
Appendix E

Field Work Results

BOREHOLE LOG

CLIENT: Health Infrastructure
PROJECT: Sutherland Hospital Planning Project
LOCATION: Kareena Road, Caringbah

SURFACE LEVEL: 39.9 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 101
PROJECT No: 84311
DATE: 5/9/2014
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Well Construction Details	
				Type	Depth	Sample	Results & Comments			
39.9 1	0.05	ASPHALT		D/E	0.05		PID<1			
	0.25	FILLING - grey-brown, fine to medium gravelly sand filling with a trace of brick fragments, moist			0.1					
		FILLING - dark brown, silty clay filling with some shale gravel, some brick fragments and some concrete fragments, damp		D/E	0.4		PID<1			
					0.5					
	0.7	CLAY - grey and brown clay, damp		D/E	0.9		PID<1			
38 2					1.0					
				D/E	1.4		PID<1			
	1.5	Bore discontinued at 1.5m			1.5					
37 3										
36 4										
35										

RIG: DT100

DRILLER: SM

LOGGED: AL

CASING: Uncased

TYPE OF BORING: 100mm diameter solid flight auger (TC-bit)

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
BB	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	W	Water seep	S	Standard penetration test
E	Environmental sample	W	Water level	V	Shear vane (kPa)



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BOREHOLE LOG

CLIENT: Health Infrastructure
PROJECT: Sutherland Hospital Planning Project
LOCATION: Kareena Road, Caringbah

SURFACE LEVEL: 39.8 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 102
PROJECT No: 84311
DATE: 5/9/2014
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing			Water	Well Construction Details	
				Type	Depth	Sample			
	0.2	ASPHALT							Gatic cover
	0.2	FILLING - grey-brown, fine to medium gravelly sand filling with some medium shale gravel and a trace of brick fragments, moist		D/E	0.25		PID<1		
	0.4			D/E	0.4		PID<1		
	0.4	FILLING - dark brown, sandy clay filling with some medium shale gravel, some concrete fragments and a trace of brick fragments, damp		D/E	0.5				Backfill
	0.8								50mm diameter unslopped PVC
	0.8	CLAY - brown clay, damp		D/E	0.9		PID<1		
	1.0								Bentonite
	1.3	SHALE - extremely low strength, grey-brown shale		D/E	1.4		PID<1		
	1.5								
	2.0	From 2.0m: very low to low strength							Backfilled with gravel
	2.0								Machine slotted PVC screen
	3.1	Bore discontinued at 3.1m							End cap

RIG: DT100

DRILLER: SM

LOGGED: AL

CASING: Uncased

TYPE OF BORING: 100mm diameter solid flight auger (TC-bit)

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	>	Water seep	S	Standard penetration test
E	Environmental sample	≡	Water level	V	Shear vane (kPa)

BOREHOLE LOG

CLIENT: Health Infrastructure
PROJECT: Sutherland Hospital Planning Project
LOCATION: Kareena Road, Caringbah

SURFACE LEVEL: 40.4 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 103
PROJECT No: 84311
DATE: 5/9/2014
SHEET 1 OF 1

[illegible]

RIG: DT100

DRILLER: SM

LOGGED: AL

CASING: Uncased

TYPE OF BORING: 100mm diameter solid flight auger (TC-bit)

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS:

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	G	Gas sample
B	Bulk sample	P	Piston sample
BLK	Block sample	U	Tube sample (x mm dia.)
C	Core drilling	W	Water sample
D	Disturbed sample	W	Water seep
E	Environmental sample	W	Water level
		PID	Photo ionisation detector (ppm)
		PL(A)	Point load axial test (s(50) (MPa)
		PL(D)	Point load diametral test (s(50) (MPa)
		pp	Pocket penetrometer (kPa)
		S	Standard penetration test
		V	Shear vane (kPa)



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BOREHOLE LOG

CLIENT: Health Infrastructure
PROJECT: Sutherland Hospital Planning Project
LOCATION: Kareena Road, Caringbah

SURFACE LEVEL: 40.4 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 104
PROJECT No: 84311
DATE: 5/9/2014
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Well Construction Details	
				Type	Depth	Sample	Results & Comments			
40 <										

BOREHOLE LOG

CLIENT: Health Infrastructure
PROJECT: Sutherland Hospital Planning Project
LOCATION: Kareena Road, Caringbah

SURFACE LEVEL: 41.3 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 105
PROJECT No: 84311
DATE: 8/9/2014
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Well Construction Details	
				Type	Depth	Sample	Results & Comments			
41	0.05	ASPHALT		D/E	0.05		PID<1			
		FILLING - dark brown, fine to medium sandy gravel filling, moist (roadbase)			0.1					
	0.4	CLAY - brown clay, moist		D/E	0.4		PID<1			
					0.5					
1		From 0.8m: red-grey		D/E*	0.9		PID<1			
	1.0	Bore discontinued at 1.0m			1.0					
40										
2										
3										
4										
37										

RIG: DT100

DRILLER: SM

LOGGED: AL

CASING: Uncased

TYPE OF BORING: 100mm diameter solid flight auger (TC-bit)

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS: *Triplicate samples TS7A and TS7B collected

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	W	Water seep	S	Standard penetration test
E	Environmental sample	W	Water level	V	Shear vane (kPa)

BOREHOLE LOG

CLIENT: Health Infrastructure
PROJECT: Sutherland Hospital Planning Project
LOCATION: Kareena Road, Caringbah

SURFACE LEVEL: 41.0 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 106
PROJECT No: 84311
DATE: 5/9/2014
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing			Water	Well Construction Details	
				Type	Depth	Sample			
41	0.05	ASPHALT		D/E	0.05		PID<1		Gatic cover
		FILLING - grey-brown, fine to medium gravelly sand filling with concrete fragments, moist			0.1				
	0.3	0.25m: steel wire fragments		D/E*	0.4		PID<1		Backfill
		FILLING - dark brown, fine to medium gravelly sand filling with concrete fragments, some brick fragments and some timber fragments, damp			0.5				
		0.7m: steel fragment		D	0.7		x2		50mm diameter unslopped PVC
	0.8	CLAY - brown and red-grey clay, damp		D/E	0.9		PID<1		
					1.0				
	1.2	SHALE - extremely low strength, grey-brown shale		D/E	1.4		PID<1		Bentonite
					1.5				
39	2	From 2.0m: very low to low strength							Backfilled with gravel
									Machine slotted PVC screen
38	3								
	3.1	Bore discontinued at 3.1m							End cap
37	4								

RIG: DT100

DRILLER: SM

LOGGED: AL

CASING: Uncased

TYPE OF BORING: 100mm diameter solid flight auger (TC-bit)

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS: *Triplicate samples TS2A and TS2B collected

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	>	Water seep	S	Standard penetration test
E	Environmental sample	≡	Water level	V	Shear vane (kPa)



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BOREHOLE LOG

CLIENT: Health Infrastructure
PROJECT: Sutherland Hospital Planning Project
LOCATION: Kareena Road, Caringbah

SURFACE LEVEL: 41.0 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 107
PROJECT No: 84311
DATE: 5/9/2014
SHEET 1 OF 1

[illegible]

RIG: DT100

DRILLER: SM

LOGGED: AL

CASING: Uncased

TYPE OF BORING: 100mm diameter solid flight auger (TC-bit)

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS:

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	G	Gas sample
B	Bulk sample	P	Piston sample
BLK	Block sample	U	Tube sample (x mm dia.)
C	Core drilling	W	Water sample
D	Disturbed sample	W	Water seep
E	Environmental sample	W	Water level
		PID	Photo ionisation detector (ppm)
		PL(A)	Point load axial test (s(50) (MPa)
		PL(D)	Point load diametral test (s(50) (MPa)
		pp	Pocket penetrometer (kPa)
		S	Standard penetration test
		V	Shear vane (kPa)



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BOREHOLE LOG

CLIENT: Health Infrastructure
PROJECT: Sutherland Hospital Planning Project
LOCATION: Kareena Road, Caringbah

SURFACE LEVEL: 41.0 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 108
PROJECT No: 84311
DATE: 5/9/2014
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing			Water	Well Construction Details	
				Type	Depth	Sample			
	0.05	ASPHALT		D/E	0.05				
		FILLING - grey-brown, fine to medium gravelly sand filling with concrete fragments, some steel fragments and some brick fragments		D/E	0.1				
				D/E	0.4				
				D/E	0.5				
		0.8m: silicon chip fragment		D	0.8				
				D/E	0.9				
				D/E	1.0				
				D/E	1.4				
				D/E	1.5				
				D/E	1.9				
				D/E	2.0				
				D/E	2.4				
				D/E	2.5				
				D/E	3.4				
				D/E	3.5				
		SHALE - very low strength, brown and grey grey shale		D/E	3.9				
				D/E	4.0				
				D/E	4.4				
				D/E	4.5				
		Bore discontinued at 4.5m							

RIG: DT100

DRILLER: SM

LOGGED: AL

CASING: Uncased

TYPE OF BORING: 100mm diameter solid flight auger (TC-bit)

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	W	Water seep	S	Standard penetration test
E	Environmental sample	W	Water level	V	Shear vane (kPa)



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BOREHOLE LOG

CLIENT: Health Infrastructure
PROJECT: Sutherland Hospital Planning Project
LOCATION: Kareena Road, Caringbah

SURFACE LEVEL: 41.6 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 109
PROJECT No: 84311
DATE: 8/9/2014
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Well Construction Details	
				Type	Depth	Sample	Results & Comments			
	0.14	CONCRETE								
		FILLING - brown and grey-brown, fine to medium gravelly sand filling with concrete fragments, some steel fragments and a trace of brick fragments, damp		D/E	0.15		PID<1			
					0.25					
				D/E*	0.4		PID<1			
					0.5					
	1.3	CLAY - brown and red-grey clay, damp								
				D/E	1.4		PID<1			
					1.5					
				D/E	1.9		PID<1			
	2.0	Bore discontinued at 2.0m			2.0					

RIG: DT100

DRILLER: SM

LOGGED: AL

CASING: Uncased

TYPE OF BORING: Diatube to 0.14m; 100mm diameter solid flight auger (TC-bit) to 2.0m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS: *Triplicate samples TS5A and TS5B collected

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	W	Water seep	S	Standard penetration test
E	Environmental sample	W	Water level	V	Shear vane (kPa)

BOREHOLE LOG

CLIENT: Health Infrastructure
PROJECT: Sutherland Hospital Planning Project
LOCATION: Kareena Road, Caringbah

SURFACE LEVEL: 41.4 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 110
PROJECT No: 84311
DATE: 8/9/2014
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Well Construction Details	
				Type	Depth	Sample	Results & Comments			
	0.2	CONCRETE								
	0.35	FILLING - brown, fine to medium sandy gravel filling, damp (roadbase)		D/E	0.2		PID<1			
		FILLING - brown and dark brown, fine to medium gravelly sand filling with concrete fragments and a trace of brick fragments, moist		D/E	0.3					
				D/E	0.4		PID<1			
					0.5					
	1	1.1m: steel wire fragments		D/E	0.9		PID<1			
				D	1.0					
					1.1					
				D/E	1.4		PID<1			
					1.5					
	2	2.0		D/E	1.9		PID<1			
		SHALE - extremely low to very low strength, brown shale			2.0					
				D/E	2.4		PID<1			
	2.5	Bore discontinued at 2.5m			2.5					
	3									
	4									
	3.7									

RIG: DT100

DRILLER: SM

LOGGED: AL

CASING: Uncased

TYPE OF BORING: Diatube to 0.2m; 100mm diameter solid flight auger (TC-bit) to 2.5m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	W	Water seep	S	Standard penetration test
E	Environmental sample	W	Water level	V	Shear vane (kPa)

BOREHOLE LOG

CLIENT: Health Infrastructure
PROJECT: Sutherland Hospital Planning Project
LOCATION: Kareena Road, Caringbah

SURFACE LEVEL: 41.3 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 111
PROJECT No: 84311
DATE: 8/9/2014
SHEET 1 OF 1

[illegible]

RIG: DT100

DRILLER: SM

LOGGED: AL

CASING: Uncased

TYPE OF BORING: Diatube to 0.18m; 100mm diameter solid flight auger (TC-bit) to 1.5m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS: *Triplicate samples TS6A and TS6B collected

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	G	Gas sample
B	Bulk sample	P	Piston sample
BLK	Block sample	U	Tube sample (x mm dia.)
C	Core drilling	W	Water sample
D	Disturbed sample	W	Water seep
E	Environmental sample	W	Water level
		PID	Photo ionisation detector (ppm)
		PL(A)	Point load axial test (s(50) (MPa)
		PL(D)	Point load diametral test (s(50) (MPa)
		pp	Pocket penetrometer (kPa)
		S	Standard penetration test
		V	Shear vane (kPa)



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BOREHOLE LOG

CLIENT: Health Infrastructure
PROJECT: Sutherland Hospital Planning Project
LOCATION: Kareena Road, Caringbah

SURFACE LEVEL: 41.2 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 112
PROJECT No: 84311
DATE: 8/9/2014
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Well Construction Details	
				Type	Depth	Sample	Results & Comments			
41	0.22	CONCRETE								
		FILLING - grey, medium gravel filling, humid (crushed concrete)		D/E	0.22		PID<1			
					0.3					
	0.4	FILLING - brown, medium gravelly sand filling with some concrete fragments and some brick fragments, moist		D/E	0.4		PID<1			
					0.5					
	0.8	CLAY - red-brown and grey clay, moist								
1				D/E	0.9		PID<1			1
					1.0					
	1.2	SHALE - extremely low to very low strength, grey and brown shale								
40				D/E	1.4		PID<1			
	1.5	Bore discontinued at 1.5m			1.5					
39										
38										
37										

RIG: DT100

DRILLER: SM

LOGGED: AL

CASING: Uncased

TYPE OF BORING: Diatube to 0.22m; 100mm diameter solid flight auger (TC-bit) to 1.5m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	W	Water seep	S	Standard penetration test
E	Environmental sample	W	Water level	V	Shear vane (kPa)

BOREHOLE LOG

CLIENT: Health Infrastructure
PROJECT: Sutherland Hospital Planning Project
LOCATION: Kareena Road, Caringbah

SURFACE LEVEL: 41.3 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 113
PROJECT No: 84311
DATE: 8/9/2014
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Well Construction Details	
				Type	Depth	Sample	Results & Comments			
41	0.05	ASPHALT		D/E	0.05 0.1		PID<1			
		FILLING - brown, fine to medium gravelly sand filling with concrete fragments and some brick fragments, moist 0.25-0.45m: wet From 0.45m: obstruction (possibly concrete footing)		D/E	0.4 0.45		PID<1			
1	0.85	Bore discontinued at 0.85m - refusal on obstruction								
2										
3										
4										

RIG: DT100

DRILLER: SM

LOGGED: AL

CASING: Uncased

TYPE OF BORING: 100mm diameter solid flight auger (TC-bit)

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	>	Water seep	S	Standard penetration test
E	Environmental sample	≡	Water level	V	Shear vane (kPa)



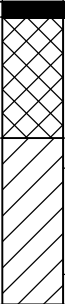
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BOREHOLE LOG

CLIENT: Health Infrastructure
PROJECT: Sutherland Hospital Planning Project
LOCATION: Kareena Road, Caringbah

SURFACE LEVEL: 41.3 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 113A
PROJECT No: 84311
DATE: 8/9/2014
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Well Construction Details	
				Type	Depth	Sample	Results & Comments			
41	0.05	ASPHALT								
		FILLING - brown, fine to medium gravelly sand filling with concrete fragments and some brick fragments, moist								
	0.45	CLAY - brown clay, moist		D/E	0.45		PID<1			
					0.55					
1		From 0.8m: red-grey								
				D/E	0.9		PID<1			
	1.0	Bore discontinued at 1.0m			1.0					

RIG: DT100

DRILLER: SM

LOGGED: AL

CASING: Uncased

TYPE OF BORING: 100mm diameter solid flight auger (TC-bit)

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

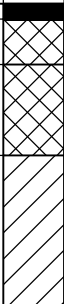
A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	W	Water seep	S	Standard penetration test
E	Environmental sample	W	Water level	V	Shear vane (kPa)

BOREHOLE LOG

CLIENT: Health Infrastructure
PROJECT: Sutherland Hospital Planning Project
LOCATION: Kareena Road, Caringbah

SURFACE LEVEL: 41.0 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 114
PROJECT No: 84311
DATE: 8/9/2014
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing			Water	Well Construction Details	
				Type	Depth	Sample			
41	0.05	ASPHALT		D/E	0.05		PID<1		
	0.2	FILLING - dark grey, fine to medium sandy gravel filling, moist (roadbase)			0.15				
		FILLING - grey-brown, fine to medium gravelly sand filling with concrete fragments, moist		D/E	0.4	PID<1			
	0.5	CLAY - brown clay, moist			0.5				
		From 0.8m: red-grey		D/E*	0.9	PID<1			
40	1	Bore discontinued at 1.0m			1.0			1	
39	2							2	
38	3							3	
37	4							4	

RIG: DT100

DRILLER: SM

LOGGED: AL

CASING: Uncased

TYPE OF BORING: 100mm diameter solid flight auger (TC-bit)

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS: *Triplicate samples TS4A and TS4B collected

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	W	Water seep	S	Standard penetration test
E	Environmental sample	W	Water level	V	Shear vane (kPa)

