

102

103

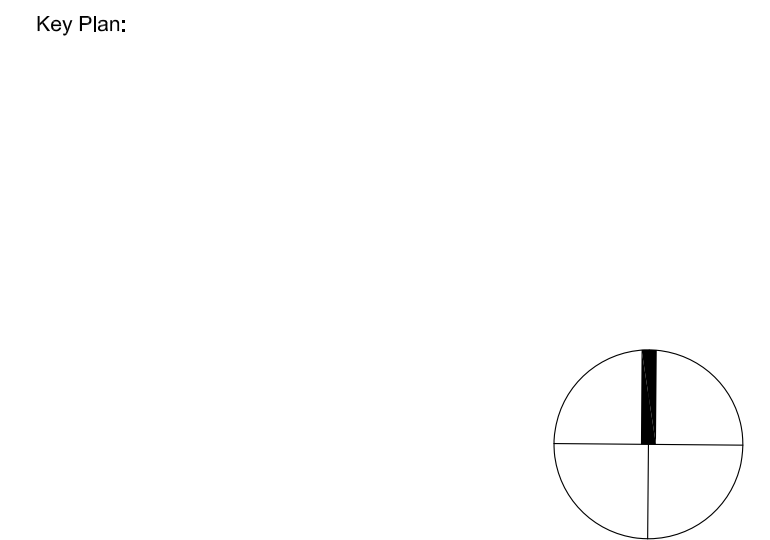


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D	For DA	NP	RS	23.01.2017
C	For Approval	PH	RS	13.12.2016
B	For Review	PH	RS	21.11.2016
A	For Review	NH	RS	28.07.2016
Issue	Revision Description	Drawn	Check	Date

- LEGEND
- Proposed Tree Planting
 - Proposed Palm Trees
 - Proposed Shrub Planting
 - Proposed Accent Planting
 - Proposed Groundcover
 - Turf
 - Proposed Paving Type 1
 - Proposed Paving Type 2
 - Proposed Bench Seating
 - Proposed Pergola Structure



Client:
Waldron Hill Developments

Architect:
CMT Architects

Project:
**21 Canterbury Road
Punchbowl**

SITE IMAGE

Level 1, 3-5 Baptist Street
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DEVELOPMENT APPLICATION

Drawing Name:
LANDSCAPE MASTERPLAN

Scale: 1:400 @ A1

Job Number: **SS16-3349**

Drawing Number: **100**

Issue: **E**

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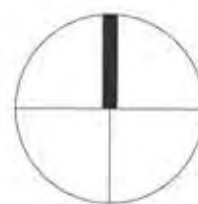
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Key Plan:



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Drawing Name:
LANDSCAPE MASTERPLAN

Scale: 1:400 @ A1

Job Number: SS16-3349

Drawing Number: C100

Issue: E

Sheet _ of _
0 2 4 8 12 20m
Issue:

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CONTINUES ON 103

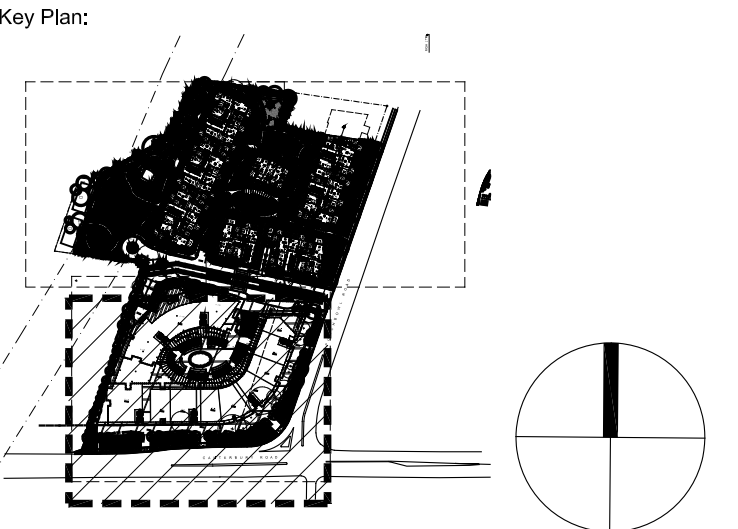
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DEVELOPMENT APPLICATION

Drawing Name:
LANDSCAPE PLAN
CIVIC PLAZA

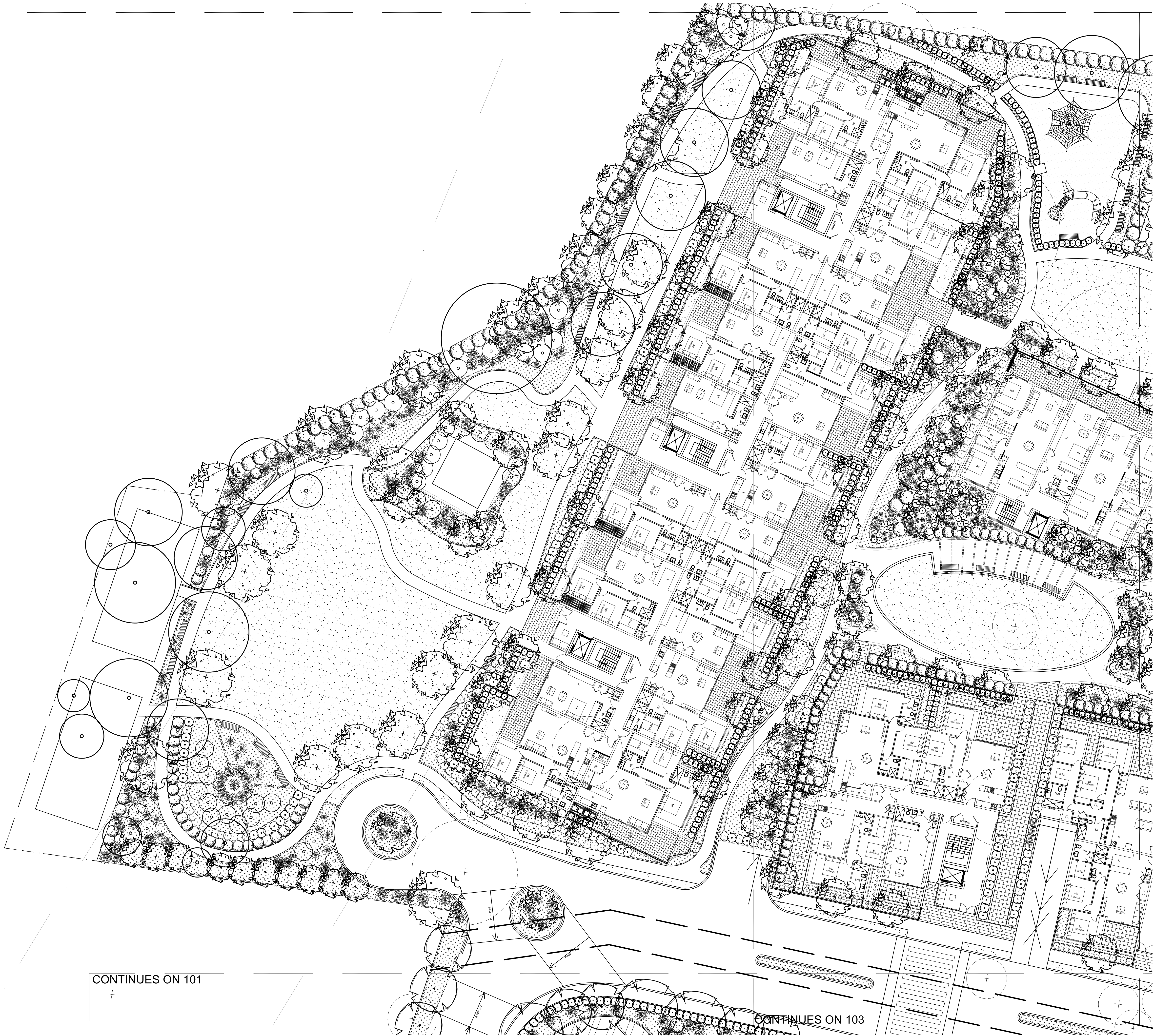
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Job Number:
SS16-3349

Drawing Number:
101

Issue:
E

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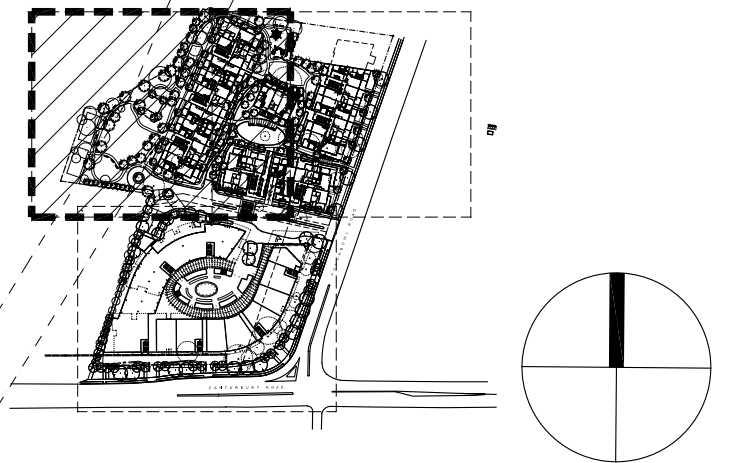
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Drawing Name:
LANDSCAPE PLAN
RESIDENTIAL

Scale: 1:200 @ A1
Job Number:
Drawing Number:
Sheet _ of _
10m
Issue:

SS16-3349 102 E

NOT FOR CONSTRUCTION

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RESIDENTIAL

Scale: 1:200 @ A1

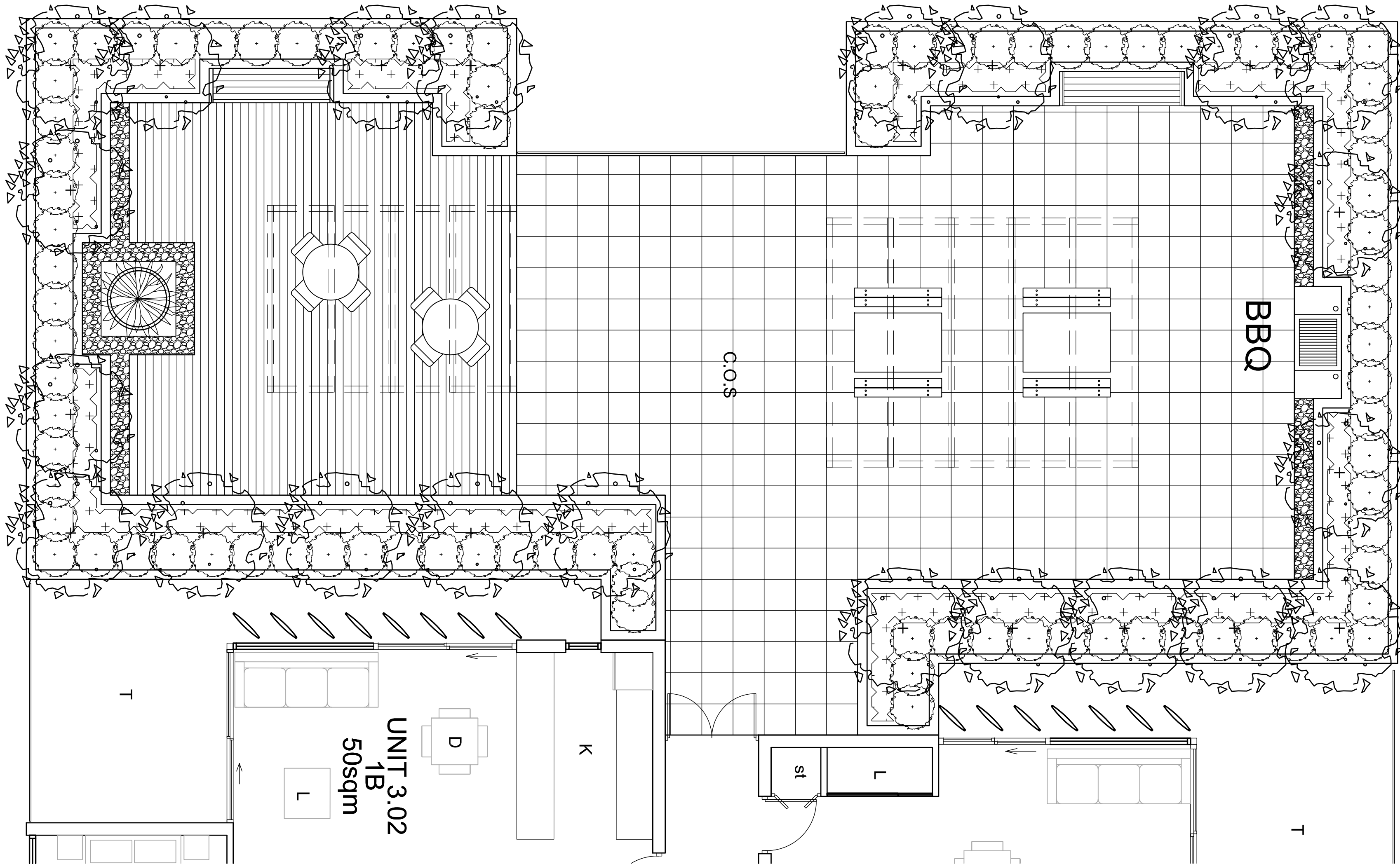
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SS16-3349 103 E

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01
104

LANDSCAPE PLAN - LEVEL 3 TERRACE

SCALE 1:50

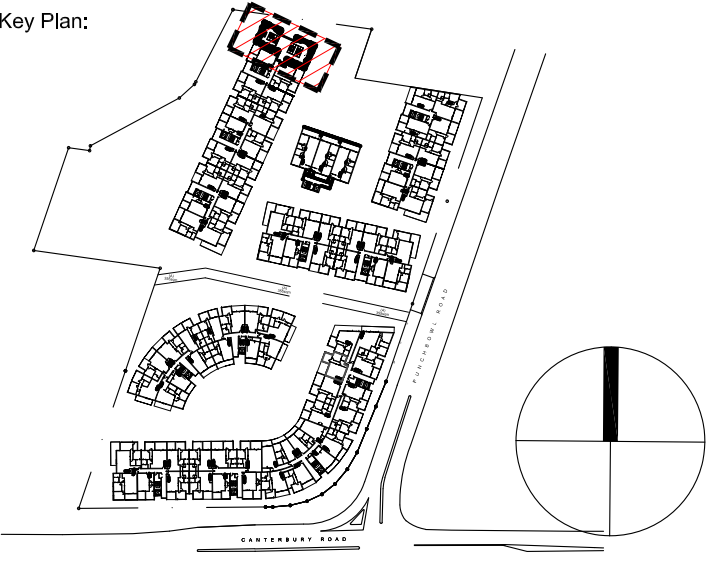
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- Proposed Groundcover
- Proposed Pot Planting
- Proposed Pebble Paving
- Proposed Timber Decking
- Proposed Paving
- Proposed Table & Chairs
- Proposed Pergola Structure
- BBQ facilities



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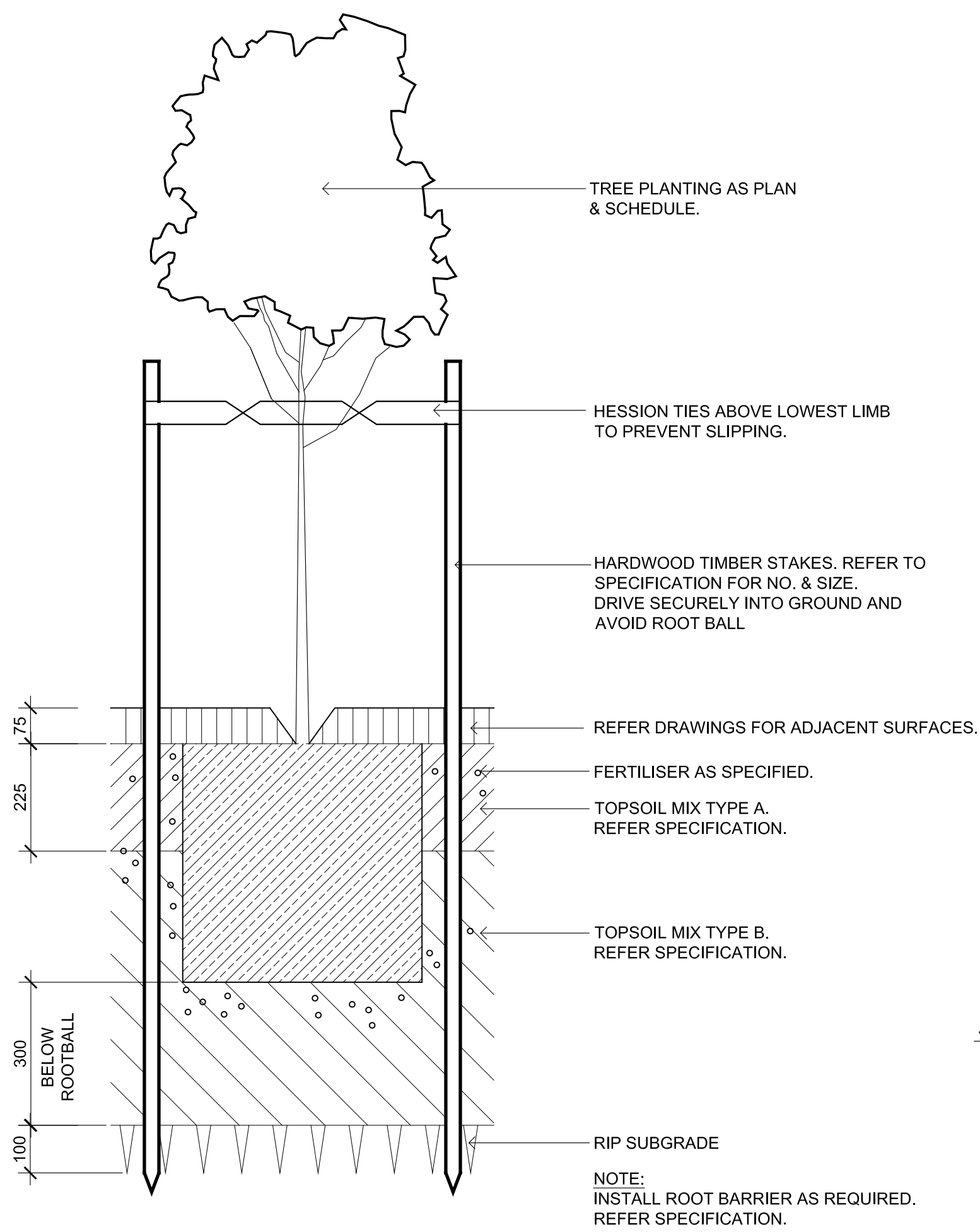
DEVELOPMENT APPLICATION

Drawing Name:
LANDSCAPE PLAN
LEVEL 3 TERRACE

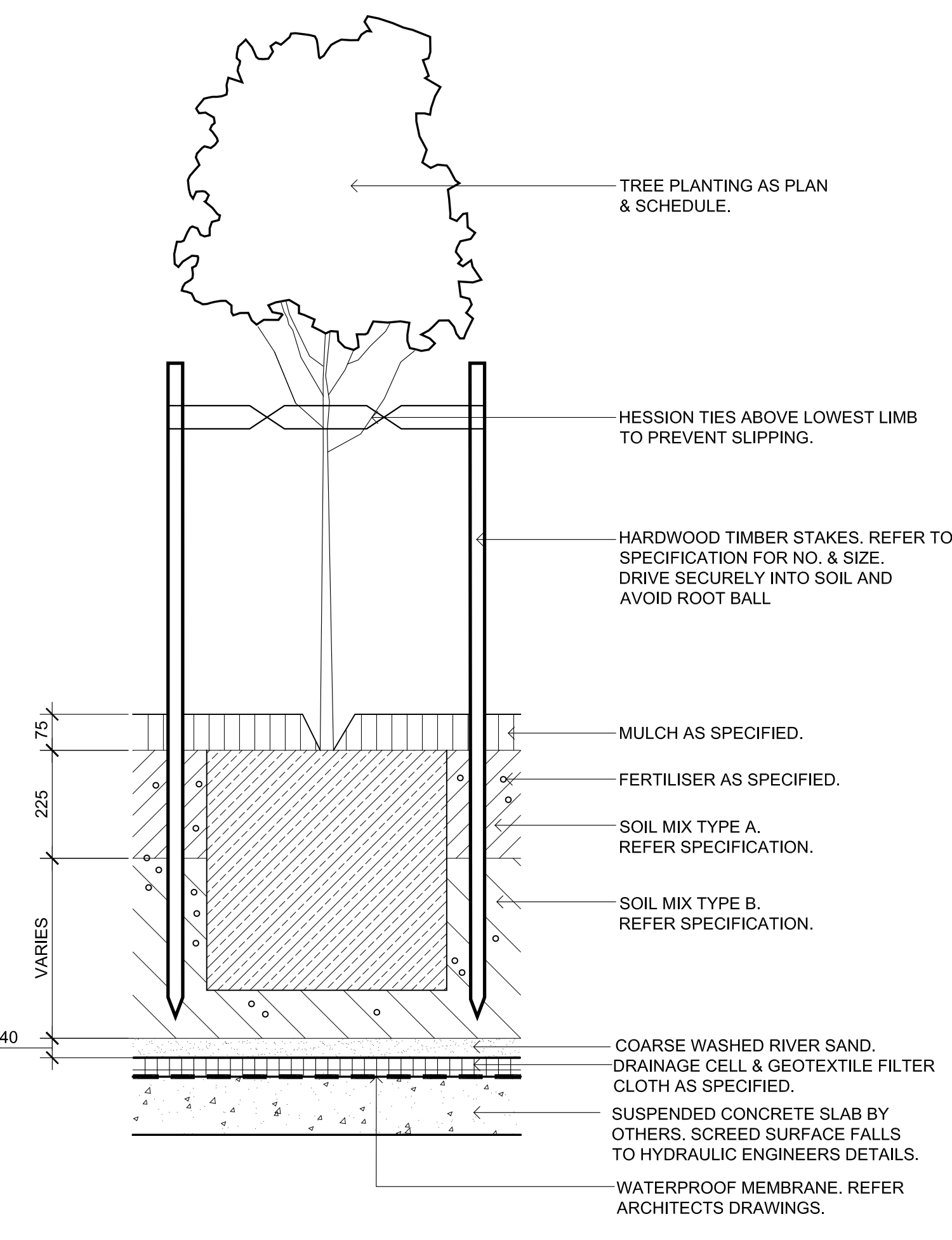
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Drawing Number:
Issue:

