Arsenic	mg/kg	18	17	17	15	16
Antimony	mg/kg	<2	<2	<2	<2	<2
Cadmium	mg/kg	1.9	1.7	1.7	0.8	1.8
Chromium	mg/kg	23	19	21	15	21
Copper	mg/kg	37	22	34	14	31
Lead	mg/kg	28	21	25	14	26
Nickel	mg/kg	9.4	8.5	8.9	7.3	8.6
Silver	mg/kg	<1	<1	<1	<1	<1
Selenium	mg/kg	3	3	2	2	3
Zinc	mg/kg	170	120	160	72	160

Metals in Soil by ICP-OES Our Reference: Your Reference Sample Type Date Sampled	UNITS ---------- ----------	55469-R-16 QA1 Soil 25/09/2007	55469-R-17 TB1 Soil 25/09/2007
Arsenic	mg/kg	20	<3
Antimony	mg/kg	<2	<2
Cadmium	mg/kg	0.7	<0.5
Chromium	mg/kg	7.6	0.6
Copper	mg/kg	10	0.6
Lead	mg/kg	9.6	<2
Nickel	mg/kg	4.3	<0.2
Silver	mg/kg	<1	<1
Selenium	mg/kg	<2	<2
Zinc	mg/kg	52	0.93

Mercury,Cold Vapor/Hg Analyser						
Our Reference:	UNITS	55469-R-1	55469-R-2	55469-R-3	55469-R-4	55469-R-5
Your Reference	----------	SS1	SS2	SS3	SS4	SS5
Sample Type	----------	Soil	Soil	Soil	Soil	Soil
Date Sampled		25/09/2007	25/09/2007	25/09/2007	25/09/2007	25/09/2007
Mercury	mg/kg	<0.15	<0.15	<0.15	<0.15	<0.15

Mercury,Cold Vapor/Hg Analyser						
Our Reference:	UNITS	55469-R-6	55469-R-7	55469-R-8	55469-R-9	55469-R-10
Your Reference	----------	SS6	SS7	SS8	SS9	SS10
Sample Type	----------	Soil	Soil	Soil	Soil	Soil
Date Sampled		25/09/2007	25/09/2007	25/09/2007	25/09/2007	25/09/2007
Mercury	mg/kg	<0.15	<0.15	<0.15	<0.15	<0.15

Mercury,Cold Vapor/Hg Analyser						
Our Reference:	UNITS	55469-R-11	55469-R-12	55469-R-13	55469-R-14	55469-R-15
Your Reference	----------	SS11	SS12	SS13	SS14	SS15
Sample Type	----------	Soil	Soil	Soil	Soil	Soil
Date Sampled		25/09/2007	25/09/2007	25/09/2007	25/09/2007	25/09/2007
Mercury	mg/kg	<0.15	<0.15	<0.15	<0.15	<0.15

Mercury,Cold Vapor/Hg Analyser			
Our Reference:	UNITS	55469-R-16	55469-R-17
Your Reference	----------	QA1	TB1
Sample Type	----------	Soil	Soil
Date Sampled		25/09/2007	25/09/2007
Mercury	mg/kg	<0.15	<0.15

Moisture						
Our Reference:	UNITS	55469-R-1	55469-R-2	55469-R-3	55469-R-4	55469-R-5
Your Reference	----------	SS1	SS2	SS3	SS4	SS5
Sample Type	----------	Soil	Soil	Soil	Soil	Soil
Date Sampled		25/09/2007	25/09/2007	25/09/2007	25/09/2007	25/09/2007
Moisture	%	42	33	35	38	26

Moisture						
Our Reference:	UNITS	55469-R-6	55469-R-7	55469-R-8	55469-R-9	55469-R-10
Your Reference	----------	SS6	SS7	SS8	SS9	SS10
Sample Type	----------	Soil	Soil	Soil	Soil	Soil
Date Sampled		25/09/2007	25/09/2007	25/09/2007	25/09/2007	25/09/2007
Moisture	%	33	66	65	66	65

Moisture						
Our Reference:	UNITS	55469-R-11	55469-R-12	55469-R-13	55469-R-14	55469-R-15
Your Reference	----------	SS11	SS12	SS13	SS14	SS15
Sample Type	----------	Soil	Soil	Soil	Soil	Soil
Date Sampled		25/09/2007	25/09/2007	25/09/2007	25/09/2007	25/09/2007
Moisture	%	69	65	66	62	63

Moisture			
Our Reference:	UNITS	55469-R-16	55469-R-17
Your Reference	----------	QA1	TB1
Sample Type	----------	Soil	Soil
Date Sampled		25/09/2007	25/09/2007
Moisture	%	33	1

Method ID	Methodology Summary
SEM-010	Metals - Determination of various metals by ICP-AES following aqua regia digest.
SEM-005	Mercury - Determination of Mercury by Cold Vapour Generation Atomic Absorption Spectroscopy.
AN002	Preparation of soils, sediments and sludges undergo analysis by either air drying, compositing, subsampling and 1:5 soil water extraction where required. Moisture content is determined by drying the sample at 105 ± 5°C.

QUALITY CONTROL Metals in Soil by ICP-OES	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Arsenic	mg/kg	3	SEM-010	<3	55469-1	6 || 8 || RPD: 29	55469-2	96 || [N/T]
Antimony	mg/kg	2	SEM-010	<3	55469-1	<2 || <2	55469-2	87 || [N/T]
Cadmium	mg/kg	0.5	SEM-010	<0.5	55469-1	1.5 || 1.8 || RPD: 18	55469-2	94 || [N/T]
Chromium	mg/kg	0.5	SEM-010	<0.5	55469-1	4.9 || 5.5 || RPD: 12	55469-2	96 || [N/T]
Copper	mg/kg	0.5	SEM-010	<0.5	55469-1	12 || 14 || RPD: 15	55469-2	93 || [N/T]
Lead	mg/kg	2	SEM-010	<2	55469-1	7 || 8 || RPD: 13	55469-2	83 || [N/T]
Nickel	mg/kg	0.2	SEM-010	<0.5	55469-1	3.0 || 3.4 || RPD: 12	55469-2	91 || [N/T]
Silver	mg/kg	1	SEM-010	<2	55469-1	<1 || <1	55469-2	100 || [N/T]
Selenium	mg/kg	2	SEM-010	<2	55469-1	<2 || <2	55469-2	81 || [N/T]
Zinc	mg/kg	0.5	SEM-010	<0.5	55469-1	46 || 52 || RPD: 12	55469-2	87 || [N/T]

QUALITY CONTROL Mercury,Cold Vapor/Hg Analyser	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Mercury	mg/kg	0.15	SEM-005	<0.15	55469-1	<0.15 || <0.15	55469-2	80 || [N/T]

QUALITY CONTROL Moisture	UNITS	PQL	METHOD	Blank
Moisture	%	1	AN002	<1

QUALITY CONTROL Metals in Soil by ICP-OES	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Arsenic	mg/kg	55469-11	18 || 21 || RPD: 15
Antimony	mg/kg	55469-11	<2 || <2
Cadmium	mg/kg	55469-11	1.9 || 2.2 || RPD: 15
Chromium	mg/kg	55469-11	23 || 25 || RPD: 8
Copper	mg/kg	55469-11	37 || 42 || RPD: 13
Lead	mg/kg	55469-11	28 || 31 || RPD: 10
Nickel	mg/kg	55469-11	9.4 || 10 || RPD: 6
Silver	mg/kg	55469-11	<1 || [N/T]
Selenium	mg/kg	55469-11	3 || 2 || RPD: 40
Zinc	mg/kg	55469-11	170 || 190 || RPD: 11

QUALITY CONTROL Mercury,Cold Vapor/Hg Analyser	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Mercury	mg/kg	55469-11	<0.15 || <0.15

Result Codes

[INS]	:	Insufficient Sample for this test	[HBG]	:	Results not Reported due to High Background Interference
[NR]	:	Not Requested	*	:	Not part of NATA Accreditation
[NT]	:	Not tested	[N/A]	:	Not Applicable

Result Comments

Date Organics extraction commenced: N/A
NATA Corporate Accreditation No. 2562, Site No 4354
Note: Test results are not corrected for recovery (excluding Dioxins/Furans* and PAH in XAD and PUF).
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Quality Control Protocol

Reagent Blank: Sample free reagents carried through the preparation/extraction/digestion procedure and analysed at the beginning of every sample batch analysis. For larger projects, a reagent blank is prepared and analysed with every 20 samples.
Duplicate: A separate portion of a sample being analysed which is treated the same as the other samples in the batch. A duplicate is prepared at least every 10 samples.
Matrix Spike Duplicates: Sample replicates spiked with identical concentrations of target analyte(s). The spiking occurs during the sample preparation and prior to the extraction/digestion procedure. They are used to document the precision and bias of a method in a given sample matrix. Where there is not enough sample available to prepare a spiked sample, another known soil/sand or water (or Milli-Q water) may be used. A duplicate spiked sample is prepared at least every 20 samples.
Surrogate Spike: Added to all samples requiring analysis for organics (where relevant) prior to extraction. Used to determine the extraction efficiency. They are organic compounds which are similar to the target analyte(s) in chemical composition and behaviour in the analytical process, but which are not normally found in environmental samples.
Internal Standard: Added to all samples requiring analysis for organics (where relevant) after the extraction process; the compounds serve to give a standard of retention time and response, which is invariant from run-to-run with the instruments.
Control Standards: Prepared from a source independent of the calibration standards. At least one control standard is included in each run to confirm calibration validity.
Additional QC Samples: A calibration standard and blank are run after every 20 samples of an instrumental analysis run to assess analytical drift.

REPORT OF ANALYSIS

Client	: SGS AUST ENVIRONMENTAL SRVS	Job No.	: SGSA01/071002
	UNIT 16	Quote No.	: QT-00782
	33 MADDOX ST	Order No.	:
	ALEXANDRIA NSW 2015	Date Sampled	:
		Date Received	: 2-OCT-2007
Attention	: ANGELA	Sampled By	: CLIENT
Project Name	:		
Your Client Services Manager	: BRIAN WOODWARD	Phone	: (02) 94490151

Lab Reg No.	Sample Ref	Sample Description
N07/035035	55469B-1	SOIL RN55469B
N07/035036	55469B-2	SOIL RN55469B
N07/035037	55469B-3	SOIL RN55469B
N07/035038	55469B-4	SOIL RN55469B

Lab Reg No.		N07/035035	N07/035036	N07/035037	N07/035038	
Sample Reference	Units	55469B-1	55469B-2	55469B-3	55469B-4	Method
Organochlorine (OC) Pesticides						
HCB	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
Heptachlor	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
Heptachlor epoxide	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
Aldrin	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
gamma-BHC (Lindane)	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
alpha-BHC	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
beta-BHC	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
delta-BHC	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
trans-Chlordane	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
cis-Chlordane	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
Oxychlordane	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
Dieldrin	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
pp-DDE	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
pp-DDD	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
pp-DDT	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
Endrin	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
Endrin Aldehyde	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
Endrin Ketone	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
alpha-Endosulfan	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
beta-Endosulfan	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
Endosulfan Sulfate	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
Methoxychlor	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
PCB Aroclors						
Aroclor 1016	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Aroclor 1221	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Aroclor 1232	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Aroclor 1242	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Aroclor 1248	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19