BOREHOLE LOG

CLIENT: Health Infrastructure
PROJECT: Sutherland Hospital Planning Project
LOCATION: Kareena Road, Caringbah

SURFACE LEVEL: 41.0 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 115
PROJECT No: 84311
DATE: 8/9/2014
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Well Construction Details	
				Type	Depth	Sample	Results & Comments			
41	0.07	ASPHALT		D/E	0.02		PID<1			
		FILLING - dark grey, fine to medium sandy gravel filling, damp (roadbase)			0.15					
	0.3	FILLING - grey-brown, fine to medium gravelly sand filling with some concrete fragments and a trace of brick fragments, damp		D/E*	0.4		PID<1			
					0.5					
	0.6	FILLING - brown and dark brown, silty clay filling with shale and ironstone gravel and some concrete fragments, damp			0.9		PID<1			
				D/E	1.0					1
					1.4		PID<1			
					1.5					
				D/E	1.9		PID<1			
		2.0-2.1m: light brown, medium sand			2.0					2
39					2.4		PID<1			
				D/E	2.5					
					2.9		PID<1			
				D/E	3.0					3
	3.2	SHALE - extremely low to very low strength, brown and dark grey shale			3.4		PID<1			
		From 3.5m: very low to low strength		D/E	3.5					
					3.9		PID<1			
				D/E	4.0					4
	4.0	Bore discontinued at 4.0m								

RIG: DT100

DRILLER: SM

LOGGED: AL

CASING: Uncased

TYPE OF BORING: 100mm diameter solid flight auger (TC-bit)

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS: *Triplicate samples TS3A and TS3B collected

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	>	Water seep	S	Standard penetration test
E	Environmental sample	≡	Water level	V	Shear vane (kPa)

BOREHOLE LOG

CLIENT: Health Infrastructure
PROJECT: Sutherland Hospital Planning Project
LOCATION: Kareena Road, Caringbah

SURFACE LEVEL: 41.2 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 7-WELL
PROJECT No: 84311
DATE: 13/6/2014
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing			Water	Well Construction Details
				Type	Depth	Sample	Results & Comments	
41.04	0.04	ASPHALT		D	0.05			Gatic Cover
40.25	0.25	FILLING - dark grey, fine to medium-grained sandy gravel filling, damp (roadbase)		D	0.15			
40.4	0.4	FILLING - brown, medium-grained clayey sand filling with sandstone and ironstone gravel, moist		D	0.4			50mm unslotted PVC pipe
40.5	0.5			D	0.5			
40.9	0.9	CLAY - very stiff to hard, red and orange-grey clay with some ironstone gravel, moist		D	0.9			
41.0	1.0			S	1.0		5,14,20 N = 34	
41.6	1.6	SHALE - extremely low strength, grey and brown shale			1.45			Filling
42.0	2.0				2.5			
42.5	2.5			S	2.71		23,25/60mm refusal	
42.8	2.8				2.8			Bentonite
42.9	2.9	SHALE - medium strength, highly weathered, fragmented, grey-brown shale with some extremely low and very low strength bands		C	3.3		PL(A) = 0.6	
43.3	3.3				3.45			Gravel backfill
44.0	4.0	SHALE - medium strength, slightly weathered, fragmented to fractured, grey shale		C	4.15		PL(A) = 0.5	
44.9	4.9				4.9			50mm slotted PVC pipe
45.2	5.2			C	5.4		PL(A) = 0.6	
46.1	6.1	Bore discontinued at 6.1m			6.1			End Cap
47.0	7.0							
48.0	8.0							
49.0	9.0							

RIG: DT250

DRILLER: LC

LOGGED: AL/SI

CASING: HW to 2.8m

TYPE OF BORING: Solid flight auger to 2.5m; NMLC-Coring to 6.1m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	>	Water seep	S	Standard penetration test
E	Environmental sample	≡	Water level	V	Shear vane (kPa)



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 Geotechnics | Environment | Groundwater

BOREHOLE LOG

CLIENT: Health Infrastructure
PROJECT: Sutherland Hospital Planning Project
LOCATION: Kareena Road, Caringbah

SURFACE LEVEL: 41.0 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 9A-WELL
PROJECT No: 84311
DATE: 12/6/2014
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing			Water	Well Construction Details	
				Type	Depth	Sample	Results & Comments		
41.05	0.05	ASPHALT						Gatic Cover	
40.25	0.25	FILLING - grey, fine to medium-grained sandy gravel filling, moist (roadbase)						50mm unslotted PVC pipe	
		FILLING - brown, medium-grained clayey sand filling with fine to medium shale and sandstone gravel, moist							
		From 1.0m: with tile and concrete fragments							
39.1	1							Filling	
38.2	2								
38.05	2.05	CONCRETE			2.05				
38.15	2.15			C					
		SHALE - medium strength, moderately and highly to moderately weathered, fragmented to fractured, grey brown shale. Some very low strength bands		C	2.6				
	2.8			C	2.8		PL(A) = 0.6	Bentonite	
37.95	2.95			C	2.95		PL(A) = 0.5		
37.35	3			C	3.25			Gravel backfill	
37.6	3.6			C	3.6				
37.4	4			C					
37.25	4.25	SHALE - medium strength, highly to moderately then moderately weathered, highly fractured to fractured, grey-brown shale. Some extremely low strength bands		C	4.5		PL(A) = 0.7	50mm slotted PVC pipe	
				C	4.7				
36.53	5.33			C	5.24				
				C	5.7		PL(A) = 0.4		
36.0	6.0	Bore discontinued at 6.0m			6.0			End Cap	
35.7	7								
35.4	8								
35.1	9								

RIG: DT250

DRILLER: LC

LOGGED: AL

CASING: HW to 2.8m

TYPE OF BORING: Solid flight auger to 2.05m; NMLC-Coring to 2.6m; Wash boring to 2.8m; NMLC-Coring to 6.0m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	W	Water seep	S	Standard penetration test
E	Environmental sample	W	Water level	V	Shear vane (kPa)



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Appendix F

Summary of Laboratory Test Results

Table F1: Contaminant Concentrations in Soils

Sample/ Depth (m)	B	T	E	X	Napth.	F1	F2	+PAH	B.TEQ	+OCP	+OPP	+PCB	Phenol	Asbestos	As	Cd	Cr	Cu	Pb	Hg	Ni	Zn
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	(Y/N)	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Filling																						
BH101/0.4-0.5	<0.2	<0.5	<1	<3	<0.1	<25	<50	NIL	<0.5	NIL	NIL	NIL	<5	N	6	<0.4	15	26	36	<0.1	5	52
BH102/0.4-0.5	<0.2	<0.5	<1	<3	<0.1	<25	<50	NIL	<0.5	NIL	NIL	NIL	<5	N	7	<0.4	16	20	29	<0.1	6	33
BH103/0.4-0.5	<0.2	<0.5	<1	<3	<0.1	<25	<50	NIL	<0.5	NIL	NIL	NIL	<5	N	10	<0.4	15	17	27	<0.1	3	18
BH104/0.1-0.25	<0.2	<0.5	<1	<3	<0.1	<25	<50	0.60	<0.5	NIL	NIL	NIL	<5	N	<4	<0.4	13	35	23	<0.1	8	47
BH106/0.4-0.5	<0.2	<0.5	<1	<3	<0.1	<25	<50	NIL	<0.5	NIL	NIL	NIL	<5	N	6	<0.4	24	36	25	0.3	13	49
BH108/0.9-1.0	<0.2	<0.5	<1	<3	<0.1	<25	<50	NIL	<0.5	NIL	NIL	NIL	<5	N	<4	<0.4	16	190	14	<0.1	27	60
BH108/2.4-2.5	<0.2	<0.5	<1	<3	<0.1	<25	<50	NIL	<0.5	NIL	NIL	0.3	<5	N	4	<0.4	21	40	27	0.1	8	450
BH109/0.4-0.5	<0.2	<0.5	<1	<3	<0.1	<25	<50	NIL	<0.5	NIL	NIL	NIL	<5	N	4	<0.4	15	25	19	<0.1	6	34
BH110/1.4-1.5	<0.2	<0.5	<1	<3	<0.1	<25	<50	NIL	<0.5	NIL	NIL	NIL	<5	N	<4	<0.4	29	42	25	0.1	9	45
BH111/0.9-1.0	<0.2	<0.5	<1	<3	<0.1	<25	<50	0.10	<0.5	NIL	NIL	NIL	<5	N	<4	<0.4	26	50	30	0.1	6	100
BH112/0.4-0.5	<0.2	<0.5	<1	<3	<0.1	<25	<50	NIL	<0.5	NIL	NIL	NIL	<5	N	20	<0.4	14	42	24	0.1	12	42
BH113/0.4-0.45	<0.2	<0.5	<1	<3	<0.1	<25	<50	5.7	0.7	NIL	NIL	NIL	<5	N	<4	<0.4	13	27	33	<0.1	10	66
BH114/0.4-0.5	<0.2	<0.5	<1	<3	<0.1	<25	<50	2.4	<0.5	NIL	NIL	0.4	<5	N	5	<0.4	16	36	26	<0.1	8	30
BH115/0.9-1.0	<0.2	<0.5	<1	<3	<0.1	<25	<50	NIL	<0.5	NIL	NIL	0.2	<5	N	6	<0.4	15	51	21	<0.1	7	32
BH115/2.9-3.0	<0.2	<0.5	<1	<3	<0.1	<25	<50	NIL	<0.5	NIL	NIL	NIL	<5	N	20	<0.4	10	62	16	<0.1	3	26

Notes: B = Benzene; T = Toluene; E = Ethylbenzene; X = Xylene; Napth. = Naphthalene; F1 = (C₆ – C₁₀) – BTEX; F2 = (C₁₁ – C₁₆) – Naphthalene; +PAH = Positive polycyclic aromatic hydrocarbons; B.TEQ = Carcinogenic PAHs (as B(a)P TEQ); OCP = Organochlorine pesticides; OPP = Organophosphorus pesticides; PCB = Polychlorinated biphenyls; As = Arsenic; Cd = Cadmium; Cr = Chromium; Cu = Copper; Pb = Lead; Hg = Mercury; Ni = Nickel; Zn = Zinc; NT = Not tested

Table F2: Adopted Comparative Criteria for Soils

Sample/ Depth (m)	B	T	E	X	Napth.	F1	F2	+PAH	B.TEQ	OCP	OPP	PCB	Phenol	Asbestos	As	Cd	Cr	Cu	Pb	Hg	Ni	Zn
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	(Y/N)	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Adopted Investigation/Screening Levels (mg/kg)																						
Health-Based ¹	4	NL	NL	NL	NL	250	NL	4000	40	Various	Various	7	240000		3000	900	3600	240000	1500	730	6000	400000
Ecological ²	95	135	185	95	370	215	170		0.7						160		660	140	1800		55	210

Notes: B = Benzene; T = Toluene; E = Ethylbenzene; X = Xylene; Napth. = Naphthalene; F1 = (C₆ – C₁₀) – BTEX; F2 = (C₁₁ – C₁₆) – Naphthalene; +PAH = Positive polycyclic aromatic hydrocarbons; B.TEQ = Carcinogenic PAHs (as B(a)P TEQ); OCP = Organochlorine pesticides; OPP = Organophosphorus pesticides; PCB = Polychlorinated biphenyls; As = Arsenic; Cd = Cadmium; Cr = Chromium; Cu = Copper; Pb = Lead; Hg = Mercury; Ni = Nickel; Zn = Zinc

¹Based on NEPM Commercial/Industrial Sites; ²Based on NEPM ACL or ESL as applicable

Table F3: Contaminant Concentrations in QA/QC Soil Samples

Sample/ Depth (m)	B	T	E	X	Napth.	F1	F2	+PAH	B.TEQ	+OCP	+OPP	+PCB	Phenol	Asbestos	As	Cd	Cr	Cu	Pb	Hg	Ni	Zn
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	(Y/N)	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
QA/QC Soil Samples																						
TS2A(106/0.4-0.5)	<0.2	<0.5	<1	<3	<0.1	<25	<50	0.10	<0.5	NIL	NIL	NIL	<5	NT	<4	<0.4	30	24	21	0.1	20	43
TS2B(106/0.4-0.5)	<0.1	<0.1	<0.1	<0.3	<0.5	<20	<50	NIL	<0.5	NIL	NIL	NIL	<6.5	NT	4	<0.4	21	20	29	0.18	10	51
TS5A(109/0.4-0.5)	<0.2	<0.5	<1	<3	<0.1	<25	<50	NIL	<0.5	NIL	NIL	NIL	<5	NT	<4	<0.4	18	30	17	<0.1	8	35
TS5B(109/0.4-0.5)	<0.1	<0.1	<0.1	<0.3	<0.5	<20	<50	NIL	<0.5	NIL	NIL	NIL	<6.5	NT	2	<0.4	12	27	14	<0.05	8.1	30
Blank	<0.2	<0.5	<1	<3	<0.1	<25	<50	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Spike	118%	119%	116%	117%	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
QA/QC Water Samples (µg/L)																						
R1	<1	<1	<1	<3	<1	23	<50	NIL	<5	NT	NT	NT	NT	NT	<50	<10	<10	<10	<30	<0.5	<20	<20
R2	<1	<1	<1	<3	<1	12	<50	NIL	<5	<4	<1.6	<14	<50	NT	<50	<10	<10	<10	<30	<0.5	<20	<20

Notes: B = Benzene; T = Toluene; E = Ethylbenzene; X = Xylene; Napth. = Naphthalene; F1 = (C₆ – C₁₀) – BTEX; F2 = (C₁₁ – C₁₆) – Naphthalene; +PAH = Positive polycyclic aromatic hydrocarbons; B.TEQ = Carcinogenic PAHs (as B(a)P TEQ); OCP = Organochlorine pesticides; OPP = Organophosphorus pesticides; PCB = Polychlorinated biphenyls; As = Arsenic; Cd = Cadmium; Cr = Chromium; Cu = Copper; Pb = Lead; Hg = Mercury; Ni = Nickel; Zn = Zinc; NT = Not tested

Table F4: Statistical Analysis of Soil Contaminant Concentrations

Sample/ Depth (m)	B	T	E	X	Napth.	F1	F2	+PAH	B.TEQ	OCP	OPP	PCB	Phenol	Asbestos	As	Cd	Cr	Cu	Pb	Hg	Ni	Zn
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	(Y/N)	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Statistical Analysis of Filling Contaminant Concentrations (mg/kg)																						
Maximum	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.7	0.7	N/A	N/A	0.4	N/A	N/A	20	N/A	29	190	36	0.3	27	450
Average	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.2	0.7	N/A	N/A	0.3	N/A	N/A	8.8	N/A	17.2	46.6	25	0.14	8.7	72.3
Std. Deviation	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.5	N/A	N/A	N/A	0.1	N/A	N/A	6.1	N/A	5.3	41.5	5.9	0.09	5.8	106.4
95% UCL	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	18.9	N/A	26.0	114.9	34.8	N/A	18.3	192

Notes: B = Benzene; T = Toluene; E = Ethylbenzene; X = Xylene; Napth. = Naphthalene; F1 = (C₆ – C₁₀) – BTEX; F2 = (C₁₁ – C₁₆) – Naphthalene; +PAH = Positive polycyclic aromatic hydrocarbons; B.TEQ = Carcinogenic PAHs (as B(a)P TEQ); OCP = Organochlorine pesticides; OPP = Organophosphorus pesticides; PCB = Polychlorinated biphenyls; As = Arsenic; Cd = Cadmium; Cr = Chromium; Cu = Copper; Pb = Lead; Hg = Mercury; Ni = Nickel; Zn = Zinc; NA = Not applicable

Appendix G

Detailed Laboratory Test Results

CERTIFICATE OF ANALYSIS

116194

Client:

Douglas Partners Pty Ltd
96 Hermitage Rd
West Ryde
NSW 2114

Attention: Peter Oitmaa

Sample log in details:

Your Reference:	84311, Caringbah
No. of samples:	19 Soils, 2 Waters
Date samples received / completed instructions received	15/09/14 / 15/09/14

Analysis Details:

Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details:

Date results requested by: / Issue Date: 22/09/14 / 22/09/14
Date of Preliminary Report:

NATA accreditation number 2901. This document shall not be reproduced except in full.

Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with *.**

Results Approved By:



Jacinta Hurst
Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ----- -----	116194-1 BH101 0.4-0.5 05/09/2014 Soil	116194-2 BH102 0.4-0.5 05/09/2014 Soil	116194-3 BH103 0.4-0.5 05/09/2014 Soil	116194-4 BH104 0.1-0.25 05/09/2014 Soil	116194-5 BH106 0.4-0.5 05/09/2014 Soil
Date extracted	-	16/09/2014	16/09/2014	16/09/2014	16/09/2014	16/09/2014
Date analysed	-	17/09/2014	17/09/2014	17/09/2014	17/09/2014	17/09/2014
TRHC ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRHC ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPHC ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	95	94	107	96	97

vTRH(C6-C10)/BTEXN in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ----- -----	116194-6 BH108 0.9-1.0 05/09/2014 Soil	116194-7 BH108 2.4-2.5 05/09/2014 Soil	116194-8 BH109 0.4-0.5 08/09/2014 Soil	116194-9 BH110 1.4-1.5 08/09/2014 Soil	116194-10 BH111 0.9-1.0 08/09/2014 Soil
Date extracted	-	16/09/2014	16/09/2014	16/09/2014	16/09/2014	16/09/2014
Date analysed	-	17/09/2014	17/09/2014	17/09/2014	17/09/2014	17/09/2014
TRHC ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRHC ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPHC ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	98	99	95	97	99

vTRH(C6-C10)/BTEXN in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ----- -----	116194-11 BH112 0.4-0.5 08/09/2014 Soil	116194-12 BH113 0.4-0.45 08/09/2014 Soil	116194-13 BH114 0.4-0.5 08/09/2014 Soil	116194-14 BH115 0.9-1.0 08/09/2014 Soil	116194-15 BH115 3.9-3.0 08/09/2014 Soil
Date extracted	-	16/09/2014	16/09/2014	16/09/2014	16/09/2014	16/09/2014
Date analysed	-	17/09/2014	17/09/2014	17/09/2014	17/09/2014	17/09/2014
TRHC ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRHC ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPHC ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	99	101	99	98	101

vTRH(C6-C10)/BTEXN in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ----- -----	116194-16 TS2A - 8/09/2014 Soil	116194-17 TS5A - 8/09/2014 Soil	116194-18 Trip Blank - 03/09/2014 Soil	116194-19 Trip Spike - 03/09/2014 Soil
Date extracted	-	16/09/2014	16/09/2014	16/09/2014	16/09/2014
Date analysed	-	17/09/2014	17/09/2014	17/09/2014	17/09/2014
TRHC ₆ - C ₉	mg/kg	<25	<25	<25	[NA]
TRHC ₆ - C ₁₀	mg/kg	<25	<25	<25	[NA]
vTPHC ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	[NA]
Benzene	mg/kg	<0.2	<0.2	<0.2	118%
Toluene	mg/kg	<0.5	<0.5	<0.5	119%
Ethylbenzene	mg/kg	<1	<1	<1	116%
m+p-xylene	mg/kg	<2	<2	<2	117%
o-Xylene	mg/kg	<1	<1	<1	117%
naphthalene	mg/kg	<1	<1	<1	[NA]
Surrogate aaa-Trifluorotoluene	%	105	105	101	100

svTRH (C10-C40) in Soil	UNITS	116194-1	116194-2	116194-3	116194-4	116194-5
Our Reference:	-----	BH101	BH102	BH103	BH104	BH106
Your Reference	-----	0.4-0.5	0.4-0.5	0.4-0.5	0.1-0.25	0.4-0.5
Depth		05/09/2014	05/09/2014	05/09/2014	05/09/2014	05/09/2014
Date Sampled		Soil	Soil	Soil	Soil	Soil
Type of sample						
Date extracted	-	16/09/2014	16/09/2014	16/09/2014	16/09/2014	16/09/2014
Date analysed	-	17/09/2014	17/09/2014	17/09/2014	17/09/2014	17/09/2014
TRHC ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRHC ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRHC ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
TRH>C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH>C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH>C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	<100	<100
TRH>C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	88	89	81	87	84

svTRH (C10-C40) in Soil	UNITS	116194-6	116194-7	116194-8	116194-9	116194-10
Our Reference:	-----	BH108	BH108	BH109	BH110	BH111
Your Reference	-----	0.9-1.0	2.4-2.5	0.4-0.5	1.4-1.5	0.9-1.0
Depth		05/09/2014	05/09/2014	08/09/2014	08/09/2014	08/09/2014
Date Sampled		Soil	Soil	Soil	Soil	Soil
Type of sample						
Date extracted	-	16/09/2014	16/09/2014	16/09/2014	16/09/2014	16/09/2014
Date analysed	-	17/09/2014	17/09/2014	17/09/2014	17/09/2014	17/09/2014
TRHC ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRHC ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRHC ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
TRH>C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH>C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH>C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	<100	<100
TRH>C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	78	82	81	76	77

svTRH (C10-C40) in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ----- -----	116194-11 BH112 0.4-0.5 08/09/2014 Soil	116194-12 BH113 0.4-0.45 08/09/2014 Soil	116194-13 BH114 0.4-0.5 08/09/2014 Soil	116194-14 BH115 0.9-1.0 08/09/2014 Soil	116194-15 BH115 3.9-3.0 08/09/2014 Soil
Date extracted	-	16/09/2014	16/09/2014	16/09/2014	16/09/2014	16/09/2014
Date analysed	-	17/09/2014	17/09/2014	17/09/2014	17/09/2014	17/09/2014
TRHC ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRHC ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRHC ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
TRH>C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH>C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH>C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	<100	<100
TRH>C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	85	82	85	80	77

svTRH (C10-C40) in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ----- -----	116194-16 TS2A - 8/09/2014 Soil	116194-17 TS5A - 8/09/2014 Soil	116194-18 Trip Blank - 03/09/2014 Soil
Date extracted	-	16/09/2014	16/09/2014	16/09/2014
Date analysed	-	17/09/2014	17/09/2014	17/09/2014
TRHC ₁₀ - C ₁₄	mg/kg	<50	<50	<50
TRHC ₁₅ - C ₂₈	mg/kg	<100	<100	<100
TRHC ₂₉ - C ₃₆	mg/kg	<100	<100	<100
TRH>C ₁₀ -C ₁₆	mg/kg	<50	<50	<50
TRH>C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50
TRH>C ₁₆ -C ₃₄	mg/kg	<100	<100	<100
TRH>C ₃₄ -C ₄₀	mg/kg	<100	<100	<100
Surrogate o-Terphenyl	%	79	83	84

PAHs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ----- -----	116194-1 BH101 0.4-0.5 05/09/2014 Soil	116194-2 BH102 0.4-0.5 05/09/2014 Soil	116194-3 BH103 0.4-0.5 05/09/2014 Soil	116194-4 BH104 0.1-0.25 05/09/2014 Soil	116194-5 BH106 0.4-0.5 05/09/2014 Soil
Date extracted	-	16/09/2014	16/09/2014	16/09/2014	16/09/2014	16/09/2014
Date analysed	-	16/09/2014	16/09/2014	16/09/2014	16/09/2014	16/09/2014
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	0.2	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	0.2	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	0.2	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	0.06	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ NEPM B1	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total Positive PAHs	mg/kg	NIL (+)VE	NIL (+)VE	NIL (+)VE	0.60	NIL (+)VE
Surrogate p-Terphenyl-d14	%	110	110	104	112	108

PAHs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ----- -----	116194-6 BH108 0.9-1.0 05/09/2014 Soil	116194-7 BH108 2.4-2.5 05/09/2014 Soil	116194-8 BH109 0.4-0.5 08/09/2014 Soil	116194-9 BH110 1.4-1.5 08/09/2014 Soil	116194-10 BH111 0.9-1.0 08/09/2014 Soil
Date extracted	-	16/09/2014	16/09/2014	16/09/2014	16/09/2014	16/09/2014
Date analysed	-	16/09/2014	16/09/2014	16/09/2014	16/09/2014	16/09/2014
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ NEPM B1	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total Positive PAHs	mg/kg	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE	0.10
Surrogate p-Terphenyl-d14	%	102	102	102	103	101

PAHs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ----- -----	116194-11 BH112 0.4-0.5 08/09/2014 Soil	116194-12 BH113 0.4-0.45 08/09/2014 Soil	116194-13 BH114 0.4-0.5 08/09/2014 Soil	116194-14 BH115 0.9-1.0 08/09/2014 Soil	116194-15 BH115 3.9-3.0 08/09/2014 Soil
Date extracted	-	16/09/2014	16/09/2014	16/09/2014	16/09/2014	16/09/2014
Date analysed	-	16/09/2014	16/09/2014	16/09/2014	16/09/2014	16/09/2014
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	0.5	0.3	<0.1	<0.1
Anthracene	mg/kg	<0.1	0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	1	0.5	<0.1	<0.1
Pyrene	mg/kg	<0.1	1.1	0.5	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	0.5	0.2	<0.1	<0.1
Chrysene	mg/kg	<0.1	0.5	0.2	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	0.8	0.3	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	0.51	0.20	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	0.4	0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	0.3	0.1	<0.1	<0.1
Benzo(a)pyrene TEQ NEPM B1	mg/kg	<0.5	0.7	<0.5	<0.5	<0.5
Total Positive PAHs	mg/kg	NIL (+)VE	5.7	2.4	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	105	105	110	103	100

PAHs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ----- -----	116194-16 TS2A - 8/09/2014 Soil	116194-17 TS5A - 8/09/2014 Soil
Date extracted	-	16/09/2014	16/09/2014
Date analysed	-	16/09/2014	16/09/2014
Naphthalene	mg/kg	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1
Benzo(a)pyrene TEQ NEPM B1	mg/kg	<0.5	<0.5
Total Positive PAHs	mg/kg	0.10	NIL(+)VE
Surrogate p-Terphenyl-d14	%	106	103

Organochlorine Pesticides in soil						
Our Reference:	UNITS	116194-1	116194-2	116194-3	116194-4	116194-5
Your Reference	-----	BH101	BH102	BH103	BH104	BH106
Depth	-----	0.4-0.5	0.4-0.5	0.4-0.5	0.1-0.25	0.4-0.5
Date Sampled		05/09/2014	05/09/2014	05/09/2014	05/09/2014	05/09/2014
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	16/09/2014	16/09/2014	16/09/2014	16/09/2014	16/09/2014
Date analysed	-	16/09/2014	16/09/2014	16/09/2014	16/09/2014	16/09/2014
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	95	96	92	98	94

Organochlorine Pesticides in soil						
Our Reference:	UNITS	116194-6	116194-7	116194-8	116194-9	116194-10
Your Reference	-----	BH108	BH108	BH109	BH110	BH111
Depth	-----	0.9-1.0	2.4-2.5	0.4-0.5	1.4-1.5	0.9-1.0
Date Sampled		05/09/2014	05/09/2014	08/09/2014	08/09/2014	08/09/2014
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	16/09/2014	16/09/2014	16/09/2014	16/09/2014	16/09/2014
Date analysed	-	16/09/2014	16/09/2014	16/09/2014	16/09/2014	16/09/2014
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	0.2
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	91	89	91	87	85

Organochlorine Pesticides in soil						
Our Reference:	UNITS	116194-11	116194-12	116194-13	116194-14	116194-15
Your Reference	-----	BH112	BH113	BH114	BH115	BH115
Depth	-----	0.4-0.5	0.4-0.45	0.4-0.5	0.9-1.0	3.9-3.0
Date Sampled		08/09/2014	08/09/2014	08/09/2014	08/09/2014	08/09/2014
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	16/09/2014	16/09/2014	16/09/2014	16/09/2014	16/09/2014
Date analysed	-	16/09/2014	16/09/2014	16/09/2014	16/09/2014	16/09/2014
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	90	92	95	89	90

Organochlorine Pesticides in soil			
Our Reference:	UNITS	116194-16	116194-17
Your Reference	-----	TS2A	TS5A
Depth	-----	-	-
Date Sampled		8/09/2014	8/09/2014
Type of sample		Soil	Soil
Date extracted	-	16/09/2014	16/09/2014
Date analysed	-	16/09/2014	16/09/2014
HCB	mg/kg	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1
Surrogate TCMX	%	90	97

Organophosphorus Pesticides	UNITS	116194-1	116194-2	116194-3	116194-4	116194-5
Our Reference:	-----	BH101	BH102	BH103	BH104	BH106
Your Reference	-----	0.4-0.5	0.4-0.5	0.4-0.5	0.1-0.25	0.4-0.5
Depth		05/09/2014	05/09/2014	05/09/2014	05/09/2014	05/09/2014
Date Sampled		Soil	Soil	Soil	Soil	Soil
Type of sample						
Date extracted	-	16/09/2014	16/09/2014	16/09/2014	16/09/2014	16/09/2014
Date analysed	-	16/09/2014	16/09/2014	16/09/2014	16/09/2014	16/09/2014
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	95	96	92	98	94

Organophosphorus Pesticides	UNITS	116194-6	116194-7	116194-8	116194-9	116194-10
Our Reference:	-----	BH108	BH108	BH109	BH110	BH111
Your Reference	-----	0.9-1.0	2.4-2.5	0.4-0.5	1.4-1.5	0.9-1.0
Depth		05/09/2014	05/09/2014	08/09/2014	08/09/2014	08/09/2014
Date Sampled		Soil	Soil	Soil	Soil	Soil
Type of sample						
Date extracted	-	16/09/2014	16/09/2014	16/09/2014	16/09/2014	16/09/2014
Date analysed	-	16/09/2014	16/09/2014	16/09/2014	16/09/2014	16/09/2014
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	91	89	91	87	85

Organophosphorus Pesticides						
Our Reference:	UNITS	116194-11	116194-12	116194-13	116194-14	116194-15
Your Reference	-----	BH112	BH113	BH114	BH115	BH115
Depth	-----	0.4-0.5	0.4-0.45	0.4-0.5	0.9-1.0	3.9-3.0
Date Sampled		08/09/2014	08/09/2014	08/09/2014	08/09/2014	08/09/2014
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	16/09/2014	16/09/2014	16/09/2014	16/09/2014	16/09/2014
Date analysed	-	16/09/2014	16/09/2014	16/09/2014	16/09/2014	16/09/2014
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	90	92	95	89	90

Organophosphorus Pesticides			
Our Reference:	UNITS	116194-16	116194-17
Your Reference	-----	TS2A	TS5A
Depth	-----	-	-
Date Sampled		8/09/2014	8/09/2014
Type of sample		Soil	Soil
Date extracted	-	16/09/2014	16/09/2014
Date analysed	-	16/09/2014	16/09/2014
Diazinon	mg/kg	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1
Surrogate TCMX	%	90	97

PCBs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ----- -----	116194-1 BH101 0.4-0.5 05/09/2014 Soil	116194-2 BH102 0.4-0.5 05/09/2014 Soil	116194-3 BH103 0.4-0.5 05/09/2014 Soil	116194-4 BH104 0.1-0.25 05/09/2014 Soil	116194-5 BH106 0.4-0.5 05/09/2014 Soil
Date extracted	-	16/09/2014	16/09/2014	16/09/2014	16/09/2014	16/09/2014
Date analysed	-	16/09/2014	16/09/2014	16/09/2014	16/09/2014	16/09/2014
Arochlor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	95	96	92	98	94

PCBs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ----- -----	116194-6 BH108 0.9-1.0 05/09/2014 Soil	116194-7 BH108 2.4-2.5 05/09/2014 Soil	116194-8 BH109 0.4-0.5 08/09/2014 Soil	116194-9 BH110 1.4-1.5 08/09/2014 Soil	116194-10 BH111 0.9-1.0 08/09/2014 Soil
Date extracted	-	16/09/2014	16/09/2014	16/09/2014	16/09/2014	16/09/2014
Date analysed	-	16/09/2014	16/09/2014	16/09/2014	16/09/2014	16/09/2014
Arochlor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1254	mg/kg	<0.1	0.3	<0.1	<0.1	<0.1
Arochlor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	91	88	91	87	85

PCBs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ----- -----	116194-11 BH112 0.4-0.5 08/09/2014 Soil	116194-12 BH113 0.4-0.45 08/09/2014 Soil	116194-13 BH114 0.4-0.5 08/09/2014 Soil	116194-14 BH115 0.9-1.0 08/09/2014 Soil	116194-15 BH115 3.9-3.0 08/09/2014 Soil
Date extracted	-	16/09/2014	16/09/2014	16/09/2014	16/09/2014	16/09/2014
Date analysed	-	16/09/2014	16/09/2014	16/09/2014	16/09/2014	16/09/2014
Arochlor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1254	mg/kg	<0.1	<0.1	0.4	0.2	<0.1
Arochlor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	90	92	95	90	90

PCBs in Soil			
Our Reference:	UNITS	116194-16	116194-17
Your Reference	-----	TS2A	TS5A
Depth	-----	-	-
Date Sampled		8/09/2014	8/09/2014
Type of sample		Soil	Soil
Date extracted	-	16/09/2014	16/09/2014
Date analysed	-	16/09/2014	16/09/2014
Arochlor 1016	mg/kg	<0.1	<0.1
Arochlor 1221	mg/kg	<0.1	<0.1
Arochlor 1232	mg/kg	<0.1	<0.1
Arochlor 1242	mg/kg	<0.1	<0.1
Arochlor 1248	mg/kg	<0.1	<0.1
Arochlor 1254	mg/kg	<0.1	<0.1
Arochlor 1260	mg/kg	<0.1	<0.1
Surrogate TCLMX	%	90	97

Total Phenolics in Soil						
Our Reference:	UNITS	116194-1	116194-2	116194-3	116194-4	116194-5
Your Reference	-----	BH101	BH102	BH103	BH104	BH106
Depth	-----	0.4-0.5	0.4-0.5	0.4-0.5	0.1-0.25	0.4-0.5
Date Sampled		05/09/2014	05/09/2014	05/09/2014	05/09/2014	05/09/2014
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	16/09/2014	16/09/2014	16/09/2014	16/09/2014	16/09/2014
Date analysed	-	16/09/2014	16/09/2014	16/09/2014	16/09/2014	16/09/2014
Total Phenolics (as Phenol)	mg/kg	<5	<5	<5	<5	<5