SS16-3349 104 D

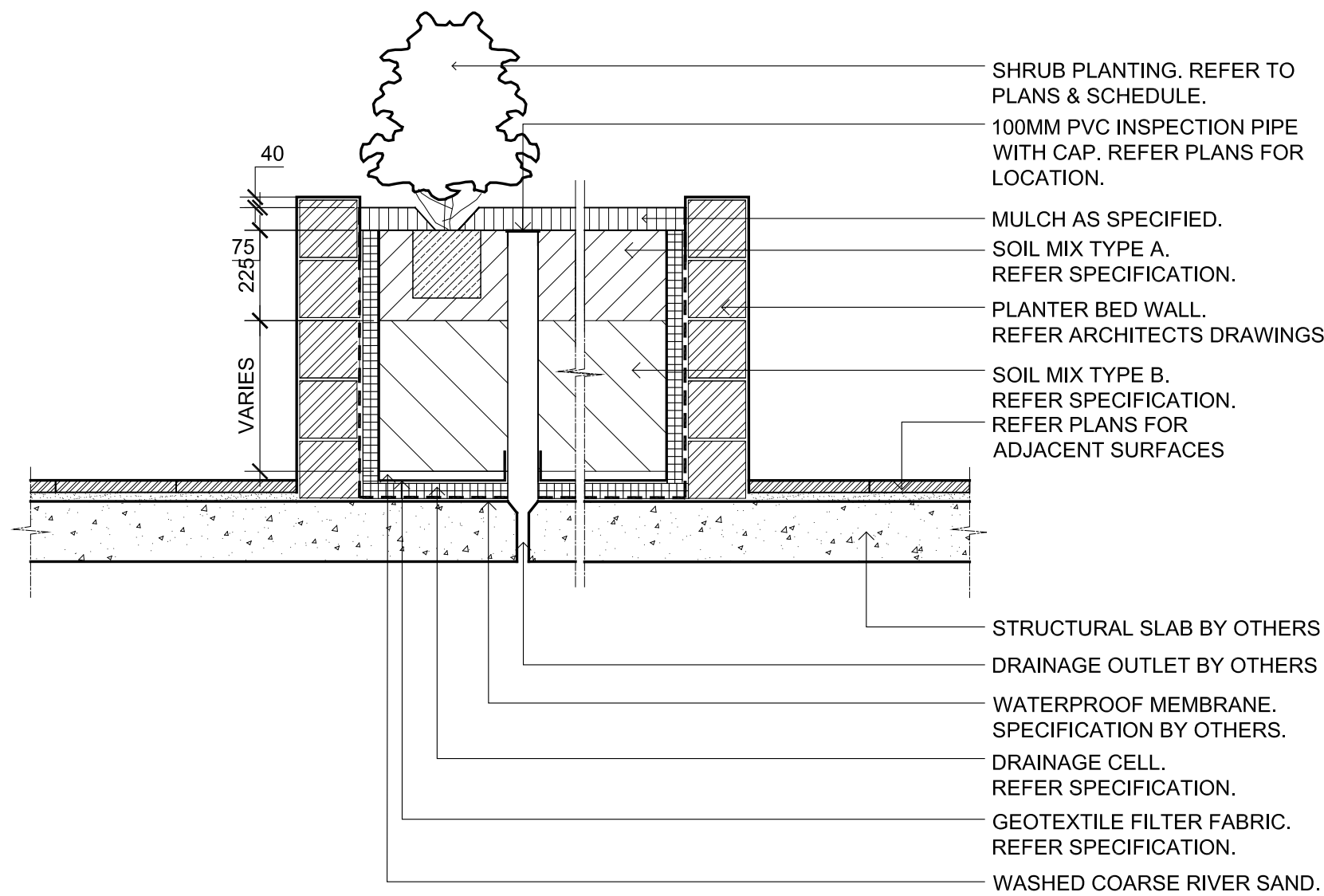
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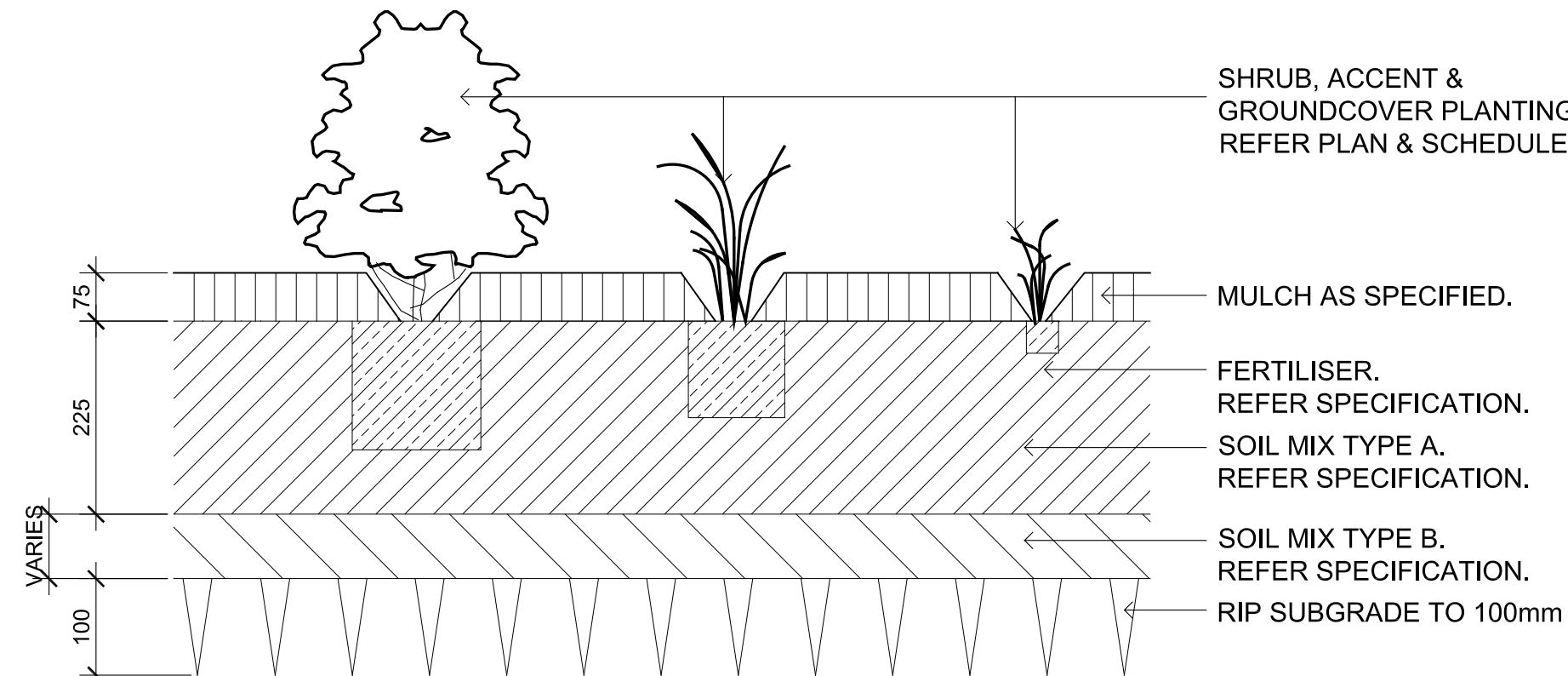
01 75-200L TREE PLANTING ON GRADE
501 SCALE 1:10



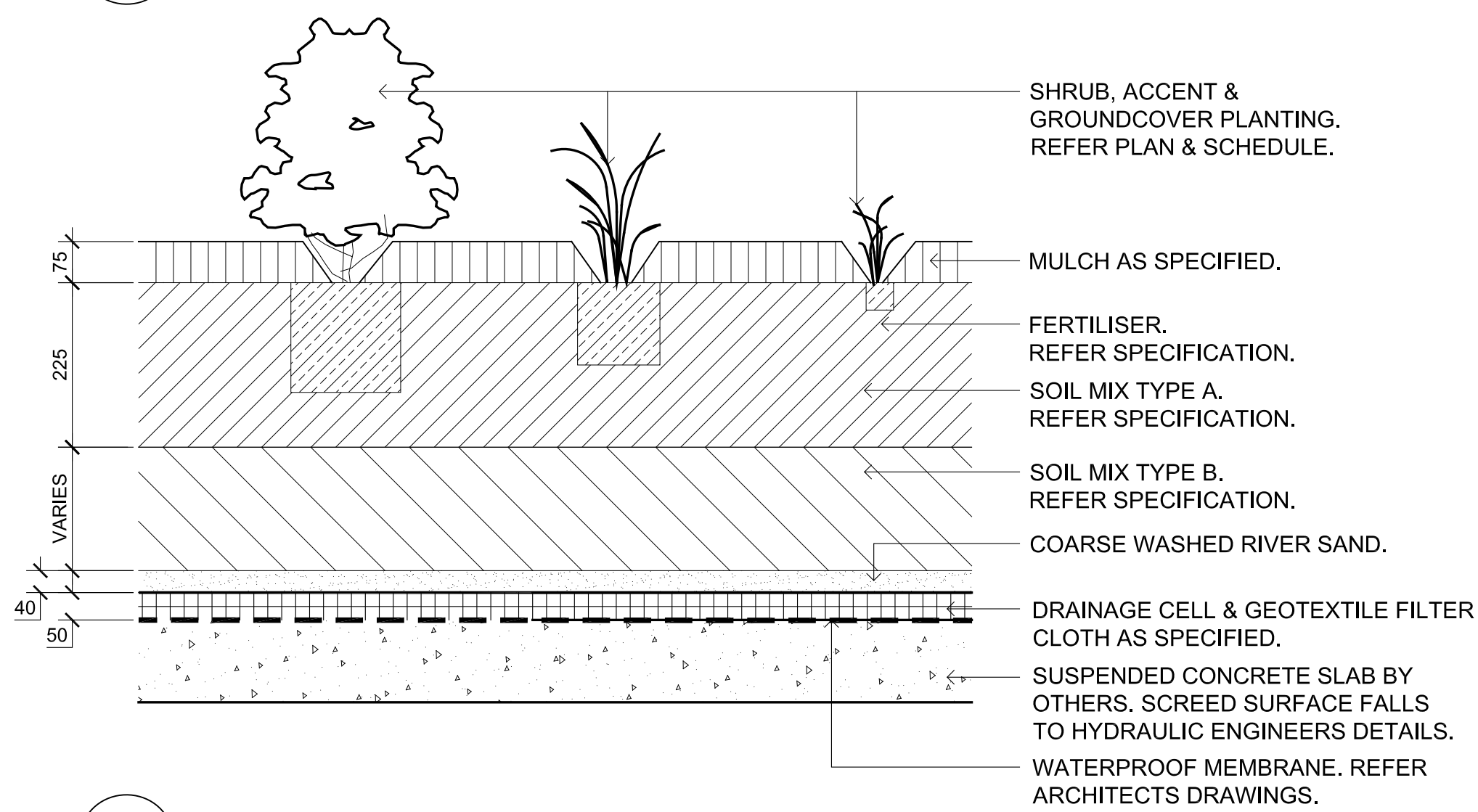
02 75-200L TREE PLANTING ON SLAB
501 SCALE 1:10



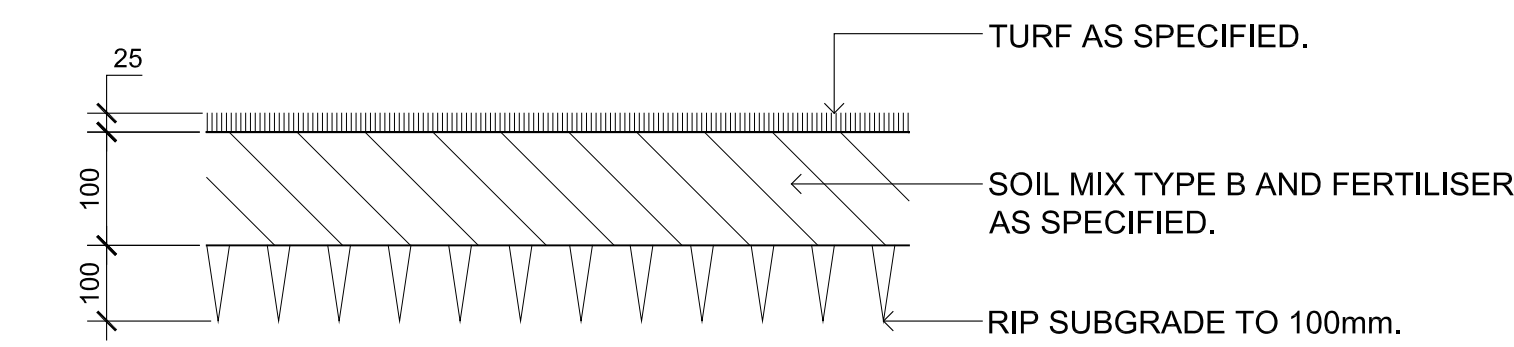
06 TYP. RAISED PLANTER BED ON SUSPENDED SLAB - SECTION
SCALE 1:20



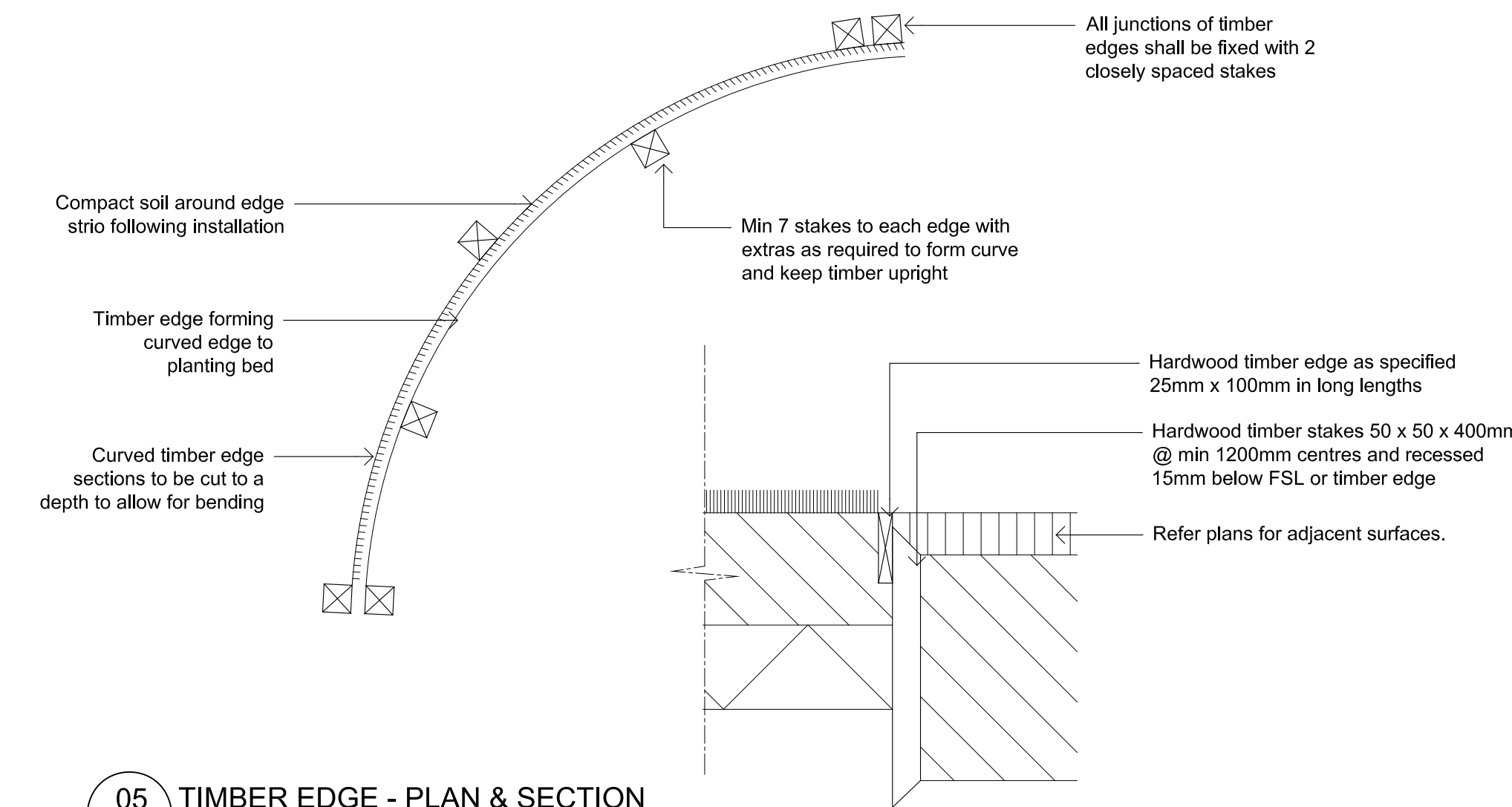
05 SHRUB, ACCENT & GROUNDCOVER PLANTING ON GRADE
501 SCALE 1:10



03 SHRUB, ACCENT & GROUNDCOVER PLANTING ON SLAB
501 SCALE 1:10



04 TURF ON EVEN GRADE
501 SCALE 1:10



05 TIMBER EDGE - PLAN & SECTION
501 SCALE 1:10

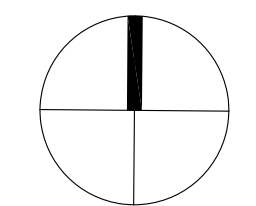
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Drawing Name:
LANDSCAPE DETAILS

Scale: AS SHOWN
Job Number: SS16-3349
Drawing Number: 501
Issue: E

NOT FOR CONSTRUCTION

21 Canterbury Road, Punchbowl
INDICATIVE PLANT SCHEDULE

BOTANIC NAME	COMMON NAME	HEIGHT	WIDTH	POT SIZE	WATER USE	INDIGENOUS/ EXOTIC
TREES						
<i>Acer negundo</i>	Box Alder	15m	8m	100Lt	L	Exotic
<i>Brachychiton acerifolius</i>	Illawarra Flame Tree	25m	5m	100Lt	L	Indigenous
<i>Corymbia maculata</i>	Spotted Gum	30m	8m	100Lt	L	Indigenous
<i>Elaeocarpus reticulatus</i>	Blueberry Ash	12m	5m	100Lt	L	Indigenous
<i>Eucalyptus moluccana</i>	Grey Box	14m	8m	100Lt	L	Indigenous
<i>Eucalyptus robusta</i>	Swamp Mahogany	15m	6m	100Lt	L	Indigenous
<i>Fraxinus 'Raywood'</i>	Claret Ash	10m	7m	100Lt	M	Exotic
<i>Lagestroemia indica</i>	Crepe Myrtle	6m	3m	75Lt	L	Exotic
<i>Magnolia grandiflora 'Exmouth'</i>	Southern Magnolia	12m	8m	100L	M	Exotic
<i>Magnolia 'Little Gem'</i>	Dwarf Magnolia	5m	3m	75Lt	H	Exotic
<i>Melalauca quinquenervia</i>	Broad Leaf Paperbark	15m	7m	100Lt	L	Indigenous
<i>Pistacia chinensis</i>	Pistachio	8m	4m	75L	M	Exotic
<i>Tristanopsis laurina</i>	Water Gum	10m	8m	100Lt	L	Indigenous
<i>Waterhousia floribunda</i>	Weeping Lillypilly	15m	8m	100Lt	M	Indigenous
SHRUBS						
<i>Abelia grandiflora</i>	Abelia	2m	2m	300mm	L	Exotic
<i>Acmena smithii 'Allyn Magic'</i>	Dwarf Acmena	0.5m	0.5m	300mm	L	Indigenous
<i>Acmena smithii 'Cherry Surprise'</i>	Cherry Surprise	3m	2m	300mm	L	Indigenous
<i>Banksia ericifolia</i>	Heath Banksia	4m	3m	300mm	L	Indigenous
<i>Buxus microphylla</i>	Japanese Box	1.5m	1.5m	300mm	M	Exotic
<i>Breynia oblongifolia</i>	Coffee Bush	3m	1.5m	300mm	L	Indigenous
<i>Callistemon citrinus 'White Anzac'</i>	Lemon Scented Bottlebrush	1m	2m	300mm	L	Exotic
<i>Callistemon viminalis Little John</i>	Little John Bottlebrush	0.8m	0.8m	300mm	L	Exotic
<i>Ceratopetalum gummiferum</i>	NSW Christmas Bush	6m	01.5m	300mm	L	Indigenous
<i>Convolvulus cenorum</i>	Silver Bush	0.6m	0.8m	300mm	L	Exotic
<i>Elaeocarpus reticulatus</i>	Blueberry Ash	3m	3m	300mm	L	Indigenous
<i>Eriostemon myoporoides</i>	Wax Flower	1.5m	1.5m	300mm	L	Indigenous
<i>Gardenia augusta Florida</i>	Gardenia	1.5m	1.5m	300mm	H	Exotic
<i>Leucophyta brownii</i>	Cushion Bush	1m	1m	300mm	L	Exotic
<i>Murraya paniculata</i>	Mock Orange	3m	2m	300mm	M	Exotic
<i>Persoonia levis</i>	Broad-leaf Geebung	4m	2m	300mm	L	Indigenous
<i>Pittosporum tobira 'Miss Muffet'</i>	Dwarf Pittosporum	0.8m	1.5m	300mm	L	Exotic
<i>Photinia glabra 'Rubens'</i>	Dwarf Photinia	3m	2m	300mm	L	Exotic
<i>Rhaphiolepis Oriental Pearl</i>	Indian Hawthorne	1.5m	2m	300mm	L	Exotic
<i>Syzygium australe 'Tiny Trev'</i>	Dwarf Lilly Pilly	0.8m	0.8m	300mm	M	Exotic
<i>Syzygium 'Cascede'</i>	Pink Flowering Lilly Pilly	2.5m	1.5m	300mm	M	Exotic
<i>Viburnum tinus</i>	Laurestinus	3m	2m	300mm	L	Exotic
<i>Westringia fruticosa</i>	Native Rosemary	2m	2m	300mm	L	Indigenous
ACCENT						
<i>Asplenium australasicum</i>	Birds Nest Fern	1m	1m	300mm	L	Indigenous
<i>Cycas revoluta</i>	Japanese Sago	1.5m	1.5m		M	Exotic
<i>Doryanthes excelsa</i>	Gynea Lily	2m	2m	200mm	L	Indigenous
<i>Phormium tenax 'Bronze Baby'</i>	Dwarf Flax	0.75m	0.8m		L	Exotic
<i>Streitzia reginae</i>	Bird of Paradise	1.5m	1.5m	300mm	M	Exotic
<i>Yucca Sp.</i>	Yucca	1.5m	1m	200mm	L	Exotic
GROUNDCOVERS AND GRASSES						
<i>Carpobrotus glaucescens</i>	Pigface	1m	1m	150mm	L	Exotic
<i>Carex appressa</i>	Tall Sedge	0.8m	0.6	150mm	M	Indigenous
<i>Convolvulus mauritanicus</i>	Ground Morning Gloy	0.1m	0.9m	150mm	L	Exotic
<i>Clivia miniata</i>	Kaffir Lily	0.45m	0.5m	150mm	H	Exotic
<i>Dianella 'Breeze'</i>	Breeze Flax Lily	0.7m	0.6m	150mm	L	Indigenous
<i>Dianella caerulea</i>	Paroo Lily	0.6m	0.6m	150mm	L	Indigenous
<i>Dianella 'Cassa Blue'</i>	Cassa Blue Flax Lily	0.40	0.40	150mm	L	Indigenous
<i>Dianella 'Silver Streak'</i>	Silver Streak Flax Lily	0.5m	0.4m	150mm	L	Indigenous
<i>Hardenbergia violaeacea</i>	False Sarsaparilla	0.3m	2m	150mm	L	Exotic
<i>Hibbertia scandens</i>	Climbing Guinea Flower	0.3m	4m	150mm	L	Indigenous
<i>Imperata cylindrica</i>	Blady Grass/Cogon Grass	0.6m	0.3m	150mm	M	Exotic
<i>Microlaena stipoides</i>	Weeping Grass	0.7m	0.3m	150mm	L	Indigenous
<i>Liriope muscari 'Evergreen Giant'</i>	Lily Turf	0.6m	0.5m	150mm	M	Exotic
<i>Lomandra longifolia</i>	Matt Rush	1m	0.5m	150mm	L	Indigenous
<i>Lomandra longifolia 'Tanika'</i>	Mat Rush	0.3m	0.7m	150mm	L	Indigenous
<i>Poa poiformis 'Courtney'</i>	Poa	0.5m	0.2m	150mm	L	Indigenous
<i>Scaevola aemula 'Mauve Clusters'</i>	Purple Fan Flower	0.3m	0.6m	150mm	M	Exotic
<i>Themeda australis</i>	Kangaroo Grass	0.6m	0.3m	150mm	L	Indigenous
<i>Trachelospermum jasminoides</i>	Star Jasmine	.75m	6m	150mm	M	Exotic
<i>Viola hederacea</i>	Native Violet	0.1m	0.3m	150mm	L	Indigenous

LANDSCAPE SPECIFICATION NOTES

GENERALLY

THE CONTRACTOR SHALL PLACE ORDERS FOR THE DELIVERY OF ALL MATERIALS, SUPPLIES, ETC., IMMEDIATELY AFTER SIGNING THE CONTRACT AND ENSURE THE SUPPLIERS GUARANTEE DELIVERY AT ALL TIMES TO ACCORD WITH THE CONSTRUCTION PROGRAM.