REPORT OF ANALYSIS

Lab Reg No.		N07/035035	N07/035036	N07/035037	N07/035038	
Sample Reference	Units	55469B-1	55469B-2	55469B-3	55469B-4	Method
PCB Aroclors						
Aroclor 1254	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Aroclor 1260	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Total PCB's (as above)	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Organophosphate (OP) Pesticides						
Dichlorvos	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Demeton-S-Methyl	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Diazinon	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Dimethoate	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Chlorpyrifos	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Chlorpyrifos Methyl	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Malathion	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Fenthion	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Ethion	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Fenitrothion	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Chlorfenvinphos (E)	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Chlorfenvinphos (Z)	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Parathion (Ethyl)	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Parathion Methyl	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Pirimiphos Methyl	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Pirimiphos Ethyl	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Azinphos Methyl	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Azinphos Ethyl	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Surrogate						
Surrogate OC Rec.	%	75	74	89	88	NR_19
Surrogate OP Rec.	%	107	105	108	108	NR_19
Dates						
Date extracted		5-OCT-2007	5-OCT-2007	5-OCT-2007	5-OCT-2007	
Date analysed		8-OCT-2007	8-OCT-2007	8-OCT-2007	8-OCT-2007	

Danny Slee, Section Manager
Organics - NSW
Accreditation No. 198

9-OCT-2007

REPORT OF ANALYSIS

Lab Reg No.		N07/035035	N07/035036	N07/035037	N07/035038	
Sample Reference	Units	55469B-1	55469B-2	55469B-3	55469B-4	Method
Trace Elements						
Total Solids	%	55.9	65.3	62.3	65.2	NT2_49

Nasir Shikdar, Analyst
Inorganics - NSW
Accreditation No. 198

9-OCT-2007

REPORT OF ANALYSIS

Client	: SGS AUST ENVIRONMENTAL SRVS	Job No.	: SGSA01/071002
	UNIT 16	Quote No.	: QT-00782
	33 MADDOX ST	Order No.	:
	ALEXANDRIA NSW 2015	Date Sampled	:
		Date Received	: 2-OCT-2007
Attention	: ANGELA	Sampled By	: CLIENT
Project Name	:		
Your Client Services Manager	: BRIAN WOODWARD	Phone	: (02) 94490151

Lab Reg No.	Sample Ref	Sample Description
N07/035039	55469B-5	SOIL RN55469B
N07/035040	55469B-6	SOIL RN55469B
N07/035041	55469B-7	SOIL RN55469B
N07/035042	55469B-8	SOIL RN55469B

Lab Reg No.		N07/035039	N07/035040	N07/035041	N07/035042	
Sample Reference	Units	55469B-5	55469B-6	55469B-7	55469B-8	Method
Organochlorine (OC) Pesticides						
HCB	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
Heptachlor	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
Heptachlor epoxide	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
Aldrin	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
gamma-BHC (Lindane)	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
alpha-BHC	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
beta-BHC	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
delta-BHC	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
trans-Chlordane	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
cis-Chlordane	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
Oxychlordane	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
Dieldrin	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
pp-DDE	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
pp-DDD	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
pp-DDT	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
Endrin	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
Endrin Aldehyde	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
Endrin Ketone	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
alpha-Endosulfan	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
beta-Endosulfan	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
Endosulfan Sulfate	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
Methoxychlor	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
PCB Aroclors						
Aroclor 1016	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Aroclor 1221	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Aroclor 1232	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Aroclor 1242	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Aroclor 1248	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19

REPORT OF ANALYSIS

Lab Reg No.		N07/035039	N07/035040	N07/035041	N07/035042	
Sample Reference	Units	55469B-5	55469B-6	55469B-7	55469B-8	Method
PCB Aroclors						
Aroclor 1254	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Aroclor 1260	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Total PCB's (as above)	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Organophosphate (OP) Pesticides						
Dichlorvos	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Demeton-S-Methyl	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Diazinon	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Dimethoate	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Chlorpyrifos	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Chlorpyrifos Methyl	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Malathion	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Fenthion	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Ethion	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Fenitrothion	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Chlorfenvinphos (E)	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Chlorfenvinphos (Z)	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Parathion (Ethyl)	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Parathion Methyl	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Pirimiphos Methyl	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Pirimiphos Ethyl	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Azinphos Methyl	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Azinphos Ethyl	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Surrogate						
Surrogate OC Rec.	%	94	92	81	90	NR_19
Surrogate OP Rec.	%	82	66	75	94	NR_19
Dates						
Date extracted		5-OCT-2007	5-OCT-2007	5-OCT-2007	5-OCT-2007	
Date analysed		8-OCT-2007	8-OCT-2007	8-OCT-2007	8-OCT-2007	

Danny Slee, Section Manager
Organics - NSW
Accreditation No. 198

9-OCT-2007

REPORT OF ANALYSIS

Lab Reg No.		N07/035039	N07/035040	N07/035041	N07/035042	
Sample Reference	Units	55469B-5	55469B-6	55469B-7	55469B-8	Method
Trace Elements						
Total Solids	%	58.2	64	35	33.1	NT2_49

Nasir Shikdar, Analyst
Inorganics - NSW
Accreditation No. 198

9-OCT-2007

REPORT OF ANALYSIS

Client	: SGS AUST ENVIRONMENTAL SRVS	Job No.	: SGSA01/071002
	UNIT 16	Quote No.	: QT-00782
	33 MADDOX ST	Order No.	:
	ALEXANDRIA NSW 2015	Date Sampled	:
		Date Received	: 2-OCT-2007
Attention	: ANGELA	Sampled By	: CLIENT
Project Name	:		
Your Client Services Manager	: BRIAN WOODWARD	Phone	: (02) 94490151

Lab Reg No.	Sample Ref	Sample Description
N07/035043	55469B-9	SOIL RN55469B
N07/035044	55469B-10	SOIL RN55469B
N07/035045	55469B-11	SOIL RN55469B
N07/035046	55469B-12	SOIL RN55469B

Lab Reg No.		N07/035043	N07/035044	N07/035045	N07/035046	
Sample Reference	Units	55469B-9	55469B-10	55469B-11	55469B-12	Method
Organochlorine (OC) Pesticides						
HCB	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
Heptachlor	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
Heptachlor epoxide	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
Aldrin	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
gamma-BHC (Lindane)	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
alpha-BHC	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
beta-BHC	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
delta-BHC	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
trans-Chlordane	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
cis-Chlordane	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
Oxychlordane	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
Dieldrin	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
pp-DDE	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
pp-DDD	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
pp-DDT	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
Endrin	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
Endrin Aldehyde	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
Endrin Ketone	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
alpha-Endosulfan	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
beta-Endosulfan	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
Endosulfan Sulfate	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
Methoxychlor	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
PCB Aroclors						
Aroclor 1016	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Aroclor 1221	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Aroclor 1232	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Aroclor 1242	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Aroclor 1248	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19

REPORT OF ANALYSIS

Lab Reg No.		N07/035043	N07/035044	N07/035045	N07/035046	
Sample Reference	Units	55469B-9	55469B-10	55469B-11	55469B-12	Method
PCB Aroclors						
Aroclor 1254	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Aroclor 1260	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Total PCB's (as above)	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Organophosphate (OP) Pesticides						
Dichlorvos	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Demeton-S-Methyl	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Diazinon	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Dimethoate	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Chlorpyrifos	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Chlorpyrifos Methyl	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Malathion	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Fenthion	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Ethion	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Fenitrothion	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Chlorfenvinphos (E)	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Chlorfenvinphos (Z)	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Parathion (Ethyl)	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Parathion Methyl	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Pirimiphos Methyl	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Pirimiphos Ethyl	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Azinphos Methyl	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Azinphos Ethyl	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Surrogate						
Surrogate OC Rec.	%	88	93	79	73	NR_19
Surrogate OP Rec.	%	100	86	131	133	NR_19
Dates						
Date extracted		5-OCT-2007	5-OCT-2007	5-OCT-2007	5-OCT-2007	
Date analysed		8-OCT-2007	8-OCT-2007	8-OCT-2007	8-OCT-2007	

Danny Slee, Section Manager
Organics - NSW
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REPORT OF ANALYSIS

Lab Reg No.		N07/035043	N07/035044	N07/035045	N07/035046	
Sample Reference	Units	55469B-9	55469B-10	55469B-11	55469B-12	Method
Trace Elements						
Total Solids	%	34	36.5	32	37.3	NT2_49

Nasir Shikdar, Analyst
Inorganics - NSW
Accreditation No. 198

9-OCT-2007

REPORT OF ANALYSIS

Client	: SGS AUST ENVIRONMENTAL SRVS	Job No.	: SGSA01/071002
	UNIT 16	Quote No.	: QT-00782
	33 MADDOX ST	Order No.	:
	ALEXANDRIA NSW 2015	Date Sampled	:
		Date Received	: 2-OCT-2007
Attention	: ANGELA	Sampled By	: CLIENT
Project Name	:		
Your Client Services Manager	: BRIAN WOODWARD	Phone	: (02) 94490151

Lab Reg No.	Sample Ref	Sample Description
N07/035047	55469B-13	SOIL RN55469B
N07/035048	55469B-14	SOIL RN55469B
N07/035049	55469B-15	SOIL RN55469B
N07/035050	55469B-16	SOIL RN55469B

Lab Reg No.		N07/035047	N07/035048	N07/035049	N07/035050	
Sample Reference	Units	55469B-13	55469B-14	55469B-15	55469B-16	Method
Organochlorine (OC) Pesticides						
HCB	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
Heptachlor	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
Heptachlor epoxide	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
Aldrin	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
gamma-BHC (Lindane)	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
alpha-BHC	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
beta-BHC	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
delta-BHC	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
trans-Chlordane	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
cis-Chlordane	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
Oxychlordane	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
Dieldrin	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
pp-DDE	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
pp-DDD	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
pp-DDT	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
Endrin	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
Endrin Aldehyde	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
Endrin Ketone	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
alpha-Endosulfan	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
beta-Endosulfan	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
Endosulfan Sulfate	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
Methoxychlor	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	NR_19
PCB Aroclors						
Aroclor 1016	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Aroclor 1221	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Aroclor 1232	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Aroclor 1242	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Aroclor 1248	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19

REPORT OF ANALYSIS

Lab Reg No.		N07/035047	N07/035048	N07/035049	N07/035050	
Sample Reference	Units	55469B-13	55469B-14	55469B-15	55469B-16	Method
PCB Aroclors						
Aroclor 1254	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Aroclor 1260	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Total PCB's (as above)	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Organophosphate (OP) Pesticides						
Dichlorvos	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Demeton-S-Methyl	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Diazinon	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Dimethoate	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Chlorpyrifos	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Chlorpyrifos Methyl	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Malathion	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Fenthion	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Ethion	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Fenitrothion	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Chlorfenvinphos (E)	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Chlorfenvinphos (Z)	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Parathion (Ethyl)	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Parathion Methyl	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Pirimiphos Methyl	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Pirimiphos Ethyl	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Azinphos Methyl	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Azinphos Ethyl	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	NR_19
Surrogate						
Surrogate OC Rec.	%	80	76	70	84	NR_19
Surrogate OP Rec.	%	146	84	90	92	NR_19
Dates						
Date extracted		5-OCT-2007	5-OCT-2007	5-OCT-2007	5-OCT-2007	
Date analysed		8-OCT-2007	8-OCT-2007	8-OCT-2007	8-OCT-2007	

Danny Slee, Section Manager
Organics - NSW
Accreditation No. 198

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REPORT OF ANALYSIS

Lab Reg No.		N07/035047	N07/035048	N07/035049	N07/035050	
Sample Reference	Units	55469B-13	55469B-14	55469B-15	55469B-16	Method
Trace Elements						
Total Solids	%	35	38.9	35.3	59.2	NT2_49

Nasir Shikdar, Analyst
Inorganics - NSW
Accreditation No. 198

9-OCT-2007

REPORT OF ANALYSIS

Client	: SGS AUST ENVIRONMENTAL SRVS	Job No.	: SGSA01/071002
	UNIT 16	Quote No.	: QT-00782
	33 MADDOX ST	Order No.	:
	ALEXANDRIA NSW 2015	Date Sampled	:
		Date Received	: 2-OCT-2007
Attention	: ANGELA	Sampled By	: CLIENT
Project Name	:		
Your Client Services Manager	: BRIAN WOODWARD	Phone	: (02) 94490151