Total Phenolics in Soil						
Our Reference:	UNITS	116194-6	116194-7	116194-8	116194-9	116194-10
Your Reference	-----	BH108	BH108	BH109	BH110	BH111
Depth	-----	0.9-1.0	2.4-2.5	0.4-0.5	1.4-1.5	0.9-1.0
Date Sampled		05/09/2014	05/09/2014	08/09/2014	08/09/2014	08/09/2014
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	16/09/2014	16/09/2014	16/09/2014	16/09/2014	16/09/2014
Date analysed	-	16/09/2014	16/09/2014	16/09/2014	16/09/2014	16/09/2014
Total Phenolics (as Phenol)	mg/kg	<5	<5	<5	<5	<5

Total Phenolics in Soil						
Our Reference:	UNITS	116194-11	116194-12	116194-13	116194-14	116194-15
Your Reference	-----	BH112	BH113	BH114	BH115	BH115
Depth	-----	0.4-0.5	0.4-0.45	0.4-0.5	0.9-1.0	3.9-3.0
Date Sampled		08/09/2014	08/09/2014	08/09/2014	08/09/2014	08/09/2014
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	16/09/2014	16/09/2014	16/09/2014	16/09/2014	16/09/2014
Date analysed	-	16/09/2014	16/09/2014	16/09/2014	16/09/2014	16/09/2014
Total Phenolics (as Phenol)	mg/kg	<5	<5	<5	<5	<5

Total Phenolics in Soil			
Our Reference:	UNITS	116194-16	116194-17
Your Reference	-----	TS2A	TS5A
Depth	-----	-	-
Date Sampled		8/09/2014	8/09/2014
Type of sample		Soil	Soil
Date extracted	-	16/09/2014	16/09/2014
Date analysed	-	16/09/2014	16/09/2014
Total Phenolics (as Phenol)	mg/kg	<5	<5

Acid Extractable metals in soil						
Our Reference:	UNITS	116194-1	116194-2	116194-3	116194-4	116194-5
Your Reference	-----	BH101	BH102	BH103	BH104	BH106
Depth	-----	0.4-0.5	0.4-0.5	0.4-0.5	0.1-0.25	0.4-0.5
Date Sampled		05/09/2014	05/09/2014	05/09/2014	05/09/2014	05/09/2014
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	16/09/2014	16/09/2014	16/09/2014	16/09/2014	16/09/2014
Date analysed	-	16/09/2014	16/09/2014	16/09/2014	16/09/2014	16/09/2014
Arsenic	mg/kg	6	7	10	<4	6
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	15	16	15	13	24
Copper	mg/kg	26	20	17	35	36
Lead	mg/kg	36	29	27	23	25
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	0.3
Nickel	mg/kg	5	6	3	8	13
Zinc	mg/kg	52	33	18	47	49

Acid Extractable metals in soil						
Our Reference:	UNITS	116194-6	116194-7	116194-8	116194-9	116194-10
Your Reference	-----	BH108	BH108	BH109	BH110	BH111
Depth	-----	0.9-1.0	2.4-2.5	0.4-0.5	1.4-1.5	0.9-1.0
Date Sampled		05/09/2014	05/09/2014	08/09/2014	08/09/2014	08/09/2014
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	16/09/2014	16/09/2014	16/09/2014	16/09/2014	16/09/2014
Date analysed	-	16/09/2014	16/09/2014	16/09/2014	16/09/2014	16/09/2014
Arsenic	mg/kg	<4	4	4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	16	21	15	29	26
Copper	mg/kg	190	40	25	42	50
Lead	mg/kg	14	27	19	25	30
Mercury	mg/kg	<0.1	0.1	<0.1	0.1	0.1
Nickel	mg/kg	27	8	6	9	6
Zinc	mg/kg	60	450	34	45	100

Acid Extractable metals in soil						
Our Reference:	UNITS	116194-11	116194-12	116194-13	116194-14	116194-15
Your Reference	-----	BH112	BH113	BH114	BH115	BH115
Depth	-----	0.4-0.5	0.4-0.45	0.4-0.5	0.9-1.0	3.9-3.0
Date Sampled		08/09/2014	08/09/2014	08/09/2014	08/09/2014	08/09/2014
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	16/09/2014	16/09/2014	16/09/2014	16/09/2014	16/09/2014
Date analysed	-	16/09/2014	16/09/2014	16/09/2014	16/09/2014	16/09/2014
Arsenic	mg/kg	20	<4	5	6	20
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	14	13	16	15	10
Copper	mg/kg	42	27	36	51	62
Lead	mg/kg	24	33	26	21	16
Mercury	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	12	10	8	7	3
Zinc	mg/kg	42	66	30	32	26

Acid Extractable metals in soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ----- -----	116194-16 TS2A - 8/09/2014 Soil	116194-17 TS5A - 8/09/2014 Soil	116194-22 BH112 - TRIPLICATE 0.4-0.5 8/09/2014 Soil
Date digested	-	16/09/2014	16/09/2014	16/09/2014
Date analysed	-	16/09/2014	16/09/2014	16/09/2014
Arsenic	mg/kg	<4	<4	4
Cadmium	mg/kg	<0.4	<0.4	<0.4
Chromium	mg/kg	30	18	11
Copper	mg/kg	24	30	41
Lead	mg/kg	21	17	18
Mercury	mg/kg	0.1	<0.1	<0.1
Nickel	mg/kg	20	8	8
Zinc	mg/kg	43	35	33

Moisture						
Our Reference:	UNITS	116194-1	116194-2	116194-3	116194-4	116194-5
Your Reference	-----	BH101	BH102	BH103	BH104	BH106
Depth	-----	0.4-0.5	0.4-0.5	0.4-0.5	0.1-0.25	0.4-0.5
Date Sampled		05/09/2014	05/09/2014	05/09/2014	05/09/2014	05/09/2014
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	16/09/2014	16/09/2014	16/09/2014	16/09/2014	16/09/2014
Date analysed	-	17/09/2014	17/09/2014	17/09/2014	17/09/2014	17/09/2014
Moisture	%	14	15	13	8.0	12

Moisture						
Our Reference:	UNITS	116194-6	116194-7	116194-8	116194-9	116194-10
Your Reference	-----	BH108	BH108	BH109	BH110	BH111
Depth	-----	0.9-1.0	2.4-2.5	0.4-0.5	1.4-1.5	0.9-1.0
Date Sampled		05/09/2014	05/09/2014	08/09/2014	08/09/2014	08/09/2014
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	16/09/2014	16/09/2014	16/09/2014	16/09/2014	16/09/2014
Date analysed	-	17/09/2014	17/09/2014	17/09/2014	17/09/2014	17/09/2014
Moisture	%	7.6	12	13	4.8	14

Moisture						
Our Reference:	UNITS	116194-11	116194-12	116194-13	116194-14	116194-15
Your Reference	-----	BH112	BH113	BH114	BH115	BH115
Depth	-----	0.4-0.5	0.4-0.45	0.4-0.5	0.9-1.0	3.9-3.0
Date Sampled		08/09/2014	08/09/2014	08/09/2014	08/09/2014	08/09/2014
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	16/09/2014	16/09/2014	16/09/2014	16/09/2014	16/09/2014
Date analysed	-	17/09/2014	17/09/2014	17/09/2014	17/09/2014	17/09/2014
Moisture	%	19	16	13	15	13

Moisture			
Our Reference:	UNITS	116194-16	116194-17
Your Reference	-----	TS2A	TS5A
Depth	-----	-	-
Date Sampled		8/09/2014	8/09/2014
Type of sample		Soil	Soil
Date prepared	-	16/09/2014	16/09/2014
Date analysed	-	17/09/2014	17/09/2014
Moisture	%	11	14

Asbestos ID - soils						
Our Reference:	UNITS	116194-1	116194-2	116194-3	116194-4	116194-5
Your Reference	-----	BH101	BH102	BH103	BH104	BH106
Depth	-----	0.4-0.5	0.4-0.5	0.4-0.5	0.1-0.25	0.4-0.5
Date Sampled		05/09/2014	05/09/2014	05/09/2014	05/09/2014	05/09/2014
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	22/09/2014	22/09/2014	22/09/2014	22/09/2014	22/09/2014
Sample mass tested	g	Approx 50g	Approx 50g	Approx 50g	Approx 50g	Approx 50g
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

Asbestos ID - soils						
Our Reference:	UNITS	116194-6	116194-7	116194-8	116194-9	116194-10
Your Reference	-----	BH108	BH108	BH109	BH110	BH111
Depth	-----	0.9-1.0	2.4-2.5	0.4-0.5	1.4-1.5	0.9-1.0
Date Sampled		05/09/2014	05/09/2014	08/09/2014	08/09/2014	08/09/2014
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	22/09/2014	22/09/2014	22/09/2014	22/09/2014	22/09/2014
Sample mass tested	g	Approx 50g	Approx 50g	Approx 50g	Approx 50g	Approx 50g
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

Asbestos ID - soils						
Our Reference:	UNITS	116194-11	116194-12	116194-13	116194-14	116194-15
Your Reference	-----	BH112	BH113	BH114	BH115	BH115
Depth	-----	0.4-0.5	0.4-0.45	0.4-0.5	0.9-1.0	3.9-3.0
Date Sampled		08/09/2014	08/09/2014	08/09/2014	08/09/2014	08/09/2014
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	22/09/2014	22/09/2014	22/09/2014	22/09/2014	22/09/2014
Sample mass tested	g	Approx 50g	Approx 50g	Approx 50g	Approx 50g	Approx 50g
Sample Description	-	Brown coarse- grained soil & rocks	Brown coarse- grained soil & rocks	Brown coarse- grained soil & rocks	Brown coarse- grained soil & rocks	Brown coarse- grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

vTRH(C6-C10)/BTEXN in Water			
Our Reference:	UNITS	116194-20	116194-21
Your Reference	-----	R1	R2
Depth	-----	-	-
Date Sampled		05/09/2014	08/09/2014
Type of sample		Water	Water
Date extracted	-	16/09/2014	16/09/2014
Date analysed	-	17/09/2014	17/09/2014
TRHC ₆ - C ₉	µg/L	13	12
TRHC ₆ - C ₁₀	µg/L	23	12
TRHC ₆ - C ₁₀ less BTEX (F1)	µg/L	23	12
Benzene	µg/L	<1	<1
Toluene	µg/L	<1	<1
Ethylbenzene	µg/L	<1	<1
m+p-xylene	µg/L	<2	<2
o-xylene	µg/L	<1	<1
Naphthalene	µg/L	<1	<1
Surrogate Dibromofluoromethane	%	102	102
Surrogate toluene-d8	%	97	99
Surrogate 4-BFB	%	103	103

svTRH (C10-C40) in Water			
Our Reference:	UNITS	116194-20	116194-21
Your Reference	-----	R1	R2
Depth	-----	-	-
Date Sampled		05/09/2014	08/09/2014
Type of sample		Water	Water
Date extracted	-	17/09/2014	17/09/2014
Date analysed	-	18/09/2014	18/09/2014
TRHC ₁₀ - C ₁₄	µg/L	<50	<50
TRHC ₁₅ - C ₂₈	µg/L	<100	<100
TRHC ₂₉ - C ₃₆	µg/L	<100	<100
TRH>C ₁₀ - C ₁₆	µg/L	<50	<50
TRH>C ₁₀ - C ₁₆ less Naphthalene (F2)	µg/L	<50	<50
TRH>C ₁₆ - C ₃₄	µg/L	<100	<100
TRH>C ₃₄ - C ₄₀	µg/L	<100	<100
Surrogate o-Terphenyl	%	88	77

PAHs in Water Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ----- -----	116194-20 R1 - 05/09/2014 Water	116194-21 R2 - 08/09/2014 Water
Date extracted	-	17/09/2014	17/09/2014
Date analysed	-	17/09/2014	17/09/2014
Naphthalene	µg/L	<1	<1
Acenaphthylene	µg/L	<1	<1
Acenaphthene	µg/L	<1	<1
Fluorene	µg/L	<1	<1
Phenanthrene	µg/L	<1	<1
Anthracene	µg/L	<1	<1
Fluoranthene	µg/L	<1	<1
Pyrene	µg/L	<1	<1
Benzo(a)anthracene	µg/L	<1	<1
Chrysene	µg/L	<1	<1
Benzo(b,j,k)fluoranthene	µg/L	<2	<2
Benzo(a)pyrene	µg/L	<1	<1
Indeno(1,2,3-c,d)pyrene	µg/L	<1	<1
Dibenzo(a,h)anthracene	µg/L	<1	<1
Benzo(g,h,i)perylene	µg/L	<1	<1
Benzo(a)pyrene TEQ	µg/L	<5	<5
Total +ve PAH's	µg/L	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	106	78

Metals in Water - Dissolved			
Our Reference:	UNITS	116194-20	116194-21
Your Reference	-----	R1	R2
Depth	-----	-	-
Date Sampled		05/09/2014	08/09/2014
Type of sample		Water	Water
Date digested	-	16/09/2014	16/09/2014
Date analysed	-	16/09/2014	16/09/2014
Arsenic - Dissolved	mg/L	<0.05	<0.05
Cadmium - Dissolved	mg/L	<0.01	<0.01
Chromium - Dissolved	mg/L	<0.01	<0.01
Copper - Dissolved	mg/L	<0.01	<0.01
Lead - Dissolved	mg/L	<0.03	<0.03
Mercury - Dissolved	mg/L	<0.0005	<0.0005
Nickel - Dissolved	mg/L	<0.02	<0.02
Zinc - Dissolved	mg/L	<0.02	<0.02

Method ID	Methodology Summary
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-012 subset	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-008	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Inorg-031	Total Phenolics by segmented flow analyser (in line distillation with colourimetric finish). Solids are extracted in a caustic media prior to analysis.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Inorg-008	Moisture content determined by heating at 105+/-5 deg C for a minimum of 12 hours.
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.
Org-013	Water samples are analysed directly by purge and trap GC-MS.

Client Reference: 84311, Caringbah

QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
vTRH(C6-C10)/BTEXN in Soil						Base II Duplicate II %RPD		
Date extracted	-			16/09/2014	116194-1	16/09/2014 16/09/2014	LCS-8	16/09/2014
Date analysed	-			17/09/2014	116194-1	17/09/2014 17/09/2014	LCS-8	17/09/2014
TRHC ₆ - C ₉	mg/kg	25	Org-016	<25	116194-1	<25 <25	LCS-8	98%
TRHC ₆ - C ₁₀	mg/kg	25	Org-016	<25	116194-1	<25 <25	LCS-8	98%
Benzene	mg/kg	0.2	Org-016	<0.2	116194-1	<0.2 <0.2	LCS-8	98%
Toluene	mg/kg	0.5	Org-016	<0.5	116194-1	<0.5 <0.5	LCS-8	98%
Ethylbenzene	mg/kg	1	Org-016	<1	116194-1	<1 <1	LCS-8	98%
m+p-xylene	mg/kg	2	Org-016	<2	116194-1	<2 <2	LCS-8	98%
o-Xylene	mg/kg	1	Org-016	<1	116194-1	<1 <1	LCS-8	93%
naphthalene	mg/kg	1	Org-014	<1	116194-1	<1 <1	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%		Org-016	97	116194-1	95 93 RPD: 2	LCS-8	94%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
svTRH (C10-C40) in Soil						Base II Duplicate II %RPD		
Date extracted	-			16/09/2014	116194-1	16/09/2014 16/09/2014	LCS-8	16/09/2014
Date analysed	-			16/09/2014	116194-1	17/09/2014 17/09/2014	LCS-8	17/09/2014
TRHC ₁₀ - C ₁₄	mg/kg	50	Org-003	<50	116194-1	<50 <50	LCS-8	91%
TRHC ₁₅ - C ₂₈	mg/kg	100	Org-003	<100	116194-1	<100 <100	LCS-8	102%
TRHC ₂₉ - C ₃₆	mg/kg	100	Org-003	<100	116194-1	<100 <100	LCS-8	111%
TRH>C ₁₀ -C ₁₆	mg/kg	50	Org-003	<50	116194-1	<50 <50	LCS-8	91%
TRH>C ₁₆ -C ₃₄	mg/kg	100	Org-003	<100	116194-1	<100 <100	LCS-8	102%
TRH>C ₃₄ -C ₄₀	mg/kg	100	Org-003	<100	116194-1	<100 <100	LCS-8	111%
Surrogate o-Terphenyl	%		Org-003	80	116194-1	88 82 RPD: 7	LCS-8	92%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Soil						Base II Duplicate II %RPD		
Date extracted	-			16/09/2014	116194-1	16/09/2014 16/09/2014	LCS-8	16/09/2014
Date analysed	-			16/09/2014	116194-1	16/09/2014 16/09/2014	LCS-8	16/09/2014
Naphthalene	mg/kg	0.1	Org-012 subset	<0.1	116194-1	<0.1 <0.1	LCS-8	103%
Acenaphthylene	mg/kg	0.1	Org-012 subset	<0.1	116194-1	<0.1 <0.1	[NR]	[NR]
Acenaphthene	mg/kg	0.1	Org-012 subset	<0.1	116194-1	<0.1 <0.1	[NR]	[NR]
Fluorene	mg/kg	0.1	Org-012 subset	<0.1	116194-1	<0.1 <0.1	LCS-8	112%
Phenanthrene	mg/kg	0.1	Org-012 subset	<0.1	116194-1	<0.1 <0.1	LCS-8	114%
Anthracene	mg/kg	0.1	Org-012 subset	<0.1	116194-1	<0.1 <0.1	[NR]	[NR]
Fluoranthene	mg/kg	0.1	Org-012 subset	<0.1	116194-1	<0.1 <0.1	LCS-8	115%