SITE PREPARATION

ENSURE ALL PROVISIONS FOR LANDSCAPE TO BE PROVIDED BY THE BUILDER ARE COMPLETE AND ALL CONTRACTORS RUBBISH AND DEBRIS IS REMOVED;

DRAINAGE CELL AND FILTER FABRIC

FOR ON–SLAB AREAS INSTALL AN APPROVED 'DRAINAGE CELL' PRODUCT TO COMPREHENSIVELY COVER THE BOTTOM OF ALL PLANTERS.

OVER DRAINAGE CELL TO ON–SLAB AREAS, A POLYFELT GEOTEXTILE LINING (AS SUPPLIED BY 'POLYFELT TS' OR APPROVED EQUIVALENT) IS TO BE INSTALLED TO COVER THE BOTTOM OF ALL PLANTERS, TURNED UP 300MM AND TAPED TO THE PLANTER SIDES TO ENSURE SOIL MIX DOES NOT ESCAPE INTO DRAINAGE OUTLETS/HOLES.

INSTALL MIN. 50MM COARSE RIVER SAND OVER ALL GEOTEXTILE LINING PRIOR TO INSTALLATION OF SOIL MIX.

ABORIST MANAGEMENT OF TREE PROTECTION

A QUALIFIED AND APPROVED ABORIST IS TO BE CONTRACTED TO UNDERTAKE OR MANAGE THE INSTALLATION OF PROTECTIVE FENCING, AND TO UNDERTAKE SUCH MEASURES AS HE DEEMS APPROPRIATE TO PRESERVE THE SUBJECT TREES TO BE RETAINED. THE ARBORIST IS TO BE RETAINED FOR THE ENTIRE CONTRACT PERIOD TO UNDERTAKE ONGOING MANAGEMENT AND REVIEW OF THE TREES.

IMPORTED SOIL MIX

IMPORTED LIGHTWEIGHT SOIL MIX FOR ON–SLAB AREAS AND POTS:
LIGHTWEIGHT SOIL MIX SHALL BE COMPOSED OF THE FOLLOWING MATERIALS AND MIXED IN THE GIVEN PROPORTIONS TO PRODUCE A MATERIAL WITH A PH 6.0–6.5

SOIL MIX PER CUBIC METRE SHALL CONSIST OF:

- 30% KENTHURST BLACK LOAM
- 30% DOUBLE WASHED COARSE SAND
- 20% AUSTRALIAN PEAT
- 10% COMPOSTED BARK FINES
- 10% COMPOSTED HARDWOOD DUST

FERTILISER PER CUBIC METRE SHALL CONSIST OF

- 500GMS CALCIUM NITRATE
- 500GMS POTASSIUM SULPHATE
- 750GMS SUPERPHOSHATE MICRO FINE
- 1 KG IBDU (NITROGEN SLOW RELEASE)
- 1 KG SLOW RELEASE NUTRICOTE

PLANT MATERIAL

ALL PLANTS SHALL BE WELL GROWN, DISEASE FREE NURSERY STOCK, AND TRUE TO SPECIES TYPE. NO SPECIES SHALL BE SUBSTITUTED WITHOUT THE APPROVAL OF THE SUPERINTENDENT. NO VARIEGATED STRAIN SHALL BE USED UNLESS NOMINATED.

ALL PLANTS SHALL BE OF THE SIZE AND QUALITY CONSISTENT WITH THE NORMAL INDUSTRY EXPECTATION FOR THE NOMINATED CONTAINER SIZE. PLANTS NOT CONSISTENT WITH THE ABOVE MAY BE REJECTED WITH REPLACEMENT STOCK SUBJECT TO THE APPROVAL OF THE SUPERINTENDENT.

ALLOW TWO AGRIFORM SLOW RELEASE PELLETS PER 5–25 LITRE PLANT AND ONE PER 150MM PLANT. ALL FERTILISER IS TO BE APPLIED IN ACCORDANCE WITH THE MANUFACTURERS INSTRUCTIONS.

MULCH

TO MASS PLANTING AREAS AND STREET TREES INSTALL 75MM THICKNESS OF GRADED PINE BARK AS SUPPLIED BY AUSTRALIAN NATIVE LANDSCAPES P/L OR APPROVED EQUIVALENT. ALL MULCH SHALL BE FREE OF VEGETATIVE REPRODUCTIVE PARTS OF WEEDS

IRRIGATION SYSTEM

SUPPLY AN AUTOMATIC WATERING SYSTEM USING 'TORO IRRIGATION SYSTEM' OR SIMILAR APPROVED, WITH MICRO–JET SPRINKLER HEADS AND LOW DENSITY, RUBBER MODIFIED POLYPROPYLENE RETICULATION, TO INCLUDE FILTERS, BENDS JUNCTIONS, ENDS AND OTHER ANCILLARY EQUIPMENT. THE LANDSCAPER SHALL NOMINATE HIS SOURCE OF SUPPLY FOR THE WATERING SYSTEM AND OBTAIN APPROVAL FROM THE SUPERINTENDENT BEFORE PLACING ORDERS FOR EQUIPMENT OR SUPPLY.

A SCHEMATIC PLAN OF THE PROPOSED IRRIGATION SYSTEM IS TO BE PREPARED BY THE CONTRACTOR, SHOWING SOLENOIDS, PIPE DIAMETERS, AND ALL NOZZLE AND TRICKLE ATTACHMENT TYPES (INCLUDING SPRAY/HEAD ANGLE), FOR REVIEW BY THE SUPERINTENDENT PRIOR TO INSTALLATION

THE CONTRACTOR IS TO LIASE WITH THE HYDRAULIC ENGINEER AND COUNCIL AS NECESSARY, TO ENSURE THE THE IRRIGATION SYSTEM CONFORMS WITH ALL THE COUNCIL AND WATER BOARD CODES AND REQUIREMENTS.

PROVIDE AN AUTOMATIC CONTROLLER THAT PROVIDES FOR TWO WEEK SCHEDULING AND HOURLY MULTI–CYCLE OPERATION. THE CONTROLLER SHALL MANUAL OVERRIDE. PROGRAMMING SHALL BE UNDERTAKEN BY THE CONTRACTOR WHO SHALL ADVISE ON THE OPERATION OF THE SYSTEM.

PROVISION OF SECURE HOUSING FOR THE AUTOMATIC IRRIGATION CONTROLLER TO BE LOCATED IN ASSOCIATION WITH THE LANDSCAPE CONTRACTOR AND LOCATION CONFIRMED BY THE SUPERINTENDENT. WIRING TO CONNECT REMOTE SOLENOID LOCATIONS IS TO BE PROVIDED. THE CONTROLLER SHALL BE LOCATED IN A DRY PLACE, PROTECTED FROM THE WEATHER, AND ALL CABLE CONNECTIONS SHALL BE MADE WITH WATERPROOF CONNECTORS.

WATER SUPPLY POINTS TO BE SUPPLIED BY BUILDER.

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ENSURE AND GUARANTEE SATISFACTORY OPERATION OF THE IRRIGATION SYSTEM.

AFTER THE SYSTEM HAS BEEN INSTALLED TO THE SATISFACTION OF THE SUPERINTENDENT, THE INSTALLATION SHALL BE TESTED UNDER KNOWN WORKING CONDITIONS. ACCEPTANCE OF THE INSTALLED PLANT AND EQUIPMENT SHALL BE SUBJECT TO THESE BEING SATISFACTORY.

TREATED PINE TIMBER EDGING

TIMBER EDGE: 100 X 25mm CCA TREATED RADIATA PINE
TIMBER STAKES: 50 X 50 X 500mm CCA TREATED RADIATA PINE–SHARPENED AT ONE END.

INSTALL IN LOCATIONS SHOWN ON THE DRAWINGS FLUSH TO FINISHED SURFACE LEVELS.

TURF

TURF ALL LANDSCAPE AREAS AS SHOWN ON THE LANDSCAPE DRAWINGS. TURF IS TO HAVE AN EVEN THICKNESS OF NOT LESS THAN 25mm. OBTAIN TURF FROM AN APPROVED GROWER. FURNISH A WARRANTY FROM THE GROWER THAT THE TURF IS FREE FROM WEEDS AND OTHER FOREIGN MATTER. DELIVER TURF TO THE SITE WITHIN 24 HOURS OF BEING CUT, AND LAY IT WITHIN 24 HOURS OF BEING DELIVERED.

TO PREPARE GRADED AREAS TO RECEIVE TURF, EXCAVATE THE AREA AND CULTIVATE SO AS TO ALLOW FOR IMPORTING OF 100mm OF TURF UNDERLAY SOIL. REMOVE ALL STONES OVER 50mm Ø AND REMOVE ALL WEEDS AND FOREIGN MATTER. SPREAD SOIL MIX A.B.S TO A DEPTH OF 100mm AND GRADE TO APPROPRIATE LEVELS TO ACHIEVE GENERAL EVEN GRADES TO DRAINAGE OUTLETS INSTALLED BY OTHERS.

LAY THE TURF ALONG THE LAND CONTOURS WITH STAGGERED, CLOSE BUTTED JOINTS, SO THAT THE FINISHED TURF SURFACE IS FLUSH WITH ADJACENT FINISHED SURFACES OF PAVING AND THE LIKE. AS SOON AS PRACTICABLE AFTER LAYING, ROLL THE TURF WITH A ROLLER WEIGHING NOT MORE THAN 90kg PER METRE OF WIDTH FOR SANDY OR LIGHT SOILS.

WATER AS NECESSARY TO KEEP THE SOIL MOIST TO A DEPTH OF 100MM. PROTECT NEWLY TURFED AREAS AGAINST TRAFFIC UNTIL GRASS IS ESTABLISHED. FERTILISE TWO WEEKS AFTER LAYING FERTILISE A.B.S

'TOP DRESS' THE TURF WHEN IT IS ESTABLISHED TO A DEPTH OF 10MM WITH COARSE WASHED RIVER SAND. RUB THE DRESSING WELL INTO THE JOINTS AND CORRECT ANY UNEVENNESS IN THE TURF SURFACES.

MAINTENANCE

THE CONTRACTOR SHALL MAINTAIN THE CONTRACT AREAS BY THE IMPLEMENTATION OF INDUSTRY ACCEPTED HORTICULTURAL PRACTICES, AS WELL AS RECTIFYING ANY DEFECTS THAT BECOME APPARENT IN THE WORKS UNDER NORMAL USE.

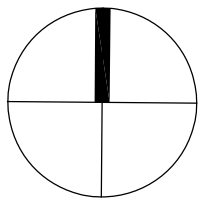
THE CONTRACTOR SHALL MAINTAIN THE WORKS AND MAKE GOOD ALL THE DEFECTS.

LANDSCAPE MAINTENANCE SHALL INCLUDE BUT NOT BE LIMITED TO THE FOLLOWING: WATERING, ADJUSTMENT OF THE IRRIGATION SYSTEM, RUBBISH REMOVAL, REPLACING FAILED PLANTS, MAINTAINING MULCH, PRUNING, INSECT AND DISEASE CONTROL, AND CLEANING OF THE SURROUNDING AREA.

E	For DA	PH	RS	01.06.2017
D	For DA	NP	RS	23.01.2017
C	For Approval	PH	RS	13.12.2016
B	For Review	PH	RS	21.11.2016
A	For Review	NH	RS	28.07.2016
Issue	Revision Description	Drawn	Check	Date

LEGEND

Key Plan:



Client:
Waldron Hill Developments

Architect:
CMT Architects

Prmct:
**21 Canterbury Road
Punchbowl**

Level 1, 3-5 Baptist Street
Redfern NSW 2016
Australia

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ABN 44 801 262 380

S I T E I M A G E

Landscape Architects

DEVELOPMENT APPLICATION

Drawing Name:
**LANDSCAPE SPECIFICATIONS
& INDICATIVE PLANT SCHEDULE**
Sheet _ of _

Scale: AS SHOWN
Job Number: Drawing Number: Issue:

SS16-3349 502 E

TABLE OF EASEMENTS
(A) EASEMENT FOR DRAINAGE IN C76545
(AN) LEASE TO OPTIMORRE IN T07052
(C) RIGHT OF WAY AND EASEMENT FOR ELECTRICITY PURPOSES 2.07 WIDE IN B166752
(S) EASEMENT FOR TRANSMISSION LINE IN G14266
(T) EASEMENT FOR TRANSMISSION LINE IN F08354

NOTE: DIMENSIONS SHOWN HAVE BEEN COMPILED FROM
VARIOUS LAND AND PROPERTY INFORMATION. USR PLANS ARE APPROXIMATE AND
WILL REQUIRE A FULL BOUNDARY SURVEY FOR PROPER DETERMINATION.



APPENDIX G: BOREHOLE LOGS

BOREHOLE & GROUNDWATER WELL LOG

CLIENT		Bill Gertos				BOREHOLE NO.		BH1/GW1			
PROJECT		Detailed Site Investigation				DATE.		1.6.2016			
LOCATION		921 Punchbowl Road, Punchbowl NSW				JOB NO.		E899			
METHOD		Drill Rig				SURFACE ELEV.		N/A			
LOGGED BY		DT				CHECKED BY		BB			
Depth (m)	Sample	Graphic	Ground Water	Classification	Soil Description (Plasticity, particle characteristics, colour, moisture, etc)	Moisture	Consis / Density	Observations	Well Construction	Design	
					Bitumen					Collar	
				F	Fill: Gravelly Silt, brown, traces of sand	D-M	L				
0.5				CL	Silty CLAY, low plasticity, brown, orange and grey	D-M	S-F			Bentonite Cement Slurry	
1										Casing	
1.5											
2				CL-CI	Gravelly CLAY, low to medium plasticity, orange, brown with ironstone fragments	M-W	S	Seepage @ 2.2m BGL		Sand	
2.5											
3											
3.5										Screen	
4				CL-CI	Silty CLAY, low to medium plasticity, brown and grey	M	S				
4.5											
5					SHALE, weathered, brown, dark grey						
5.5											
6					End of borehole @ 5.5m BGL						

Log Symbols

- Standing groundwater level in borehole
- Water seepage in borehole (wet)

Samples

- BH1.0.5 - Soil sample taken at indicated depth
- S - Surface water sample
- Groundwater sample/water sample

Moisture Condition

- D Dry - Runs freely through fingers
- M Moist - Does not run freely but no free water visible on soil surface
- W Wet

Soil Classification

- Clay - Particle size less than 0.002mm
- Silt - Particle size between 0.002 and 0.06mm
- Sand - Particle size between 0.06 and 2.0mm
- Particle size between 2.0 and 60mm

Strength

- VS Very Soft - Unconfined compressive strength less than 25kPa
- S Soft - Unconfined compressive strength 25-50kPa
- F Firm - Unconfined compressive strength 50-100kPa
- St Stiff - Unconfined compressive strength 100-200kPa
- VSt Very Stiff - Unconfined compressive strength 200-400kPa
- H Hard - Unconfined compressive strength greater than 400kPa



Job No:	E881
Hole No:	BH2
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:					Bill Gertos		Test Location: Refer to Figure 2			
Project:					Detailed Site Investigation		Test Method: Auger			
Project Location:					921 Punchbowl Road, Punchbowl NSW		Date: 1.6.2016		Logged by: DT	
							Surface Level: N/A			
Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments		Depth (m)
		0.1		F	Bitumen	D-M	L			0.1
		0.2	Fill- Gravelly Silt, brown, traces of Sand		0.2					
		0.3			0.3					
		0.4			0.4					
		0.5		CL	Silty CLAY, low plasticity, brown/ orange/ grey	D-M	L			0.5
		0.6			0.6					
		0.7			0.7					
		0.8			0.8					
		0.9			0.9					
		1.0			1.0					
		1.1			1.1					
		1.2			*END BH2 @ 1.1m					1.2
		1.3								1.3
		1.4								1.4
		1.5								1.5
		1.6								1.6
		1.7			1.7					
		1.8			1.8					
		1.9			1.9					
		2.0			2.0					
2.1			2.1							
2.2			2.2							
2.3			2.3							
2.4			2.4							
2.5			2.5							
2.6			2.6							
2.7			2.7							
2.8			2.8							
2.9			2.9							
3.0			3.0							
3.1			3.1							
3.2			3.2							
3.3			3.3							
3.4			3.4							
3.5			3.5							

Explanatory Notes:

Consistency

VS Very Soft
S Soft
F Firm
St Stiff
VSt Very Stiff
H Hard

Density Index

VL Very Loose
L Loose
MD Medium Dense
D Dense
VD Very Dense

Samples

B Bulk Sample
D Disturbed Sample
U50 Undisturbed Sample
(50mm diam.)
N S.P.T. Value

Moisture

D Dry
M Moist
W Wet
Wp Plastic Limit
Wl Liquid Limit

Job No:	E881
Hole No:	BH3
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:	Bill Gertos	Test Location: Refer to Figure 2
Project:	Detailed Site Investigation	Test Method: Auger
Project Location:	921 Punchbowl Road, Punchbowl NSW	Date: 1.6.2016 Logged by: DT
		Surface Level: N/A

Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments	Depth (m)
		0.1			Bitumen				0.1
		0.2		F	Fill- Gravelly Sandy Silt, brown	D-M	L		0.2
		0.3		CL	Silty CLAY, low plasticity, brown/ orange/ grey	D-M	L		0.3
		0.4							0.4
		0.5			Clayey SILT, fine grain, grey/ orange/ brown	D-M			0.5
		0.6							0.6
		0.7							0.7
		0.8							0.8
		0.9							0.9
		1.0			*END BH3 @0.9m				1.0
		1.1							1.1
		1.2							1.2
		1.3							1.3
		1.4							1.4
		1.5							1.5
		1.6							1.6
		1.7							1.7
		1.8							1.8
		1.9							1.9
		2.0							2.0
		2.1							2.1
		2.2							2.2
		2.3							2.3
		2.4							2.4
		2.5							2.5
		2.6							2.6
		2.7							2.7
		2.8							2.8
		2.9							2.9
		3.0							3.0
		3.1							3.1
		3.2							3.2
		3.3							3.3
		3.4							3.4
		3.5							3.5

Explanatory Notes:

Consistency	Density Index	Samples	Moisture
VS Very Soft	VL Very Loose	B Bulk Sample	D Dry
S Soft	L Loose	D Disturbed Sample	M Moist
F Firm	MD Medium Dense	U50 Undisturbed Sample (50mm diam.)	W Wet
St Stiff	D Dense	N S.P.T. Value	Wp Plastic Limit
VSt Very Stiff	VD Very Dense		Wl Liquid Limit
H Hard			

Job No:	E881
Hole No:	BH4
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:					Bill Gertos		Test Location: Refer to Figure 2					
Project:					Detailed Site Investigation				Test Method: Auger			
Project Location:					921 Punchbowl Road, Punchbowl NSW				Date: 1.6.2016		Logged by: DT	
									Surface Level: N/A			
Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments		Depth (m)		
		0.1		F	Bitumen	D-M	L			0.1		
		0.2	Fill- Gravelly Sandy Silt, brown		0.2							
		0.3			0.3							
		0.4		Clayey SILT, fine grain, brown/ orange/ grey	D-M	L			0.4			
		0.5		0.5								
		0.6		0.6								
		0.7		0.7								
		0.8		0.8								
		0.9		*END BH4 @0.9m			0.9					
		1.0		1.0								
		1.1		1.1								
		1.2		1.2								
		1.3		1.3								
		1.4		1.4								
		1.5		1.5								
		1.6		1.6								
		1.7		1.7								
		1.8		1.8								
		1.9		1.9								
		2.0		2.0								
		2.1		2.1								
		2.2		2.2								
		2.3		2.3								
		2.4		2.4								
		2.5		2.5								
		2.6		2.6								
		2.7		2.7								
		2.8		2.8								
		2.9		2.9								
		3.0		3.0								
		3.1		3.1								
		3.2		3.2								
		3.3		3.3								
		3.4		3.4								
		3.5		3.5								

Explanatory Notes:

<u>Consistency</u>		<u>Density Index</u>		<u>Samples</u>		<u>Moisture</u>	
VS	Very Soft	VL	Very Loose	B	Bulk Sample	D	Dry
S	Soft	L	Loose	D	Disturbed Sample	M	Moist
F	Firm	MD	Medium Dense	U50	Undisturbed Sample (50mm diam.)	W	Wet
St	Stiff	D	Dense	N	S.P.T. Value	Wp	Plastic Limit
VSt	Very Stiff	VD	Very Dense			Wl	Liquid Limit
H	Hard						

Job No:	E881
Hole No:	BH5
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:	Bill Gertos	Test Location: Refer to Figure 2
Project:	Detailed Site Investigation	Test Method: Auger
Project Location:	921 Punchbowl Road, Punchbowl NSW	Date: 1.6.2016 Logged by: DT
		Surface Level: N/A

Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments	Depth (m)
		0.1			Bitumen				0.1
		0.2		F	Fill- Gravelly Sandy Silt, brown with traces of Clay	D-M	L		0.2
		0.3							0.3
		0.4			Clayey SILT, fine grain, ironstone traces, brown/ orange/ grey with red mottle	M	L		0.4
		0.5			*END BH5 @0.5m				0.5
		0.6							0.6
		0.7							0.7
		0.8							0.8
		0.9							0.9
		1.0							1.0
		1.1							1.1
		1.2							1.2
		1.3							1.3
		1.4							1.4
		1.5							1.5
		1.6							1.6
		1.7							1.7
		1.8							1.8
		1.9							1.9
		2.0							2.0
		2.1							2.1
		2.2							2.2
		2.3							2.3
		2.4							2.4
		2.5							2.5
		2.6							2.6
		2.7							2.7
		2.8							2.8
		2.9							2.9
		3.0							3.0
		3.1							3.1
		3.2							3.2
		3.3							3.3
		3.4							3.4
		3.5							3.5

Explanatory Notes:

Consistency	Density Index	Samples	Moisture
VS Very Soft	VL Very Loose	B Bulk Sample	D Dry
S Soft	L Loose	D Disturbed Sample	M Moist
F Firm	MD Medium Dense	U50 Undisturbed Sample (50mm diam.)	W Wet
St Stiff	D Dense	N S.P.T. Value	Wp Plastic Limit
VSt Very Stiff	VD Very Dense		Wl Liquid Limit
H Hard			

Job No:	E881
Hole No:	BH6
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:	Bill Gertos	Test Location: Refer to Figure 2
Project:	Detailed Site Investigation	Test Method: Auger
Project Location:	921 Punchbowl Road, Punchbowl NSW	Date: 1.6.2016 Logged by: DT
		Surface Level: N/A

Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments	Depth (m)
		0.1			Bitumen				0.1
		0.2		F	Fill- Gravelly Silt, brown	D-M	L		0.2
		0.3							0.3
		0.4			Clayey SILT, fine grain, brown/ orange/ grey	D-M	L		0.4
		0.5							0.5
		0.6							0.6
		0.7							0.7
		0.8							0.8
		0.9							0.9
		1.0			*END BH6 @ 1.0m				1.0
		1.1							1.1
		1.2							1.2
		1.3							1.3
		1.4							1.4
		1.5							1.5
		1.6							1.6
		1.7							1.7
		1.8							1.8
		1.9							1.9
		2.0							2.0
		2.1							2.1
		2.2							2.2
		2.3							2.3
		2.4							2.4
		2.5							2.5
		2.6							2.6
		2.7							2.7
		2.8							2.8
		2.9							2.9
		3.0							3.0
		3.1							3.1
		3.2							3.2
		3.3							3.3
		3.4							3.4
		3.5							3.5

Explanatory Notes:

Consistency	Density Index	Samples	Moisture
VS Very Soft	VL Very Loose	B Bulk Sample	D Dry
S Soft	L Loose	D Disturbed Sample	M Moist
F Firm	MD Medium Dense	U50 Undisturbed Sample (50mm diam.)	W Wet
St Stiff	D Dense	N S.P.T. Value	Wp Plastic Limit
VSt Very Stiff	VD Very Dense		Wl Liquid Limit
H Hard			