Lab Reg No.	Sample Ref	Sample Description
N07/035051	55469B-17	SOIL RN55469B

Lab Reg No.		N07/035051				
Sample Reference	Units	55469B-17				Method
Organochlorine (OC) Pesticides						
HCB	mg/kg	< 0.001				NR_19
Heptachlor	mg/kg	< 0.001				NR_19
Heptachlor epoxide	mg/kg	< 0.001				NR_19
Aldrin	mg/kg	< 0.001				NR_19
gamma-BHC (Lindane)	mg/kg	< 0.001				NR_19
alpha-BHC	mg/kg	< 0.001				NR_19
beta-BHC	mg/kg	< 0.001				NR_19
delta-BHC	mg/kg	< 0.001				NR_19
trans-Chlordane	mg/kg	< 0.001				NR_19
cis-Chlordane	mg/kg	< 0.001				NR_19
Oxychlordane	mg/kg	< 0.001				NR_19
Dieldrin	mg/kg	< 0.001				NR_19
pp-DDE	mg/kg	< 0.001				NR_19
pp-DDD	mg/kg	< 0.001				NR_19
pp-DDT	mg/kg	< 0.001				NR_19
Endrin	mg/kg	< 0.001				NR_19
Endrin Aldehyde	mg/kg	< 0.001				NR_19
Endrin Ketone	mg/kg	< 0.001				NR_19
alpha-Endosulfan	mg/kg	< 0.001				NR_19
beta-Endosulfan	mg/kg	< 0.001				NR_19
Endosulfan Sulfate	mg/kg	< 0.001				NR_19
Methoxychlor	mg/kg	< 0.001				NR_19
PCB Aroclors						
Aroclor 1016	mg/kg	< 0.01				NR_19
Aroclor 1221	mg/kg	< 0.01				NR_19
Aroclor 1232	mg/kg	< 0.01				NR_19
Aroclor 1242	mg/kg	< 0.01				NR_19
Aroclor 1248	mg/kg	< 0.01				NR_19
Aroclor 1254	mg/kg	< 0.01				NR_19
Aroclor 1260	mg/kg	< 0.01				NR_19
Total PCB's (as above)	mg/kg	< 0.01				NR_19

REPORT OF ANALYSIS

Lab Reg No.		N07/035051				
Sample Reference	Units	55469B-17				Method
Organophosphate (OP) Pesticides						
Dichlorvos	mg/kg	< 0.01				NR_19
Demeton-S-Methyl	mg/kg	< 0.01				NR_19
Diazinon	mg/kg	< 0.01				NR_19
Dimethoate	mg/kg	< 0.01				NR_19
Chlorpyrifos	mg/kg	< 0.01				NR_19
Chlorpyrifos Methyl	mg/kg	< 0.01				NR_19
Malathion	mg/kg	< 0.01				NR_19
Fenthion	mg/kg	< 0.01				NR_19
Ethion	mg/kg	< 0.01				NR_19
Fenitrothion	mg/kg	< 0.01				NR_19
Chlorfenvinphos (E)	mg/kg	< 0.01				NR_19
Chlorfenvinphos (Z)	mg/kg	< 0.01				NR_19
Parathion (Ethyl)	mg/kg	< 0.01				NR_19
Parathion Methyl	mg/kg	< 0.01				NR_19
Pirimiphos Methyl	mg/kg	< 0.01				NR_19
Pirimiphos Ethyl	mg/kg	< 0.01				NR_19
Azinphos Methyl	mg/kg	< 0.01				NR_19
Azinphos Ethyl	mg/kg	< 0.01				NR_19
Surrogate						
Surrogate OC Rec.	%	90				NR_19
Surrogate OP Rec.	%	136				NR_19
Dates						
Date extracted		5-OCT-2007				
Date analysed		8-OCT-2007				

Danny Slee, Section Manager
Organics - NSW
Accreditation No. 198

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Lab Reg No.		N07/035051				
Sample Reference	Units	55469B-17				Method
Trace Elements						
Total Solids	%	98.9				NT2_49

REPORT OF ANALYSIS

Lab Reg No.		N07/035051				
Sample Reference	Units	55469B-17				Method

Nasir Shikdar, Analyst
Inorganics - NSW
Accreditation No. 198

9-OCT-2007

All results are expressed on a dry weight basis.

ACCREDITED FOR TECHNICAL COMPETENCE

This report is issued in accordance with NATA's accreditation requirements.
Accreditated for compliance with ISO/IEC 17025.
This report shall not be reproduced except in full.
Results relate only to the sample(s) tested.

This Report supersedes reports: RN640943 RN641439

5 October 2007 **TEST REPORT**

Douglas Partners Pty Ltd
Box 324
Hunter Region Mail Centre
NSW 2310

Your Reference: 39823B, Trinity Point (Waters)
Report Number: 55469A

Attention: Brent Kerry

Dear Brent
The following samples were received from you on the date indicated.

Samples: Qty.	14 Waters
Date of Receipt of Samples:	27/09/07 & 28/09/07
Date of Receipt of Instructions:	28/09/07
Date Preliminary Report Emailed:	Not Issued

These samples were analysed in accordance with your written instructions.
A copy of the instructions is attached with the analytical report.

The results and associated quality control are contained in the following pages of this report. Unless otherwise stated, solid samples are expressed on a dry weight basis (moisture has been supplied for your information only), air and liquid samples as received.

Should you have any queries regarding this report please contact the undersigned.

Yours faithfully
SGS ENVIRONMENTAL SERVICES

Ly Kim Ha
Senior Organic Chemist

Edward Ibrahim
Laboratory Services Manager

Alexandra Stenta
Key Account Representative

SGS Australia Pty Ltd
ABN 44 000 964 278
Environmental Services Unit 16, 33 Maddox Street, Alexandria Australia
t (02) 8594 0400 f (02) 8594 0499
www.au.sgs.com
Member of the SGS Group

Trace HM (ICP-MS)-Dissolved Our Reference: Your Reference Sample Type Date Sampled	UNITS ---------- ----------	55469A-18 SS3 Water 25/09/2007	55469A-19 SS12 Water 25/09/2007
Antimony	µg/L	1.4	2.0
Arsenic	µg/L	2.8	2.7
Barium	µg/L	11	11
Beryllium	µg/L	<1.0	<1.0
Boron	µg/L	5,700	5,700
Cadmium	µg/L	0.11	<0.10
Chromium	µg/L	12	12
Copper	µg/L	2.6	2.8
Cobalt	µg/L	2.6	2.6
Lead	µg/L	<1.0	<1.0
Manganese	µg/L	<1.0	<1.0
Molybdenum	µg/L	9.3	9.7
Nickel	µg/L	5.2	5.1
Selenium	µg/L	8.5	9.5
Zinc	µg/L	15	15

Metals in water by ICP-OES			
Our Reference:	UNITS	55469A-18	55469A-19
Your Reference	----------	SS3	SS12
Sample Type	----------	Water	Water
Date Sampled		25/09/2007	25/09/2007
Tin (Dissolved)	mg/L	<0.03	0.03

Mercury,Cold Vapor/Hg Analyser			
Our Reference:	UNITS	55469A-18	55469A-19
Your Reference	----------	SS3	SS12
Sample Type	----------	Water	Water
Date Sampled		25/09/2007	25/09/2007
Mercury (Dissolved)	mg/L	<0.0005	<0.0005

Anions in water Our Reference: Your Reference Sample Type Date Sampled	UNITS ---------- ----------	55469A-18 SS3 Water 25/09/2007	55469A-19 SS12 Water 25/09/2007
Nitrite as N	mg/L	<1	<1
Nitrate as N	mg/L	<1	<1
Chloride, Cl	mg/L	17,000	18,000
Sulphate, SO4	mg/L	2,500	2,500

Inorganics Our Reference: Your Reference Sample Type Date Sampled	UNITS ---------- ----------	55469A-18 SS3 Water 25/09/2007	55469A-19 SS12 Water 25/09/2007
Total Phosphorus as P	mg/L	<1	<1
Total Kjeldahl Nitrogen	mg/L	<5	<5
Total Nitrogen	mg/L	<10	<10

Method ID	Methodology Summary
AN318	Determination of elements at trace levels in waters by ICP-MS. Method based on USEPA 6020A
SEM-010	Metals - Determination of various metals by ICP-AES following aqua regia digest.
SEM-005	Mercury - Determination of Mercury by Cold Vapour Generation Atomic Absorption Spectroscopy.
SEI-038	Anions - a range of Anions are determined by Ion Chromatography, in accordance with APHA 20th ED, 4110-B.
SEI-067	Total Phosphorus - Jirka modification, followed by colorimetric determination using an Ascorbic Acid method, in accordance with APHA 20th ED, 4500-P-F. Analysis is carried out by SGS Environmental Services Welshpool.
SEI-033	Total Kjeldahl Nitrogen - determined titrimetrically, in accordance with APHA 20th ED, 4500-Norg B.

QUALITY CONTROL Trace HM (ICP-MS)-Dissolved	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Antimony	µg/L	1	AN318	<1.0	[NT]	[NT]	LCS	111 || [N/T]
Arsenic	µg/L	1	AN318	<1.0	[NT]	[NT]	LCS	87 || [N/T]
Barium	µg/L	1	AN318	<1.0	[NT]	[NT]	LCS	99 || [N/T]
Beryllium	µg/L	1	AN318	<1.0	[NT]	[NT]	LCS	98 || [N/T]
Boron	µg/L	1	AN318	<1.0	[NT]	[NT]	LCS	102 || [N/T]
Cadmium	µg/L	0.1	AN318	<0.10	[NT]	[NT]	LCS	98 || [N/T]
Chromium	µg/L	1	AN318	<1.0	[NT]	[NT]	LCS	103 || [N/T]
Copper	µg/L	1	AN318	<1.0	[NT]	[NT]	LCS	105 || [N/T]
Cobalt	µg/L	1	AN318	<1.0	[NT]	[NT]	LCS	95 || [N/T]
Lead	µg/L	1	AN318	<1.0	[NT]	[NT]	LCS	104 || [N/T]
Manganese	µg/L	1	AN318	<1.0	[NT]	[NT]	LCS	95 || [N/T]
Molybdenum	µg/L	1	AN318	<1.0	[NT]	[NT]	LCS	104 || [N/T]
Nickel	µg/L	1	AN318	<1.0	[NT]	[NT]	LCS	95 || [N/T]
Selenium	µg/L	2	AN318	<2.0	[NT]	[NT]	LCS	86 || [N/T]
Zinc	µg/L	1	AN318	<1.0	[NT]	[NT]	LCS	101 || [N/T]
QUALITY CONTROL Metals in water by ICP-OES	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Tin (Dissolved)	mg/L	0.03	SEM-010	<0.03	[NT]	[NT]	LCS	100 || [N/T]
QUALITY CONTROL Mercury,Cold Vapor/Hg Analyser	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Mercury (Dissolved)	mg/L	0.0005	SEM-005	<0.0005	[NT]	[NT]	LCS	90 || [N/T]
QUALITY CONTROL Anions in water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Nitrite as N	mg/L	0.05	SEI-038	<0.05	[NT]	[NT]	LCS	99 || [N/T]
Nitrate as N	mg/L	0.05	SEI-038	<0.05	[NT]	[NT]	LCS	99 || [N/T]
Chloride, Cl	mg/L	0.1	SEI-038	<0.1	[NT]	[NT]	LCS	97 || [N/T]
Sulphate, SO4	mg/L	0.4	SEI-038	<0.4	[NT]	[NT]	LCS	98 || [N/T]
QUALITY CONTROL Inorganics	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Total Phosphorus as P	mg/L	0.1	SEI-067	<0.10	55469A-18	<1 || [N/T]	LCS	90 || [N/T]
Total Kjeldahl Nitrogen	mg/L	0.5	SEI-033	<0.5	55469A-18	<5 || <5	LCS	88 || [N/T]
Total Nitrogen	mg/L	1	SEI-033	<1.0	55469A-18	<10 || <10	[NR]	[NR]

Result Codes

[INS]	:	Insufficient Sample for this test	[HBG]	:	Results not Reported due to High Background Interference
[NR]	:	Not Requested	*	:	Not part of NATA Accreditation
[NT]	:	Not tested	[N/A]	:	Not Applicable

Result Comments

NO2,NO3The LOR for sample number/s
_18,19__ has been raised by a dilution factor of __20___ respectively due to sample matrix interference.
LOR TKN and TKP has been raised due to matrix interference.
Date Organics extraction commenced: N/A
NATA Corporate Accreditation No. 2562, Site No 4354
Note: Test results are not corrected for recovery (excluding Dioxins/Furans* and PAH in XAD and PUF).