Client Reference: 84311, Caringbah

QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Soil						Base II Duplicate II %RPD		
Pyrene	mg/kg	0.1	Org-012 subset	<0.1	116194-1	<0.1 <0.1	LCS-8	115%
Benzo(a)anthracene	mg/kg	0.1	Org-012 subset	<0.1	116194-1	<0.1 <0.1	[NR]	[NR]
Chrysene	mg/kg	0.1	Org-012 subset	<0.1	116194-1	<0.1 <0.1	LCS-8	106%
Benzo(b,j+k) fluoranthene	mg/kg	0.2	Org-012 subset	<0.2	116194-1	<0.2 <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	0.05	Org-012 subset	<0.05	116194-1	<0.05 <0.05	LCS-8	115%
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012 subset	<0.1	116194-1	<0.1 <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012 subset	<0.1	116194-1	<0.1 <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012 subset	<0.1	116194-1	<0.1 <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012 subset	100	116194-1	110 100 RPD: 10	LCS-8	108%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Organochlorine Pesticides in soil						Base II Duplicate II %RPD		
Date extracted	-			16/09/2015	116194-1	16/09/2014 16/09/2014	LCS-8	16/09/2014
Date analysed	-			16/09/2014	116194-1	16/09/2014 16/09/2014	LCS-8	16/09/2014
HCB	mg/kg	0.1	Org-005	<0.1	116194-1	<0.1 <0.1	[NR]	[NR]
alpha-BHC	mg/kg	0.1	Org-005	<0.1	116194-1	<0.1 <0.1	LCS-8	99%
gamma-BHC	mg/kg	0.1	Org-005	<0.1	116194-1	<0.1 <0.1	[NR]	[NR]
beta-BHC	mg/kg	0.1	Org-005	<0.1	116194-1	<0.1 <0.1	LCS-8	101%
Heptachlor	mg/kg	0.1	Org-005	<0.1	116194-1	<0.1 <0.1	LCS-8	103%
delta-BHC	mg/kg	0.1	Org-005	<0.1	116194-1	<0.1 <0.1	[NR]	[NR]
Aldrin	mg/kg	0.1	Org-005	<0.1	116194-1	<0.1 <0.1	LCS-8	104%
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	116194-1	<0.1 <0.1	LCS-8	100%
gamma-Chlordane	mg/kg	0.1	Org-005	<0.1	116194-1	<0.1 <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	0.1	Org-005	<0.1	116194-1	<0.1 <0.1	[NR]	[NR]
Endosulfan I	mg/kg	0.1	Org-005	<0.1	116194-1	<0.1 <0.1	[NR]	[NR]
pp-DDE	mg/kg	0.1	Org-005	<0.1	116194-1	<0.1 <0.1	LCS-8	102%
Dieldrin	mg/kg	0.1	Org-005	<0.1	116194-1	<0.1 <0.1	LCS-8	101%
Endrin	mg/kg	0.1	Org-005	<0.1	116194-1	<0.1 <0.1	LCS-8	101%
pp-DDD	mg/kg	0.1	Org-005	<0.1	116194-1	<0.1 <0.1	LCS-8	112%
Endosulfan II	mg/kg	0.1	Org-005	<0.1	116194-1	<0.1 <0.1	[NR]	[NR]
pp-DDT	mg/kg	0.1	Org-005	<0.1	116194-1	<0.1 <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	0.1	Org-005	<0.1	116194-1	<0.1 <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	0.1	Org-005	<0.1	116194-1	<0.1 <0.1	LCS-8	106%
Methoxychlor	mg/kg	0.1	Org-005	<0.1	116194-1	<0.1 <0.1	[NR]	[NR]
Surrogate TCMX	%		Org-005	92	116194-1	95 88 RPD: 8	LCS-8	88%

Client Reference: 84311, Caringbah

QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Organophosphorus Pesticides						Base II Duplicate II %RPD		
Date extracted	-			16/09/2014	116194-1	16/09/2014 16/09/2014	LCS-8	16/09/2014
Date analysed	-			16/09/2014	116194-1	16/09/2014 16/09/2014	LCS-8	16/09/2014
Diazinon	mg/kg	0.1	Org-008	<0.1	116194-1	<0.1 <0.1	[NR]	[NR]
Dimethoate	mg/kg	0.1	Org-008	<0.1	116194-1	<0.1 <0.1	[NR]	[NR]
Chlorpyrifos-methyl	mg/kg	0.1	Org-008	<0.1	116194-1	<0.1 <0.1	[NR]	[NR]
Ronnel	mg/kg	0.1	Org-008	<0.1	116194-1	<0.1 <0.1	[NR]	[NR]
Chlorpyrifos	mg/kg	0.1	Org-008	<0.1	116194-1	<0.1 <0.1	LCS-8	118%
Fenitrothion	mg/kg	0.1	Org-008	<0.1	116194-1	<0.1 <0.1	LCS-8	103%
Bromophos-ethyl	mg/kg	0.1	Org-008	<0.1	116194-1	<0.1 <0.1	[NR]	[NR]
Ethion	mg/kg	0.1	Org-008	<0.1	116194-1	<0.1 <0.1	LCS-8	138%
Surrogate TCMX	%		Org-008	92	116194-1	95 88 RPD: 8	LCS-8	85%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PCBs in Soil						Base II Duplicate II %RPD		
Date extracted	-			16/09/2014	116194-1	16/09/2014 16/09/2014	LCS-8	16/09/2014
Date analysed	-			16/09/2014	116194-1	16/09/2014 16/09/2014	LCS-8	16/09/2014
Arochlor 1016	mg/kg	0.1	Org-006	<0.1	116194-1	<0.1 <0.1	[NR]	[NR]
Arochlor 1221	mg/kg	0.1	Org-006	<0.1	116194-1	<0.1 <0.1	[NR]	[NR]
Arochlor 1232	mg/kg	0.1	Org-006	<0.1	116194-1	<0.1 <0.1	[NR]	[NR]
Arochlor 1242	mg/kg	0.1	Org-006	<0.1	116194-1	<0.1 <0.1	[NR]	[NR]
Arochlor 1248	mg/kg	0.1	Org-006	<0.1	116194-1	<0.1 <0.1	[NR]	[NR]
Arochlor 1254	mg/kg	0.1	Org-006	<0.1	116194-1	<0.1 <0.1	LCS-8	111%
Arochlor 1260	mg/kg	0.1	Org-006	<0.1	116194-1	<0.1 <0.1	[NR]	[NR]
Surrogate TCLMX	%		Org-006	92	116194-1	95 88 RPD: 8	LCS-8	85%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Total Phenolics in Soil						Base II Duplicate II %RPD		
Date extracted	-			16/09/2014	116194-1	16/09/2014 16/09/2014	LCS-1	16/09/2014
Date analysed	-			16/09/2014	116194-1	16/09/2014 16/09/2014	LCS-1	16/09/2014
Total Phenolics (as Phenol)	mg/kg	5	Inorg-031	<5	116194-1	<5 <5	LCS-1	100%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Acid Extractable metals in soil						Base II Duplicate II %RPD		
Date digested	-			16/09/2014	116194-1	16/09/2014 16/09/2014	LCS-13	16/09/2014
Date analysed	-			16/09/2014	116194-1	16/09/2014 16/09/2014	LCS-13	16/09/2014
Arsenic	mg/kg	4	Metals-020 ICP-AES	<4	116194-1	6 6 RPD: 0	LCS-13	98%
Cadmium	mg/kg	0.4	Metals-020 ICP-AES	<0.4	116194-1	<0.4 <0.4	LCS-13	105%

Client Reference: 84311, Caringbah

QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Acid Extractable metals in soil						Base II Duplicate II %RPD		
Chromium	mg/kg	1	Metals-020 ICP-AES	<1	116194-1	15 16 RPD: 6	LCS-13	102%
Copper	mg/kg	1	Metals-020 ICP-AES	<1	116194-1	26 29 RPD: 11	LCS-13	102%
Lead	mg/kg	1	Metals-020 ICP-AES	<1	116194-1	36 36 RPD: 0	LCS-13	98%
Mercury	mg/kg	0.1	Metals-021 CV-AAS	<0.1	116194-1	<0.1 0.1	LCS-13	90%
Nickel	mg/kg	1	Metals-020 ICP-AES	<1	116194-1	5 7 RPD: 33	LCS-13	101%
Zinc	mg/kg	1	Metals-020 ICP-AES	<1	116194-1	52 46 RPD: 12	LCS-13	100%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
vTRH(C6-C10)/BTEXN in Water						Base II Duplicate II %RPD		
Date extracted	-			16/09/2014	[NT]	[NT]	LCS-W1	16/09/2014
Date analysed	-			17/09/2014	[NT]	[NT]	LCS-W1	17/09/2014
TRHC ₆ - C ₉	µg/L	10	Org-016	<10	[NT]	[NT]	LCS-W1	106%
TRHC ₆ - C ₁₀	µg/L	10	Org-016	<10	[NT]	[NT]	LCS-W1	106%
Benzene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	104%
Toluene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	106%
Ethylbenzene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	106%
m+p-xylene	µg/L	2	Org-016	<2	[NT]	[NT]	LCS-W1	106%
o-xylene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	107%
Naphthalene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Surrogate Dibromofluoromethane	%		Org-016	102	[NT]	[NT]	LCS-W1	103%
Surrogate toluene-d8	%		Org-016	97	[NT]	[NT]	LCS-W1	100%
Surrogate 4-BFB	%		Org-016	104	[NT]	[NT]	LCS-W1	102%

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QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
svTRH (C10-C40) in Water						Base II Duplicate II %RPD		
Date extracted	-			17/09/2014	[NT]	[NT]	LCS-W1	17/09/2014
Date analysed	-			18/09/2014	[NT]	[NT]	LCS-W1	18/09/2014
TRHC ₁₀ - C ₁₄	µg/L	50	Org-003	<50	[NT]	[NT]	LCS-W1	70%
TRHC ₁₅ - C ₂₈	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	65%
TRHC ₂₉ - C ₃₆	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	63%
TRH>C ₁₀ - C ₁₆	µg/L	50	Org-003	<50	[NT]	[NT]	LCS-W1	70%
TRH>C ₁₆ - C ₃₄	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	65%
TRH>C ₃₄ - C ₄₀	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	63%
Surrogate o-Terphenyl	%		Org-003	99	[NT]	[NT]	LCS-W1	84%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Water						Base II Duplicate II %RPD		
Date extracted	-			17/09/2014	[NT]	[NT]	LCS-W2	17/09/2014
Date analysed	-			17/09/2014	[NT]	[NT]	LCS-W2	17/09/2014
Naphthalene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W2	76%
Acenaphthylene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Acenaphthene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Fluorene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W2	76%
Phenanthrene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W2	80%
Anthracene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Fluoranthene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W2	81%
Pyrene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W2	82%
Benzo(a)anthracene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Chrysene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W2	77%
Benzo(b,j+k) fluoranthene	µg/L	2	Org-012 subset	<2	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	LCS-W2	85%
Indeno(1,2,3-c,d)pyrene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	µg/L	1	Org-012 subset	<1	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012 subset	107	[NT]	[NT]	LCS-W2	103%

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QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Metals in Water - Dissolved						Base Duplicate %RPD		
Date digested	-			16/09/2014	116194-20	16/09/2014 16/09/2014	LCS-W1	16/09/2014
Date analysed	-			16/09/2014	116194-20	16/09/2014 16/09/2014	LCS-W1	16/09/2014
Arsenic - Dissolved	mg/L	0.05	Metals-020 ICP-AES	<0.05	116194-20	<0.05 <0.05	LCS-W1	102%
Cadmium - Dissolved	mg/L	0.01	Metals-020 ICP-AES	<0.01	116194-20	<0.01 <0.01	LCS-W1	110%
Chromium - Dissolved	mg/L	0.01	Metals-020 ICP-AES	<0.01	116194-20	<0.01 <0.01	LCS-W1	106%
Copper - Dissolved	mg/L	0.01	Metals-020 ICP-AES	<0.01	116194-20	<0.01 <0.01	LCS-W1	104%
Lead - Dissolved	mg/L	0.03	Metals-020 ICP-AES	<0.03	116194-20	<0.03 <0.03	LCS-W1	105%
Mercury - Dissolved	mg/L	0.0005	Metals-021 CV-AAS	<0.0005	116194-20	<0.0005 [N/T]	LCS-W1	112%
Nickel - Dissolved	mg/L	0.02	Metals-020 ICP-AES	<0.02	116194-20	<0.02 <0.02	LCS-W1	106%
Zinc - Dissolved	mg/L	0.02	Metals-020 ICP-AES	<0.02	116194-20	<0.02 <0.02	LCS-W1	105%
QUALITYCONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	Dup. Sm#		Duplicate Base + Duplicate + %RPD		Spike Sm#	Spike % Recovery	
Date extracted	-	116194-11		16/09/2014 16/09/2014		116194-2	16/09/2014	
Date analysed	-	116194-11		17/09/2014 17/09/2014		116194-2	17/09/2014	
TRHC ₆ - C ₉	mg/kg	116194-11		<25 <25		116194-2	104%	
TRHC ₆ - C ₁₀	mg/kg	116194-11		<25 <25		116194-2	104%	
Benzene	mg/kg	116194-11		<0.2 <0.2		116194-2	99%	
Toluene	mg/kg	116194-11		<0.5 <0.5		116194-2	97%	
Ethylbenzene	mg/kg	116194-11		<1 <1		116194-2	105%	
m+p-xylene	mg/kg	116194-11		<2 <2		116194-2	109%	
o-Xylene	mg/kg	116194-11		<1 <1		116194-2	101%	
naphthalene	mg/kg	116194-11		<1 <1		[NR]	[NR]	
Surrogate aaa-Trifluorotoluene	%	116194-11		99 96 RPD: 3		116194-2	96%	

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QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	116194-11	16/09/2014 16/09/2014	116194-2	16/09/2014
Date analysed	-	116194-11	17/09/2014 17/09/2014	116194-2	17/09/2014
TRHC ₁₀ - C ₁₄	mg/kg	116194-11	<50 <50	116194-2	95%
TRHC ₁₅ - C ₂₈	mg/kg	116194-11	<100 <100	116194-2	110%
TRHC ₂₉ - C ₃₆	mg/kg	116194-11	<100 <100	116194-2	93%
TRH>C ₁₀ -C ₁₆	mg/kg	116194-11	<50 <50	116194-2	95%
TRH>C ₁₆ -C ₃₄	mg/kg	116194-11	<100 <100	116194-2	110%
TRH>C ₃₄ -C ₄₀	mg/kg	116194-11	<100 <100	116194-2	93%
Surrogate o-Terphenyl	%	116194-11	85 79 RPD: 7	116194-2	93%
QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	116194-11	16/09/2014 16/09/2014	116194-2	16/09/2014
Date analysed	-	116194-11	16/09/2014 16/09/2014	116194-2	16/09/2014
Naphthalene	mg/kg	116194-11	<0.1 <0.1	116194-2	102%
Acenaphthylene	mg/kg	116194-11	<0.1 <0.1	[NR]	[NR]
Acenaphthene	mg/kg	116194-11	<0.1 <0.1	[NR]	[NR]
Fluorene	mg/kg	116194-11	<0.1 <0.1	116194-2	109%
Phenanthrene	mg/kg	116194-11	<0.1 <0.1	116194-2	111%
Anthracene	mg/kg	116194-11	<0.1 <0.1	[NR]	[NR]
Fluoranthene	mg/kg	116194-11	<0.1 <0.1	116194-2	112%
Pyrene	mg/kg	116194-11	<0.1 <0.1	116194-2	112%
Benzo(a)anthracene	mg/kg	116194-11	<0.1 <0.1	[NR]	[NR]
Chrysene	mg/kg	116194-11	<0.1 <0.1	116194-2	103%
Benzo(b,j,k)fluoranthene	mg/kg	116194-11	<0.2 <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	116194-11	<0.05 <0.05	116194-2	114%
Indeno(1,2,3-c,d)pyrene	mg/kg	116194-11	<0.1 <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	116194-11	<0.1 <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	116194-11	<0.1 <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%	116194-11	105 102 RPD: 3	116194-2	103%

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QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	116194-11	16/09/2014 16/09/2014	116194-2	16/09/2014
Date analysed	-	116194-11	16/09/2014 16/09/2014	116194-2	16/09/2014
HCB	mg/kg	116194-11	<0.1 <0.1	[NR]	[NR]
alpha-BHC	mg/kg	116194-11	<0.1 <0.1	116194-2	97%
gamma-BHC	mg/kg	116194-11	<0.1 <0.1	[NR]	[NR]
beta-BHC	mg/kg	116194-11	<0.1 <0.1	116194-2	99%
Heptachlor	mg/kg	116194-11	<0.1 <0.1	116194-2	100%
delta-BHC	mg/kg	116194-11	<0.1 <0.1	[NR]	[NR]
Aldrin	mg/kg	116194-11	<0.1 <0.1	116194-2	101%
Heptachlor Epoxide	mg/kg	116194-11	<0.1 <0.1	116194-2	99%
gamma-Chlordane	mg/kg	116194-11	<0.1 <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	116194-11	<0.1 <0.1	[NR]	[NR]
Endosulfan I	mg/kg	116194-11	<0.1 <0.1	[NR]	[NR]
pp-DDE	mg/kg	116194-11	<0.1 <0.1	116194-2	100%
Dieldrin	mg/kg	116194-11	<0.1 <0.1	116194-2	100%
Endrin	mg/kg	116194-11	<0.1 <0.1	116194-2	99%
pp-DDD	mg/kg	116194-11	<0.1 <0.1	116194-2	110%
Endosulfan II	mg/kg	116194-11	<0.1 <0.1	[NR]	[NR]
pp-DDT	mg/kg	116194-11	<0.1 <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	116194-11	<0.1 <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	116194-11	<0.1 <0.1	116194-2	105%
Methoxychlor	mg/kg	116194-11	<0.1 <0.1	[NR]	[NR]
Surrogate TCMX	%	116194-11	90 86 RPD: 5	116194-2	87%