BOREHOLE & GROUNDWATER WELL LOG

CLIENT		Bill Gertos					BOREHOLE NO.		BH7/GW2	
PROJECT		Detailed Site Investigation					DATE.		1.6.2016	
LOCATION		921 Punchbowl Road, Punchbowl NSW					JOB NO.		E899	
METHOD		Drill Rig					SURFACE ELEV.		N/A	
LOGGED BY\		DT					CHECKED BY		BB	
Depth (m)	Sample	Graphic	Ground Water	Classification	Soil Description (Plasticity, particle characteristics, colour, moisture, etc)	Moisture	Consis / Density	Observations	Well Construction	Design
					Bitumen					Collar
				F	Fill: Gravelly Sandy Silt, brown	D-M	L			
0.5					Clayey SILT, fine grained, brown, orange, grey	D-M	L			Bentonite Cement Slurry
1										Casing
1.5										
2										
2.5				CL-CI	Silty CLAY, low to medium plasticity, brown and grey with ironstone fragments	M	S-F	Seepage @ 2.4m BGL		Sand
3										
3.5										Screen
4					SHALE, weathered, dark brown					
					End of borehole @ 4.0m BGL			TC Bit Refusal		
4.5										
5										
5.5					End of borehole @ 5.5m BGL					
6										



Log Symbols

 Standing groundwater level in borehole
 Water seepage in borehole (wet)

Samples

BH1.0.5 - Soil sample taken at indicated depth
 S - Surface water sample
 - Groundwater sample/water sample

Moisture Condition

D Dry - Runs freely through fingers
 M Moist - Does not run freely but no free water visible on soil surface
 W Wet

Soil Classification

Clay - Particle size less than 0.002mm
 Silt - Particle size between 0.002 and 0.06mm
 Sand - Particle size between 0.06 and 2.0mm
 - Particle size between 2.0 and 60mm

Strength

VS Very Soft - Unconfined compressive strength less than 25kPa
 S Soft - Unconfined compressive strength 25-50kPa
 F Firm - Unconfined compressive strength 50-100kPa
 St Stiff - Unconfined compressive strength 100-200kPa
 VSt Very Stiff - Unconfined compressive strength 200-400kPa
 H Hard - Unconfined compressive strength greater than 400kPa



Job No:	E881
Hole No:	BH8
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:					Bill Gertos		Test Location: Refer to Figure 2					
Project:					Detailed Site Investigation				Test Method: Auger			
Project Location:					921 Punchbowl Road, Punchbowl NSW				Date: 1.6.2016		Logged by: DT	
									Surface Level: N/A			
Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments		Depth (m)		
		0.1		F	Bitumen	D-M	L			0.1		
		0.2	Fill- Gravelly Sandy Silt, brown		0.2							
		0.3			Clayey SILT, fine grain, brown/ orange/ grey	D-M	L			0.3		
		0.4			0.4							
		0.5					0.5					
		0.6					0.6					
		0.7					0.7					
		0.8					0.8					
		0.9					0.9					
		1.0					1.0					
		1.1			*END BH8 @1.0m			1.1				
		1.2						1.2				
		1.3						1.3				
		1.4						1.4				
		1.5						1.5				
		1.6						1.6				
		1.7						1.7				
		1.8						1.8				
		1.9						1.9				
		2.0						2.0				
		2.1						2.1				
		2.2						2.2				
		2.3						2.3				
		2.4						2.4				
		2.5						2.5				
		2.6						2.6				
		2.7						2.7				
		2.8						2.8				
		2.9						2.9				
		3.0						3.0				
		3.1						3.1				
		3.2						3.2				
		3.3						3.3				
		3.4						3.4				
		3.5						3.5				

Explanatory Notes:

<u>Consistency</u>		<u>Density Index</u>		<u>Samples</u>		<u>Moisture</u>	
VS	Very Soft	VL	Very Loose	B	Bulk Sample	D	Dry
S	Soft	L	Loose	D	Disturbed Sample	M	Moist
F	Firm	MD	Medium Dense	U50	Undisturbed Sample (50mm diam.)	W	Wet
St	Stiff	D	Dense	N	S.P.T. Value	Wp	Plastic Limit
VSt	Very Stiff	VD	Very Dense			Wl	Liquid Limit
H	Hard						

Job No:	E881
Hole No:	BH9
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:					Bill Gertos		Test Location: Refer to Figure 2					
Project:					Detailed Site Investigation				Test Method: Auger			
Project Location:					921 Punchbowl Road, Punchbowl NSW				Date: 1.6.2016		Logged by: DT	
									Surface Level: N/A			
Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments		Depth (m)		
		0.1		F	Bitumen	D-M	L			0.1		
		0.2	Fill- Gravelly Sandy Silt, brown, traces of clay		0.2							
		0.3			0.3							
		0.4	Clayey SILT, fine grain, brown/ orange	D-M	L	0.4						
		0.5				0.5						
		0.6		0.6								
		0.7	*END BH9 @0.6m	0.7								
		0.8		0.8								
		0.9		0.9								
		1.0		1.0								
		1.1		1.1								
		1.2		1.2								
		1.3		1.3								
		1.4		1.4								
		1.5		1.5								
		1.6		1.6								
		1.7		1.7								
		1.8		1.8								
		1.9		1.9								
		2.0		2.0								
		2.1		2.1								
		2.2		2.2								
		2.3		2.3								
		2.4		2.4								
		2.5		2.5								
		2.6		2.6								
		2.7		2.7								
		2.8		2.8								
		2.9		2.9								
		3.0		3.0								
		3.1		3.1								
		3.2		3.2								
		3.3		3.3								
		3.4		3.4								
		3.5	3.5									

Explanatory Notes:

<u>Consistency</u>		<u>Density Index</u>		<u>Samples</u>		<u>Moisture</u>	
VS	Very Soft	VL	Very Loose	B	Bulk Sample	D	Dry
S	Soft	L	Loose	D	Disturbed Sample	M	Moist
F	Firm	MD	Medium Dense	U50	Undisturbed Sample (50mm diam.)	W	Wet
St	Stiff	D	Dense	N	S.P.T. Value	Wp	Plastic Limit
VSt	Very Stiff	VD	Very Dense			Wl	Liquid Limit
H	Hard						

Job No:	E881
Hole No:	BH10
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:					Bill Gertos		Test Location: Refer to Figure 2			
Project:					Detailed Site Investigation		Test Method: Auger			
Project Location:					921 Punchbowl Road, Punchbowl NSW		Date: 1.6.2016		Logged by: DT	
							Surface Level: N/A			
Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments		Depth (m)
		0.1		F	Bitumen	D-M	L			0.1
		0.2			Fill- Gravelly Silt, brown, traces of clay					0.2
		0.3								0.3
		0.4			Clayey SILT, fine grain, brown/ orange	D-M	L		0.4	
		0.5							0.5	
		0.6			*END BH10 @0.5m				0.6	
		0.7							0.7	
		0.8							0.8	
		0.9							0.9	
		1.0							1.0	
		1.1							1.1	
		1.2							1.2	
		1.3							1.3	
		1.4							1.4	
		1.5							1.5	
		1.6							1.6	
		1.7							1.7	
		1.8							1.8	
		1.9							1.9	
		2.0							2.0	
		2.1							2.1	
		2.2							2.2	
		2.3							2.3	
		2.4							2.4	
		2.5							2.5	
		2.6							2.6	
		2.7							2.7	
		2.8							2.8	
		2.9							2.9	
		3.0							3.0	
		3.1							3.1	
		3.2							3.2	
		3.3							3.3	
		3.4							3.4	
		3.5							3.5	

Explanatory Notes:

<u>Consistency</u>		<u>Density Index</u>		<u>Samples</u>		<u>Moisture</u>	
VS	Very Soft	VL	Very Loose	B	Bulk Sample	D	Dry
S	Soft	L	Loose	D	Disturbed Sample	M	Moist
F	Firm	MD	Medium Dense	U50	Undisturbed Sample (50mm diam.)	W	Wet
St	Stiff	D	Dense	N	S.P.T. Value	Wp	Plastic Limit
VSt	Very Stiff	VD	Very Dense			Wl	Liquid Limit
H	Hard						

Job No:	E881
Hole No:	BH11
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:					Bill Gertos		Test Location: Refer to Figure 2					
Project:					Detailed Site Investigation				Test Method: Auger			
Project Location:					921 Punchbowl Road, Punchbowl NSW				Date: 1.6.2016		Logged by: DT	
									Surface Level: N/A			
Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments		Depth (m)		
		0.1		F	Bitumen	D-M	L	D2/SS2		0.1		
		0.2	Fill- Gravelly Sandy Silt, brown		0.2							
		0.3			Clayey SILT, fine grain, brown/ orange	D-M	L			0.3		
		0.4								0.4		
		0.5		0.5								
		0.6		0.6								
		0.7		0.7								
		0.8		0.8								
		0.9		0.9								
		1.0		1.0								
		1.1		1.1								
		1.2		*END BH11 @1.1m		1.2						
		1.3				1.3						
		1.4				1.4						
		1.5				1.5						
		1.6				1.6						
		1.7				1.7						
		1.8				1.8						
		1.9				1.9						
		2.0				2.0						
2.1				2.1								
2.2				2.2								
2.3				2.3								
2.4				2.4								
2.5				2.5								
2.6				2.6								
2.7				2.7								
2.8				2.8								
2.9				2.9								
3.0				3.0								
3.1				3.1								
3.2				3.2								
3.3				3.3								
3.4				3.4								
3.5				3.5								

Explanatory Notes:

<u>Consistency</u>		<u>Density Index</u>		<u>Samples</u>		<u>Moisture</u>	
VS	Very Soft	VL	Very Loose	B	Bulk Sample	D	Dry
S	Soft	L	Loose	D	Disturbed Sample	M	Moist
F	Firm	MD	Medium Dense	U50	Undisturbed Sample (50mm diam.)	W	Wet
St	Stiff	D	Dense	N	S.P.T. Value	Wp	Plastic Limit
VSt	Very Stiff	VD	Very Dense			Wl	Liquid Limit
H	Hard						

Job No:	E881
Hole No:	BH12
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:					Bill Gertos		Test Location: Refer to Figure 2					
Project:					Detailed Site Investigation				Test Method: Auger			
Project Location:					921 Punchbowl Road, Punchbowl NSW				Date: 1.6.2016		Logged by: DT	
									Surface Level: N/A			
Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments		Depth (m)		
		0.1			Bitumen					0.1		
		0.2		F	Fill- Gravelly Silt, brown/ orange	D-M	L			0.2		
		0.3								0.3		
		0.4			Clayey SILT, fine grain, brown/ orange	D-M	L			0.4		
		0.5								0.5		
		0.6								0.6		
		0.7								0.7		
		0.8								0.8		
		0.9								0.9		
		1.0								1.0		
		1.1								1.1		
		1.2								1.2		
		1.3								1.3		
		1.4			*END BH12 @1.3m					1.4		
		1.5								1.5		
		1.6								1.6		
		1.7								1.7		
		1.8								1.8		
		1.9								1.9		
		2.0								2.0		
		2.1								2.1		
		2.2								2.2		
		2.3								2.3		
		2.4								2.4		
		2.5								2.5		
		2.6								2.6		
		2.7								2.7		
		2.8								2.8		
		2.9								2.9		
		3.0								3.0		
		3.1								3.1		
		3.2								3.2		
		3.3								3.3		
		3.4								3.4		
		3.5								3.5		

Explanatory Notes:

<u>Consistency</u>		<u>Density Index</u>		<u>Samples</u>		<u>Moisture</u>	
VS	Very Soft	VL	Very Loose	B	Bulk Sample	D	Dry
S	Soft	L	Loose	D	Disturbed Sample	M	Moist
F	Firm	MD	Medium Dense	U50	Undisturbed Sample	W	Wet
St	Stiff	D	Dense		(50mm diam.)	Wp	Plastic Limit
VSt	Very Stiff	VD	Very Dense	N	S.P.T. Value	Wl	Liquid Limit
H	Hard						

Job No:	E881
Hole No:	BH13
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:		Bill Gertos			Test Location: Refer to Figure 2				
Project:		Detailed Site Investigation			Test Method: Auger				
Project Location:		921 Punchbowl Road, Punchbowl NSW			Date: 1.6.2016		Logged by: DT		
					Surface Level: N/A				
Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments	Depth (m)
		0.1			Bitumen				0.1
		0.2		F	Fill- Gravelly Silt, brown	D-M	L		0.2
		0.3							0.3
		0.4			Clayey SILT, fine grained, brown/ orange/ red	D-M	L		0.4
		0.5							0.5
		0.6							0.6
		0.7							0.7
		0.8							0.8
		0.9							0.9
		1.0							1.0
		1.1							1.1
		1.2			*END BH13 @1.1m				1.2
		1.3							1.3
		1.4							1.4
		1.5							1.5
		1.6							1.6
		1.7							1.7
		1.8							1.8
		1.9							1.9
		2.0							2.0
		2.1							2.1
		2.2							2.2
		2.3							2.3
		2.4							2.4
		2.5							2.5
		2.6							2.6
		2.7							2.7
		2.8							2.8
		2.9							2.9
		3.0							3.0
		3.1							3.1
		3.2							3.2
		3.3							3.3
		3.4							3.4
		3.5							3.5

Explanatory Notes:

Consistency

VS Very Soft
S Soft
F Firm
St Stiff
VSt Very Stiff
H Hard

Density Index

VL Very Loose
L Loose
MD Medium Dense
D Dense
VD Very Dense

Samples

B Bulk Sample
D Disturbed Sample
U50 Undisturbed Sample
(50mm diam.)
N S.P.T. Value

Moisture

D Dry
M Moist
W Wet
Wp Plastic Limit
Wl Liquid Limit

BOREHOLE & GROUNDWATER WELL LOG

CLIENT		Bill Gertos					BOREHOLE NO.		BH14/GW3	
PROJECT		Detailed Site Investigation					DATE.		1.6.2016	
LOCATION		921 Punchbowl Road, Punchbowl NSW					JOB NO.		E899	
METHOD		Drill Rig					SURFACE ELEV.		N/A	
LOGGED BY		DT					CHECKED BY		BB	
Depth (m)	Sample	Graphic	Ground Water	Classification	Soil Description (Plasticity, particle characteristics, colour, moisture, etc)	Moisture	Consis / Density	Observations	Well Construction	Design
					Bitumen					Collar
				F	Fill: Gravelly Sandy Silt, brown	D-M	L	D3/SS3		
0.5					Clayey SILT, fine grained, brown, orange, grey	D-M	L			Bentonite/Cement Slurry
1										Casing
1.5				CI	Silty CLAY, medium plasticity, brown with pale brown mottling	M	S-F			
2										Sand
2.5										
3								Seepage @ 3.0m BGL		Screen
3.5										
4										
4.5										
5										
					SHALE, weathered, grey , brown					
5.5					End of borehole @ 5.5m BGL					
6										

Log Symbols

 Standing groundwater level in borehole
 Water seepage in borehole (wet)

Samples

BH1.0.5 - Soil sample taken at indicated depth
 S - Surface water sample
 - Groundwater sample/water sample

Moisture Condition

D Dry - Runs freely through fingers
 M Moist - Does not run freely but no free water visible on soil surface
 W Wet

Soil Classification

Clay - Particle size less than 0.002mm
 Silt - Particle size between 0.002 and 0.06mm
 Sand - Particle size between 0.06 and 2.0mm
 - Particle size between 2.0 and 60mm

Strength

VS Very Soft - Unconfined compressive strength less than 25kPa
 S Soft - Unconfined compressive strength 25-50kPa
 F Firm - Unconfined compressive strength 50-100kPa
 St Stiff - Unconfined compressive strength 100-200kPa
 VSt Very Stiff - Unconfined compressive strength 200-400kPa
 H Hard - Unconfined compressive strength greater than 400kPa



Job No:	E881
Hole No:	BH15
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:					Bill Gertos		Test Location: Refer to Figure 2						
Project:					Detailed Site Investigation				Test Method: Auger				
Project Location:					921 Punchbowl Road, Punchbowl NSW				Date: 1.6.2016		Logged by: DT		
									Surface Level: N/A				
Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description				Moisture Condition	Consistency/ Rel. Density	Additional Comments		Depth (m)

Explanatory Notes:

Consistency

VS Very Soft
S Soft
F Firm
St Stiff
VSt Very Stiff
H Hard

Density Index

VL Very Loose
L Loose
MD Medium Dense
D Dense
VD Very Dense

Samples

B Bulk Sample
D Disturbed Sample
U50 Undisturbed Sample
(50mm diam.)
N S.P.T. Value

Moisture

D Dry
M Moist
W Wet
Wp Plastic Limit
Wl Liquid Limit

Job No:	E881
Hole No:	BH16
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:					Bill Gertos		Test Location: Refer to Figure 2					
Project:					Detailed Site Investigation				Test Method: Auger			
Project Location:					921 Punchbowl Road, Punchbowl NSW				Date: 1.6.2016		Logged by: DT	
									Surface Level: N/A			
Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments		Depth (m)		
		0.1		F	Bitumen	D-M	L			0.1		
		0.2	Fill- Gravel, Silt, brown		0.2							
		0.3					0.3					
		0.4			Clayey SILT, fine grain, brown/ orange	D-M	L		0.4			
		0.5						0.5				
		0.6						0.6				
		0.7						0.7				
		0.8			*END BH16 @0.7m				0.8			
		0.9						0.9				
		1.0						1.0				
		1.1						1.1				
		1.2						1.2				
		1.3						1.3				
		1.4						1.4				
		1.5						1.5				
		1.6						1.6				
		1.7						1.7				
		1.8						1.8				
		1.9						1.9				
		2.0						2.0				
		2.1						2.1				
		2.2						2.2				
		2.3						2.3				
		2.4						2.4				
		2.5						2.5				
		2.6						2.6				
		2.7						2.7				
		2.8						2.8				
		2.9						2.9				
		3.0						3.0				
		3.1						3.1				
		3.2						3.2				
		3.3						3.3				
		3.4						3.4				
		3.5						3.5				

Explanatory Notes:

<u>Consistency</u>		<u>Density Index</u>		<u>Samples</u>		<u>Moisture</u>	
VS	Very Soft	VL	Very Loose	B	Bulk Sample	D	Dry
S	Soft	L	Loose	D	Disturbed Sample	M	Moist
F	Firm	MD	Medium Dense	U50	Undisturbed Sample (50mm diam.)	W	Wet
St	Stiff	D	Dense	N	S.P.T. Value	Wp	Plastic Limit
VSt	Very Stiff	VD	Very Dense			Wl	Liquid Limit
H	Hard						

Job No:	E881
Hole No:	BH17
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:	Bill Gertos	Test Location: Refer to Figure 2
Project:	Detailed Site Investigation	Test Method: Auger
Project Location:	921 Punchbowl Road, Punchbowl NSW	Date: 1.6.2016 Logged by: DT
		Surface Level: N/A

Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments	Depth (m)
		0.1			Bitumen				0.1
		0.2		F	Fill- Gravelly Sandy Silt, brown	D-M	L		0.2
		0.3							0.3
		0.4			Clayey SILT, fine grain, brown/ grey	D-M	L		0.4
		0.5							0.5
		0.6			*END BH17 @0.5m				0.6
		0.7							0.7
		0.8							0.8
		0.9							0.9
		1.0							1.0
		1.1							1.1
		1.2							1.2
		1.3							1.3
		1.4							1.4
		1.5							1.5
		1.6							1.6
		1.7							1.7
		1.8							1.8
		1.9							1.9
		2.0							2.0
		2.1							2.1
		2.2							2.2
		2.3							2.3
		2.4							2.4
		2.5							2.5
		2.6							2.6
		2.7							2.7
		2.8							2.8
		2.9							2.9
		3.0							3.0
		3.1							3.1
		3.2							3.2
		3.3							3.3
		3.4							3.4
		3.5							3.5

Explanatory Notes:

Consistency	Density Index	Samples	Moisture
VS Very Soft	VL Very Loose	B Bulk Sample	D Dry
S Soft	L Loose	D Disturbed Sample	M Moist
F Firm	MD Medium Dense	U50 Undisturbed Sample (50mm diam.)	W Wet
St Stiff	D Dense	N S.P.T. Value	Wp Plastic Limit
VSt Very Stiff	VD Very Dense		Wl Liquid Limit
H Hard			

Job No:	E881
Hole No:	BH18
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:					Bill Gertos		Test Location: Refer to Figure 2			
Project:					Detailed Site Investigation		Test Method: Auger			
Project Location:					921 Punchbowl Road, Punchbowl NSW		Date: 1.6.2016		Logged by: DT	
							Surface Level: N/A			
Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments		Depth (m)
		0.1		F	Bitumen	D-M	L			0.1
		0.2	Fill- Gravelly Sandy Silt, brown		0.2					
		0.3	Clayey SILT, fine grain, brown, with ironstone fragments		0.3					
		0.4		0.4						
		0.5		0.5						
		0.6		0.6						
		0.7		0.7						
		0.8		0.8						
		0.9		0.9						
		1.0	1.0							
		1.1	*END BH18 @1.0m	1.1						
		1.2		1.2						
		1.3		1.3						
		1.4		1.4						
		1.5		1.5						
		1.6		1.6						
		1.7		1.7						
		1.8		1.8						
		1.9		1.9						
		2.0		2.0						
		2.1		2.1						
		2.2		2.2						
		2.3		2.3						
		2.4		2.4						
		2.5		2.5						
		2.6		2.6						
		2.7		2.7						
		2.8		2.8						
		2.9		2.9						
		3.0		3.0						
		3.1		3.1						
		3.2		3.2						
		3.3		3.3						
		3.4		3.4						
		3.5		3.5						

Explanatory Notes:

Consistency

VS Very Soft
S Soft
F Firm
St Stiff
VSt Very Stiff
H Hard

Density Index

VL Very Loose
L Loose
MD Medium Dense
D Dense
VD Very Dense

Samples

B Bulk Sample
D Disturbed Sample
U50 Undisturbed Sample
 (50mm diam.)
N S.P.T. Value

Moisture

D Dry
M Moist
W Wet
Wp Plastic Limit
Wl Liquid Limit

Job No:	E881
Hole No:	BH19
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:	Bill Gertos	Test Location: Refer to Figure 2
Project:	Detailed Site Investigation	Test Method: Auger
Project Location:	921 Punchbowl Road, Punchbowl NSW	Date: 1.6.2016 Logged by: DT
		Surface Level: N/A

Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments	Depth (m)
		0.1			Bitumen				0.1
		0.2		F	Fill- Gravel	D-M	L		0.2
		0.3							0.3
		0.4		CI	CLAY, medium plasticity, greenish grey	M	S		0.4
		0.5							0.5
		0.6							0.6
		0.7							0.7
		0.8							0.8
		0.9							0.9
		1.0							1.0
		1.1			*END BH19 @1.0m				1.1
		1.2							1.2
		1.3							1.3
		1.4							1.4
		1.5							1.5
		1.6							1.6
		1.7							1.7
		1.8							1.8
		1.9							1.9
		2.0							2.0
		2.1							2.1
		2.2							2.2
		2.3							2.3
		2.4							2.4
		2.5							2.5
		2.6							2.6
		2.7							2.7
		2.8							2.8
		2.9							2.9
		3.0							3.0
		3.1							3.1
		3.2							3.2
		3.3							3.3
		3.4							3.4
		3.5							3.5

Explanatory Notes:

Consistency

VS Very Soft
S Soft
F Firm
St Stiff
VSt Very Stiff
H Hard

Density Index

VL Very Loose
L Loose
MD Medium Dense
D Dense
VD Very Dense

Samples

B Bulk Sample
D Disturbed Sample
U50 Undisturbed Sample
(50mm diam.)
N S.P.T. Value

Moisture

D Dry
M Moist
W Wet
Wp Plastic Limit
Wl Liquid Limit

Job No:	E881
Hole No:	BH20
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:	Bill Gertos	Test Location: Refer to Figure 2
Project:	Detailed Site Investigation	Test Method: Auger
Project Location:	921 Punchbowl Road, Punchbowl NSW	Date: 1.6.2016 Logged by: DT
		Surface Level: N/A

Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments	Depth (m)
		0.1			Bitumen				0.1
		0.2		F	Fill- Gravelly Sandy Silt, brown	D-M	L		0.2
		0.3						D1/SS1	0.3
		0.4							0.4
		0.5			Clayey SILT, fine grain, brown	D-M	L		0.5
		0.6							0.6
		0.7							0.7
		0.8							0.8
		0.9							0.9
		1.0			*END BH20 @1.0m				1.0
		1.1							1.1
		1.2							1.2
		1.3							1.3
		1.4							1.4
		1.5							1.5
		1.6							1.6
		1.7							1.7
		1.8							1.8
		1.9							1.9
		2.0							2.0
		2.1							2.1
		2.2							2.2
		2.3							2.3
		2.4							2.4
		2.5							2.5
		2.6							2.6
		2.7							2.7
		2.8							2.8
		2.9							2.9
		3.0							3.0
		3.1							3.1
		3.2							3.2
		3.3							3.3
		3.4							3.4
		3.5							3.5

Explanatory Notes:

Consistency	Density Index	Samples	Moisture
VS Very Soft	VL Very Loose	B Bulk Sample	D Dry
S Soft	L Loose	D Disturbed Sample	M Moist
F Firm	MD Medium Dense	U50 Undisturbed Sample (50mm diam.)	W Wet
St Stiff	D Dense	N S.P.T. Value	Wp Plastic Limit
VSt Very Stiff	VD Very Dense		WL Liquid Limit
H Hard			

Job No:	E881
Hole No:	BH21
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:		Bill Gertos			Test Location: Refer to Figure 2				
Project:		Detailed Site Investigation			Test Method: Auger				
Project Location:		921 Punchbowl Road, Punchbowl NSW			Date: 1.6.2016		Logged by: DT		
					Surface Level: N/A				
Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments	Depth (m)
		0.1			Bitumen				0.1
		0.2		F	Fill- Gravel	D-M	L		0.2
		0.3							0.3
		0.4			Clayey SILT, fine grain, brown	D-M	L		0.4
		0.5							0.5
		0.6							0.6
		0.7							0.7
		0.8			*END BH21 @0.7m				0.8
		0.9							0.9
		1.0							1.0
		1.1							1.1
		1.2							1.2
		1.3							1.3
		1.4							1.4
		1.5							1.5
		1.6							1.6
		1.7							1.7
		1.8							1.8
		1.9							1.9
		2.0							2.0
		2.1							2.1
		2.2							2.2
		2.3							2.3
		2.4							2.4
		2.5							2.5
		2.6							2.6
		2.7							2.7
		2.8							2.8
		2.9							2.9
		3.0							3.0
		3.1							3.1
		3.2							3.2
		3.3							3.3
		3.4							3.4
		3.5							3.5

Explanatory Notes:

<u>Consistency</u>		<u>Density Index</u>		<u>Samples</u>		<u>Moisture</u>	
VS	Very Soft	VL	Very Loose	B	Bulk Sample	D	Dry
S	Soft	L	Loose	D	Disturbed Sample	M	Moist
F	Firm	MD	Medium Dense	U50	Undisturbed Sample (50mm diam.)	W	Wet
St	Stiff	D	Dense	N	S.P.T. Value	Wp	Plastic Limit
VSt	Very Stiff	VD	Very Dense			Wl	Liquid Limit
H	Hard						

Job No:	E881
Hole No:	BH22
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:					Bill Gertos		Test Location: Refer to Figure 2			
Project:					Detailed Site Investigation		Test Method: Auger			
Project Location:					921 Punchbowl Road, Punchbowl NSW		Date: 1.6.2016		Logged by: DT	
							Surface Level: N/A			
Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments		Depth (m)
		0.1			Bitumen					0.1
		0.2		F	Fill- Sand, medium grain, pale brown	D-M	L			0.2
		0.3								0.3
		0.4								0.4
		0.5								0.5
		0.6								0.6
		0.7			brown	D-M	L			0.7
		0.8								0.8
		0.9								0.9
		1.0								1.0
		1.1								1.1
		1.2								1.2
		1.3								1.3
		1.4								1.4
		1.5								1.5
		1.6								1.6
		1.7								1.7
		1.8								1.8
		1.9			Clayey SILT, fine grain, brown/ orange/ grey	M	L			1.9
		2.0								2.0
		2.1								2.1
		2.2								2.2
		2.3								2.3
		2.4								2.4
		2.5								2.5
		2.6			*END BH22 @2.5m					2.6
		2.7								2.7
		2.8								2.8
		2.9								2.9
		3.0								3.0
		3.1								3.1
		3.2								3.2
		3.3								3.3
		3.4								3.4
		3.5								3.5

Explanatory Notes:

<u>Consistency</u>		<u>Density Index</u>		<u>Samples</u>		<u>Moisture</u>	
VS	Very Soft	VL	Very Loose	B	Bulk Sample	D	Dry
S	Soft	L	Loose	D	Disturbed Sample	M	Moist
F	Firm	MD	Medium Dense	U50	Undisturbed Sample (50mm diam.)	W	Wet
St	Stiff	D	Dense	N	S.P.T. Value	Wp	Plastic Limit
VSt	Very Stiff	VD	Very Dense			Wl	Liquid Limit
H	Hard						

Job No:	E881
Hole No:	BH23
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:	Bill Gertos	Test Location: Refer to Figure 2
Project:	Detailed Site Investigation	Test Method: Auger
Project Location:	921 Punchbowl Road, Punchbowl NSW	Date: 1.6.2016 Logged by: DT
		Surface Level: N/A

Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments	Depth (m)
		0.1			Bitumen				0.1
		0.2		F	Fill- Gravelly Silt, brown	D-M	L		0.2
		0.3							0.3
		0.4							0.4
		0.5							0.5
		0.6			Clayey SILT, fine grain, grey with orange mottle	M	L		0.6
		0.7							0.7
		0.8							0.8
		0.9							0.9
		1.0			*END BH23 @1.0m				1.0
		1.1							1.1
		1.2							1.2
		1.3							1.3
		1.4							1.4
		1.5							1.5
		1.6							1.6
		1.7							1.7
		1.8							1.8
		1.9							1.9
		2.0							2.0
		2.1							2.1
		2.2							2.2
		2.3							2.3
		2.4							2.4
		2.5							2.5
		2.6							2.6
		2.7							2.7
		2.8							2.8
		2.9							2.9
		3.0							3.0
		3.1							3.1
		3.2							3.2
		3.3							3.3
		3.4							3.4
		3.5							3.5

Explanatory Notes:

Consistency

VS Very Soft
S Soft
F Firm
St Stiff
VSt Very Stiff
H Hard

Density Index

VL Very Loose
L Loose
MD Medium Dense
D Dense
VD Very Dense

Samples

B Bulk Sample
D Disturbed Sample
U50 Undisturbed Sample
(50mm diam.)
N S.P.T. Value

Moisture

D Dry
M Moist
W Wet
Wp Plastic Limit
Wl Liquid Limit

Job No:	E881
Hole No:	BH24
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:	Bill Gertos	Test Location: Refer to Figure 2
Project:	Detailed Site Investigation	Test Method: Auger
Project Location:	921 Punchbowl Road, Punchbowl NSW	Date: 1.6.2016 Logged by: DT
		Surface Level: N/A

Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments	Depth (m)
		0.1			Bitumen				0.1
		0.2		F	Fill- Gravelly Silt, brown	D-M	L		0.2
		0.3							0.3
		0.4							0.4
		0.5							0.5
		0.6			Clayey SILT, fine grain, grey with orange mottle	M	L		0.6
		0.7							0.7
		0.8							0.8
		0.9							0.9
		1.0			*END BH24 @1.0m				1.0
		1.1							1.1
		1.2							1.2
		1.3							1.3
		1.4							1.4
		1.5							1.5
		1.6							1.6
		1.7							1.7
		1.8							1.8
		1.9							1.9
		2.0							2.0
		2.1							2.1
		2.2							2.2
		2.3							2.3
		2.4							2.4
		2.5							2.5
		2.6							2.6
		2.7							2.7
		2.8							2.8
		2.9							2.9
		3.0							3.0
		3.1							3.1
		3.2							3.2
		3.3							3.3
		3.4							3.4
		3.5							3.5

Explanatory Notes:

Consistency

VS Very Soft
S Soft
F Firm
St Stiff
VSt Very Stiff
H Hard

Density Index

VL Very Loose
L Loose
MD Medium Dense
D Dense
VD Very Dense

Samples

B Bulk Sample
D Disturbed Sample
U50 Undisturbed Sample
(50mm diam.)
N S.P.T. Value

Moisture

D Dry
M Moist
W Wet
Wp Plastic Limit
Wl Liquid Limit

Job No:	E881
Hole No:	BH25
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:					Bill Gertos		Test Location: Refer to Figure 2					
Project:					Detailed Site Investigation				Test Method: Auger			
Project Location:					921 Punchbowl Road, Punchbowl NSW				Date: 1.6.2016		Logged by: DT	
									Surface Level: N/A			
Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments		Depth (m)		

Explanatory Notes:

<u>Consistency</u>		<u>Density Index</u>		<u>Samples</u>		<u>Moisture</u>	
VS	Very Soft	VL	Very Loose	B	Bulk Sample	D	Dry
S	Soft	L	Loose	D	Disturbed Sample	M	Moist
F	Firm	MD	Medium Dense	U50	Undisturbed Sample (50mm diam.)	W	Wet
St	Stiff	D	Dense	N	S.P.T. Value	Wp	Plastic Limit
VSt	Very Stiff	VD	Very Dense			Wl	Liquid Limit
H	Hard						

Job No:	E881
Hole No:	BH26
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:	Bill Gertos	Test Location: Refer to Figure 2
Project:	Detailed Site Investigation	Test Method: Auger
Project Location:	921 Punchbowl Road, Punchbowl NSW	Date: 1.6.2016 Logged by: DT
		Surface Level: N/A

Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments	Depth (m)
		0.1			Bitumen				0.1
		0.2		F	Fill- Gravelly Silt, brown	D-M	L		0.2
		0.3							0.3
		0.4			Clayey SILT, fine grain, grey with orange mottle	D-M	L		0.4
		0.5							0.5
		0.6							0.6
		0.7							0.7
		0.8							0.8
		0.9							0.9
		1.0							1.0
		1.1			*END BH26 @1.0m				1.1
		1.2							1.2
		1.3							1.3
		1.4							1.4
		1.5							1.5
		1.6							1.6
		1.7							1.7
		1.8							1.8
		1.9							1.9
		2.0							2.0
		2.1							2.1
		2.2							2.2
		2.3							2.3
		2.4							2.4
		2.5							2.5
		2.6							2.6
		2.7							2.7
		2.8							2.8
		2.9							2.9
		3.0							3.0
		3.1							3.1
		3.2							3.2
		3.3							3.3
		3.4							3.4
		3.5							3.5

Explanatory Notes:

Consistency

VS Very Soft
S Soft
F Firm
St Stiff
VSt Very Stiff
H Hard

Density Index

VL Very Loose
L Loose
MD Medium Dense
D Dense
VD Very Dense

Samples

B Bulk Sample
D Disturbed Sample
U50 Undisturbed Sample
(50mm diam.)
N S.P.T. Value

Moisture

D Dry
M Moist
W Wet
Wp Plastic Limit
Wl Liquid Limit

Job No:	E881
Hole No:	BH27
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:					Bill Gertos		Test Location: Refer to Figure 2					
Project:					Detailed Site Investigation				Test Method: Auger			
Project Location:					921 Punchbowl Road, Punchbowl NSW				Date: 1.6.2016		Logged by: DT	
									Surface Level: N/A			
Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments			Depth (m)	
		0.1			Bitumen						0.1	
		0.2			Fill- Gravelly Clayey Silt, brown	D-M	L				0.2	
		0.3									0.3	
		0.4			Clayey SILT, fine grain, grey with pale brown mottle	D-M	L				0.4	
		0.5									0.5	
		0.6									0.6	
		0.7									0.7	
		0.8									0.8	
		0.9									0.9	
		1.0									1.0	
		1.1			*END BH27 @1.0m						1.1	
		1.2									1.2	
		1.3									1.3	
		1.4									1.4	
		1.5									1.5	
		1.6									1.6	
		1.7									1.7	
		1.8									1.8	
		1.9									1.9	
		2.0									2.0	
		2.1									2.1	
		2.2									2.2	
		2.3									2.3	
		2.4									2.4	
		2.5									2.5	
		2.6									2.6	
		2.7									2.7	
		2.8									2.8	
		2.9									2.9	
		3.0									3.0	
		3.1									3.1	
		3.2									3.2	
		3.3									3.3	
		3.4									3.4	
		3.5									3.5	

Explanatory Notes:

Consistency

VS Very Soft
S Soft
F Firm
St Stiff
VSt Very Stiff
H Hard

Density Index

VL Very Loose
L Loose
MD Medium Dense
D Dense
VD Very Dense

Samples

B Bulk Sample
D Disturbed Sample
U50 Undisturbed Sample
(50mm diam.)
N S.P.T. Value

Moisture

D Dry
M Moist
W Wet
Wp Plastic Limit
Wl Liquid Limit

Job No:	E881
Hole No:	BH28
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:	Bill Gertos	Test Location: Refer to Figure 2
Project:	Detailed Site Investigation	Test Method: Auger
Project Location:	921 Punchbowl Road, Punchbowl NSW	Date: 1.6.2016 Logged by: DT
		Surface Level: N/A

Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments	Depth (m)
		0.1			Top Soil/ Grass				0.1
		0.2		F	Fill- Gravel with concrete & bricks	D-M	L		0.2
		0.3							0.3
		0.4			Clayey SILT, fine grain, grey with pale brown mottle	D-M	L		0.4
		0.5							0.5
		0.6							0.6
		0.7			*END BH28 @0.6m				0.7
		0.8							0.8
		0.9							0.9
		1.0							1.0
		1.1							1.1
		1.2							1.2
		1.3							1.3
		1.4							1.4
		1.5							1.5
		1.6							1.6
		1.7							1.7
		1.8							1.8
		1.9							1.9
		2.0							2.0
		2.1							2.1
		2.2							2.2
		2.3							2.3
		2.4							2.4
		2.5							2.5
		2.6							2.6
		2.7							2.7
		2.8							2.8
		2.9							2.9
		3.0							3.0
		3.1							3.1
		3.2							3.2
		3.3							3.3
		3.4							3.4
		3.5							3.5

Explanatory Notes:

Consistency	Density Index	Samples	Moisture
VS Very Soft	VL Very Loose	B Bulk Sample	D Dry
S Soft	L Loose	D Disturbed Sample	M Moist
F Firm	MD Medium Dense	U50 Undisturbed Sample (50mm diam.)	W Wet
St Stiff	D Dense	N S.P.T. Value	Wp Plastic Limit
VSt Very Stiff	VD Very Dense		Wl Liquid Limit
H Hard			

Job No:	E881
Hole No:	BH29
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:		Bill Gertos			Test Location: Refer to Figure 2				
Project:		Detailed Site Investigation			Test Method: Auger				
Project Location:		921 Punchbowl Road, Punchbowl NSW			Date: 1.6.2016		Logged by: DT		
					Surface Level: N/A				
Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments	Depth (m)
		0.1		F	Top Soil/ Grass	M	L		0.1
		0.2			Fill- Silt, brown with ash				0.2
		0.3			Clayey SILT, fine grain, grey with brown mottle	M	L		0.3
		0.4			0.4				
		0.5			0.5				
		0.6			0.6				
		0.7			0.7				
		0.8			0.8				
		0.9			0.9				
		1.0			1.0				
		1.1		*END BH29@1.0m					1.1
		1.2							1.2
		1.3							1.3
		1.4							1.4
		1.5							1.5
		1.6							1.6
		1.7							1.7
		1.8							1.8
		1.9							1.9
		2.0							2.0
		2.1							2.1
		2.2							2.2
		2.3							2.3
		2.4							2.4
		2.5							2.5
		2.6							2.6
		2.7							2.7
		2.8							2.8
		2.9							2.9
		3.0							3.0
		3.1							3.1
		3.2							3.2
		3.3							3.3
		3.4							3.4
		3.5							3.5

Explanatory Notes:

Consistency

VS Very Soft
S Soft
F Firm
St Stiff
VSt Very Stiff
H Hard

Density Index

VL Very Loose
L Loose
MD Medium Dense
D Dense
VD Very Dense

Samples

B Bulk Sample
D Disturbed Sample
U50 Undisturbed Sample
(50mm diam.)
N S.P.T. Value

Moisture

D Dry
M Moist
W Wet
Wp Plastic Limit
Wl Liquid Limit

Job No:	E881
Hole No:	BH30
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:	Bill Gertos	Test Location:	Refer to Figure 2
Project:	Detailed Site Investigation	Test Method:	Auger
Project Location:	921 Punchbowl Road, Punchbowl NSW	Date:	1.6.2016
		Logged by:	DT
		Surface Level:	N/A

Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments	Depth (m)
		0.1			Top Soil/ Grass				0.1
		0.2		F	Fill- Gravel, with ash	D-M	L		0.2
		0.3							0.3
		0.4			Clayey SILT, fine grain, grey with brown mottle	D-M	L		0.4
		0.5							0.5
		0.6							0.6
		0.7							0.7
		0.8							0.8
		0.9							0.9
		1.0							1.0
		1.1			*END BH30 @1.0m				1.1
		1.2							1.2
		1.3							1.3
		1.4							1.4
		1.5							1.5
		1.6							1.6
		1.7							1.7
		1.8							1.8
		1.9							1.9
		2.0							2.0
		2.1							2.1
		2.2							2.2
		2.3							2.3
		2.4							2.4
		2.5							2.5
		2.6							2.6
		2.7							2.7
		2.8							2.8
		2.9							2.9
		3.0							3.0
		3.1							3.1
		3.2							3.2
		3.3							3.3
		3.4							3.4
		3.5							3.5

Explanatory Notes:

Consistency

VS Very Soft
S Soft
F Firm
St Stiff
VSt Very Stiff
H Hard

Density Index

VL Very Loose
L Loose
MD Medium Dense
D Dense
VD Very Dense

Samples

B Bulk Sample
D Disturbed Sample
U50 Undisturbed Sample
(50mm diam.)
N S.P.T. Value

Moisture

D Dry
M Moist
W Wet
Wp Plastic Limit
Wl Liquid Limit

Job No:	E881
Hole No:	BH31
Sheet	1 of 1

ENGINEERING LOG OF DRILLED BOREHOLE

Client:					Bill Gertos		Test Location: Refer to Figure 2			
Project:					Detailed Site Investigation		Test Method: Auger			
Project Location:					921 Punchbowl Road, Punchbowl NSW		Date: 1.6.2016		Logged by: MS	
							Surface Level: N/A			
Groundwater	Samples/ Field Tests	Depth (m)	Graphic Log	Unified Classification	Description	Moisture Condition	Consistency/ Rel. Density	Additional Comments		Depth (m)
		0.1		F	Fill: Gravelly Clayey Silt, grey & brown & organic matter	D-M	L			0.1
		0.2								0.2
		0.3								0.3
		0.4		CI	Silty CLAY, low to medium plasticity, orange, brown	D-M	F			0.4
		0.5								0.5
		0.6								0.6
		0.7			*END BH31 @ 0.6m					0.7
		0.8								0.8
		0.9								0.9
		1.0								1.0
		1.1								1.1
		1.2								1.2
		1.3								1.3
		1.4								1.4
		1.5								1.5
		1.6								1.6
		1.7								1.7
		1.8								1.8
		1.9								1.9
		2.0								2.0
		2.1								2.1
		2.2								2.2
		2.3								2.3
		2.4								2.4
		2.5								2.5
		2.6								2.6
		2.7								2.7
		2.8								2.8
		2.9								2.9
		3.0								3.0
		3.1								3.1
		3.2								3.2
		3.3								3.3
		3.4								3.4
		3.5								3.5

Explanatory Notes:

Consistency

VS Very Soft
S Soft
F Firm
St Stiff
VSt Very Stiff
H Hard

Density Index

VL Very Loose
L Loose
MD Medium Dense
D Dense
VD Very Dense

Samples

B Bulk Sample
D Disturbed Sample
U50 Undisturbed Sample
(50mm diam.)
N S.P.T. Value

Moisture

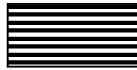
D Dry
M Moist
W Wet
Wp Plastic Limit
Wl Liquid Limit

GRAPHIC SYMBOLS FOR SOIL AND ROCK

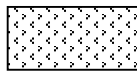
Soil



Bituminous Concrete



Concrete



Topsoil



Fill



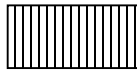
Peat



Clay



Silty Clay



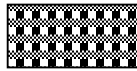
Silt



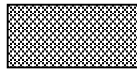
Sandy Clay



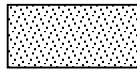
Gravelly Clay



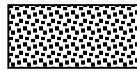
Shaly Clay



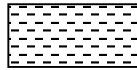
Clayey Silt



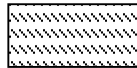
Sandy Silt



Sand



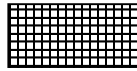
Clayey Sand



Silty Sand

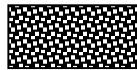


Gravel



Sandy Gravel

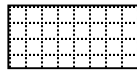
Sedimentary Rock



Sandstone Coarse Grained



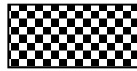
Sandstone Fine Grained



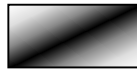
Siltstone



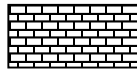
Laminite



Shale



Coal



Limestone

CLIENT NAME: Westwood Pty Ltd **JOB NUMBER:** E2232-2

SITE ADDRESS: 921 Punchbowl Road, Punchbowl NSW 2196 **PROJECT:** Detailed Site Investigation

Date Started : 17/02/2022 **Completed :** 17/02/2022 **Logged By :** RL **Checked By :** MS

Borehole Location : Refer to site plan **Surface RL :** --- **Datum :** m AHD

Equipment : Drill Rig **Borehole Size :** 100mm **Slope :** -90°

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Moisture	Consistence	Samples Tests Remarks	Additional Observations	Depth (m)
ADT					FILL	FILL, silty clay, low to medium plasticity, dark brown, with a few gravels	M	S-F			
			0.5						0.3-0.4	No HC Smell, No staining or No fibro fragment observed	
			0.50		CH	Silty CLAY, medium to high plasticity, brown-orange	M	F-St			0.5
			1.0						0.9-1.0	No HC Smell, No staining or No fibro fragment observed	1.0
			1.5			Borehole BH101 terminated at 1.50m					1.5
			2.0								2.0

Comments:

D - Dry VS - Very Soft VL - Very Loose
 M - Moist S - Soft L - Loose
 W - Wet F - Firm MD - Medium Dense
 St - Stiff D - Dense
 VSt - Very Stiff VD - Very Dense
 H - Hard

CLIENT NAME: Westwood Pty Ltd **JOB NUMBER:** E2232-2
SITE ADDRESS: 921 Punchbowl Road, Punchbowl NSW 2196 **PROJECT:** Detailed Site Investigation
Date Started : 17/02/2022 **Completed :** 17/02/2022 **Logged By :** EY **Checked By :** MS
Borehole Location : Refer to site plan **Surface RL :** --- **Datum :** m AHD
Equipment : Hand Auger **Borehole Size :** 50mm **Slope :** -90°

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Moisture	Consistence	Samples Tests Remarks	Additional Observations	Depth (m)
DT			0.10			Concrete					
						FILL, silty clay, low to medium plasticity, brown-dark brown					
HA			0.5						0.2-0.3	No HC Smell, No staining or No fibro fragment observed	
			0.50			Borehole BH102 terminated at 0.50m					0.5
			1.0								1.0

Comments:

D - Dry
M - Moist
W - Wet
VS - Very Soft
S - Soft
F - Firm
St - Stiff
VSt - Very Stiff
H - Hard
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