Quality Control Protocol

Reagent Blank: Sample free reagents carried through the preparation/extraction/digestion procedure and analysed at the beginning of every sample batch analysis. For larger projects, a reagent blank is prepared and analysed with every 20 samples.
Duplicate: A separate portion of a sample being analysed which is treated the same as the other samples in the batch. A duplicate is prepared at least every 10 samples.
Matrix Spike Duplicates: Sample replicates spiked with identical concentrations of target analyte(s). The spiking occurs during the sample preparation and prior to the extraction/digestion procedure. They are used to document the precision and bias of a method in a given sample matrix. Where there is not enough sample available to prepare a spiked sample, another known soil/sand or water (or Milli-Q water) may be used. A duplicate spiked sample is prepared at least every 20 samples.
Surrogate Spike: Added to all samples requiring analysis for organics (where relevant) prior to extraction. Used to determine the extraction efficiency. They are organic compounds which are similar to the target analyte(s) in chemical composition and behaviour in the analytical process, but which are not normally found in environmental samples.
Internal Standard: Added to all samples requiring analysis for organics (where relevant) after the extraction process; the compounds serve to give a standard of retention time and response, which is invariant from run-to-run with the instruments.
Control Standards: Prepared from a source independent of the calibration standards. At least one control standard is included in each run to confirm calibration validity.
Additional QC Samples: A calibration standard and blank are run after every 20 samples of an instrumental analysis run to assess analytical drift.

QUALITY ASSURANCE/QUALITY CONTROL
GEOCHEMICAL ASSESSMENT
PROPOSED TRINITY POINT MARINA
MORISSET PARK, LAKE MACQUARIE

Quality Assurance (QA) was maintained by:

- compliance with a Project Quality Plan written for the objectives of the study;
- using qualified engineers to undertake the field supervision and sampling;
- following the Douglas Partners Pty Ltd (DP) operating procedures for sampling, field testing and decontamination as presented in Table 1;
- using NATA registered laboratories for sample testing, that generally utilise standard laboratory methods of the US EPA, the APHA and NSW EPA.

Table 1 – Field Procedures

Abbreviation	Procedure Name
FPM LOG	Logging
FPM DECONT	Decontamination of Personnel and Equipment
FPM ENVID	Sample Identification, Handling, Transport and Storage of Contaminated Samples
FPM PIDETC	Operation of Field Analysers
FPM ENVSAMP	Sampling of Contaminated Soils

(from DP Field Procedures Manual)

Quality Control (QC) of the laboratory programme was achieved by the following means:

- check replicate – a specific sample was split in the field, placed in separate containers and labelled with different sample numbers, and sent to the laboratory for analysis;
- method blanks – the laboratory ran reagent blanks to confirm the equipment and standards used were uncontaminated;
- laboratory spikes – samples were spiked by the laboratory with a known concentration of contaminants and subsequently tested for percent recovery;
- trip blank – the laboratory supplied sample blanks which were included with field samples during transportation to check for potential cross contamination between samples during transport.

DISCUSSION

A. Check Replicate

The Relative Percent Difference (RPD) between replicate results is used as a measure of laboratory reproducibility and is given by the following:

$$RPD = \frac{ABS(\text{Replicate result } 1 - \text{Replicate result } 2)}{(\text{Replicate result } 1 + \text{Replicate result } 2)/2} \times 100$$

The RPD can have a value between 0% and 200%. An RPD data quality objective of up to 50% is generally considered to be acceptable for organic analysis, and 35% for inorganics (ie. Metals).

A summary of the results of the soil replicate QA/QC testing is provided in Table 2.

Table 2 – Results of Quality Control Analysis

Analyte	SS5	QA1	RPD (%)
Metals (mg/kg)			
As	15	20	29
Sb	<PQL	<PQL	N/A
Cd	0.6	0.7	15
Cr	6.4	7.6	17
Cu	9.4	10	6
Pb	8	9.6	18
Ni	3.5	4.3	21
Ag	<PQL	<PQL	N/A
Se	<PQL	<PQL	N/A
Zn	44	52	17
Hg	<PQL	<PQL	N/A
PAHs (µg/kg)			
Acenaphthene	<PQL	<PQL	N/A
Acenaphthylene	<PQL	<PQL	N/A
2-Methylnaphthalene	10	20	67
Anthracene	10	<PQL	N/A
Fluorene	<PQL	<PQL	N/A
Naphthalene	<PQL	<PQL	N/A
Phenanthrene	40	30	29
Low MW PAHs	<100	<100	0
Benzo[a]anthracene	20	20	0
Benzo[a]pyrene	30	20	40
Dibenzo[ah]anthracene	<PQL	<PQL	N/A
Chrysene	30	20	40
Fluoranthene	50	40	22
Pyrene	40	30	29
High MW PAHs	<180	<140	25
OPPs (µg/kg)	<PQL	<PQL	N/A
OCPs (µg/kg)	<PQL	<PQL	N/A
PCBs (µg/kg)	<PQL	<PQL	N/A

Notes to Table 2:

Results expressed on dry weight basis
PQL – Practical Quantitation Limit
N/A – Not Applicable

RPDs ranged from 0% to 67%, with slightly elevated RPDs found select individual PAH species. The concentrations for these analytes were very low (measured in μg/kg), resulting in high RPDs for small changes in concentration. The results are therefore considered to be acceptable.

B. Method Blanks

All method blanks returned results lower than the laboratory detection limit, therefore are acceptable.

C. Laboratory Spikes

Recoveries in the order of 70% to 130% are generally considered to be acceptable. The average percent recovery for individual contaminants ranged from 86% to 128% which is within the quality control objectives. The results should however be qualified and may slightly under-estimate or over-estimate contaminant concentrations in certain samples (ie. biased low or high respectively).

D. Trip Blank

The results of analysis of the trip blank are presented in the geochemical laboratory test reports.

For the analytes tested, the trip blank returned result which were generally below PQL. Results of slightly above the PQL were measured for Chromium, Copper and Zinc. These metals can occur naturally. It is considered that the results for the trip blank are within the quality control objectives.

CONCLUSIONS

In summary, it is noted that the magnitude of RPDs for field replicates (ie. blind replicates) are generally higher than the quality control objectives for the metals. This is because the concentrations for these analytes were very low, resulting in high RPDs for small changes in concentration. The results are therefore considered to be acceptable.

The accuracy and precision of the soil testing procedures, as inferred by the QA/QC data is generally considered to be of sufficient standard to allow the data reported to be used to interpret site conditions.

SGS Environmental Services
Unit 16, 33 Maddox St. Alexandria NSW 2015
Telephone Number : (+61 2) 8594 0400
Fax Number : (+61 2) 8594 0499

SAMPLE RECEIPT CONFIRMATION

COMPANY	:	Douglas Partners Pty Ltd	FAX NO.	:	02 4960 9601
ATTENTION	:	Brent Kerry	PAGES	:	1
FROM	:	Sample Receipt	DATE	:	3/10/07

This is to confirm that samples for Project **39823B, Trinity Point (Soils)** were received on **27/09/07 & 28/09/07** the results are expected to be ready on **16/10/2007** . Please quote SGS Reference: **55469B** when making enquiries regarding this project. Please refer to below which details information about the integrity of the samples and other useful information.

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

Samples received in good order:	YES
Samples received in correct containers:	YES
Samples received without headspace:	YES
Sufficient quantity supplied:	YES
Upon receipt sample temperature:	Cool
Cooling Method:	Ice
Sample containers provided by:	SGS
Samples Clearly Labelled:	YES
Turnaround time requested:	Standard
Completed documentation received:	YES

Comments:

Earliest ETA on results for subcontracted tests
will be by 16/10/07.
Terms and conditions are available from www.au.sgs.com

The signed chain of custody will be returned to you with the original report.

SGS Environmental Services
Unit 16, 33 Maddox St. Alexandria NSW 2015
Telephone Number : (+61 2) 8594 0400
Fax Number : (+61 2) 8594 0499

SAMPLE RECEIPT CONFIRMATION

COMPANY	:	Douglas Partners Pty Ltd	FAX NO.	:	02 4960 9601
ATTENTION	:	Brent Kerry	PAGES	:	1
FROM	:	Sample Receipt	DATE	:	2/10/07

This is to confirm that samples for Project **39823B, Trinity Point (Metals-Soils)** were received on **27/09/07 & 28/09/07** the results are expected to be ready on **3/10/2007** . Please quote SGS Reference: **55469** when making enquiries regarding this project. Please refer to below which details information about the integrity of the samples and other useful information.

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

Samples received in good order:	YES
Samples received in correct containers:	YES
Samples received without headspace:	YES
Sufficient quantity supplied:	YES
Upon receipt sample temperature:	Cool
Cooling Method:	Ice
Sample containers provided by:	SGS
Samples Clearly Labelled:	YES
Turnaround time requested:	Standard
Completed documentation received:	YES

Comments:

Terms and conditions are available from www.au.sgs.com

The signed chain of custody will be returned to you with the original report.

SGS Environmental Services
Unit 16, 33 Maddox St. Alexandria NSW 2015
Telephone Number : (+61 2) 8594 0400
Fax Number : (+61 2) 8594 0499

SAMPLE RECEIPT CONFIRMATION

COMPANY	:	Douglas Partners Pty Ltd	FAX NO.	:	02 4960 9601
ATTENTION	:	Brent Kerry	PAGES	:	1
FROM	:	Sample Receipt	DATE	:	2/10/07

This is to confirm that samples for Project **39823B, Trinity Point (Waters)** were received on **27/09/07 & 28/09/07** the results are expected to be ready on **8/10/2007** . Please quote SGS Reference: **55469A** when making enquiries regarding this project. Please refer to below which details information about the integrity of the samples and other useful information.

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

Samples received in good order:	YES
Samples received in correct containers:	YES
Samples received without headspace:	YES
Sufficient quantity supplied:	YES
Upon receipt sample temperature:	Cool
Cooling Method:	Ice
Sample containers provided by:	SGS
Samples Clearly Labelled:	YES
Turnaround time requested:	Standard
Completed documentation received:	YES

Comments:

Terms and conditions are available from www.au.sgs.com

The signed chain of custody will be returned to you with the original report.