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QUALITY CONTROL Organophosphorus Pesticides	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	116194-11	16/09/2014 16/09/2014	116194-2	16/09/2014
Date analysed	-	116194-11	16/09/2014 16/09/2014	116194-2	16/09/2014
Diazinon	mg/kg	116194-11	<0.1 <0.1	[NR]	[NR]
Dimethoate	mg/kg	116194-11	<0.1 <0.1	[NR]	[NR]
Chlorpyrifos-methyl	mg/kg	116194-11	<0.1 <0.1	[NR]	[NR]
Ronnel	mg/kg	116194-11	<0.1 <0.1	[NR]	[NR]
Chlorpyrifos	mg/kg	116194-11	<0.1 <0.1	116194-2	114%
Fenitrothion	mg/kg	116194-11	<0.1 <0.1	116194-2	98%
Bromophos-ethyl	mg/kg	116194-11	<0.1 <0.1	[NR]	[NR]
Ethion	mg/kg	116194-11	<0.1 <0.1	116194-2	138%
Surrogate TCMX	%	116194-11	90 86 RPD: 5	116194-2	86%
QUALITY CONTROL PCBs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	116194-7	16/09/2014 16/09/2014	116194-2	16/09/2014
Date analysed	-	116194-7	16/09/2014 16/09/2014	116194-2	16/09/214
Arochlor 1016	mg/kg	116194-7	<0.1 <0.1	[NR]	[NR]
Arochlor 1221	mg/kg	116194-7	<0.1 <0.1	[NR]	[NR]
Arochlor 1232	mg/kg	116194-7	<0.1 <0.1	[NR]	[NR]
Arochlor 1242	mg/kg	116194-7	<0.1 <0.1	[NR]	[NR]
Arochlor 1248	mg/kg	116194-7	<0.1 <0.1	[NR]	[NR]
Arochlor 1254	mg/kg	116194-7	0.3 0.7 RPD: 80	116194-2	103%
Arochlor 1260	mg/kg	116194-7	<0.1 <0.1	[NR]	[NR]
Surrogate TCLMX	%	116194-7	88 101 RPD: 14	116194-2	86%
QUALITY CONTROL Total Phenolics in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	116194-11	16/09/2014 16/09/2014	116194-2	16/09/2014
Date analysed	-	116194-11	16/09/2014 16/09/2014	116194-2	16/09/2014
Total Phenolics (as Phenol)	mg/kg	116194-11	<5 <5	116194-2	101%
QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	116194-11	16/09/2014 16/09/2014	LCS-14	16/09/2014
Date analysed	-	116194-11	16/09/2014 16/09/2014	LCS-14	16/09/2014
Arsenic	mg/kg	116194-11	20 10 RPD: 67	LCS-14	99%
Cadmium	mg/kg	116194-11	<0.4 <0.4	LCS-14	105%
Chromium	mg/kg	116194-11	14 11 RPD: 24	LCS-14	104%
Copper	mg/kg	116194-11	42 28 RPD: 40	LCS-14	102%
Lead	mg/kg	116194-11	24 16 RPD: 40	LCS-14	102%
Mercury	mg/kg	116194-11	0.1 <0.1	LCS-14	90%
Nickel	mg/kg	116194-11	12 13 RPD: 8	LCS-14	99%
Zinc	mg/kg	116194-11	42 42 RPD: 0	LCS-14	101%

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QUALITY CONTROL Metals in Water - Dissolved	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	[NT]	[NT]	116194-4	16/09/2014
Date analysed	-	[NT]	[NT]	116194-4	16/09/2014
Arsenic - Dissolved	mg/L	[NT]	[NT]	116194-4	102%
Cadmium - Dissolved	mg/L	[NT]	[NT]	116194-4	110%
Chromium - Dissolved	mg/L	[NT]	[NT]	116194-4	106%
Copper - Dissolved	mg/L	[NT]	[NT]	116194-4	105%
Lead - Dissolved	mg/L	[NT]	[NT]	116194-4	104%
Mercury - Dissolved	mg/L	[NT]	[NT]	[NR]	[NR]
Nickel - Dissolved	mg/L	[NT]	[NT]	116194-4	106%
Zinc - Dissolved	mg/L	[NT]	[NT]	116194-4	105%
QUALITY CONTROL PCBs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD		
Date extracted	-	116194-11	16/09/2014 16/09/2014		
Date analysed	-	116194-11	16/09/2014 16/09/2014		
Arochlor 1016	mg/kg	116194-11	<0.1 <0.1		
Arochlor 1221	mg/kg	116194-11	<0.1 <0.1		
Arochlor 1232	mg/kg	116194-11	<0.1 <0.1		
Arochlor 1242	mg/kg	116194-11	<0.1 <0.1		
Arochlor 1248	mg/kg	116194-11	<0.1 <0.1		
Arochlor 1254	mg/kg	116194-11	<0.1 <0.1		
Arochlor 1260	mg/kg	116194-11	<0.1 <0.1		
Surrogate TCLMX	%	116194-11	90 86 RPD: 5		
QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	[NT]	[NT]	116194-2	16/09/2014
Date analysed	-	[NT]	[NT]	116194-2	16/09/2014
Arsenic	mg/kg	[NT]	[NT]	116194-2	90%
Cadmium	mg/kg	[NT]	[NT]	116194-2	90%
Chromium	mg/kg	[NT]	[NT]	116194-2	91%
Copper	mg/kg	[NT]	[NT]	116194-2	108%
Lead	mg/kg	[NT]	[NT]	116194-2	90%
Mercury	mg/kg	[NT]	[NT]	116194-2	93%
Nickel	mg/kg	[NT]	[NT]	116194-2	87%
Zinc	mg/kg	[NT]	[NT]	116194-2	87%

Report Comments:

Acid Extractable Metals in Soil: The laboratory RPD acceptance criteriae has been exceeded for 116194-11 for As. Therefore a triplicate result has been issued as laboratory sample number 116194-22.

OC/OP/PCB in soil: The RPD for duplicate results is accepted due to the non homogenous nature of the sample/s.

Asbestos: Excessive sample volume was provided for asbestos analysis. A portion of the supplied sample was sub-sampled according to Envirolab procedures. We cannot guarantee that this sub-sample is indicative of the entire sample. Envirolab recommends supplying 40-50g (50mL) of sample in its own container as per AS4964-2004.

Asbestos ID was analysed by Approved Identifier: Paul Ching
Asbestos ID was authorised by Approved Signatory: Paul Ching

INS: Insufficient sample for this test
NA: Test not required
<: Less than

PQL: Practical Quantitation Limit
RPD: Relative Percent Difference
>: Greater than

NT: Not tested
NA: Test not required
LCS: Laboratory Control Sample

Quality Control Definitions

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

Matrix Spike: A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

LCS (Laboratory Control Sample): This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Surrogate Spike: Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.



Envirolab Services Pty Ltd
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12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
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SAMPLE RECEIPT ADVICE

Client:

Douglas Partners Pty Ltd
96 Hermitage Rd
West Ryde NSW 2114

ph: 02 9809 0666
Fax: 02 9809 4095

Attention: Peter Oitmaa

Sample log in details:

Your reference:	84311, Caringbah
Envirolab Reference:	116194
Date received:	15/09/14
Date results expected to be reported:	22/09/14

Samples received in appropriate condition for analysis:	YES
No. of samples provided	19 Soils, 2 Waters
Turnaround time requested:	Standard
Temperature on receipt (°C)	10.1
Cooling Method:	Ice
Sampling Date Provided:	YES

Comments:

If there is sufficient sample after testing, samples will be held for the following time frames from date of receipt of samples:
Water samples - 1 month
Soil and other solid samples - 2 months
Samples collected in canisters - 1 week. Canisters will then be cleaned.
All other samples are not retained after analysis
If you require samples to be retained for longer periods then retention fees will apply as per our pricelist.

Contact details:

Please direct any queries to Aileen Hie or Jacinta Hurst
ph: 02 9910 6200 fax: 02 9910 6201
email: ahie@envirolabservices.com.au or jhurst@envirolabservices.com.au



Douglas Partners
Geotechnics • Environment • Groundwater



EnviroLab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

Job No: 116194

CHAIN OF CUSTODY

Project Name: Caringbah

Project No: 84311

Project Mgr: P. Oitmaa

Email: peter.oitmaa@douglaspartners.com.au

Date Required: Std

Date Received: 15/9/14 To: 17.00

Time Received: 17.00

Received by: AL

Temp: cool Ambient

Cooling: ice pack

Security: Intact Broken: None

EnviroLab Services

12 Ashley Street, Chatswood NSW 2067

Attn: Tania Notaras

Phone: 02 9910 6200 Fax: 02 9910 6201

Email: tnotaras@envirolabservices.com.au

Lab Quote No.

Sample ID	Sample Depth	Lab ID	Sampling Date	Sample Type S - soil W - water	Container type	Analytes							Notes
						8 metals	TRH BTEX	PAH	OCF OPP	PCB	Phenol	Asbestos	
BH101	0.4-0.5	1	5/9	S	Jar Bag								Combo 8a
BH102	0.4-0.5	2											
BH103	0.4-0.5	3											
BH104	0.1-0.25	4											
BH106	0.4-0.5	5											
BH108	0.9-1.0	6											
BH108	2.4-2.5	7											
BH109	0.4-0.5	8	8/9										
BH110	1.4-1.5	9											
BH111	0.9-1.0	10											
BH112	0.4-0.5	11											
BH113	0.4-0.45	12											

Carbo 8a

Lab Report No.

Send Results to: Douglas Partners

Address: 96 Hermitage Road, West Ryde 2114

Relinquished by: P. Oitmaa

Signed: PO

Date & Time: 15/9 1400h

Received By: LSB

Phone: (02) 9809 0666

Fax: (02) 9809 4095

Relinquished by:

Signed:

Date & Time:

Received By:

Phone:

Fax:

Date & Time: 15/9/14 17.00

Received By:

Date & Time:

CHAIN OF CUSTODY

Project Name: Caringbah
Project No: 84311 Sampler: AL
Project Mgr: Peter Oitmaa Mob. Phone: 0412 574 518
Email: peter.oitmaa@douglaspartners.com.au
Date Required: Std Lab Quote No.

To: Envirolab Services
12 Ashley Street, Chatswood NSW 2067
Attn: Tania Notaras
Phone: 02 9910 6200 Fax: 02 9910 6201
Email: tnotaras@envirolabservices.com.au

Sample ID	Sample Depth	Lab ID	Sampling Date	Sample Type S - soil W - water	Container type	Analytes							Notes
						8 Metals	TRH BTEX	PAH	OCB OPP	PCB	Phenol	Asbestos	
BH114	0.4-0.5	13	8/9	S	Jar/bag								} Combo 89
BH115	0.9-1.0	14											
BH115	2.9-3.0	15											
TS2A	N/A	16	N/A		Jar								} Combo 8
TS5A		17											
TS2B		*											
TS5B		*											} Send to Labmark
Trip Blank		18	3/9										
Trip Spike		19	3/9										
R1		20	5/9	W	Various								
R2		21	8/9	"	"								

Lab Report No

Lab Report No.
Send Results to: Douglas Partners Address: 96 Hermitage Road, West Ryde 2114 Phone: (02) 9809 0666
Relinquished by: P.Oitmaa Signed: POD Date & Time: 15/9 1400 hrs Received By: USB Date & Time: 15/9 17.00
Relinquished by: Signed: Date & Time: Received By: Date & Time:

Certificate of Analysis

Douglas Partners (Syd)
96 Hermitage Road
West Ryde
NSW 2114



NATA Accredited
Accreditation Number 1261
Site Number 1254

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

Attention: Peter Oitmaa

Report 432265-S
Project name CARINGBAH 84311
Received Date Sep 16, 2014

Client Sample ID			TS5B	TS2B
Sample Matrix			Soil	Soil
Eurofins mgt Sample No.			S14-Se13018	S14-Se13019
Date Sampled			Not Provided	Not Provided
Test/Reference	LOR	Unit		
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				
TRH C6-C9	20	mg/kg	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50
TRH C10-36 (Total)	50	mg/kg	< 50	< 50
BTEX				
Benzene	0.1	mg/kg	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	78	75
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100
Polycyclic Aromatic Hydrocarbons				
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5	< 0.5
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5
Indeno(1,2,3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5

Client Sample ID Sample Matrix Eurofins mgt Sample No. Date Sampled Test/Reference	LOR	Unit	TS5B Soil S14-Se13018 Not Provided	TS2B Soil S14-Se13019 Not Provided
Polycyclic Aromatic Hydrocarbons				
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5
Total PAH	0.5	mg/kg	< 0.5	< 0.5
Benzo(a)pyrene TEQ (lower bound)*	0.5	mg/kg	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound)*	0.5	mg/kg	0.6	0.6
Benzo(a)pyrene TEQ (upper bound)*	0.5	mg/kg	1.2	1.2
2-Fluorobiphenyl (surr.)	1	%	107	107
p-Terphenyl-d14 (surr.)	1	%	92	89
Organochlorine Pesticides				
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1
4,4'-DDD	0.05	mg/kg	< 0.05	< 0.05
4,4'-DDE	0.05	mg/kg	< 0.05	< 0.05
4,4'-DDT	0.05	mg/kg	< 0.05	< 0.05
α-BHC	0.05	mg/kg	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05
β-BHC	0.05	mg/kg	< 0.05	< 0.05
δ-BHC	0.05	mg/kg	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05
γ-BHC (Lindane)	0.05	mg/kg	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05
Methoxychlor	0.2	mg/kg	< 0.2	< 0.2
Toxaphene	1	mg/kg	< 1	< 1
Dibutylchloroendate (surr.)	1	%	78	76
Tetrachloro-m-xylene (surr.)	1	%	86	86
Polychlorinated Biphenyls (PCB)				
Aroclor-1016	0.5	mg/kg	< 0.5	< 0.5
Aroclor-1232	0.5	mg/kg	< 0.5	< 0.5
Aroclor-1242	0.5	mg/kg	< 0.5	< 0.5
Aroclor-1248	0.5	mg/kg	< 0.5	< 0.5
Aroclor-1254	0.5	mg/kg	< 0.5	< 0.5
Aroclor-1260	0.5	mg/kg	< 0.5	< 0.5
Total PCB	0.5	mg/kg	< 0.5	< 0.5
Dibutylchloroendate (surr.)	1	%	78	76
Speciated Phenols				
2,4-Dichlorophenol	0.5	mg/kg	< 0.5	< 0.5
2,4-Dimethylphenol	0.5	mg/kg	< 0.5	< 0.5
2,4,5-Trichlorophenol	0.5	mg/kg	< 0.5	< 0.5
2,4,6-Trichlorophenol	0.5	mg/kg	< 0.5	< 0.5
Phenol	0.5	mg/kg	< 0.5	< 0.5
2-Methylphenol (o-Cresol)	0.5	mg/kg	< 0.5	< 0.5
3&4-Methylphenol (m&p-Cresol)	1	mg/kg	< 1	< 1

Client Sample ID Sample Matrix Eurofins mgt Sample No. Date Sampled Test/Reference	LOR	Unit	TS5B Soil S14-Sc13018 Not Provided	TS2B Soil S14-Sc13019 Not Provided
Speciated Phenols				
2-Chlorophenol	0.5	mg/kg	< 0.5	< 0.5
2-Nitrophenol	0.5	mg/kg	< 0.5	< 0.5
4-Chloro-3-methylphenol	0.5	mg/kg	< 0.5	< 0.5
Pentachlorophenol	1	mg/kg	< 1	< 1
Phenol-d5 (surr.)	1	%	95	86
Organophosphorus Pesticides (OP)				
Chlorpyrifos	0.5	mg/kg	< 0.5	< 0.5
Coumaphos	0.5	mg/kg	< 0.5	< 0.5
Demeton (total)	1	mg/kg	< 1	< 1
Diazinon	0.5	mg/kg	< 0.5	< 0.5
Dichlorvos	0.5	mg/kg	< 0.5	< 0.5
Dimethoate	0.5	mg/kg	< 0.5	< 0.5
Disulfoton	0.5	mg/kg	< 0.5	< 0.5
Ethoprop	0.5	mg/kg	< 0.5	< 0.5
Fenitrothion	0.5	mg/kg	< 0.5	< 0.5
Fensulfothion	0.5	mg/kg	< 0.5	< 0.5
Fenthion	0.5	mg/kg	< 0.5	< 0.5
Methyl azinphos	0.5	mg/kg	< 0.5	< 0.5
Malathion	0.5	mg/kg	< 0.5	< 0.5
Methyl parathion	0.5	mg/kg	< 0.5	< 0.5
Mevinphos	0.5	mg/kg	< 0.5	< 0.5
Monocrotophos	10	mg/kg	< 10	< 10
Parathion	0.5	mg/kg	< 0.5	< 0.5
Phorate	0.5	mg/kg	< 0.5	< 0.5
Profenofos	0.5	mg/kg	< 0.5	< 0.5
Prothiofos	0.5	mg/kg	< 0.5	< 0.5
Ronnel	0.5	mg/kg	< 0.5	< 0.5
Stirophos	0.5	mg/kg	< 0.5	< 0.5
Triphenylphosphate (surr.)	1	%	111	107
Heavy Metals				
Arsenic	2	mg/kg	4.0	2.0
Cadmium	0.4	mg/kg	< 0.4	< 0.4
Chromium	5	mg/kg	21	12
Copper	5	mg/kg	20	27
Lead	5	mg/kg	29	14
Mercury	0.05	mg/kg	0.18	< 0.05
Nickel	5	mg/kg	10	8.1
Zinc	5	mg/kg	51	30
% Moisture	0.1	%	8.9	13