CLIENT NAME: Westwood Pty Ltd **JOB NUMBER:** E2232-2
SITE ADDRESS: 921 Punchbowl Road, Punchbowl NSW 2196 **PROJECT:** Detailed Site Investigation
Date Started : 17/02/2022 **Completed :** 17/02/2022 **Logged By :** RL **Checked By :** MS
Borehole Location : Refer to site plan **Surface RL :** --- **Datum :** m AHD
Equipment : Drill Rig **Borehole Size :** 100mm **Slope :** -90°

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Moisture	Consistence	Samples Tests Remarks	Additional Observations	Depth (m)
DT			0.10			Concrete	M	L-MD			
						FILL, clayey silt, low to medium plasticity, brown-dark grey, with sand and gravel			0.2-0.3	No HC Smell, No staining or No fibro fragment observed	
ADT			0.30		ML	Clayey SILT, low to medium plasticity, grey	M	S-F			
ADT			0.50		CH	Silty CLAY, medium to high plasticity, brown-red	M	F-St			
									0.6-0.7	No HC Smell, No staining or No fibro fragment observed	
ADT			1.0								
ADT			1.5								
ADT			1.50			Borehole BH103 terminated at 1.50m					
ADT			2.0								

Comments:

 D - Dry
M - Moist
W - Wet

 VS - Very Soft
S - Soft
F - Firm
St - Stiff
VSt - Very Stiff
H - Hard

 VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

CLIENT NAME: Westwood Pty Ltd **JOB NUMBER:** E2232-2
SITE ADDRESS: 921 Punchbowl Road, Punchbowl NSW 2196 **PROJECT:** Detailed Site Investigation
Date Started : 17/02/2022 **Completed :** 17/02/2022 **Logged By :** EY **Checked By :** MS
Borehole Location : Refer to site plan **Surface RL :** --- **Datum :** m AHD
Equipment : Drill Rig **Borehole Size :** 100mm **Slope :** -90°

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Moisture	Consistence	Samples Tests Remarks	Additional Observations	Depth (m)
ADT			0.05		FILL	Asphalt Concrete	M	S-F			
						FILL, silty clay, low to medium plasticity, dark brown, trace of gravel			0.2-0.3	No HC Smell, No staining or No fibro fragment observed	
			0.30		ML	Clayey SILT, low to medium plasticity, brown-yellow, with grey mottling	M	F-St			
									0.7-0.8	No HC Smell, No staining or No fibro fragment observed	
			0.5								0.5
			1.0								1.0
			1.5								1.5
			1.50			Borehole BH104 terminated at 1.50m					
			2.0								2.0

Comments:

D - Dry
M - Moist
W - Wet

VS - Very Soft
S - Soft
F - Firm
St - Stiff
VSt - Very Stiff
H - Hard

VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

CLIENT NAME: Westwood Pty Ltd **JOB NUMBER:** E2232-2

SITE ADDRESS: 921 Punchbowl Road, Punchbowl NSW 2196 **PROJECT:** Detailed Site Investigation

Date Started : 17/02/2022 **Completed :** 17/02/2022 **Logged By :** EY **Checked By :** MS

Borehole Location : Refer to site plan **Surface RL :** --- **Datum :** m AHD

Equipment : Drill Rig **Borehole Size :** 100mm **Slope :** -90°

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Moisture	Consistence	Samples Tests Remarks	Additional Observations	Depth (m)
DT						Concrete					
			0.18		FILL	FILL, silty clay, low to medium plasticity, dark brown, trace of gravel	M	S-F			
			0.5						0.4-0.5	No HC Smell, No staining or No fibro fragment observed	0.5
			0.50		ML	Clayey SILT, low to medium plasticity, brown-yellow, with grey mottling	M	S-F			
			1.0						0.9-1.0	No HC Smell, No staining or No fibro fragment observed	1.0
			1.5								1.5
			1.50			Borehole BH105 terminated at 1.50m					
			2.0								2.0

Comments:

D - Dry
M - Moist
W - Wet
VS - Very Soft
S - Soft
F - Firm
St - Stiff
VSt - Very Stiff
H - Hard
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

CLIENT NAME: Westwood Pty Ltd **JOB NUMBER:** E2232-2
SITE ADDRESS: 921 Punchbowl Road, Punchbowl NSW 2196 **PROJECT:** Detailed Site Investigation
Date Started : 17/02/2022 **Completed :** 17/02/2022 **Logged By :** EY **Checked By :** MS
Borehole Location : Refer to site plan **Surface RL :** --- **Datum :** m AHD
Equipment : Drill Rig **Borehole Size :** 100mm **Slope :** -90°

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Moisture	Consistence	Samples Tests Remarks	Additional Observations	Depth (m)
DT			0.15			Concrete	M	S-F			
						FILL, silty clay, low to medium plasticity, dark grey, trace of gravel					
ADT			0.40		FILL		M	F-St	0.3-0.4	No HC Smell, No staining or No fibro fragment observed	0.5
						Clayey SILT, low to medium plasticity, brown-yellow, with grey mottling					
									0.7-0.8	No HC Smell, No staining or No fibro fragment observed	
			1.50			Borehole BH106 terminated at 1.50m					1.5
			2.0								2.0

Comments:

D - Dry
 M - Moist
 W - Wet
 VS - Very Soft
 S - Soft
 F - Firm
 St - Stiff
 VSt - Very Stiff
 H - Hard
 VL - Very Loose
 L - Loose
 MD - Medium Dense
 D - Dense
 VD - Very Dense

CLIENT NAME: Westwood Pty Ltd **JOB NUMBER:** E2232-2
SITE ADDRESS: 921 Punchbowl Road, Punchbowl NSW 2196 **PROJECT:** Detailed Site Investigation
Date Started : 17/02/2022 **Completed :** 17/02/2022 **Logged By :** RL **Checked By :** MS
Borehole Location : Refer to site plan **Surface RL :** --- **Datum :** m AHD
Equipment : Hand Auger **Borehole Size :** 50mm **Slope :** -90°

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Moisture	Consistence	Samples Tests Remarks	Additional Observations	Depth (m)
DT			0.15			Concrete	M				
						FILL, silty clay, low to medium plasticity, brown-grey, with gravels					
HA			0.5				M	S-F	0.2-0.3	No HC Smell, No staining or No fibro fragment observed	0.5
			1.0						0.8-0.9	No HC Smell, No staining or No fibro fragment observed	1.0
			1.00			Borehole BH107 terminated at 1.00m					1.0
			1.5								1.5

Comments:

D - Dry
M - Moist
W - Wet

VS - Very Soft
S - Soft
F - Firm
St - Stiff
VSt - Very Stiff
H - Hard

VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

CLIENT NAME: Westwood Pty Ltd **JOB NUMBER:** E2232-2
SITE ADDRESS: 921 Punchbowl Road, Punchbowl NSW 2196 **PROJECT:** Detailed Site Investigation
Date Started : 17/02/2022 **Completed :** 17/02/2022 **Logged By :** EY **Checked By :** MS
Borehole Location : Refer to site plan **Surface RL :** --- **Datum :** m AHD
Equipment : Hand Auger **Borehole Size :** 50mm **Slope :** -90°

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Moisture	Consistence	Samples Tests Remarks	Additional Observations	Depth (m)
DT						Concrete					
			0.15		FILL	FILLI, clayey sand, fine to medium grained, dark brown-dark grey, with gravel	M	L-MD			
			0.5						0.4-0.5	No HC Smell, No staining or No fibro fragment observed	0.5
			0.90		CH	Silty CLAY, medium to high plasticity, brown, trace of gravel	M	F-St	0.9-1.0	No HC Smell, No staining or No fibro fragment observed	1.0
HA			1.00			Borehole BH108 terminated at 1.00m					1.0
			1.5								1.5

Comments:

D - Dry
 M - Moist
 W - Wet
 VS - Very Soft
 S - Soft
 F - Firm
 St - Stiff
 VSt - Very Stiff
 H - Hard
 VL - Very Loose
 L - Loose
 MD - Medium Dense
 D - Dense
 VD - Very Dense

CLIENT NAME: Westwood Pty Ltd **JOB NUMBER:** E2232-2
SITE ADDRESS: 921 Punchbowl Road, Punchbowl NSW 2196 **PROJECT:** Detailed Site Investigation
Date Started : 17/02/2022 **Completed :** 17/02/2022 **Logged By :** RL **Checked By :** MS
Borehole Location : Refer to site plan **Surface RL :** --- **Datum :** m AHD
Equipment : Hand Auger **Borehole Size :** 50mm **Slope :** -90°

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Moisture	Consistence	Samples Tests Remarks	Additional Observations	Depth (m)
DT						Concrete					
			0.20		FILL	FILL, silty gravelly clay, low to medium plasticity, brown-dark grey	M	S-F			
			0.5						0.3-0.4	D1/SS1, No HC Smell, No staining or No fibro fragment observed	0.5
			0.70			Borehole BH109 terminated at 0.70m					
			1.0								1.0
			1.5								1.5

Comments:

D - Dry
M - Moist
W - Wet

VS - Very Soft
S - Soft
F - Firm
St - Stiff
VSt - Very Stiff
H - Hard

VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

CLIENT NAME: Westwood Pty Ltd **JOB NUMBER:** E2232-2
SITE ADDRESS: 921 Punchbowl Road, Punchbowl NSW 2196 **PROJECT:** Detailed Site Investigation
Date Started : 17/02/2022 **Completed :** 17/02/2022 **Logged By :** EY **Checked By :** MS
Borehole Location : Refer to site plan **Surface RL :** --- **Datum :** m AHD
Equipment : Hand Auger **Borehole Size :** 50mm **Slope :** -90°

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Moisture	Consistence	Samples Tests Remarks	Additional Observations	Depth (m)
DT						Concrete					
			0.20		FILL	FILL, silty clay, low to medium plasticity, dark brown-brown, with gravel	M	S-F			
HA			0.5						0.3-0.4	No HC Smell, No staining or No fibro fragment observed	0.5
			0.60		ML	Clayey SILT, low to medium plasticity, brown-grey	M	S-F			
			1.0						0.8-0.9	No HC Smell, No staining or No fibro fragment observed	1.0
			1.00			Borehole BH110 terminated at 1.00m					1.0
			1.5								1.5

Comments:

D - Dry
M - Moist
W - Wet

VS - Very Soft
S - Soft
F - Firm
St - Stiff
VSt - Very Stiff
H - Hard

VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

APPENDIX H: NATA ACCREDITED LABORATORY CERTIFICATES

CERTIFICATE OF ANALYSIS 289229

Client Details

Client	Foundation Earth Sciences Pty Ltd
Attention	Ben Buckley
Address	PO Box 4405, East Gosford, NSW, 2250

Sample Details

Your Reference	<u>E2232-2, Punchbowl</u>
Number of Samples	21 Soil
Date samples received	18/02/2022
Date completed instructions received	18/02/2022

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	25/02/2022
Date of Issue	25/02/2022
NATA Accreditation Number 2901. This document shall not be reproduced except in full.	
Accredited for compliance with ISO/IEC 17025 - Testing. Tests not covered by NATA are denoted with *	

Asbestos Approved By

Analysed by Asbestos Approved Analyst: Lucy Zhu
 Authorised by Asbestos Approved Signatory: Lucy Zhu

Results Approved By

Dragana Tomas, Senior Chemist
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vTRH(C6-C10)/BTEXN in Soil

Our Reference		289229-1	289229-2	289229-3	289229-4	289229-5
Your Reference	UNITS	BH101	BH101	BH102	BH103	BH103
Depth		0.3-0.4	0.9-1.0	0.2-0.3	0.2-0.3	0.6-0.7
Date Sampled		17/02/2022	17/02/2022	17/02/2022	17/02/2022	17/02/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	22/02/2022	22/02/2022	22/02/2022	22/02/2022	22/02/2022
Date analysed	-	23/02/2022	23/02/2022	23/02/2022	23/02/2022	23/02/2022
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C 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
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	87	89	85	86	84

vTRH(C6-C10)/BTEXN in Soil

Our Reference		289229-6	289229-7	289229-8	289229-9	289229-10
Your Reference	UNITS	BH104	BH104	BH105	BH105	BH106
Depth		0.2-0.3	0.7-0.8	0.4-0.5	0.9-1.0	0.3-0.4
Date Sampled		17/02/2022	17/02/2022	17/02/2022	17/02/2022	17/02/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	22/02/2022	22/02/2022	22/02/2022	22/02/2022	22/02/2022
Date analysed	-	23/02/2022	23/02/2022	23/02/2022	23/02/2022	23/02/2022
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C 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
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	84	84	86	83	107

vTRH(C6-C10)/BTEXN in Soil

Our Reference		289229-11	289229-12	289229-13	289229-14	289229-15
Your Reference	UNITS	BH106	BH107	BH107	BH108	BH108
Depth		0.7-0.8	0.2-0.3	0.8-0.9	0.4-0.5	0.9-1.0
Date Sampled		17/02/2022	17/02/2022	17/02/2022	17/02/2022	17/02/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	22/02/2022	22/02/2022	22/02/2022	22/02/2022	22/02/2022
Date analysed	-	23/02/2022	23/02/2022	23/02/2022	23/02/2022	23/02/2022
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C 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
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	87	86	91	87	88

vTRH(C6-C10)/BTEXN in Soil

Our Reference		289229-16	289229-17	289229-18	289229-19	289229-20
Your Reference	UNITS	BH109	BH110	BH110	D101	TS1
Depth		0.3-0.4	0.3-0.4	0.8-0.9	-	-
Date Sampled		17/02/2022	17/02/2022	17/02/2022	17/02/2022	17/02/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	22/02/2022	22/02/2022	22/02/2022	22/02/2022	22/02/2022
Date analysed	-	23/02/2022	23/02/2022	23/02/2022	23/02/2022	23/02/2022
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	[NA]
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	[NA]
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	[NA]
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	110%
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	111%
Ethylbenzene	mg/kg	<1	<1	<1	<1	116%
m+p-xylene	mg/kg	<2	<2	<2	<2	116%
o-Xylene	mg/kg	<1	<1	<1	<1	119%
Naphthalene	mg/kg	<1	<1	<1	<1	[NA]
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	[NA]
Surrogate aaa-Trifluorotoluene	%	88	89	88	88	87

vTRH(C6-C10)/BTEXN in Soil		
Our Reference		289229-21
Your Reference	UNITS	TB1
Depth		-
Date Sampled		17/02/2022
Type of sample		Soil
Date extracted	-	22/02/2022
Date analysed	-	23/02/2022
TRH C ₆ - C ₉	mg/kg	<25
TRH C ₆ - C ₁₀	mg/kg	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25
Benzene	mg/kg	<0.2
Toluene	mg/kg	<0.5
Ethylbenzene	mg/kg	<1
m+p-xylene	mg/kg	<2
o-Xylene	mg/kg	<1
Naphthalene	mg/kg	<1
Total +ve Xylenes	mg/kg	<1
Surrogate aaa-Trifluorotoluene	%	92

svTRH (C10-C40) in Soil						
Our Reference	UNITS	289229-1	289229-2	289229-3	289229-4	289229-5
Your Reference		BH101	BH101	BH102	BH103	BH103
Depth		0.3-0.4	0.9-1.0	0.2-0.3	0.2-0.3	0.6-0.7
Date Sampled		17/02/2022	17/02/2022	17/02/2022	17/02/2022	17/02/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	22/02/2022	22/02/2022	22/02/2022	22/02/2022	22/02/2022
Date analysed	-	23/02/2022	23/02/2022	23/02/2022	23/02/2022	23/02/2022
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
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
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	74	74	74	75	75

svTRH (C10-C40) in Soil						
Our Reference	UNITS	289229-6	289229-7	289229-8	289229-9	289229-10
Your Reference		BH104	BH104	BH105	BH105	BH106
Depth		0.2-0.3	0.7-0.8	0.4-0.5	0.9-1.0	0.3-0.4
Date Sampled		17/02/2022	17/02/2022	17/02/2022	17/02/2022	17/02/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	22/02/2022	22/02/2022	22/02/2022	22/02/2022	22/02/2022
Date analysed	-	23/02/2022	23/02/2022	23/02/2022	23/02/2022	23/02/2022
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
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
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	75	75	78	73	74

svTRH (C10-C40) in Soil

Our Reference		289229-11	289229-12	289229-13	289229-14	289229-15
Your Reference	UNITS	BH106	BH107	BH107	BH108	BH108
Depth		0.7-0.8	0.2-0.3	0.8-0.9	0.4-0.5	0.9-1.0
Date Sampled		17/02/2022	17/02/2022	17/02/2022	17/02/2022	17/02/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	22/02/2022	22/02/2022	22/02/2022	22/02/2022	22/02/2022
Date analysed	-	23/02/2022	23/02/2022	23/02/2022	23/02/2022	24/02/2022
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
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
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	73	75	73	73	75

svTRH (C10-C40) in Soil

Our Reference		289229-16	289229-17	289229-18	289229-19
Your Reference	UNITS	BH109	BH110	BH110	D101
Depth		0.3-0.4	0.3-0.4	0.8-0.9	-
Date Sampled		17/02/2022	17/02/2022	17/02/2022	17/02/2022
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	22/02/2022	22/02/2022	22/02/2022	22/02/2022
Date analysed	-	24/02/2022	24/02/2022	24/02/2022	24/02/2022
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50
Surrogate o-Terphenyl	%	74	83	79	77

PAHs in Soil						
Our Reference		289229-1	289229-2	289229-3	289229-4	289229-5
Your Reference	UNITS	BH101	BH101	BH102	BH103	BH103
Depth		0.3-0.4	0.9-1.0	0.2-0.3	0.2-0.3	0.6-0.7
Date Sampled		17/02/2022	17/02/2022	17/02/2022	17/02/2022	17/02/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	22/02/2022	22/02/2022	22/02/2022	22/02/2022	22/02/2022
Date analysed	-	24/02/2022	24/02/2022	24/02/2022	24/02/2022	24/02/2022
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
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate <i>p</i> -Terphenyl-d14	%	110	97	93	100	102

PAHs in Soil						
Our Reference		289229-6	289229-7	289229-8	289229-9	289229-10
Your Reference	UNITS	BH104	BH104	BH105	BH105	BH106
Depth		0.2-0.3	0.7-0.8	0.4-0.5	0.9-1.0	0.3-0.4
Date Sampled		17/02/2022	17/02/2022	17/02/2022	17/02/2022	17/02/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	22/02/2022	22/02/2022	22/02/2022	22/02/2022	22/02/2022
Date analysed	-	24/02/2022	24/02/2022	24/02/2022	24/02/2022	24/02/2022
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	0.2	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	0.7	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	0.6	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	0.2	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	0.3	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	0.4	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	0.3	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	0.2	<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	0.2	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	2.9	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	93	98	109	109	96

PAHs in Soil						
Our Reference		289229-11	289229-12	289229-13	289229-14	289229-15
Your Reference	UNITS	BH106	BH107	BH107	BH108	BH108
Depth		0.7-0.8	0.2-0.3	0.8-0.9	0.4-0.5	0.9-1.0
Date Sampled		17/02/2022	17/02/2022	17/02/2022	17/02/2022	17/02/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	22/02/2022	22/02/2022	22/02/2022	22/02/2022	22/02/2022
Date analysed	-	24/02/2022	24/02/2022	24/02/2022	24/02/2022	24/02/2022
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
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	87	112	90	94	99

PAHs in Soil					
Our Reference		289229-16	289229-17	289229-18	289229-19
Your Reference	UNITS	BH109	BH110	BH110	D101
Depth		0.3-0.4	0.3-0.4	0.8-0.9	-
Date Sampled		17/02/2022	17/02/2022	17/02/2022	17/02/2022
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	22/02/2022	22/02/2022	22/02/2022	22/02/2022
Date analysed	-	24/02/2022	24/02/2022	24/02/2022	24/02/2022
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<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
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5
Surrogate <i>p</i> -Terphenyl-d14	%	102	85	105	93

Organochlorine Pesticides in soil						
Our Reference		289229-1	289229-3	289229-4	289229-6	289229-8
Your Reference	UNITS	BH101	BH102	BH103	BH104	BH105
Depth		0.3-0.4	0.2-0.3	0.2-0.3	0.2-0.3	0.4-0.5
Date Sampled		17/02/2022	17/02/2022	17/02/2022	17/02/2022	17/02/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	22/02/2022	22/02/2022	22/02/2022	22/02/2022	22/02/2022
Date analysed	-	24/02/2022	24/02/2022	24/02/2022	24/02/2022	24/02/2022
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	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
gamma-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
Endosulfan II	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
Endrin Aldehyde	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
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
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	91	84	90	85	93

Organochlorine Pesticides in soil						
Our Reference		289229-9	289229-10	289229-12	289229-13	289229-14
Your Reference	UNITS	BH105	BH106	BH107	BH107	BH108
Depth		0.9-1.0	0.3-0.4	0.2-0.3	0.8-0.9	0.4-0.5
Date Sampled		17/02/2022	17/02/2022	17/02/2022	17/02/2022	17/02/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	22/02/2022	22/02/2022	22/02/2022	22/02/2022	22/02/2022
Date analysed	-	24/02/2022	24/02/2022	24/02/2022	24/02/2022	24/02/2022
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	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
gamma-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
Endosulfan II	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
Endrin Aldehyde	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
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
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	94	86	94	81	84

Organochlorine Pesticides in soil				
Our Reference		289229-16	289229-17	289229-19
Your Reference	UNITS	BH109	BH110	D101
Depth		0.3-0.4	0.3-0.4	-
Date Sampled		17/02/2022	17/02/2022	17/02/2022
Type of sample		Soil	Soil	Soil
Date extracted	-	22/02/2022	22/02/2022	22/02/2022
Date analysed	-	24/02/2022	24/02/2022	24/02/2022
alpha-BHC	mg/kg	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1
Surrogate TCMX	%	90	82	83

PCBs in Soil						
Our Reference	UNITS	289229-1	289229-3	289229-4	289229-6	289229-8
Your Reference		BH101	BH102	BH103	BH104	BH105
Depth		0.3-0.4	0.2-0.3	0.2-0.3	0.2-0.3	0.4-0.5
Date Sampled		17/02/2022	17/02/2022	17/02/2022	17/02/2022	17/02/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	22/02/2022	22/02/2022	22/02/2022	22/02/2022	22/02/2022
Date analysed	-	24/02/2022	24/02/2022	24/02/2022	24/02/2022	24/02/2022
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	91	84	90	85	93

PCBs in Soil						
Our Reference	UNITS	289229-9	289229-10	289229-12	289229-13	289229-14
Your Reference		BH105	BH106	BH107	BH107	BH108
Depth		0.9-1.0	0.3-0.4	0.2-0.3	0.8-0.9	0.4-0.5
Date Sampled		17/02/2022	17/02/2022	17/02/2022	17/02/2022	17/02/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	22/02/2022	22/02/2022	22/02/2022	22/02/2022	22/02/2022
Date analysed	-	24/02/2022	24/02/2022	24/02/2022	24/02/2022	24/02/2022
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	94	86	94	81	84

PCBs in Soil				
Our Reference		289229-16	289229-17	289229-19
Your Reference	UNITS	BH109	BH110	D101
Depth		0.3-0.4	0.3-0.4	-
Date Sampled		17/02/2022	17/02/2022	17/02/2022
Type of sample		Soil	Soil	Soil
Date extracted	-	22/02/2022	22/02/2022	22/02/2022
Date analysed	-	24/02/2022	24/02/2022	24/02/2022
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1
Surrogate TCMX	%	90	82	83

Acid Extractable metals in soil

Our Reference		289229-1	289229-2	289229-3	289229-4	289229-5
Your Reference	UNITS	BH101	BH101	BH102	BH103	BH103
Depth		0.3-0.4	0.9-1.0	0.2-0.3	0.2-0.3	0.6-0.7
Date Sampled		17/02/2022	17/02/2022	17/02/2022	17/02/2022	17/02/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	23/02/2022	23/02/2022	23/02/2022	23/02/2022	23/02/2022
Date analysed	-	23/02/2022	23/02/2022	23/02/2022	23/02/2022	23/02/2022
Arsenic	mg/kg	<4	6	4	<4	10
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	30	17	12	2	12
Copper	mg/kg	20	17	13	4	16
Lead	mg/kg	19	16	26	6	30
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	27	19	8	3	9
Zinc	mg/kg	34	38	42	9	23