Douglas Partners
Geotechnics · Environment · Groundwater

CHAIN OF CUSTODY DESPATCH SHEET

CoC 1/10/07 @ 2:16pm

SGS

Project Name: TRINITY POINT
Project No: 39823B ..... DP Order No: *Same as for Metals request*
DP Contact Person: JULIE WHARTON / BRENT KERRY
Prior Storage: esky / fridge / shelved (circle)

To: SGS Australia PTY LTD
Unit 16/33 Maddox Street
ALEXANDRIA NSW 2015
Ph: (02) 8594 0400
Attn: Angela

Received 27/9/07
By Angela
Time 1:45 am/pm
Samples intact yes/no
Ice/Cooler Pack yes/no
Comments: 55469B

	Sample ID	Date Sampled	Sample Type S-soil W-water	Lab ID	Analytes: PAHs	PCB's	OCP	OPP	TBT	TOC	
1	SS1	25/9/07	S		X	X	X	X		X	
2	SS2	25/9/07	S		X	X	X	X		X	
3	SS3	25/9/07	S		X	X	X	X	X	X	
4	SS4	25/9/07	S		X	X	X	X		X	
5	SS5	25/9/07	S		X	X	X	X	X	X	
6	SS6	25/9/07	S		X	X	X	X		X	
7	SS7	25/9/07	S		X	X	X	X		X	
8	SS8	25/9/07	S		X	X	X	X		X	
9	SS9	25/9/07	S		X	X	X	X		X	
10	SS10	25/9/07	S		X	X	X	X		X	
11	SS11	25/9/07	S		X	X	X	X		X	
12	SS12	25/9/07	S		X	X	X	X	X	X	
	PQL (S)		µg/kg		See Note 1	See Note 1	See Note 1	See Note 1	See Note 1	0.1%	
	PQL (W)		mg/L								

Notes

Note 1:
PAHs, PCBs, OCP and OPPs – Ultratrace to ANZECC Sediment Quality Guidline PQLs (see attached for full suite and max PQL)

Note 2:
Heavy metals already requested for this batch of samples

TOC – Total Organic Carbon

PQL = practical quantitation limit *As per Laboratory Method (Detection Limit)
# - Metals to Analyse (Please circle): As Cd Cr Cu Pb Zn Hg Ni Other
Date relinquished: 26/9/07
Total number of samples in container: samples at SGS already .....
Results required by: As soon as possible on Standard TAT .....
TAT (Circle): Standard 72 hr 48hr 24hr

SAMPLES RECEIVED
Please sign and date to acknowledge receipt of samples and return by fax
Signature: .....
Date: 2/10/07 Lab Ref: 55469B

Send results to:
Douglas Partners Pty Ltd
Address:
BOX 324 Hunter Region Mail Centre
NSW 2310
Fax: (02) 4960 9601

S090-92, S095-5097 W150-151

Douglas Partners
Geotechnics · Environment · Groundwater

CHAIN OF CUSTODY DESPATCH SHEET

Project Name: TRINITY POINT
Project No: 39823B ..... DP Order No: *Same as for Metals request*
DP Contact Person: JULIE WHARTON / BRENT KERRY
Prior Storage: esky / fridge / shelved (circle)

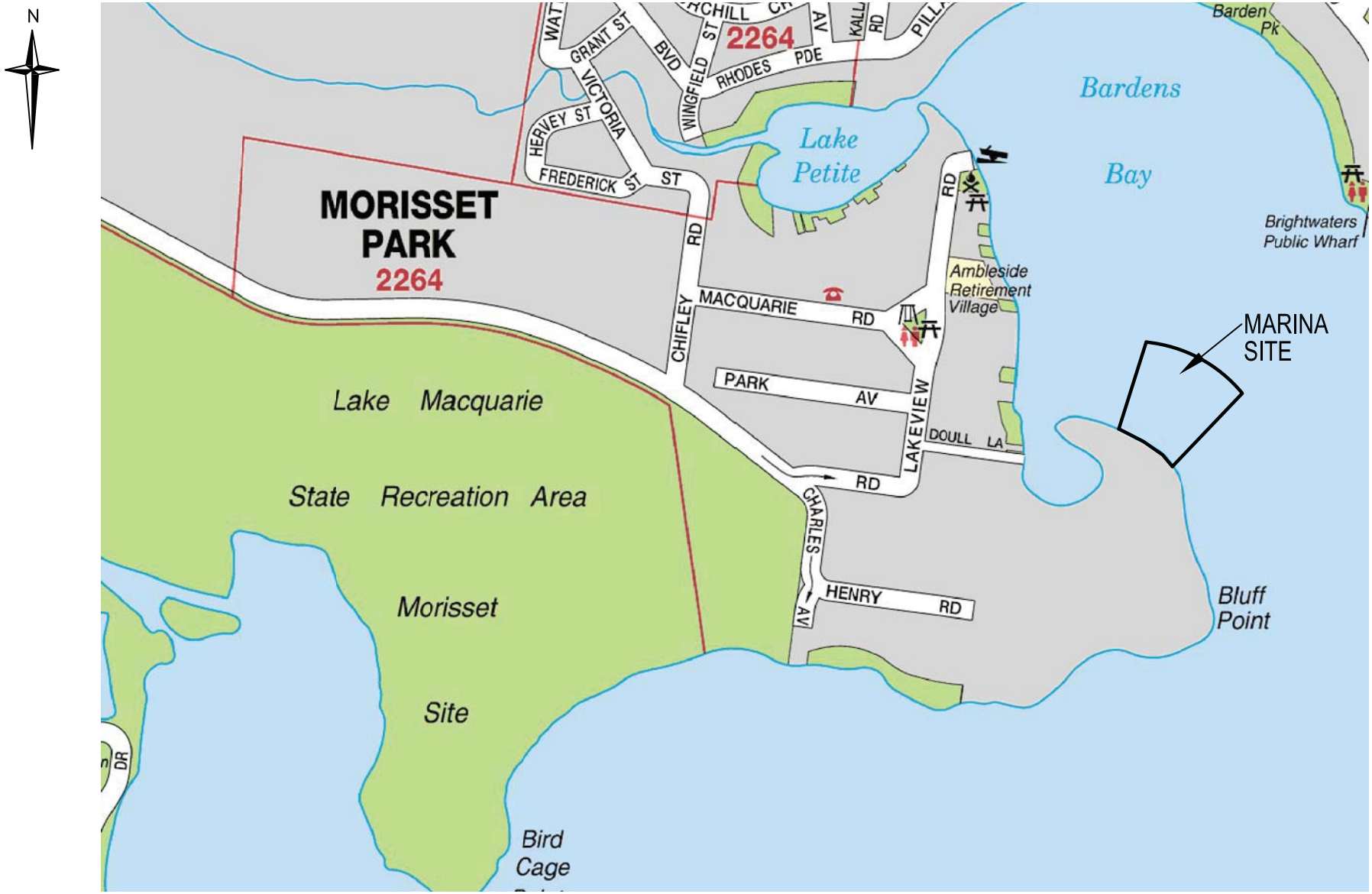
To: SGS Australia PTY LTD
Unit 16/33 Maddox Street
ALEXANDRIA NSW 2015
Ph: (02) 8594 0400
Attn: Angela

	Sample ID	Date Sampled	Sample Type S-soil W-water	Lab ID	Analytes PAHs	PCB's	OCP	OPP	TBT	TOC		Notes
13	SS13	25/9/07	S		X	X	X	X		X		
14	SS14	25/9/07	S		X	X	X	X		X		**Note 1**: PAHs, PCBs, OCP and OPPs – Ultratrace to ANZECC Sediment Quality Guidline PQLs (see attached for full suite and max PQL)
15	SS15	25/9/07	S		X	X	X	X		X		
16	QA1	25/9/07	S		X	X	X	X		X		
17	TB1	25/9/07	S		X	X	X	X		X		
												Note 2: Heavy metals already requested for this batch of samples
					*TB1 - Arrived 28/9/07 @ 9:00am							
												TOC – Total Organic Carbon
PQL (S)			µg/kg		See Note 1	See Note 1	See Note 1	See Note 1	See Note 1	0.1%		
PQL (W)			mg/L									

PQL = practical quantitation limit *As per Laboratory Method (Detection Limit)
# - Metals to Analyse (Please circle): As Cd Cr Cu Pb Zn Hg Ni Other
Date relinquished: 26/9/07
Total number of samples in container: samples at SGS already .....
Results required by: As soon as possible on Standard TAT .....
TAT (Circle): Standard 72 hr 48hr 24hr

SAMPLES RECEIVED
Please sign and date to acknowledge receipt of samples and return by fax
Signature: Angela
Date: 2/10/07 Lab Ref: SE469B

Send results to:
Douglas Partners Pty Ltd
Address:
BOX 324 Hunter Region Mail Centre
NSW 2310
Fax: (02) 4960 9601



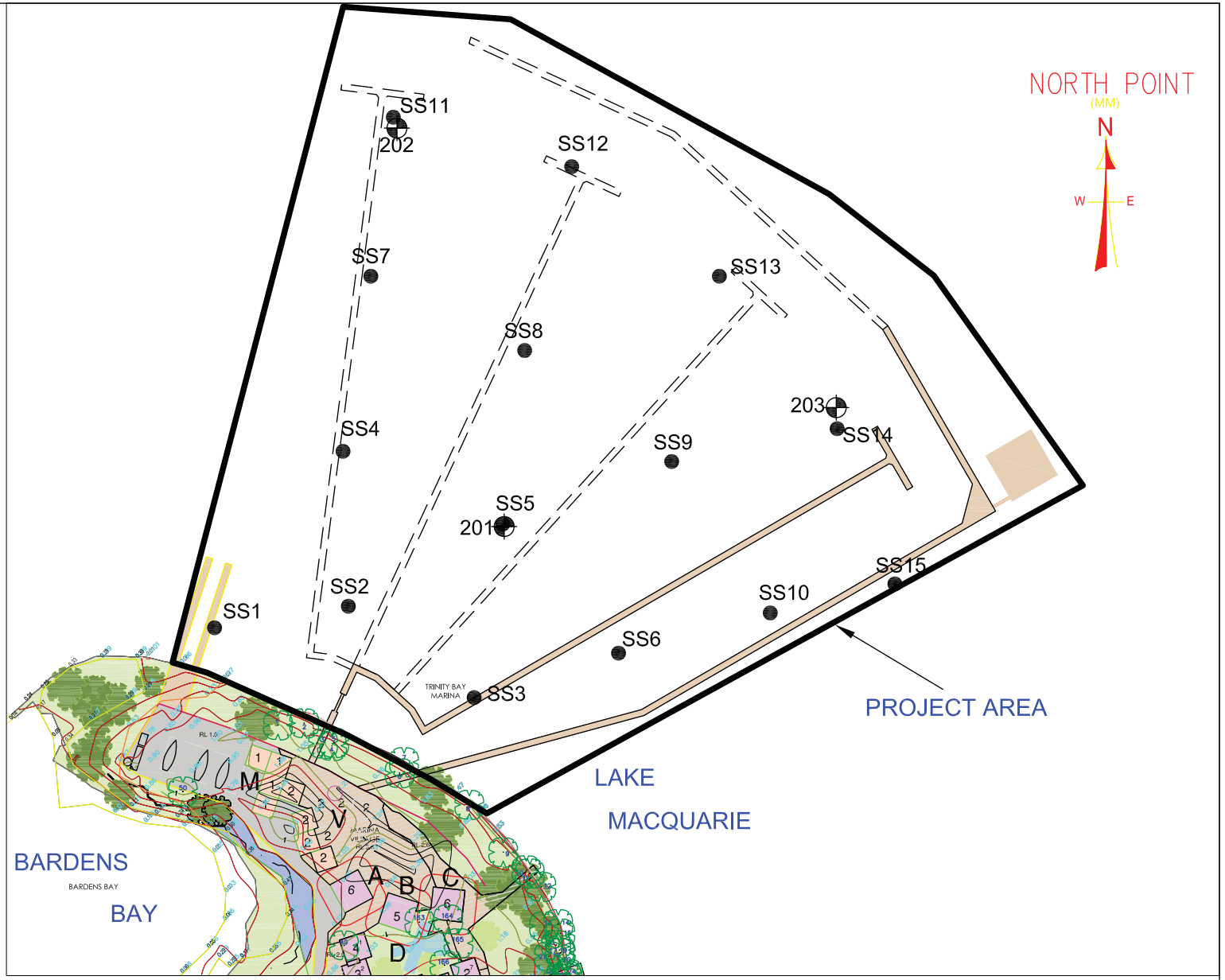
Douglas Partners Geotechnics Environment Groundwater	Sydney, Newcastle, Brisbane, Melbourne, Perth, Wyong, Campbelltown, Townsville, Cairns, Wollongong, Darwin	TITLE: LOCALITY PLAN PROPOSED TRINITY POINT MARINA 49 LAKEVIEW ROAD, MORISSET PARK	CLIENT: JOHNSON PROPERTY GROUP PTY LTD	
			DRAWN BY: PLH / SCALE: NTS / PROJECT No: 39823B	OFFICE: NEWCASTLE
			APPROVED BY: / DATE:	DRAWING No: 1