Sample History

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

A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	Sep 19, 2014	14 Day
- Method: TRH C6-C36 - LTM-ORG-2010			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Sep 19, 2014	14 Day
- Method: TRH C6-C36 - LTM-ORG-2010			
BTEX	Sydney	Sep 19, 2014	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Polycyclic Aromatic Hydrocarbons	Sydney	Sep 19, 2014	14 Day
- Method: E007 Polyaromatic Hydrocarbons (PAH)			
Organochlorine Pesticides	Sydney	Sep 19, 2014	14 Day
- Method: E013 Organochlorine Pesticides (OC)			
Polychlorinated Biphenyls (PCB)	Sydney	Sep 19, 2014	28 Day
- Method: E013 Polychlorinated Biphenyls (PCB)			
Speciated Phenols	Sydney	Sep 19, 2014	14 Day
- Method: E008 Speciated Phenols			
Organophosphorus Pesticides (OP)	Sydney	Sep 19, 2014	14 Day
- Method: E014 Organophosphorus Pesticides (OP)			
Metals M8	Sydney	Sep 19, 2014	28 Day
- Method: LTM-MET-3040_R0 TOTAL AND DISSOLVED METALS AND MERCURY IN WATERS BY ICP-MS			
% Moisture	Sydney	Sep 16, 2014	28 Day
- Method: E005 Moisture Content			

Company Name: Douglas Partners (Syd)
Address: 96 Hermitage Road
West Ryde
NSW 2114
Client Job No.: CARINGBAH 84311

Order No.:
Report #: 432265
Phone: 02 9809 0666
Fax:

Received: Sep 16, 2014 12:30 PM
Due: Sep 23, 2014
Priority: 5 Day
Contact Name: Peter Oitmaa

Eurofins | mgt Client Manager: Jean Heng

Sample Detail					% Moisture	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Metals M8	BTEX	Polychlorinated Biphenyls (PCB)	Speciated Phenols	Organophosphorus Pesticides (OP)	Total Recoverable Hydrocarbons
Laboratory where analysis is conducted													
Melbourne Laboratory - NATA Site # 1254 & 14271													
Sydney Laboratory - NATA Site # 18217					X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794													
External Laboratory													
Sample ID	Sample Date	Sampling Time	Matrix	LAB ID									
TS5B	Not Provided		Soil	S14-Se13018	X	X	X	X	X	X	X	X	X
TS2B	Not Provided		Soil	S14-Se13019	X	X	X	X	X	X	X	X	X

Eurofins | mgt Internal Quality Control Review and Glossary

General

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

Holding Times

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

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

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

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

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

UNITS

mg/kg: milligrams per Kilogram

ug/l: micrograms per litre

ppb: Parts per billion

org/100ml: Organisms per 100 millilitres

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

mg/l: milligrams per litre

ppm: Parts per million

%: Percentage

NTU: Nephelometric Turbidity Units

TERMS

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

QC - ACCEPTANCE CRITERIA

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

Results <10 times the LOR : No Limit

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

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

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

QC DATA GENERAL COMMENTS

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

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH C6-C10 less BTEX (F1)	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g,h,i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a,h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
4,4'-DDD	mg/kg	< 0.05			0.05	Pass	
4,4'-DDE	mg/kg	< 0.05			0.05	Pass	
4,4'-DDT	mg/kg	< 0.05			0.05	Pass	
a-BHC	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-BHC	mg/kg	< 0.05			0.05	Pass	
d-BHC	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endosulfan II	mg/kg	< 0.05			0.05	Pass	
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-BHC (Lindane)	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.2			0.2	Pass	
Toxaphene	mg/kg	< 1			1	Pass	
Method Blank							
Polychlorinated Biphenyls (PCB)							
Aroclor-1016	mg/kg	< 0.5			0.5	Pass	
Aroclor-1232	mg/kg	< 0.5			0.5	Pass	
Aroclor-1242	mg/kg	< 0.5			0.5	Pass	
Aroclor-1248	mg/kg	< 0.5			0.5	Pass	
Aroclor-1254	mg/kg	< 0.5			0.5	Pass	
Aroclor-1260	mg/kg	< 0.5			0.5	Pass	
Total PCB	mg/kg	< 0			0.5	Pass	
Method Blank							
Speciated Phenols							
2,4-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
2,4-Dimethylphenol	mg/kg	< 0.5			0.5	Pass	
2,4,5-Trichlorophenol	mg/kg	< 0.5			0.5	Pass	
2,4,6-Trichlorophenol	mg/kg	< 0.5			0.5	Pass	
Phenol	mg/kg	< 0.5			0.5	Pass	
2-Methylphenol (o-Cresol)	mg/kg	< 0.5			0.5	Pass	
3&4-Methylphenol (m&p-Cresol)	mg/kg	< 1			1	Pass	
2-Chlorophenol	mg/kg	< 0.5			0.5	Pass	
2-Nitrophenol	mg/kg	< 0.5			0.5	Pass	
4-Chloro-3-methylphenol	mg/kg	< 0.5			0.5	Pass	
Pentachlorophenol	mg/kg	< 1			1	Pass	
Method Blank							
Organophosphorus Pesticides (OP)							
Chlorpyrifos	mg/kg	< 0.5			0.5	Pass	
Coumaphos	mg/kg	< 0.5			0.5	Pass	
Demeton (total)	mg/kg	< 1			1	Pass	
Diazinon	mg/kg	< 0.5			0.5	Pass	
Dichlorvos	mg/kg	< 0.5			0.5	Pass	
Dimethoate	mg/kg	< 0.5			0.5	Pass	
Disulfoton	mg/kg	< 0.5			0.5	Pass	
Ethoprop	mg/kg	< 0.5			0.5	Pass	
Fenitrothion	mg/kg	< 0.5			0.5	Pass	
Fensulfothion	mg/kg	< 0.5			0.5	Pass	
Fenthion	mg/kg	< 0.5			0.5	Pass	
Methyl azinphos	mg/kg	< 0.5			0.5	Pass	
Malathion	mg/kg	< 0.5			0.5	Pass	
Methyl parathion	mg/kg	< 0.5			0.5	Pass	
Mevinphos	mg/kg	< 0.5			0.5	Pass	
Monocrotophos	mg/kg	< 10			10	Pass	
Parathion	mg/kg	< 0.5			0.5	Pass	
Phorate	mg/kg	< 0.5			0.5	Pass	
Profenofos	mg/kg	< 0.5			0.5	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Prothiofos	mg/kg	< 0.5			0.5	Pass	
Ronnel	mg/kg	< 0.5			0.5	Pass	
Stirophos	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.05			0.05	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	88			70-130	Pass	
TRH C10-C14	%	70			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	107			70-130	Pass	
Toluene	%	91			70-130	Pass	
Ethylbenzene	%	86			70-130	Pass	
m&p-Xylenes	%	89			70-130	Pass	
o-Xylene	%	87			70-130	Pass	
Xylenes - Total	%	88			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	106			70-130	Pass	
TRH C6-C10	%	109			70-130	Pass	
TRH >C10-C16	%	75			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	114			70-130	Pass	
Acenaphthylene	%	126			70-130	Pass	
Anthracene	%	119			70-130	Pass	
Benz(a)anthracene	%	98			70-130	Pass	
Benzo(a)pyrene	%	98			70-130	Pass	
Benzo(b&j)fluoranthene	%	89			70-130	Pass	
Benzo(g,h,i)perylene	%	114			70-130	Pass	
Benzo(k)fluoranthene	%	104			70-130	Pass	
Chrysene	%	123			70-130	Pass	
Dibenz(a,h)anthracene	%	111			70-130	Pass	
Fluoranthene	%	112			70-130	Pass	
Fluorene	%	110			70-130	Pass	
Indeno(1,2,3-cd)pyrene	%	113			70-130	Pass	
Naphthalene	%	107			70-130	Pass	
Phenanthrene	%	108			70-130	Pass	
Pyrene	%	110			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	81			70-130	Pass	
4,4'-DDD	%	86			70-130	Pass	
4,4'-DDE	%	96			70-130	Pass	
4,4'-DDT	%	80			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
a-BHC	%	89			70-130	Pass	
Aldrin	%	95			70-130	Pass	
b-BHC	%	92			70-130	Pass	
d-BHC	%	86			70-130	Pass	
Dieldrin	%	95			70-130	Pass	
Endosulfan I	%	94			70-130	Pass	
Endosulfan II	%	91			70-130	Pass	
Endosulfan sulphate	%	86			70-130	Pass	
Endrin	%	97			70-130	Pass	
Endrin aldehyde	%	97			70-130	Pass	
Endrin ketone	%	88			70-130	Pass	
g-BHC (Lindane)	%	88			70-130	Pass	
Heptachlor	%	93			70-130	Pass	
Heptachlor epoxide	%	94			70-130	Pass	
Hexachlorobenzene	%	90			70-130	Pass	
Methoxychlor	%	79			70-130	Pass	
LCS - % Recovery							
Polychlorinated Biphenyls (PCB)							
Aroclor-1260	%	98			70-130	Pass	
LCS - % Recovery							
Speciated Phenols							
2,4-Dichlorophenol	%	122			30-130	Pass	
2,4-Dimethylphenol	%	114			30-130	Pass	
2,4,5-Trichlorophenol	%	129			30-130	Pass	
2,4,6-Trichlorophenol	%	126			30-130	Pass	
Phenol	%	106			30-130	Pass	
2-Methylphenol (o-Cresol)	%	107			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	%	106			30-130	Pass	
2-Chlorophenol	%	104			30-130	Pass	
2-Nitrophenol	%	113			30-130	Pass	
4-Chloro-3-methylphenol	%	116			30-130	Pass	
Pentachlorophenol	%	102			30-130	Pass	
LCS - % Recovery							
Organophosphorus Pesticides (OP)							
Chlorpyrifos	%	107			70-130	Pass	
Coumaphos	%	127			70-130	Pass	
Diazinon	%	122			70-130	Pass	
Fenitrothion	%	129			70-130	Pass	
Methyl azinphos	%	122			70-130	Pass	
Malathion	%	122			70-130	Pass	
Phorate	%	127			70-130	Pass	
Stirophos	%	119			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	86			70-130	Pass	
Cadmium	%	76			70-130	Pass	
Chromium	%	96			70-130	Pass	
Copper	%	88			70-130	Pass	
Lead	%	90			70-130	Pass	
Mercury	%	89			70-130	Pass	
Nickel	%	101			70-130	Pass	
Zinc	%	100			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	S14-Se14547	NCP	%	70			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	S14-Se10078	NCP	%	107			70-130	Pass	
Acenaphthylene	S14-Se10078	NCP	%	100			70-130	Pass	
Anthracene	S14-Se10078	NCP	%	116			70-130	Pass	
Benz(a)anthracene	S14-Se10078	NCP	%	114			70-130	Pass	
Benzo(a)pyrene	S14-Se10078	NCP	%	104			70-130	Pass	
Benzo(b&j)fluoranthene	S14-Se10078	NCP	%	100			70-130	Pass	
Benzo(g,h,i)perylene	S14-Se10078	NCP	%	108			70-130	Pass	
Benzo(k)fluoranthene	S14-Se10078	NCP	%	109			70-130	Pass	
Chrysene	S14-Se10078	NCP	%	111			70-130	Pass	
Dibenz(a,h)anthracene	S14-Se10078	NCP	%	107			70-130	Pass	
Fluoranthene	S14-Se10078	NCP	%	111			70-130	Pass	
Fluorene	S14-Se10078	NCP	%	103			70-130	Pass	
Indeno(1,2,3-cd)pyrene	S14-Se10078	NCP	%	107			70-130	Pass	
Naphthalene	S14-Se10078	NCP	%	107			70-130	Pass	
Phenanthrene	S14-Se10078	NCP	%	102			70-130	Pass	
Pyrene	S14-Se10078	NCP	%	106			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
Chlordanes - Total	S14-Se15380	NCP	%	80			70-130	Pass	
4,4'-DDD	S14-Se15380	NCP	%	73			70-130	Pass	
4,4'-DDE	S14-Se15380	NCP	%	83			70-130	Pass	
4,4'-DDT	S14-Se15380	NCP	%	70			70-130	Pass	
a-BHC	S14-Se15380	NCP	%	78			70-130	Pass	
Aldrin	S14-Se15380	NCP	%	82			70-130	Pass	
b-BHC	S14-Se15380	NCP	%	81			70-130	Pass	
d-BHC	S14-Se15380	NCP	%	74			70-130	Pass	
Dieldrin	S14-Se15380	NCP	%	81			70-130	Pass	
Endosulfan I	S14-Se15380	NCP	%	81			70-130	Pass	
Endosulfan II	S14-Se15380	NCP	%	74			70-130	Pass	
Endosulfan sulphate	S14-Se15380	NCP	%	73			70-130	Pass	
Endrin	S14-Se15380	NCP	%	77			70-130	Pass	
Endrin aldehyde	S14-Se15380	NCP	%	80			70-130	Pass	
Endrin ketone	S14-Se15380	NCP	%	80			70-130	Pass	
g-BHC (Lindane)	S14-Se15380	NCP	%	78			70-130	Pass	
Heptachlor	S14-Se15380	NCP	%	79			70-130	Pass	
Heptachlor epoxide	S14-Se15380	NCP	%	83			70-130	Pass	
Hexachlorobenzene	S14-Se15380	NCP	%	80			70-130	Pass	
Methoxychlor	S14-Se15380	NCP	%	70			70-130	Pass	
Spike - % Recovery									
Speciated Phenols				Result 1					
2,4-Dichlorophenol	S14-Se10078	NCP	%	105			30-130	Pass	
2,4-Dimethylphenol	S14-Se10078	NCP	%	101			30-130	Pass	
2,4,5-Trichlorophenol	S14-Se10078	NCP	%	110			30-130	Pass	
2,4,6-Trichlorophenol	S14-Se10078	NCP	%	103			30-130	Pass	
Phenol	S14-Se10078	NCP	%	114			30-130	Pass	
2-Methylphenol (o-Cresol)	S14-Se10078	NCP	%	108			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	S14-Se10078	NCP	%	104			30-130	Pass	
2-Chlorophenol	S14-Se10078	NCP	%	106			30-130	Pass	
2-Nitrophenol	S14-Se10078	NCP	%	105			30-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
4-Chloro-3-methylphenol	S14-Se10078	NCP	%	95			30-130	Pass	
Pentachlorophenol	S14-Se10078	NCP	%	90			30-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S14-Se14550	NCP	%	85			70-130	Pass	
Cadmium	S14-Se14550	NCP	%	95			70-130	Pass	
Chromium	S14-Se14550	NCP	%	110			70-130	Pass	
Copper	S14-Se14550	NCP	%	113			70-130	Pass	
Lead	S14-Se14550	NCP	%	92			70-130	Pass	
Mercury	S14-Se14550	NCP	%	90			70-130	Pass	
Nickel	S14-Se14550	NCP	%	105			70-130	Pass	
Zinc	S14-Se14550	NCP	%	113			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	S14-Se13019	CP	%	77			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S14-Se13019	CP	%	95			70-130	Pass	
Toluene	S14-Se13019	CP	%	80			70-130	Pass	
Ethylbenzene	S14-Se13019	CP	%	73			70-130	Pass	
m&p-Xylenes	S14-Se13019	CP	%	78			70-130	Pass	
o-Xylene	S14-Se13019	CP	%	76			70-130	Pass	
Xylenes - Total	S14-Se13019	CP	%	78			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S14-Se13019	CP	%	80			70-130	Pass	
TRH C6-C10	S14-Se13019	CP	%	90			70-130	Pass	
Spike - % Recovery									
Polychlorinated Biphenyls (PCB)				Result 1					
Aroclor-1260	S14-Se13019	CP	%	92			70-130	Pass	
Spike - % Recovery									
Organophosphorus Pesticides (OP)				Result 1					
Chlorpyrifos	S14-Se13019	CP	%	82			70-130	Pass	
Coumaphos	S14-Se13019	CP	%	118			70-130	Pass	
Diazinon	S14-Se13019	CP	%	98			70-130	Pass	
Fenitrothion	S14-Se13019	CP	%	113			70-130	Pass	
Methyl azinphos	S14-Se13019	CP	%	128			70-130	Pass	
Malathion	S14-Se13019	CP	%	93			70-130	Pass	
Phorate	S14-Se13019	CP	%	115			70-130	Pass	
Stirophos	S14-Se13019	CP	%	107			70-130	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	S14-Se13018	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	S14-Se13018	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S14-Se13018	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	S14-Se13018	CP	mg/kg	< 50	< 50	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S14-Se13018	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S14-Se13018	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S14-Se13018	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S14-Se13018	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S14-Se13018	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total	S14-Se13018	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	

Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
Naphthalene	S14-Se13018	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
TRH C6-C10	S14-Se13018	CP	mg/kg	< 20	< 20	<1	30%	Pass
TRH C6-C10 less BTEX (F1)	S14-Se13018	CP	mg/kg	< 20	< 20	<1	30%	Pass
TRH >C10-C16	S14-Se13018	CP	mg/kg	< 50	< 50	<1	30%	Pass
TRH >C16-C34	S14-Se13018	CP	mg/kg	< 100	< 100	<1	30%	Pass
TRH >C34-C40	S14-Se13018	CP	mg/kg	< 100	< 100	<1	30%	Pass
Duplicate								
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD		
Acenaphthene	S14-Se13018	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Acenaphthylene	S14-Se13018	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Anthracene	S14-Se13018	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benz(a)anthracene	S14-Se13018	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(a)pyrene	S14-Se13018	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(b&j)fluoranthene	S14-Se13018	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(g,h,i)perylene	S14-Se13018	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(k)fluoranthene	S14-Se13018	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Chrysene	S14-Se13018	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Dibenz(a,h)anthracene	S14-Se13018	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Fluoranthene	S14-Se13018	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Fluorene	S14-Se13018	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Indeno(1,2,3-cd)pyrene	S14-Se13018	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Naphthalene	S14-Se13018	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Phenanthrene	S14-Se13018	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Pyrene	S14-Se13018	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Duplicate								
Organochlorine Pesticides				Result 1	Result 2	RPD		
Chlordanes - Total	S14-Se13018	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
4,4'-DDD	S14-Se13018	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
4,4'-DDE	S14-Se13018	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
4,4'-DDT	S14-Se13018	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
a-BHC	S14-Se13018	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Aldrin	S14-Se13018	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
b-BHC	S14-Se13018	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
d-BHC	S14-Se13018	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Dieldrin	S14-Se13018	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endosulfan I	S14-Se13018	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endosulfan II	S14-Se13018	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endosulfan sulphate	S14-Se13018	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin	S14-Se13018	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin aldehyde	S14-Se13018	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin ketone	S14-Se13018	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
g-BHC (Lindane)	S14-Se13018	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Heptachlor	S14-Se13018	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Heptachlor epoxide	S14-Se13018	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Hexachlorobenzene	S14-Se13018	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Methoxychlor	S14-Se13018	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Toxaphene	S14-Se13018	CP	mg/kg	< 1	< 1	<1	30%	Pass
Duplicate								
Polychlorinated Biphenyls (PCB)				Result 1	Result 2	RPD		
Aroclor-1016	S14-Se13018	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Aroclor-1232	S14-Se13018	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Aroclor-1242	S14-Se13018	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Aroclor-1248	S14-Se13018	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Aroclor-1254	S14-Se13018	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Aroclor-1260	S14-Se13018	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass

Duplicate								
Speciated Phenols				Result 1	Result 2	RPD		
2,4-Dichlorophenol	S14-Se13018	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
2,4-Dimethylphenol	S14-Se13018	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
2,4,5-Trichlorophenol	S14-Se13018	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
2,4,6-Trichlorophenol	S14-Se13018	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Phenol	S14-Se13018	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
2-Methylphenol (o-Cresol)	S14-Se13018	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
3&4-Methylphenol (m&p-Cresol)	S14-Se13018	CP	mg/kg	< 1	< 1	<1	30%	Pass
2-Chlorophenol	S14-Se13018	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
2-Nitrophenol	S14-Se13018	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
4-Chloro-3-methylphenol	S14-Se13018	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Pentachlorophenol	S14-Se13018	CP	mg/kg	< 1	< 1	<1	30%	Pass
Duplicate								
Organophosphorus Pesticides (OP)				Result 1	Result 2	RPD		
Chlorpyrifos	S14-Se13018	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Coumaphos	S14-Se13018	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Demeton (total)	S14-Se13018	CP	mg/kg	< 1	< 1	<1	30%	Pass
Diazinon	S14-Se13018	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Dichlorvos	S14-Se13018	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Dimethoate	S14-Se13018	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Disulfoton	S14-Se13018	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Ethoprop	S14-Se13018	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Fenitrothion	S14-Se13018	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Fensulfthion	S14-Se13018	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Fenthion	S14-Se13018	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Methyl azinphos	S14-Se13018	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Malathion	S14-Se13018	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Methyl parathion	S14-Se13018	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Mevinphos	S14-Se13018	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Monocrotophos	S14-Se13018	CP	mg/kg	< 10	< 10	<1	30%	Pass
Parathion	S14-Se13018	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Phorate	S14-Se13018	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Profenofos	S14-Se13018	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Prothiofos	S14-Se13018	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Ronnel	S14-Se13018	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Stirophos	S14-Se13018	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic	S14-Se14549	NCP	mg/kg	3.2	2.3	33	30%	Fail Q15
Cadmium	S14-Se14549	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass
Chromium	S14-Se14549	NCP	mg/kg	9.5	6.6	36	30%	Fail Q15
Copper	S14-Se14549	NCP	mg/kg	13	9.5	29	30%	Pass
Lead	S14-Se14549	NCP	mg/kg	< 5	< 5	<1	30%	Pass
Mercury	S14-Se14549	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Nickel	S14-Se14549	NCP	mg/kg	< 5	< 5	<1	30%	Pass
Zinc	S14-Se14549	NCP	mg/kg	10	6.7	43	30%	Fail Q15

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
Q15	The RPD reported passes Eurofins mgt's Acceptance Criteria as stipulated in SOP 05. Refer to Glossary Page of this report for further details

Authorised By

Jean Heng	Client Services
Bob Symons	Senior Analyst-Inorganic (NSW)
Ivan Taylor	Senior Analyst-Metal (NSW)
Ryan Hamilton	Senior Analyst-Organic (NSW)
Ryan Hamilton	Senior Analyst-Volatile (NSW)



Dr. Bob Symons

Laboratory Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

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

Uncertainty data is available on request

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Sample Receipt Advice

Company name: **Douglas Partners (Syd)**
Contact name: **Peter Oitmaa**
Project name: **CARINGBAH 84311**
COC number: **Not provided**
Turn around time: **5 Day**
Date/Time received: **Sep 16, 2014 12:30 PM**
Eurofins | mgt reference: **432265**

Sample information

- ☒ A detailed list of analytes logged into our LIMS, is included in the attached summary table.
- ☒ All samples have been received as described on the above COC.
- ☒ COC has been completed correctly.
- ☒ Attempt to chill was evident.
- ☒ Appropriately preserved sample containers have been used.
- ☒ All samples were received in good condition.
- ☒ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
- ☒ Appropriate sample containers have been used.
- ☒ Some samples have been subcontracted.
- N/A Custody Seals intact (if used).

Contact notes

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

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

Results will be delivered electronically via e.mail to Peter Oitmaa - peter.oitmaa@douglaspartners.com.au.

Eurofins | mgt Sample Receipt

Appendix H

QA/QC Information

Quality Assurance/Quality Control Procedures and Results

Field QA/QC for Soil Samples

The field QA/QC procedures for sampling described in the Douglas Partners *Field Procedures Manual* were followed at all times during the field work.

Laboratory-prepared Trip Blank and Trip Spike soil samples were taken to site during the field work, stored in the same container used to store the field samples, and transported to the laboratory with the field samples selected for analysis. The purpose of the Trip Blank was to determine whether cross-contamination of the samples was likely to have occurred. The purpose of the Trip Spike was to determine whether the significant loss of volatile contaminants may have occurred.

The results for the Trip Blank and Trip Spike soil samples are provided in Table H1.

Table H1: Trip Blank and Trip Spike QA/QC Results for Hydrocarbons in Soils

Sample ID	Total Concentration (mg/kg) or % Recovery				
	Benzene	Toluene	Ethyl-benzene	Xylene	F1
Blank	<0.2	<0.5	<1	<3	<25
Spike	118%	119%	116%	117%	NT

Notes: F1 = (C₆-C₁₀) – BTEX; NT = Not tested

The concentrations of analytes in the Trip Blank were below the laboratory detection limits which indicates that cross-contamination is unlikely to have occurred. The recovery rates for the Trip Spike analytes were within an acceptable range which indicates that the significant loss of volatile contaminants is unlikely to have occurred. The field sampling protocols are therefore considered appropriate.

Two rinsate samples were collected by washing demineralised water over the decontaminated sampling equipment and collecting the rinsate for analysis. The purpose of the rinsate analysis was to determine whether decontamination procedures were adequate.

Selected results for the rinsate analysis are provided in Tables H2 and H3.

Table H2: Rinsate QA/QC Results for Hydrocarbons in Water

Sample ID	Total Concentration (µg/L)				
	Benzene	Toluene	Ethylbenzene	Xylene	F1
R1	<1	<1	<1	<3	23
R2	<1	<1	<1	<3	12

Notes: F1 = (C₆-C₁₀) – BTEX

Table H3: Rinsate QA/QC Results for Heavy Metals in Water

Sample ID	Total Concentration (µg/L)							
	As	Cd	Cr	Cu	Pb	Hg	Ni	Zn
R1	<50	<10	<10	<10	<30	<0.5	<20	<20
R2	<50	<10	<10	<10	<30	<0.5	<20	<20

Notes: As = Arsenic; Cd = Cadmium; Cr = Chromium; Cu = Copper; Pb = Lead; Hg = Mercury; Ni = Nickel; Zn = Zinc

Both rinsate samples exhibited very low concentrations of volatile hydrocarbons (i.e. F1). This is considered insignificant as the concentrations were very low and the soil samples did not exhibit concentrations above the laboratory detection limits. The concentrations of all other analytes in the rinsate samples were below the laboratory detection limits which indicates appropriate decontamination was undertaken during sampling. The field sampling protocols are therefore considered appropriate.

Intra-Laboratory QA/QC Analysis on Soil Samples

Intra-laboratory analysis of soil samples was conducted as an internal check of the reproducibility of the results from the primary laboratory and as a measure of consistency of sampling techniques. The 'A' series of the triplicate QA/QC samples were analysed by the primary laboratory (Envirolab). The results were compared between the primary and 'A' samples to determine the relative percentage difference (RPD) between the samples. The RPD was then used to determine whether unacceptable errors may be present in the sample data.

Selected comparative results of the analysis of the intra-laboratory soil samples are summarised in Tables H4 to H6.

Table H4: Intra-Laboratory QA/QC Results for BTEX in Soil

Sample ID	Total Concentration (mg/kg)				
	Benzene	Toluene	Ethylbenzene	m + p xylene	o xylene
BH106/0.4-0.5	<0.2	<0.5	<1	<2	<1
TS2A	<0.2	<0.5	<1	<2	<1
RPD	0%	0%	0%	0%	0%
BH109/0.4-0.5	<0.2	<0.5	<1	<2	<1
TS5A	<0.2	<0.5	<1	<2	<1
RPD	0%	0%	0%	0%	0%

Table H5: Intra-Laboratory QA/QC Results for TRH in Soil

Sample ID	Total Concentration (mg/kg)			
	C ₆ – C ₉	C ₁₀ – C ₁₄	C ₁₅ – C ₂₈	C ₂₉ – C ₃₆
BH106/0.4-0.5	<25	<50	<100	<100
TS2A	<25	<50	<100	<100
RPD	0%	0%	0%	0%
BH109/0.4-0.5	<25	<50	<100	<100
TS5A	<25	<50	<100	<100
RPD	0%	0%	0%	0%

Table H6: Intra-Laboratory QA/QC Results for Heavy Metals in Soil

Sample ID	Total Concentration (mg/kg)							
	As	Cd	Cr	Cu	Pb	Hg	Ni	Zn
BH106/0.4-0.5	6	<0.4	24	36	25	0.3	13	49
TS2A	<4	<0.4	30	24	21	0.1	20	43
RPD	40%	0%	22%	40%	17%	100%	42%	13%
BH109/0.4-0.5	4	<0.4	15	25	19	<0.1	6	34
TS5A	<4	<0.4	18	30	17	<0.1	8	35
RPD	0%	0%	18%	18%	11%	0%	29%	3%

Notes: As = Arsenic; Cd = Cadmium; Cr = Chromium; Cu = Copper; Pb = Lead; Hg = Mercury; Ni = Nickel; Zn = Zinc

A RPD of $\pm 30\%$ is generally considered acceptable for inorganic analytes and a wider range may be acceptable for organic analytes. The RPD values outside the generally acceptable range of $\pm 30\%$ are indicated by yellow shading in Table H6. These values are not considered significant due to the relatively small actual differences between the sample pairs and the heterogeneous nature of the filling materials from which the samples were obtained.

It is therefore considered that the results indicate acceptable consistency between the primary and 'A' soil samples, that suitable field sampling methodology was adopted and that adequate laboratory precision was achieved.

Inter-Laboratory QA/QC Analysis on Soil Samples

Inter-laboratory analysis of soil samples was conducted as an internal check of the reproducibility of the results from the laboratories and as a measure of consistency of sampling techniques. The 'B' series of the triplicate QA/QC samples were analysed by the secondary laboratory (Eurofins). The results were compared between the primary and 'B' samples to determine the relative percentage difference (RPD) between the samples. The RPD was then used to determine whether unacceptable errors may be present in the sample data.

Selected comparative results of the analysis of the inter-laboratory soil samples are summarised in Tables H7 to H9.

Table H7: Inter-Laboratory QA/QC Results for BTEX in Soil

Sample ID	Total Concentration (mg/kg)				
	Benzene	Toluene	Ethylbenzene	m + p xylene	o xylene
BH106/0.4-0.5	<0.2	<0.5	<1	<2	<1
TS2B	<0.1	<0.1	<0.1	<0.2	<0.1
RPD	0%	0%	0%	0%	0%
BH109/0.4-0.5	<0.2	<0.5	<1	<2	<1
TS5B	<0.1	<0.1	<0.1	<0.2	<0.1
RPD	0%	0%	0%	0%	0%

Table H8: Inter-Laboratory QA/QC Results for TRH in Soil

Sample ID	Total Concentration (mg/kg)			
	C ₆ – C ₉	C ₁₀ – C ₁₄	C ₁₅ – C ₂₈	C ₂₉ – C ₃₆
BH106/0.4-0.5	<25	<50	<100	<100
TS2B	<20	<20	<50	<50
RPD	0%	0%	0%	0%
BH109/0.4-0.5	<25	<50	<100	<100
TS5B	<20	<20	<50	<50
RPD	0%	0%	0%	0%

Table H9: Inter-Laboratory QA/QC Results for Heavy Metals in Soil

Sample ID	Total Concentration (mg/kg)							
	As	Cd	Cr	Cu	Pb	Hg	Ni	Zn
BH106/0.4-0.5	6	<0.4	24	36	25	0.3	13	49
TS2B	4	<0.4	21	20	29	0.18	10	51
RPD	40%	0%	13%	57%	15%	50%	26%	4%
BH109/0.4-0.5	4	<0.4	15	25	19	<0.1	6	34
TS5B	2	<0.4	12	27	14	<0.05	8.1	30
RPD	67%	0%	22%	8%	30%	0%	30%	13%

Notes: As = Arsenic; Cd = Cadmium; Cr = Chromium; Cu = Copper; Pb = Lead; Hg = Mercury; Ni = Nickel; Zn = Zinc

A RPD of $\pm 30\%$ is generally considered acceptable for inorganic analytes and a wider range may be acceptable for organic analytes. The RPD values outside the generally acceptable range of $\pm 30\%$ are indicated by yellow shading in Table H9. These values are not considered significant due to the relatively small actual differences between the sample pairs and the heterogeneous nature of the filling materials from which the samples were obtained.

It is therefore considered that the results indicate acceptable consistency between the primary and 'B' soil samples, that suitable field sampling methodology was adopted and that adequate laboratory precision was achieved.

Laboratory QA/QC Procedures

Quality control procedures used during the analyses include:

Reagent Blank

A reagent blank sample is prepared and analysed at the beginning of every analytical run, following calibration of the analytical apparatus. The laboratory results for reagent blanks indicated that concentrations of all analytes were below respective laboratory practical quantitation limits.

Duplicate

This is the complete duplicate of a sample from the process batch. The results of the two samples are compared to laboratory acceptance criteria and exceedences highlighted. No exceedences were detected.

Matrix Spike

A portion of a sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and determine whether matrix interference exists. The matrix spike recovery is compared to laboratory acceptance criteria. No exceedences were noted.

Laboratory Control Sample

This is a standard reference sample or control matrix used to check the analytical process. The results were within acceptable limits.

Surrogate Spike

Surrogates are known additions of known compounds to each sample, blank, matrix spike and laboratory control sample. The surrogates are similar to the analyte of interest, however are not expected to be detected in real samples. The results were acceptable.

Appendix I

PID Calibration Certificate

CALIBRATION RECORD

Project: Caringbah
Project Number: 84311

Calibrated Equipment

Model: MiniRAE2000 PID
Serial No.: 110003382
DP Reference: DP 400
Other: 10.6eV Lamp

Calibration

Date(s): 3 Sep 2014
Operator(s): AL
Zero Gas: ambient air
Span Gas: isobutylene
Span Gas Concentration: 100
Response Factor: 1.0

Approved: PMO
Date: 3 Sep 2014