Acid Extractable metals in soil

Our Reference		289229-6	289229-7	289229-8	289229-9	289229-10
Your Reference	UNITS	BH104	BH104	BH105	BH105	BH106
Depth		0.2-0.3	0.7-0.8	0.4-0.5	0.9-1.0	0.3-0.4
Date Sampled		17/02/2022	17/02/2022	17/02/2022	17/02/2022	17/02/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	23/02/2022	23/02/2022	23/02/2022	23/02/2022	23/02/2022
Date analysed	-	23/02/2022	23/02/2022	23/02/2022	23/02/2022	23/02/2022
Arsenic	mg/kg	4	<4	7	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	48	6	13	6	13
Copper	mg/kg	20	5	19	7	23
Lead	mg/kg	9	7	33	8	6
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	37	4	13	3	47
Zinc	mg/kg	26	5	51	7	20

Acid Extractable metals in soil

Our Reference		289229-11	289229-12	289229-13	289229-14	289229-15
Your Reference	UNITS	BH106	BH107	BH107	BH108	BH108
Depth		0.7-0.8	0.2-0.3	0.8-0.9	0.4-0.5	0.9-1.0
Date Sampled		17/02/2022	17/02/2022	17/02/2022	17/02/2022	17/02/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	23/02/2022	23/02/2022	23/02/2022	23/02/2022	23/02/2022
Date analysed	-	23/02/2022	23/02/2022	23/02/2022	23/02/2022	23/02/2022
Arsenic	mg/kg	5	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	6	11	11	10	12
Copper	mg/kg	8	17	17	42	6
Lead	mg/kg	15	12	16	4	6
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	7	11	14	100	3
Zinc	mg/kg	5	14	23	31	5

Acid Extractable metals in soil

Our Reference		289229-16	289229-17	289229-18	289229-19	289229-22
Your Reference	UNITS	BH109	BH110	BH110	D101	BH107 - [TRIPLICATE]
Depth		0.3-0.4	0.3-0.4	0.8-0.9	-	0.2-0.3
Date Sampled		17/02/2022	17/02/2022	17/02/2022	17/02/2022	17/02/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	23/02/2022	23/02/2022	23/02/2022	23/02/2022	23/02/2022
Date analysed	-	23/02/2022	23/02/2022	23/02/2022	23/02/2022	23/02/2022
Arsenic	mg/kg	<4	<4	6	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	22	11	16	9	15
Copper	mg/kg	20	12	19	43	59
Lead	mg/kg	15	17	19	3	14
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	35	8	13	95	43
Zinc	mg/kg	30	16	24	30	28

Moisture						
Our Reference	UNITS	289229-1	289229-2	289229-3	289229-4	289229-5
Your Reference		BH101	BH101	BH102	BH103	BH103
Depth		0.3-0.4	0.9-1.0	0.2-0.3	0.2-0.3	0.6-0.7
Date Sampled		17/02/2022	17/02/2022	17/02/2022	17/02/2022	17/02/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	22/02/2022	22/02/2022	22/02/2022	22/02/2022	22/02/2022
Date analysed	-	23/02/2022	23/02/2022	23/02/2022	23/02/2022	23/02/2022
Moisture	%	12	16	20	16	22

Moisture						
Our Reference	UNITS	289229-6	289229-7	289229-8	289229-9	289229-10
Your Reference		BH104	BH104	BH105	BH105	BH106
Depth		0.2-0.3	0.7-0.8	0.4-0.5	0.9-1.0	0.3-0.4
Date Sampled		17/02/2022	17/02/2022	17/02/2022	17/02/2022	17/02/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	22/02/2022	22/02/2022	22/02/2022	22/02/2022	22/02/2022
Date analysed	-	23/02/2022	23/02/2022	23/02/2022	23/02/2022	23/02/2022
Moisture	%	18	17	19	17	18

Moisture						
Our Reference	UNITS	289229-11	289229-12	289229-13	289229-14	289229-15
Your Reference		BH106	BH107	BH107	BH108	BH108
Depth		0.7-0.8	0.2-0.3	0.8-0.9	0.4-0.5	0.9-1.0
Date Sampled		17/02/2022	17/02/2022	17/02/2022	17/02/2022	17/02/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	22/02/2022	22/02/2022	22/02/2022	22/02/2022	22/02/2022
Date analysed	-	23/02/2022	23/02/2022	23/02/2022	23/02/2022	23/02/2022
Moisture	%	17	19	14	11	17

Moisture					
Our Reference	UNITS	289229-16	289229-17	289229-18	289229-19
Your Reference		BH109	BH110	BH110	D101
Depth		0.3-0.4	0.3-0.4	0.8-0.9	-
Date Sampled		17/02/2022	17/02/2022	17/02/2022	17/02/2022
Type of sample		Soil	Soil	Soil	Soil
Date prepared	-	22/02/2022	22/02/2022	22/02/2022	22/02/2022
Date analysed	-	23/02/2022	23/02/2022	23/02/2022	23/02/2022
Moisture	%	16	16	15	9.2

Asbestos ID - soils						
Our Reference	UNITS	289229-1	289229-4	289229-6	289229-10	289229-12
Your Reference		BH101	BH103	BH104	BH106	BH107
Depth		0.3-0.4	0.2-0.3	0.2-0.3	0.3-0.4	0.2-0.3
Date Sampled		17/02/2022	17/02/2022	17/02/2022	17/02/2022	17/02/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	24/02/2022	24/02/2022	24/02/2022	24/02/2022	24/02/2022
Sample mass tested	g	Approx. 30g	Approx. 25g	Approx. 20g	Approx. 35g	Approx. 35g
Sample Description	-	Brown coarse-grained soil & rocks	Beige 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 Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

Asbestos ID - soils			
Our Reference	UNITS	289229-14	289229-17
Your Reference		BH108	BH110
Depth		0.4-0.5	0.3-0.4
Date Sampled		17/02/2022	17/02/2022
Type of sample		Soil	Soil
Date analysed	-	24/02/2022	24/02/2022
Sample mass tested	g	Approx. 25g	Approx. 20g
Sample Description	-	Grey coarse-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected

Method ID	Methodology Summary
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.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-020	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-020	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. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-021	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Org-021	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
Org-022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-MS/GC-MSMS. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.

Method ID	Methodology Summary
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS and/or GC-MS/MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL' values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero' values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL' values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-023	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-023	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. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	289229-3
Date extracted	-			22/02/2022	1	22/02/2022	22/02/2022		22/02/2022	22/02/2022
Date analysed	-			23/02/2022	1	23/02/2022	23/02/2022		23/02/2022	23/02/2022
TRH C ₆ - C ₉	mg/kg	25	Org-023	<25	1	<25	<25	0	108	92
TRH C ₆ - C ₁₀	mg/kg	25	Org-023	<25	1	<25	<25	0	108	92
Benzene	mg/kg	0.2	Org-023	<0.2	1	<0.2	<0.2	0	100	92
Toluene	mg/kg	0.5	Org-023	<0.5	1	<0.5	<0.5	0	101	93
Ethylbenzene	mg/kg	1	Org-023	<1	1	<1	<1	0	107	88
m+p-xylene	mg/kg	2	Org-023	<2	1	<2	<2	0	115	94
o-Xylene	mg/kg	1	Org-023	<1	1	<1	<1	0	109	88
Naphthalene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	93	1	87	90	3	94	103

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	12	22/02/2022	22/02/2022		[NT]	[NT]
Date analysed	-			[NT]	12	23/02/2022	23/02/2022		[NT]	[NT]
TRH C ₆ - C ₉	mg/kg	25	Org-023	[NT]	12	<25	<25	0	[NT]	[NT]
TRH C ₆ - C ₁₀	mg/kg	25	Org-023	[NT]	12	<25	<25	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-023	[NT]	12	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-023	[NT]	12	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-023	[NT]	12	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-023	[NT]	12	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-023	[NT]	12	<1	<1	0	[NT]	[NT]
Naphthalene	mg/kg	1	Org-023	[NT]	12	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	12	86	87	1	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	289229-3
Date extracted	-			22/02/2022	1	22/02/2022	22/02/2022		22/02/2022	22/02/2022
Date analysed	-			23/02/2022	1	23/02/2022	23/02/2022		23/02/2022	23/02/2022
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-020	<50	1	<50	<50	0	86	89
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-020	<100	1	<100	<100	0	79	78
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-020	<100	1	<100	<100	0	127	105
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-020	<50	1	<50	<50	0	86	89
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-020	<100	1	<100	<100	0	79	78
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-020	<100	1	<100	<100	0	127	105
Surrogate o-Terphenyl	%		Org-020	75	1	74	76	3	83	101

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	12	22/02/2022	22/02/2022		[NT]	[NT]
Date analysed	-			[NT]	12	23/02/2022	23/02/2022		[NT]	[NT]
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-020	[NT]	12	<50	<50	0	[NT]	[NT]
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-020	[NT]	12	<100	<100	0	[NT]	[NT]
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-020	[NT]	12	<100	<100	0	[NT]	[NT]
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-020	[NT]	12	<50	<50	0	[NT]	[NT]
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-020	[NT]	12	<100	<100	0	[NT]	[NT]
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-020	[NT]	12	<100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-020	[NT]	12	75	75	0	[NT]	[NT]

QUALITY CONTROL: PAHs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	289229-3
Date extracted	-			22/02/2022	1	22/02/2022	22/02/2022		22/02/2022	22/02/2022
Date analysed	-			24/02/2022	1	24/02/2022	24/02/2022		24/02/2022	24/02/2022
Naphthalene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	107	111
Acenaphthylene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	103	109
Fluorene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	107	113
Phenanthrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	112	116
Anthracene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	112	120
Pyrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	109	117
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	73	77
Benzo(b,j,k)fluoranthene	mg/kg	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	<0.05	1	<0.05	<0.05	0	108	114
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	120	1	110	112	2	91	80

QUALITY CONTROL: PAHs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	12	22/02/2022	22/02/2022		[NT]	[NT]
Date analysed	-			[NT]	12	24/02/2022	24/02/2022		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-022/025	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-022/025	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-022/025	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-022/025	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-022/025	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-022/025	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Benzo(b,j,k)fluoranthene	mg/kg	0.2	Org-022/025	[NT]	12	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	[NT]	12	<0.05	<0.05	0	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	[NT]	12	112	107	5	[NT]	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	289229-3
Date extracted	-			22/02/2022	1	22/02/2022	22/02/2022		22/02/2022	22/02/2022
Date analysed	-			24/02/2022	1	24/02/2022	24/02/2022		24/02/2022	24/02/2022
alpha-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	96	104
HCB	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	99	110
gamma-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	97	103
delta-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	85	89
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	100	108
gamma-Chlordane	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	103	109
Dieldrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	112	120
Endrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	100	105
Endosulfan II	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	96	104
Endrin Aldehyde	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	78	76
Methoxychlor	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	101	1	91	95	4	84	72

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	12	22/02/2022	22/02/2022		[NT]	[NT]
Date analysed	-			[NT]	12	24/02/2022	24/02/2022		[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-022/025	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
HCB	mg/kg	0.1	Org-022/025	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
gamma-BHC	mg/kg	0.1	Org-022/025	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
delta-BHC	mg/kg	0.1	Org-022/025	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
gamma-Chlordane	mg/kg	0.1	Org-022/025	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Dieldrin	mg/kg	0.1	Org-022/025	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Endrin	mg/kg	0.1	Org-022/025	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-022/025	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-022/025	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Methoxychlor	mg/kg	0.1	Org-022/025	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	[NT]	12	94	94	0	[NT]	[NT]

QUALITY CONTROL: PCBs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	289229-3
Date extracted	-			22/02/2022	1	22/02/2022	22/02/2022		22/02/2022	22/02/2022
Date analysed	-			24/02/2022	1	24/02/2022	24/02/2022		24/02/2022	24/02/2022
Aroclor 1016	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	92	100
Aroclor 1260	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-021	101	1	91	95	4	84	72

QUALITY CONTROL: PCBs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	12	22/02/2022	22/02/2022		[NT]	[NT]
Date analysed	-			[NT]	12	24/02/2022	24/02/2022		[NT]	[NT]
Aroclor 1016	mg/kg	0.1	Org-021	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1260	mg/kg	0.1	Org-021	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-021	[NT]	12	94	94	0	[NT]	[NT]

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	289229-3
Date prepared	-			23/02/2022	1	23/02/2022	23/02/2022		23/02/2022	23/02/2022
Date analysed	-			23/02/2022	1	23/02/2022	23/02/2022		23/02/2022	23/02/2022
Arsenic	mg/kg	4	Metals-020	<4	1	<4	<4	0	102	84
Cadmium	mg/kg	0.4	Metals-020	<0.4	1	<0.4	<0.4	0	100	82
Chromium	mg/kg	1	Metals-020	<1	1	30	28	7	102	85
Copper	mg/kg	1	Metals-020	<1	1	20	17	16	100	97
Lead	mg/kg	1	Metals-020	<1	1	19	16	17	102	84
Mercury	mg/kg	0.1	Metals-021	<0.1	1	<0.1	<0.1	0	111	110
Nickel	mg/kg	1	Metals-020	<1	1	27	26	4	98	79
Zinc	mg/kg	1	Metals-020	<1	1	34	35	3	97	#

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	12	23/02/2022	23/02/2022		[NT]	[NT]
Date analysed	-			[NT]	12	23/02/2022	23/02/2022		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	12	<4	5	22	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	12	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	12	11	13	17	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	12	17	27	45	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	12	12	17	34	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	12	11	18	48	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	12	14	17	19	[NT]	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

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.
Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.	
The recommended maximums for analytes in urine are taken from "2018 TLVs and BEIs", as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.	
Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2	

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: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics 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.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

Report Comments

Acid Extractable Metals in Soil:

- The laboratory RPD acceptance criteria has been exceeded for 289229-12 for Cu & Ni. Therefore a triplicate result has been issued as laboratory sample number 289229-22.
- # Percent recovery is not possible to report due to the inhomogeneous nature of the element/s in the sample/s. However an acceptable recovery was obtained for the LCS.



Client of 19/02/2022

Client Details:	Foundation Earth Sciences PO Box 4405, East Gosford NSW 2250 email: ben@foundations.com.au michael@foundations.com.au; ray@foundations.com.au ph: +61466 385 221	Project Manager: Michael Sik	Project #: E2232-2
	Delivery Details:	Envirolab Pty Ltd 12 Ashley Street, Chatswood NSW 2067 email: ahle@envirolab.com.au ph: +612 9910 6200	Sampled By: RL/RY Purchase Order #: N/A Page #: 1 of 1

#	Sample ID	Depth	Date Sampled	Matrix	Analytes														Sample Comments
					ph	CEC	%CLAY	Heavy Metals (8)	TRH	BTEXN	PAH	Phenol	VOC	Asbestos ID	Asbestos %w/w (NEPM /WA)	TRH C6-C10 & BTEXN	OCP PCB	Envirolab Suites	
1	BH101	0.3-0.4	17.2.2022	Soil				X	X	X	X			X			X	Combo5a	Keep
2	BH101	0.9-1.0	17.2.2022	Soil				X	X	X	X							Combo 3	Keep
3	BH102	0.2-0.3	17.2.2022	Soil				X	X	X	X						X	Combo5	Keep
4	BH103	0.2-0.3	17.2.2022	Soil				X	X	X	X			X			X	Combo5a	Keep
5	BH103	0.6-0.7	17.2.2022	Soil				X	X	X	X							Combo3	Keep
6	BH104	0.2-0.3	17.2.2022	Soil				X	X	X	X			X			X	Combo5a	Keep
7	BH104	0.7-0.8	17.2.2022	Soil				X	X	X	X							Combo3	Keep
8	BH105	0.4-0.5	17.2.2022	Soil				X	X	X	X						X	Combo5	Keep
9	BH105	0.9-1.0	17.2.2022	Soil				X	X	X	X						X	Combo5	Keep
10	BH106	0.3-0.4	17.2.2022	Soil				X	X	X	X			X			X	Combo5a	Keep
11	BH106	0.7-0.8	17.2.2022	Soil				X	X	X	X							Combo3	Keep
12	BH107	0.2-0.3	17.2.2022	Soil				X	X	X	X			X			X	Combo5a	Keep
13	BH107	0.8-0.9	17.2.2022	Soil				X	X	X	X						X	Combo5	Keep
14	BH108	0.4-0.5	17.2.2022	Soil				X	X	X	X			X			X	Combo5a	Keep
15	BH108	0.9-1.0	17.2.2022	Soil				X	X	X	X							Combo3	Keep
16	BH109	0.3-0.4	17.2.2022	Soil				X	X	X	X						X	Combo5	Keep
17	BH110	0.3-0.4	17.2.2022	Soil				X	X	X	X			X			X	Combo5a	Keep
18	BH110	0.8-0.9	17.2.2022	Soil				X	X	X	X							Combo3	Keep
19	D101	-	17.2.2022	Soil				X	X	X	X						X	Combo5	Keep
20	TS1	-	17.2.2022	Soil												X			Keep
21	TB1	-	17.2.2022	Soil												X			Keep
22																			
23																			
24																			
25																			
26																			

ENVIROLAB

Job No: 285229

Date Received: 18/1/22

Envirolab Services
42 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

Special Directions and Comments:

Relinquished by	Emerson You	Received By	Signature	Date
Signature		Signature		
Date	18.2.2022	Date		

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

Job No: 223229

Date Received: 18/2/22
Time Received: 12:45
Received By: M
Temp: Cool/Ambient
Coring: Intact/No
Security: Intact/Broken

SAMPLE RECEIPT ADVICE

Client Details

Client	Foundation Earth Sciences Pty Ltd
Attention	Ben Buckley

Sample Login Details

Your reference	E2232-2, Punchbowl
Envirolab Reference	289229
Date Sample Received	18/02/2022
Date Instructions Received	18/02/2022
Date Results Expected to be Reported	25/02/2022

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	21 Soil
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	15
Cooling Method	Ice
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie

Phone: 02 9910 6200
Fax: 02 9910 6201
Email: ahie@envirolab.com.au

Jacinta Hurst

Phone: 02 9910 6200
Fax: 02 9910 6201
Email: jhurst@envirolab.com.au

Analysis Underway, details on the following page:

Sample ID	VTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	PCBs in Soil	Acid Extractable metals in soil	Asbestos ID - soils
BH101-0.3-0.4	✓	✓	✓	✓	✓	✓	✓
BH101-0.9-1.0	✓	✓	✓			✓	
BH102-0.2-0.3	✓	✓	✓	✓	✓	✓	
BH103-0.2-0.3	✓	✓	✓	✓	✓	✓	✓
BH103-0.6-0.7	✓	✓	✓			✓	
BH104-0.2-0.3	✓	✓	✓	✓	✓	✓	✓
BH104-0.7-0.8	✓	✓	✓			✓	
BH105-0.4-0.5	✓	✓	✓	✓	✓	✓	
BH105-0.9-1.0	✓	✓	✓	✓	✓	✓	
BH106-0.3-0.4	✓	✓	✓	✓	✓	✓	✓
BH106-0.7-0.8	✓	✓	✓			✓	
BH107-0.2-0.3	✓	✓	✓	✓	✓	✓	✓
BH107-0.8-0.9	✓	✓	✓	✓	✓	✓	
BH108-0.4-0.5	✓	✓	✓	✓	✓	✓	✓
BH108-0.9-1.0	✓	✓	✓			✓	
BH109-0.3-0.4	✓	✓	✓	✓	✓	✓	
BH110-0.3-0.4	✓	✓	✓	✓	✓	✓	✓
BH110-0.8-0.9	✓	✓	✓			✓	
D101	✓	✓	✓	✓	✓	✓	
TS1	✓						
TB1	✓						

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.

TAT for Micro is dependent on incubation. This varies from 3 to 6 days.



Chain of Custody Record

Client Details:	Foundation Earth Sciences PO Box 4405, East Gosford NSW 2250 email: ben@foundationes.com.au michael@foundationes.com.au; ray@foundationes.com.au ph: +61466 385 221	Project Manager: Michael Silk	Project: E2232-2
Delivery Details:	Eurofins MGT - Sydney Office Unit F3-6 Building F, 16 Mars Road, Lane Cove 2066 email: EnviroSampleNSW@eurofins.com.au ph: +612 9900 8400	Sampled By: RL/EY	Project Name: Punchbowl
		Purchase Order #: N/A	Quote #:
		Page #: 1	Turnaround: Standard

#	Sample ID	Depth	Date Sampled	Matrix	Analytes													Suites	Sample Comments
					ph	CEC	%CLAY	Heavy Metals (8)	TRH	BTEXN	PAH	OC	PCB	Asbestos ID	Asbestos %w/w (NEPM /WA)	Phenol			
1	SS101	-	17.2.2022	Soil				X	X	X	X	x	x				B7+B13	Keep	
2																			
3																			

Special Directions and Comments:

Relinquished by	EY	Received By	Amy
Signature		Signature	B
Date	18.2.2022	Date	18/02

864760

Eurofins Environment Testing Australia Pty Ltd

ABN: 50 005 085 521

Melbourne
6 Monterey Road
Dandenong South VIC 3175
Phone : +61 3 8564 5000
NATA # 1261 Site # 1254

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

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

Newcastle
4/52 Industrial Drive
Mayfield East NSW 2304
PO Box 60 Wickham 2293
Phone : +61 2 4968 8448
NATA # 1261 Site # 25079

Eurofins ARL Pty Ltd

ABN: 91 05 0159 898

Perth
46-48 Banksia Road
Welshpool WA 6106
Phone : +61 8 6253 4444
NATA # 2377 Site # 2370

Eurofins Environment Testing NZ Limited

NZBN: 9429046024954

Auckland
35 O'Rorke Road
Penrose, Auckland 1061
Phone : +64 9 526 45 51
IANZ # 1327

Christchurch
43 Detroit Drive
Rolleston, Christchurch 7675
Phone : 0800 856 450
IANZ # 1290

Sample Receipt Advice

Company name: Foundation Earth Sciences
Contact name: Michael Silk (cc results)
Project name: PUNCHBOWL
Project ID: E2232-2
Turnaround time: 5 Day
Date/Time received: Feb 18, 2022 4:13 PM
Eurofins reference: 864760

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.
- ✓ Sample containers for volatile analysis received with zero headspace.
- ✗ Split sample sent to requested external lab.
- ✗ Some samples have been subcontracted.
- N/A Custody Seals intact (if used).

Notes

Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

Ursula Long on phone : or by email: UrsulaLong@eurofins.com

Results will be delivered electronically via email to Michael Silk (cc results) - michael@foundationes.com.au.

Company Name:	Foundation Earth Sciences	Order No.:		Received:	Feb 18, 2022 4:13 PM
Address:	PO BOX 4405	Report #:	864760	Due:	Feb 25, 2022
	East Gosford	Phone:		Priority:	5 Day
	NSW 2250	Fax:		Contact Name:	Michael Silk (cc results)
Project Name:	PUNCHBOWL				
Project ID:	E2232-2				

Eurofins Analytical Services Manager : Ursula Long

Sample Detail						Suite B13: OCP/PCB	Moisture Set	Eurofins Suite B7
Melbourne Laboratory - NATA # 1261 Site # 1254								
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794								
Mayfield Laboratory - NATA # 1261 Site # 25079								
Perth Laboratory - NATA # 2377 Site # 2370								
External Laboratory								
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID			
1	SS101	Feb 17, 2022		Soil	S22-Fe38590	X	X	X
Test Counts						1	1	1

Foundation Earth Sciences
PO BOX 4405
East Gosford
NSW 2250



NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
NATA is a signatory to the ILAC Mutual Recognition
Arrangement for the mutual recognition of the
equivalence of testing, medical testing, calibration,
inspection, proficiency testing scheme providers and
reference materials producers reports and certificates.