TEST CO-ORDINATES			
No.	EASTING	NORTHING	RL(A.H.D)
201	363920.915	6334291.694	-5.86
202	363870.505	6334479.216	-5.15
203	364077.285	6334347.559	-5.35
SS1	363784.597	6334243.987	-
SS2	363847.599	6334254.192	-
SS3	363906.767	6334211.222	-
SS4	363845.090	6334327.106	-
SS5	363920.202	6334292.803	-
SS6	363974.724	6334232.104	-
SS7	363858.172	6334409.481	-
SS8	363930.552	6334374.533	-
SS9	363999.749	6334322.284	-
SS10	364046.111	6334251.047	-
SS11	363868.769	6334484.301	-
SS12	363952.688	6334461.034	-
SS13	364022.182	6334409.479	-
SS14	364077.600	6334337.746	-
SS15	364104.762	6334254.720	-

LEGEND

- LAKE BED SEDIMENT SAMPLE

- OVER WATER BORE



Drawing adapted from Plan of Test Pit Co-ordinates (Issue A) by Surdevel Pty Ltd (dated 5/10/07), and Site Plan by HBO + EMTB Architects Pty Ltd (Ref No 202669, SK000, Issue I, dated 29/10/07)

0 50 100 150 m

SCALE 1:2000 (A3 SHEET)

Douglas Partners
Geotechnics Environment Groundwater

Sydney, Newcastle, Brisbane, Melbourne, Perth, Wyong, Campbelltown, Townsville, Cairns, Wollongong, Darwin

TITLE: TEST LOCATION PLAN - GEOCHEMICAL ASSESSMENT
PROPOSED TRINITY POINT MARINA
49 LAKEVIEW ROAD, MORISSET PARK

CLIENT: JOHNSON PROPERTY GROUP PTY LTD

DRAWN BY: PLH | SCALE: 1:2000 | PROJECT No: 39823B | OFFICE: NEWCASTLE

APPROVED BY: | DATE: | DRAWING No: 2

APPENDIX F

REPORT ON ADDITIONAL GROUNDWATER SAMPLING

Cardno Geotech Solutions

Shaping the Future

Douglas Partners
Geotechnics • Environment • Groundwater

Douglas Partners Pty Ltd
ABN 75 053 980 117
Box 324
Hunter Region Mail Centre NSW 2310
Australia

15 Callistemon Close
Warabrook NSW 2304
Phone (02) 4960 9600
Fax (02) 4960 9601
www.douglaspartners.com.au

JAW:sm
Project No: 39823.04
Doc Ref: P:\39823.04\Docs\39823.04.doc
21 May 2008

Johnson Property Group
PO Box 34
COORANBONG NSW 2265

Attention: Mr Bryan Garland

Dear Sir

ADDITIONAL GROUNDWATER SAMPLING AND TESTING
TRINITY POINT MARINA
MORISSET PARK

Further to your recent request, Douglas Partners (DP) has undertaken an additional round of groundwater sampling and testing at the Trinity Point Marina Project.

Douglas Partners has previously undertaken geotechnical investigations at the site, which included the installation of groundwater monitoring wells, along with sampling and laboratory testing (Ref 1).

On 15 May 2008, an environmental engineer from DP visited the site and confirmed that the previously installed groundwater wells were still intact. An additional round of sampling was undertaken for the purpose of providing background water quality data. Prior to sampling, the groundwater level was measured in each of the wells and each of the wells was purged.

Bore 105, which was installed to a depth of about 5 m below the ground surface, was dry both during the recent and previous rounds of testing.

The groundwater levels that were measured during the recent visit, are summarised in the table below, which also includes the previously reported data from earlier testing at the site.

Table 1 – Summary of Groundwater Measurements in Wells

Project Component	Bore	Approximate Surface Level (AHD)	Depth to Groundwater Below Ground Surface (m) and date					Range of Groundwater Levels Observed (AHD)
			5/10/07	9&10/10/07	16/10/07	24/10/07	15/5/08	
Marina Village	101	1.27	1.2	1.2	1.2	NM	1.04	0.0 to 0.2
	101A	1.27	NM	NM	1.15	1.22	0.87	0.0 to 0.4
	102	0.89	NM	0.61	0.88	NM	0.57	0.0 to 0.3
	102A	0.89	NM	NM	0.83	0.94	0.64	-0.1 to 0.2
Blocks E to G	103	2.47	1.51	1.57	1.63	NM	1.37	0.8 to 1.1
	104	3.82	2.83	2.85	2.93	NM	2.86	0.9 to 1.0
	105	6.62	Dry	Dry	Dry	Dry	Dry	-

It should be noted that groundwater levels are affected by factors such as climatic conditions and soil permeability and will therefore vary with time.

Groundwater pH and electrical conductivity (EC) were also measured in the wells during the recent sampling, using a portable meter. The results are summarised in Table 2, below, along with comparative values recorded during previous sampling in October 2007:

Table 2 – Summary of Groundwater Properties in Bores

Bore No	Date	Range of pH values	Range of EC values (mS/cm)
101	Oct 2007	7.1 to 7.3	1.7 to 3.8
	15/5/2008	7.0	0.27 – 0.35
101A	Oct 2007	7.2 to 7.7	0.6 to 0.8
	15/5/2008	NM	NM
102	Oct 2007	6.8 to 7.3	8.7 to 21.1
	15/5/2008	6.6 to 7.1	0.9 to 2.6
102A	Oct 2007	7.4 to 7.7	1.2 to 2.1
	15/5/2008	7.2 to 7.6	1.0 to 2.7
103	Oct 2007	5.0	0.6
	15/5/2008	4.7 to 5.0	0.4 to 0.5
104	Oct 2007	4.1 to 4.2	5.6 to 6.8
	15/5/2008	3.5 to 3.7	7.1 to 7.4
105	Oct 2007	dry	Dry
	15/5/2008	dry	Dry

Notes to Table 2:
EC – Electrical Conductivity
DO – Dissolved Oxygen
NM – Not measured

Groundwater samples were collected from each of the wells to obtain an additional set of background water quality data. The well in Bore 105 was dry, and hence no sample was collected. Groundwater was tested for the following:

- Metals: Arsenic (As); Antimony (Sb); Barium (Ba); Beryllium (Be); Boron (B); Cadmium (Cd); Chromium (Cr); Copper (Cu); Cobalt (Co); Lead (Pb); Manganese (Mn); Molybdenum (Mo); Nickel (Ni); Selenium (Se), Tin (Sn); Zinc (Zn); and Mercury (Hg);
- Nitrite, Nitrate, Chloride, Sulphate;
- Total Phosphorous; Total Nitrogen;
- Total Iron.

Table 3 – Summary of Laboratory Results for Groundwater Chemistry - Metals

Date of Sampling	Project Component	Location	Analyte (µg/L)															Analyte (mg/L)						
			Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium	Copper	Cobalt	Lead	Manganese	Molybdenum	Nickel	Selenium	Zinc	Tin	Total Iron	Nitrate as N	Chloride, Cl	Sulphate, SO4	Total Phosphorus	Total Nitrogen	Mercury
October 2007	Marina village	101	<PQL	<PQL	33	<PQL	470	<PQL	1.2	<PQL	<PQL	<PQL	260	2.5	<PQL	<PQL	12	<PQL	2.4	<PQL	850	110	0.40	4.6	<PQL
		102	<PQL	6.4	190	<PQL	1500	<PQL	6.3	1.3	22	<PQL	1300	2.6	11	23	120	0.03	250	<1	8400	1300	<0.5	3.3	<PQL
	Blocks E to G	103	<PQL	<PQL	40	<PQL	53	<PQL	<PQL	1.1	2.1	5.4	77	<PQL	3.4	<PQL	33	<PQL	0.25	<PQL	190	44	0.13	<PQL	<PQL
		104	<PQL	<PQL	140	3.6	120	0.64	15	3.9	16	40	300	<PQL	13	<PQL	110	<PQL	15	<0.1	2600	180	<PQL	1.0	<PQL
	QA Sample	D1	<PQL	<PQL	34	<PQL	480	<PQL	<PQL	<PQL	<PQL	<PQL	250	2.5	<PQL	<PQL	14	<PQL	NT	NT	NT	NT	NT	NT	<PQL
15 May 2008	Marina village	101	2.8	8.0	7.1	<PQL	110	<PQL	1.1	1.4	<PQL	1.7	44	4.4	2.1	<PQL	58	<PQL	5.7	0.08	18	4.5	1.7	3.2	<PQL
		102	2.9	1.4	15	<PQL	600	<PQL	1.0	2.0	<PQL	<PQL	57	12	1.3	<PQL	22	<PQL	4.6	0.05	550	72	0.28	0.79	<PQL
	Blocks E to G	103	1.0	<PQL	46	<PQL	59	<PQL	1.1	6.9	<PQL	15	30	1.1	2.4	<PQL	35	<PQL	0.8	0.06	150	52	<PQL	<PQL	<PQL
		104	<PQL	<PQL	78	4.4	120	0.16	4.3	4.8	2.9	29	30	<1.0	8.4	<PQL	210	<PQL	12	0.03	3000	170	0.47	0.8	<PQL
Laboratory PQL			1	1	1	1	1	0.1	1	1	1	1	1	1	1	2	1	0.03[(1)]/ 0.05 [(2)]	0.01	0.05[(1)]/ 0.02[(2)]	1[(1)]/ 0.1[(2)]	1[(1)]/ 0.4[(2)]	0.1[(1)]/ 0.05[(2)]	1[(1)]/ 0.2[(2)]	5E-4[(1)]/ 1E-4[(2)]

Notes to Table 3:
PQL – Practical quantification limit
1 – PQL for October 2007 Testing
2 – PQL for May 2008 Testing
Sample D1 is a duplicate of Sample 101 during the October 2007 sampling
NT – Not tested

We trust this meets with your current requirements. Please do not hesitate to contact the undersigned if you require additional information.

Yours faithfully
DOUGLAS PARTNERS PTY LTD

Reviewed by:

Julie Wharton
Associate

John Harvey
Principal

References

1. Douglas Partners Pty Ltd, "Report on Geotechnical Investigation, Proposed Trinity Point Marina and Tourist Development, 49 Lakeview Road, Morisset Park", Report No 39823, 5 December 2007.

Attachments

Laboratory Test Results
Chain of Custody Sheets
Drawing 2 – Test Location Plan from Ref 1

Copy to:
Mr Dan Messiter - Worley Parsons (by email)

20 May 2008 **TEST REPORT**

Douglas Partners Pty Ltd
Box 324
Hunter Region Mail Centre
NSW 2310

Your Reference: 39823.04, Morisset
Report Number: 60994

Attention: Julie Wharton

Dear Julie
The following samples were received from you on the date indicated.

Samples:	Qty.	5 Waters
Date of Receipt of Samples:		16/5/08
Date of Receipt of Instructions:		16/5/08
Date Preliminary Report Emailed:		Not Issued

These samples were analysed in accordance with your written instructions.
A copy of the instructions is attached with the analytical report.

The results and associated quality control are contained in the following pages of this report. Unless otherwise stated, solid samples are expressed on a dry weight basis (moisture has been supplied for your information only), air and liquid samples as received.

Should you have any queries regarding this report please contact the undersigned.

Yours faithfully
SGS ENVIRONMENTAL SERVICES

Edward Ibrahim
Lab Manager

SGS Australia Pty Ltd
ABN 44 000 964 278
Environmental Services Unit 16, 33 Maddox Street, Alexandria Australia
t (02) 8594 0400 f (02) 8594 0499
www.au.sgs.com
Member of the SGS Group

Inorganics Our Reference: Your Reference Sample Type Date Sampled	UNITS ---------- ----------	60994-1 101 Water 15/05/2008	60994-2 102 Water 15/05/2008	60994-3 103 Water 15/05/2008	60994-4 104 Water 15/05/2008
Date Extracted		20/05/2008	20/05/2008	20/05/2008	20/05/2008
Date Analysed		20/05/2008	20/05/2008	20/05/2008	20/05/2008
Nitrite as N	mg/L	0.010	<0.010	<0.010	<0.010
Nitrate as N	mg/L	0.080	0.050	0.060	0.030
Date Extracted (Total P)		20/05/2008	20/05/2008	20/05/2008	20/05/2008
Date Analysed (Total P)		20/05/2008	20/05/2008	20/05/2008	20/05/2008
Total Phosphorus	mg/L	1.7	0.28	<0.05	0.47
Date Extracted (TKN)		20/05/2008 20/05/2008	20/05/2008 20/05/2008	20/05/2008 20/05/2008	20/05/2008 20/05/2008
Date Analysed (TKN)		20/05/2008	20/05/2008	20/05/2008	20/05/2008
Total Kjeldahl Nitrogen	mg/L	3.2	0.8	<0.2	0.8
Total Nitrogen	mg/L	3.2	0.79	<0.20	0.85

Anions in water					
Our Reference:	UNITS	60994-1	60994-2	60994-3	60994-4
Your Reference	----------	101	102	103	104
Sample Type	----------	Water	Water	Water	Water
Date Sampled		15/05/2008	15/05/2008	15/05/2008	15/05/2008
Date Extracted		19/05/2008	19/05/2008	19/05/2008	19/05/2008
Date Analysed		19/05/2008	19/05/2008	19/05/2008	19/05/2008
Chloride, Cl	mg/L	18	550	150	3,000
Sulphate, SO4	mg/L	4.5	72	52	170

Trace HM (ICP-MS)-Dissolved Our Reference: Your Reference Sample Type Date Sampled	UNITS ---------- ----------	60994-1 101 Water 15/05/2008	60994-2 102 Water 15/05/2008	60994-3 103 Water 15/05/2008	60994-4 104 Water 15/05/2008
Date Extracted (Metals-ICPMS)		16/05/2008	16/05/2008	16/05/2008	16/05/2008
Date Analysed (Metals-ICPMS)		16/05/2008	16/05/2008	16/05/2008	16/05/2008
Arsenic	µg/L	8.0	1.4	<1.0	<1.0
Cadmium	µg/L	<0.10	<0.10	<0.10	0.16
Chromium	µg/L	1.1	1.0	1.1	4.3
Copper	µg/L	1.4	2.0	6.9	4.8
Lead	µg/L	1.7	<1.0	15	29
Zinc	µg/L	58	22	35	210
Nickel	µg/L	2.1	1.3	2.4	8.4
Cobalt	µg/L	<1.0	<1.0	<1.0	2.9
Beryllium	µg/L	<1.0	<1.0	<1.0	4.4
Boron	µg/L	110	600	59	120
Barium	µg/L	7.1	15	46	78
Antimony	µg/L	2.8	2.9	1.0	<1.0
Manganese	µg/L	44	57	30	30
Molybdenum	µg/L	4.4	12	1.1	<1.0
Selenium	µg/L	<2.0	<2.0	<2.0	<2.0

Trace HM (ICP-MS)-Totals					
Our Reference:	UNITS	60994-1	60994-2	60994-3	60994-4
Your Reference	----------	101	102	103	104
Sample Type	----------	Water	Water	Water	Water
Date Sampled		15/05/2008	15/05/2008	15/05/2008	15/05/2008
Date Extracted (Metals-ICPMS)		19/05/2008	19/05/2008	19/05/2008	19/05/2008
Date Analysed (Metals-ICPMS)		19/05/2008	19/05/2008	19/05/2008	19/05/2008
Iron (Total)*	µg/L	5,700	4,600	800	12,000

Metals in water by ICP-OES					
Our Reference:	UNITS	60994-1	60994-2	60994-3	60994-4
Your Reference	----------	101	102	103	104
Sample Type	----------	Water	Water	Water	Water
Date Sampled		15/05/2008	15/05/2008	15/05/2008	15/05/2008
Date Extracted (Metals)		19/05/2008	19/05/2008	19/05/2008	19/05/2008
Date Analysed (Metals)		19/05/2008	19/05/2008	19/05/2008	19/05/2008
Tin (Dissolved)	mg/L	<0.05	<0.05	<0.05	<0.05

Mercury Cold Vapor/Hg Analyser Our Reference: Your Reference Sample Type Date Sampled	UNITS ---------- ----------	60994-1 101 Water 15/05/2008	60994-2 102 Water 15/05/2008	60994-3 103 Water 15/05/2008	60994-4 104 Water 15/05/2008
Date Extracted (Mercury)		19/05/2008	19/05/2008	19/05/2008	19/05/2008
Date Analysed (Mercury)		19/05/2008	19/05/2008	19/05/2008	19/05/2008
Mercury (Dissolved)	mg/L	<0.0001	<0.0001	<0.0001	<0.0001

Method ID	Methodology Summary
AN277	
AN276	
AN293	Determination of Total Phosphorus by discrete analyser following digestion with Sulphuric Acid, K2SO4 and HgSO4. Method based on APHA 4500-P E / USEPA 365.4.
AN292	Determination of Total Kjeldahl Nitrogen by discrete analyser following digestion with Sulphuric Acid, K2SO4 and HgSO4. Method based on APHA 4500-Norg D / USEPA 351.2.
SEI-033	Total Kjeldahl Nitrogen - determined titrimetrically, in accordance with APHA 20th ED, 4500-Norg B.
SEI-038	Anions - a range of Anions are determined by Ion Chromatography, in accordance with APHA 20th ED, 4110-B.
SEP-015	Water sample is digested with Nitric Acid at 105^{o}C for total metals analysed by ICPMS.
AN318	Determination of elements at trace levels in waters by ICP-MS. Method based on USEPA 6020A
SEM-010	Metals - Determination of various metals by ICP-OES following appropriate sample preparation or digestion process.
SEM-005	Mercury - Determination of Mercury by Cold Vapour Generation Atomic Absorption Spectroscopy.

QUALITY CONTROL Inorganics	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Date Extracted				20/05/2008	60994-1	20/05/2008 || 20/05/2008	LCS	20/05/2008%
Date Analysed				20/05/2008	60994-1	20/05/2008 || 20/05/2008	LCS	20/05/2008%
Nitrite as N	mg/L	0.01	AN277	<0.010	60994-1	0.010 || <0.010	LCS	95%
Nitrate as N	mg/L	0.01	AN276	<0.010	60994-1	0.080 || 0.070 || RPD: 13	LCS	94%
Date Extracted (Total P)				20/05/2008	60994-1	20/05/2008 || 20/05/2008	LCS	20/05/2008%
Date Analysed (Total P)				20/05/2008	60994-1	20/05/2008 || 20/05/2008	LCS	20/05/2008%
Total Phosphorus	mg/L	0.05	AN293	<0.05	60994-1	1.7 || 1.7 || RPD: 0	LCS	103%
Date Extracted (TKN)				20/05/2008	60994-1	20/05/200820/05/2008 || 20/05/200820/05/2008	LCS	20/05/2008%
Date Analysed (TKN)				20/05/2008	60994-1	20/05/2008 || 20/05/2008	LCS	20/05/2008%
Total Kjeldahl Nitrogen	mg/L	0.2	AN292	<0.2	60994-1	3.2 || 3.2 || RPD: 0	LCS	101%
Total Nitrogen	mg/L	0.2	SEI-033	<0.20	60994-1	3.2 || 3.2 || RPD: 0	[NR]	[NR]
QUALITY CONTROL Anions in water	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Date Extracted				19/05/08	60994-1	19/05/2008 || 19/05/2008	LCS	19/05/08%
Date Analysed				19/05/08	60994-1	19/05/2008 || 19/05/2008	LCS	19/05/08%
Chloride, Cl	mg/L	0.1	SEI-038	<0.1	60994-1	18 || 17 || RPD: 6	LCS	110%
Sulphate, SO4	mg/L	0.4	SEI-038	<0.4	60994-1	4.5 || 4.5 || RPD: 0	LCS	108%
QUALITY CONTROL Trace HM (ICP-MS)-Dissolved	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Date Extracted (Metals-ICPMS)			SEP-015	16/05/08	[NT]	[NT]	LCS	16/05/08%
Date Analysed (Metals-ICPMS)			SEP-015	16/05/08	[NT]	[NT]	LCS	16/05/08%
Arsenic	µg/L	1	AN318	<1.0	[NT]	[NT]	LCS	92%
Cadmium	µg/L	0.1	AN318	<0.10	[NT]	[NT]	LCS	94%
Chromium	µg/L	1	AN318	<1.0	[NT]	[NT]	LCS	91%
Copper	µg/L	1	AN318	<1.0	[NT]	[NT]	LCS	92%
Lead	µg/L	1	AN318	<1.0	[NT]	[NT]	LCS	99%
Zinc	µg/L	1	AN318	<1.0	[NT]	[NT]	LCS	94%
Nickel	µg/L	1	AN318	<1.0	[NT]	[NT]	LCS	89%

QUALITY CONTROL Trace HM (ICP-MS)-Dissolved	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Cobalt	µg/L	1	AN318	<1.0	[NT]	[NT]	LCS	98%
Beryllium	µg/L	1	AN318	<1.0	[NT]	[NT]	LCS	93%
Boron	µg/L	1	AN318	<1.0	[NT]	[NT]	LCS	92%
Barium	µg/L	1	AN318	<1.0	[NT]	[NT]	LCS	94%
Antimony	µg/L	1	AN318	<1.0	[NT]	[NT]	LCS	112%
Manganese	µg/L	1	AN318	<1.0	[NT]	[NT]	LCS	95%
Molybdenum	µg/L	1	AN318	<1.0	[NT]	[NT]	LCS	85%
Selenium	µg/L	2	AN318	<2.0	[NT]	[NT]	LCS	92%
QUALITY CONTROL Trace HM (ICP-MS)-Totals	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Date Extracted (Metals-ICPMS)			SEP-015	19/05/08	[NT]	[NT]	LCS	19/05/08%
Date Analysed (Metals-ICPMS)			SEP-015	19/05/08	[NT]	[NT]	LCS	19/05/08%
Iron (Total)*	µg/L	5	AN318	<5.0	[NT]	[NT]	LCS	99%
QUALITY CONTROL Metals in water by ICP-OES	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Date Extracted (Metals)				19/05/08	[NT]	[NT]	LCS	19/05/08%
Date Analysed (Metals)				19/05/08	[NT]	[NT]	LCS	19/05/08%
Tin (Dissolved)	mg/L	0.05	SEM-010	<0.05	[NT]	[NT]	LCS	96%
QUALITY CONTROL Mercury Cold Vapor/Hg Analyser	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Date Extracted (Mercury)				19/05/08	[NT]	[NT]	LCS	19/05/08%
Date Analysed (Mercury)				19/05/08	[NT]	[NT]	LCS	19/05/08%
Mercury (Dissolved)	mg/L	0.0001	SEM-005	<0.0001	[NT]	[NT]	LCS	88%

QUALITY CONTROL Hold sample-NO test required	UNITS	LOR	METHOD	Blank
Sample on HOLD				[NT]

Result Codes

[INS]	:	Insufficient Sample for this test	[RPD]	:	Relative Percentage Difference
[NR]	:	Not Requested	*	:	Not part of NATA Accreditation
[NT]	:	Not tested	[N/A]	:	Not Applicable

Report Comments

Date Organics extraction commenced:
NATA Corporate Accreditation No. 2562, Site No 4354
Note: Test results are not corrected for recovery (excluding Dioxins/Furans* and PAH in XAD and PUF).
This document is issued, on the Client's behalf, by the Company under its General Conditions of Service available on request and accessible at http://www.sgs.com/terms_and_conditions.htm. The Client's attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

Any other holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents.

Quality Control Protocol

Method Blank: An analyte free matrix to which all reagents are added in the same volume or proportions as used in sample processing. The method blank should be carried through the complete sample preparation and analytical procedure. A method blank is prepared every 20 samples.
Duplicate: A separate portion of a sample being analysed that is treated the same as the other samples in the batch. One duplicate is processed at least every 10 samples.
Surrogate Spike: An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. Surrogates are added to samples before extraction to monitor extraction efficiency and percent recovery in each sample.
Internal Standard: Added to all samples requiring analysis for organics (where relevant) or metals by ICP after the extraction/digestion process; the compounds/elements serve to give a standard of retention time and/or response, which is invariant from run-to-run with the instruments.
Laboratory Control Sample: A known matrix spiked with compound(s) representative of the target analytes. It is used to document laboratory performance. When the results of the matrix spike analysis indicates a potential problem due to the sample matrix itself, the LCS results are used to verify that the laboratory can perform the analysis in a clean matrix.
Matrix Spike: An aliquot of sample spiked with a known concentration of target analyte(s). The spiking occurs prior to sample preparation and analysis. A matrix spike is used to document the bias of a method in a given sample matrix.

Quality Acceptance Criteria

Unless otherwise specified in the test method, the following general acceptance criteria apply:

Method Blanks:	<LOR
Duplicates:	<5 x LOR: No RPD criteria applied.
	>5 x LOR: 0-30% RPD is accepted.
LCS's:	Determined by Control Charts.
	Where control charts have not been developed, the Matrix Spikes criteria apply.
Matrix Spikes:	70-130% recovery is accepted for metals / inorganics.
	60-140% is accepted for organics.
Surrogates:	60-130% recovery is accepted for BTEX.
	70-130% recovery is accepted for other organics.

W017 - W019

Temp - 9°C

Douglas Partners
Geotechnics · Environment · Groundwater

CHAIN OF CUSTODY DESPATCH SHEET

Project Name: Morisset
Project No: 39823.04 DP Order No: 75236
DP Contact Person: Julie Wharton / Dana Wilson
Prior Storage: (esky) fridge / shelved (circle)

To: SGS Australia PTY LTD
Unit 16/33 Maddox Street
ALEXANDRIA NSW 2015
Ph: (02) 8594 0400
Attn: Matt Hill

Sample ID	Date Sampled	Sample Type S-soil W-water	Lab ID	Analytes: Nitrite Nitrate	Total Iron	Total P	Total N	Chloride	Sulphide	ANZECC 17 Metals						TCLP	Notes
101	15.5.08	W	1	✓	✓	✓	✓	✓	✓	✓							Analysis to ANZECC 2000 levels.
102	↓	↓	2	↓	↓	↓	↓	↓	↓	↓							
103			3														
104			4														
D101			5														Please hold duplicate sample
PQL (S)		mg/kg															
PQL (W)		mg/L								1µg 0.1µg/L							

Received 16/5
By D
Time 9 am/pm
Samples intact (Yes/No)
Ice/Cooler Pack (Yes/No)
Comments 60994

PQL = practical quantitation limit *As per Laboratory Method (Detection Limit)
# - Metals to Analyse (Please circle): As Cd Cr Cu Pb Zn Hg Ni (Other) +Co+Be+B+Ba+Sb+Mn+Mo+Se+Sn.
Date relinquished: 15/5/08
Total number of samples in container: 5
Results required by: Within 36-48hrs.
TAT (Circle): Standard 72 hr (48hr) 24hr

SAMPLES RECEIVED
Please sign and date to acknowledge receipt of samples and return by fax
Signature:
Date: 16/5 Lab Ref: 60994

Send results to:
Douglas Partners Pty Ltd
Address:
BOX 324 Hunter Region Mail Centre
NSW 2310
Fax: (02) 4960 9601

SGS Environmental Services
Unit 16, 33 Maddox St. Alexandria NSW 2015
Telephone Number : (+61 2) 8594 0400
Fax Number : (+61 2) 8594 0499

SAMPLE RECEIPT CONFIRMATION

COMPANY	:	Douglas Partners Pty Ltd	FAX NO.	:	02 4960 9601
ATTENTION	:	Julie Wharton	PAGES	:	1
FROM	:	Sample Receipt	DATE	:	16/05/08

This is to confirm that samples for Project **39823.04, Morisset** were received on **16/5/08** the results are expected to be ready on **20/05/2008** . Please quote SGS Reference: **60994** when making enquiries regarding this project. Please refer to below which details information about the integrity of the samples and other useful information.

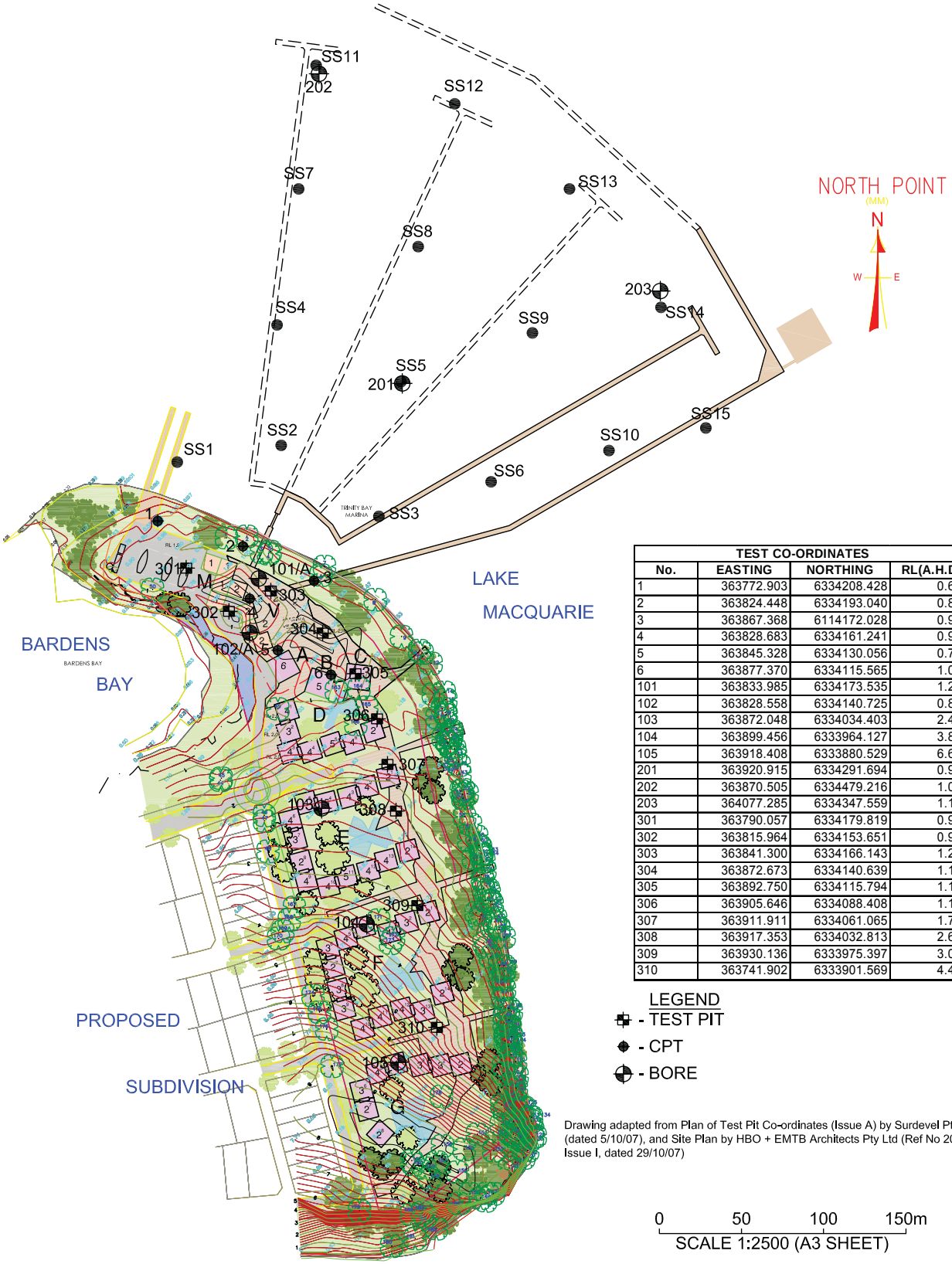
Samples will be held for 1 month for water samples and 2 months for soil samples from date of receipt of samples, unless otherwise instructed.

Samples received in good order:	YES
Samples received in correct containers:	YES
Samples received without headspace:	YES
Sufficient quantity supplied:	YES
Upon receipt sample temperature:	Cool
Cooling Method:	Ice
Sample containers provided by:	SGS
Samples Clearly Labelled:	YES
Turnaround time requested:	48hr
Completed documentation received:	YES

Comments:

Terms and conditions are available from www.au.sgs.com

The signed chain of custody will be returned to you with the original report.



TEST CO-ORDINATES			
No.	EASTING	NORTHING	RL(A.H.D)
1	363772.903	6334208.428	0.665
2	363824.448	6334193.040	0.810
3	363867.368	6114172.028	0.920
4	363828.683	6334161.241	0.985
5	363845.328	6334130.056	0.775
6	363877.370	6334115.565	1.050
101	363833.985	6334173.535	1.270
102	363828.558	6334140.725	0.885
103	363872.048	6334034.403	2.465
104	363899.456	6333964.127	3.820
105	363918.408	6333880.529	6.620
201	363920.915	6334291.694	0.990
202	363870.505	6334479.216	1.005
203	364077.285	6334347.559	1.100
301	363790.057	6334179.819	0.960
302	363815.964	6334153.651	0.965
303	363841.300	6334166.143	1.205
304	363872.673	6334140.639	1.160
305	363892.750	6334115.794	1.145
306	363905.646	6334088.408	1.115
307	363911.911	6334061.065	1.775
308	363917.353	6334032.813	2.600
309	363930.136	6333975.397	3.000
310	363741.902	6333901.569	4.400

Drawing adapted from Plan of Test Pit Co-ordinates (Issue A) by Surdevel Pty Ltd (dated 5/10/07), and Site Plan by HBO + EMTB Architects Pty Ltd (Ref No 202669, Issue I, dated 29/10/07)

Douglas Partners
Geotechnics Environment Groundwater

Sydney, Newcastle, Brisbane, Melbourne, Perth, Wyong,

Wollongong, Campbelltown, Townsville, Cairns, Darwin

TITLE: TEST LOCATION PLAN - GEOTECHNICAL INVESTIGATION
PROPOSED TRINITY POINT MARINA AND TOURIST DEVELOPMENT
49 LAKEVIEW ROAD, MORISSET PARK

CLIENT: JOHNSON PROPERTY GROUP PTY LTD			OFFICE: NEWCASTLE
DRAWN BY: PLH	SCALE: 1:2500	PROJECT No. 39823	
APPROVED BY:		DATE:	DRAWING No: 2