Attention: Michael Silk (cc results)

Report 864760-S
Project name PUNCHBOWL
Project ID E2232-2
Received Date Feb 18, 2022

Client Sample ID			SS101
Sample Matrix			Soil
Eurofins Sample No.			S22-Fe38590
Date Sampled			Feb 17, 2022
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons			
TRH C6-C9	20	mg/kg	< 20
TRH C10-C14	20	mg/kg	< 20
TRH C15-C28	50	mg/kg	< 50
TRH C29-C36	50	mg/kg	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50
Naphthalene ^{N02}	0.5	mg/kg	< 0.5
TRH C6-C10	20	mg/kg	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20
TRH >C10-C16	50	mg/kg	< 50
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50
TRH >C16-C34	100	mg/kg	< 100
TRH >C34-C40	100	mg/kg	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100
BTEX			
Benzene	0.1	mg/kg	< 0.1
Toluene	0.1	mg/kg	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2
o-Xylene	0.1	mg/kg	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3
4-Bromofluorobenzene (surr.)	1	%	86
Polycyclic Aromatic Hydrocarbons			
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2
Acenaphthene	0.5	mg/kg	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5
Anthracene	0.5	mg/kg	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5
Chrysene	0.5	mg/kg	< 0.5
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5

Client Sample ID			SS101
Sample Matrix			Soil
Eurofins Sample No.			S22-Fe38590
Date Sampled			Feb 17, 2022
Test/Reference	LOR	Unit	
Polycyclic Aromatic Hydrocarbons			
Fluoranthene	0.5	mg/kg	< 0.5
Fluorene	0.5	mg/kg	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5
Naphthalene	0.5	mg/kg	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5
Pyrene	0.5	mg/kg	< 0.5
Total PAH*	0.5	mg/kg	< 0.5
2-Fluorobiphenyl (surr.)	1	%	118
p-Terphenyl-d14 (surr.)	1	%	128
Organochlorine Pesticides			
Chlordanes - Total	0.1	mg/kg	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05
α-HCH	0.05	mg/kg	< 0.05
Aldrin	0.05	mg/kg	< 0.05
β-HCH	0.05	mg/kg	< 0.05
δ-HCH	0.05	mg/kg	< 0.05
Dieldrin	0.05	mg/kg	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05
Endrin	0.05	mg/kg	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05
γ-HCH (Lindane)	0.05	mg/kg	< 0.05
Heptachlor	0.05	mg/kg	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05
Toxaphene	0.5	mg/kg	< 0.5
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1
Dibutylchloroendate (surr.)	1	%	89
Tetrachloro-m-xylene (surr.)	1	%	108
Polychlorinated Biphenyls			
Aroclor-1016	0.1	mg/kg	< 0.1
Aroclor-1221	0.1	mg/kg	< 0.1
Aroclor-1232	0.1	mg/kg	< 0.1
Aroclor-1242	0.1	mg/kg	< 0.1
Aroclor-1248	0.1	mg/kg	< 0.1
Aroclor-1254	0.1	mg/kg	< 0.1
Aroclor-1260	0.1	mg/kg	< 0.1
Total PCB*	0.1	mg/kg	< 0.1
Dibutylchloroendate (surr.)	1	%	89
Tetrachloro-m-xylene (surr.)	1	%	108

Client Sample ID			SS101
Sample Matrix			Soil
Eurofins Sample No.			S22-Fe38590
Date Sampled			Feb 17, 2022
Test/Reference	LOR	Unit	
Heavy Metals			
Arsenic	2	mg/kg	< 2
Cadmium	0.4	mg/kg	< 0.4
Chromium	5	mg/kg	46
Copper	5	mg/kg	45
Lead	5	mg/kg	< 5
Mercury	0.1	mg/kg	< 0.1
Nickel	5	mg/kg	150
Zinc	5	mg/kg	64
% Moisture	1	%	8.5

Sample History

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

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 - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Feb 21, 2022	14 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Feb 21, 2022	14 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Feb 21, 2022	14 Days
BTEX - Method: LTM-ORG-2010 BTEX and Volatile TRH	Sydney	Feb 21, 2022	14 Days
Polycyclic Aromatic Hydrocarbons - Method: LTM-ORG-2130 PAH and Phenols in Soil and Water	Sydney	Feb 21, 2022	14 Days
Metals M8 - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS	Sydney	Feb 21, 2022	28 Days
Organochlorine Pesticides - Method: LTM-ORG-2220 OCP & PCB in Soil and Water	Sydney	Feb 21, 2022	14 Days
Polychlorinated Biphenyls - Method: LTM-ORG-2220 OCP & PCB in Soil and Water	Sydney	Feb 21, 2022	28 Days
% Moisture - Method: LTM-GEN-7080 Moisture	Sydney	Feb 19, 2022	14 Days

Company Name:	Foundation Earth Sciences	Order No.:		Received:	Feb 18, 2022 4:13 PM
Address:	PO BOX 4405 East Gosford NSW 2250	Report #:	864760	Due:	Feb 25, 2022
Project Name:	PUNCHBOWL	Phone:		Priority:	5 Day
Project ID:	E2232-2	Fax:		Contact Name:	Michael Silk (cc results)
Eurofins Analytical Services Manager : Ursula Long					

Sample Detail						Suite B13: OCP/PCB	Moisture Set	Eurofins Suite B7
Melbourne Laboratory - NATA # 1261 Site # 1254								
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794								
Mayfield Laboratory - NATA # 1261 Site # 25079								
Perth Laboratory - NATA # 2377 Site # 2370								
External Laboratory								
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID			
1	SS101	Feb 17, 2022		Soil	S22-Fe38590	X	X	X
Test Counts						1	1	1

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer that may have an impact on the results.
9. 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 SRA.

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.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

Units

mg/kg: milligrams per kilogram	mg/L: milligrams per litre	µg/L: micrograms per litre
ppm: parts per million	ppb: parts per billion	%: Percentage
org/100 mL: Organisms per 100 millilitres	NTU: Nephelometric Turbidity Units	MPN/100 mL: Most Probable Number of organisms per 100 millilitres

Terms

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
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.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	Tributyltin oxide (<i>bis</i> -tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment however free tributyltin was measured and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should be used as a guide only and may be different when site specific Sampling Analysis and Quality Plan (SAQP) have been implemented

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%

NOTE: pH duplicates are reported as a range not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.4 where no positive PFAS results have been reported have been reviewed and no data was affected.

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. 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.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs 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							
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	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	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							
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							
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-HCH	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-HCH	mg/kg	< 0.05			0.05	Pass	
d-HCH	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
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	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-HCH (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	< 0.05			0.05	Pass	
Toxaphene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Polychlorinated Biphenyls							
Aroclor-1016	mg/kg	< 0.1			0.1	Pass	
Aroclor-1221	mg/kg	< 0.1			0.1	Pass	
Aroclor-1232	mg/kg	< 0.1			0.1	Pass	
Aroclor-1242	mg/kg	< 0.1			0.1	Pass	
Aroclor-1248	mg/kg	< 0.1			0.1	Pass	
Aroclor-1254	mg/kg	< 0.1			0.1	Pass	
Aroclor-1260	mg/kg	< 0.1			0.1	Pass	
Total PCB*	mg/kg	< 0.1			0.1	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	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons							
TRH C6-C9	%	76			70-130	Pass	
TRH C10-C14	%	87			70-130	Pass	
Naphthalene	%	93			70-130	Pass	
TRH C6-C10	%	72			70-130	Pass	
TRH >C10-C16	%	87			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	80			70-130	Pass	
Toluene	%	81			70-130	Pass	
Ethylbenzene	%	77			70-130	Pass	
m&p-Xylenes	%	78			70-130	Pass	
o-Xylene	%	81			70-130	Pass	
Xylenes - Total*	%	79			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	101			70-130	Pass	
Acenaphthylene	%	92			70-130	Pass	
Anthracene	%	96			70-130	Pass	
Benz(a)anthracene	%	90			70-130	Pass	
Benzo(a)pyrene	%	93			70-130	Pass	
Benzo(b&j)fluoranthene	%	87			70-130	Pass	
Benzo(g,h,i)perylene	%	90			70-130	Pass	
Benzo(k)fluoranthene	%	99			70-130	Pass	
Chrysene	%	93			70-130	Pass	

Test				Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Dibenz(a,h)anthracene				%	86			70-130	Pass	
Fluoranthene				%	91			70-130	Pass	
Fluorene				%	92			70-130	Pass	
Indeno(1.2.3-cd)pyrene				%	89			70-130	Pass	
Naphthalene				%	92			70-130	Pass	
Phenanthrene				%	96			70-130	Pass	
Pyrene				%	90			70-130	Pass	
LCS - % Recovery										
Organochlorine Pesticides										
Chlordanes - Total				%	92			70-130	Pass	
4.4'-DDD				%	73			70-130	Pass	
4.4'-DDE				%	90			70-130	Pass	
4.4'-DDT				%	84			70-130	Pass	
a-HCH				%	87			70-130	Pass	
Aldrin				%	87			70-130	Pass	
b-HCH				%	87			70-130	Pass	
d-HCH				%	84			70-130	Pass	
Dieldrin				%	98			70-130	Pass	
Endosulfan I				%	94			70-130	Pass	
Endosulfan II				%	85			70-130	Pass	
Endosulfan sulphate				%	91			70-130	Pass	
Endrin				%	80			70-130	Pass	
Endrin aldehyde				%	80			70-130	Pass	
Endrin ketone				%	87			70-130	Pass	
g-HCH (Lindane)				%	87			70-130	Pass	
Heptachlor				%	77			70-130	Pass	
Heptachlor epoxide				%	92			70-130	Pass	
Hexachlorobenzene				%	94			70-130	Pass	
Methoxychlor				%	127			70-130	Pass	
LCS - % Recovery										
Polychlorinated Biphenyls										
Aroclor-1016				%	94			70-130	Pass	
LCS - % Recovery										
Heavy Metals										
Arsenic				%	94			80-120	Pass	
Cadmium				%	89			80-120	Pass	
Chromium				%	94			80-120	Pass	
Copper				%	91			80-120	Pass	
Lead				%	98			80-120	Pass	
Mercury				%	87			80-120	Pass	
Nickel				%	89			80-120	Pass	
Zinc				%	86			80-120	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1				Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery										
Total Recoverable Hydrocarbons					Result 1					
TRH C6-C9	S22-Fe44354	NCP	%	74				70-130	Pass	
TRH C10-C14	S22-Fe42295	NCP	%	93				70-130	Pass	
Naphthalene	S22-Fe38297	NCP	%	83				70-130	Pass	
TRH C6-C10	S22-Fe44354	NCP	%	70				70-130	Pass	
TRH >C10-C16	S22-Fe42295	NCP	%	94				70-130	Pass	
Spike - % Recovery										
BTEX					Result 1					
Benzene	S22-Fe38297	NCP	%	76				70-130	Pass	
Toluene	S22-Fe38297	NCP	%	73				70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Ethylbenzene	S22-Fe38297	NCP	%	72			70-130	Pass	
m&p-Xylenes	S22-Fe38297	NCP	%	70			70-130	Pass	
o-Xylene	S22-Fe38297	NCP	%	75			70-130	Pass	
Xylenes - Total*	S22-Fe38297	NCP	%	72			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S22-Fe39294	NCP	%	106			75-125	Pass	
Cadmium	S22-Fe39294	NCP	%	102			75-125	Pass	
Chromium	S22-Fe39294	NCP	%	109			75-125	Pass	
Copper	S22-Fe39294	NCP	%	96			75-125	Pass	
Lead	S22-Fe39294	NCP	%	113			75-125	Pass	
Mercury	S22-Fe39294	NCP	%	94			75-125	Pass	
Nickel	S22-Fe39294	NCP	%	115			75-125	Pass	
Zinc	S22-Fe40779	NCP	%	85			75-125	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C6-C9	S22-Fe39289	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	S22-Fe38590	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S22-Fe38590	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	S22-Fe38590	CP	mg/kg	< 50	< 50	<1	30%	Pass	
Naphthalene	S22-Fe39289	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S22-Fe39289	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH >C10-C16	S22-Fe38590	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	S22-Fe38590	CP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	S22-Fe38590	CP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S22-Fe39289	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S22-Fe39289	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S22-Fe39289	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S22-Fe39289	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S22-Fe39289	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total*	S22-Fe39289	NCP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S22-Fe38590	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S22-Fe38590	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S22-Fe38590	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S22-Fe38590	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	S22-Fe38590	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&i)fluoranthene	S22-Fe38590	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g,h,i)perylene	S22-Fe38590	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	S22-Fe38590	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	S22-Fe38590	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a,h)anthracene	S22-Fe38590	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S22-Fe38590	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	S22-Fe38590	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1,2,3-cd)pyrene	S22-Fe38590	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	S22-Fe38590	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	S22-Fe38590	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	S22-Fe38590	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Duplicate								
Organochlorine Pesticides				Result 1	Result 2	RPD		
Chlordanes - Total	S22-Fe38590	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
4,4'-DDD	S22-Fe38590	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
4,4'-DDE	S22-Fe38590	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
4,4'-DDT	S22-Fe38590	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
a-HCH	S22-Fe38590	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Aldrin	S22-Fe38590	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
b-HCH	S22-Fe38590	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
d-HCH	S22-Fe38590	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Dieldrin	S22-Fe38590	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endosulfan I	S22-Fe38590	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endosulfan II	S22-Fe38590	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endosulfan sulphate	S22-Fe38590	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin	S22-Fe38590	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin aldehyde	S22-Fe38590	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin ketone	S22-Fe38590	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
g-HCH (Lindane)	S22-Fe38590	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Heptachlor	S22-Fe38590	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Heptachlor epoxide	S22-Fe38590	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Hexachlorobenzene	S22-Fe38590	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Methoxychlor	S22-Fe38590	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Toxaphene	S22-Fe38590	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Duplicate								
Polychlorinated Biphenyls				Result 1	Result 2	RPD		
Aroclor-1016	S22-Fe38590	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Aroclor-1221	S22-Fe38590	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Aroclor-1232	S22-Fe38590	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Aroclor-1242	S22-Fe38590	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Aroclor-1248	S22-Fe38590	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Aroclor-1254	S22-Fe38590	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Aroclor-1260	S22-Fe38590	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Total PCB*	S22-Fe38590	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic	S22-Fe38590	CP	mg/kg	< 2	< 2	<1	30%	Pass
Cadmium	S22-Fe38590	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass
Chromium	S22-Fe38590	CP	mg/kg	46	48	4.0	30%	Pass
Copper	S22-Fe38590	CP	mg/kg	45	48	6.0	30%	Pass
Lead	S22-Fe38590	CP	mg/kg	< 5	< 5	<1	30%	Pass
Mercury	S22-Fe38590	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Nickel	S22-Fe38590	CP	mg/kg	150	160	6.0	30%	Pass
Zinc	S22-Fe38590	CP	mg/kg	64	68	6.0	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
% Moisture	S22-Fe38590	CP	%	8.5	7.9	7.0	30%	Pass

Q15

Comments

Eurofins | Environment Testing accreditation number 1261, site 18217 is currently in progress of a controlled transition to a new custom built location at 179 Magowar Road, Girraween, NSW 2145. All results on this report denoted as being performed by Eurofins | Environment Testing Unit F3, Building F, 16 Mars road, Lane Cove West, NSW 2066, corporate site 18217, will have been performed on either Lane Cove or new Girraween site

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 Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.

Authorised by:

Hannah Mawbey	Analytical Services Manager
Andrew Sullivan	Senior Analyst-Organic (NSW)
John Nguyen	Senior Analyst-Metal (NSW)
Roopesh Rangarajan	Senior Analyst-Volatile (NSW)



Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

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

Measurement uncertainty of test data is available on request or please [click here](#).

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CERTIFICATE OF ANALYSIS 289819

Client Details

Client	Foundation Earth Sciences Pty Ltd
Attention	Michael Silk
Address	PO Box 4405, East Gosford, NSW, 2250

Sample Details

Your Reference	<u>E2232-2, Punchbowl</u>
Number of Samples	6 Water
Date samples received	25/02/2022
Date completed instructions received	25/02/2022

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.

Report Details

Date results requested by	04/03/2022
Date of Issue	04/03/2022
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Results Approved By

Dragana Tomas, Senior Chemist
 Giovanni Agosti, Group Technical Manager
 Kyle Gavrily, Chemist

Authorised By



Nancy Zhang, Laboratory Manager

VOCs in water						
Our Reference	UNITS	289819-1	289819-2	289819-3	289819-4	289819-6
Your Reference		GW1	GW2	GW3	GWD101	TB101
Date Sampled		24/02/2022	24/02/2022	24/02/2022	24/02/2022	24/02/2022
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	01/03/2022	01/03/2022	01/03/2022	01/03/2022	01/03/2022
Date analysed	-	01/03/2022	01/03/2022	01/03/2022	01/03/2022	01/03/2022
Dichlorodifluoromethane	µg/L	<10	<10	<10	<10	<10
Chloromethane	µg/L	<10	<10	<10	<10	<10
Vinyl Chloride	µg/L	<10	<10	<10	<10	<10
Bromomethane	µg/L	<10	<10	<10	<10	<10
Chloroethane	µg/L	<10	<10	<10	<10	<10
Trichlorofluoromethane	µg/L	<10	<10	<10	<10	<10
1,1-Dichloroethene	µg/L	<1	<1	<1	<1	<1
Trans-1,2-dichloroethene	µg/L	<1	<1	<1	<1	<1
1,1-dichloroethane	µg/L	<1	<1	<1	<1	<1
Cis-1,2-dichloroethene	µg/L	<1	<1	<1	<1	<1
Bromochloromethane	µg/L	<1	<1	<1	<1	<1
Chloroform	µg/L	<1	<1	<1	<1	<1
2,2-dichloropropane	µg/L	<1	<1	<1	<1	<1
1,2-dichloroethane	µg/L	<1	<1	<1	<1	<1
1,1,1-trichloroethane	µg/L	<1	<1	<1	<1	<1
1,1-dichloropropene	µg/L	<1	<1	<1	<1	<1
Cyclohexane	µg/L	<1	<1	<1	<1	<1
Carbon tetrachloride	µg/L	<1	<1	<1	<1	<1
Benzene	µg/L	<1	<1	<1	<1	<1
Dibromomethane	µg/L	<1	<1	<1	<1	<1
1,2-dichloropropane	µg/L	<1	<1	<1	<1	<1
Trichloroethene	µg/L	<1	<1	<1	<1	<1
Bromodichloromethane	µg/L	<1	<1	<1	<1	<1
trans-1,3-dichloropropene	µg/L	<1	<1	<1	<1	<1
cis-1,3-dichloropropene	µg/L	<1	<1	<1	<1	<1
1,1,2-trichloroethane	µg/L	<1	<1	<1	<1	<1
Toluene	µg/L	<1	<1	<1	<1	<1
1,3-dichloropropane	µg/L	<1	<1	<1	<1	<1
Dibromochloromethane	µg/L	<1	<1	<1	<1	<1
1,2-dibromoethane	µg/L	<1	<1	<1	<1	<1
Tetrachloroethene	µg/L	<1	<1	<1	<1	<1
1,1,1,2-tetrachloroethane	µg/L	<1	<1	<1	<1	<1
Chlorobenzene	µg/L	<1	<1	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1	<1	<1

VOCs in water						
Our Reference	UNITS	289819-1	289819-2	289819-3	289819-4	289819-6
Your Reference		GW1	GW2	GW3	GWD101	TB101
Date Sampled		24/02/2022	24/02/2022	24/02/2022	24/02/2022	24/02/2022
Type of sample		Water	Water	Water	Water	Water
Bromoform	µg/L	<1	<1	<1	<1	<1
m+p-xylene	µg/L	<2	<2	<2	<2	<2
Styrene	µg/L	<1	<1	<1	<1	<1
1,1,2,2-tetrachloroethane	µg/L	<1	<1	<1	<1	<1
o-xylene	µg/L	<1	<1	<1	<1	<1
1,2,3-trichloropropane	µg/L	<1	<1	<1	<1	<1
Isopropylbenzene	µg/L	<1	<1	<1	<1	<1
Bromobenzene	µg/L	<1	<1	<1	<1	<1
n-propyl benzene	µg/L	<1	<1	<1	<1	<1
2-chlorotoluene	µg/L	<1	<1	<1	<1	<1
4-chlorotoluene	µg/L	<1	<1	<1	<1	<1
1,3,5-trimethyl benzene	µg/L	<1	<1	<1	<1	<1
Tert-butyl benzene	µg/L	<1	<1	<1	<1	<1
1,2,4-trimethyl benzene	µg/L	<1	<1	<1	<1	<1
1,3-dichlorobenzene	µg/L	<1	<1	<1	<1	<1
Sec-butyl benzene	µg/L	<1	<1	<1	<1	<1
1,4-dichlorobenzene	µg/L	<1	<1	<1	<1	<1
4-isopropyl toluene	µg/L	<1	<1	<1	<1	<1
1,2-dichlorobenzene	µg/L	<1	<1	<1	<1	<1
n-butyl benzene	µg/L	<1	<1	<1	<1	<1
1,2-dibromo-3-chloropropane	µg/L	<1	<1	<1	<1	<1
1,2,4-trichlorobenzene	µg/L	<1	<1	<1	<1	<1
Hexachlorobutadiene	µg/L	<1	<1	<1	<1	<1
1,2,3-trichlorobenzene	µg/L	<1	<1	<1	<1	<1
Surrogate Dibromofluoromethane	%	113	113	116	108	120
Surrogate toluene-d8	%	95	96	100	95	99
Surrogate 4-BFB	%	105	108	108	103	108

vTRH(C6-C10)/BTEXN in Water						
Our Reference	UNITS	289819-1	289819-2	289819-3	289819-4	289819-5
Your Reference		GW1	GW2	GW3	GWD101	TS101
Date Sampled		24/02/2022	24/02/2022	24/02/2022	24/02/2022	24/02/2022
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	01/03/2022	01/03/2022	01/03/2022	01/03/2022	01/03/2022
Date analysed	-	01/03/2022	01/03/2022	01/03/2022	01/03/2022	01/03/2022
TRH C ₆ - C ₉	µg/L	<10	<10	<10	<10	[NA]
TRH C ₆ - C ₁₀	µg/L	<10	<10	<10	<10	[NA]
TRH C ₆ - C ₁₀ less BTEX (F1)	µg/L	<10	<10	<10	<10	[NA]
Benzene	µg/L	<1	<1	<1	<1	100%
Toluene	µg/L	<1	<1	<1	<1	99%
Ethylbenzene	µg/L	<1	<1	<1	<1	98%
m+p-xylene	µg/L	<2	<2	<2	<2	94%
o-xylene	µg/L	<1	<1	<1	<1	103%
Naphthalene	µg/L	<1	<1	<1	<1	[NA]
Surrogate Dibromofluoromethane	%	113	113	116	108	118
Surrogate toluene-d8	%	95	96	100	95	103
Surrogate 4-BFB	%	105	108	108	103	108

vTRH(C6-C10)/BTEXN in Water		
Our Reference	UNITS	289819-6
Your Reference		TB101
Date Sampled		24/02/2022
Type of sample		Water
Date extracted	-	01/03/2022
Date analysed	-	01/03/2022
TRH C ₆ - C ₉	µg/L	<10
TRH C ₆ - C ₁₀	µg/L	<10
TRH C ₆ - C ₁₀ less BTEX (F1)	µg/L	<10
Benzene	µg/L	<1
Toluene	µg/L	<1
Ethylbenzene	µg/L	<1
m+p-xylene	µg/L	<2
o-xylene	µg/L	<1
Naphthalene	µg/L	<1
Surrogate Dibromofluoromethane	%	120
Surrogate toluene-d8	%	99
Surrogate 4-BFB	%	108

svTRH (C10-C40) in Water					
Our Reference		289819-1	289819-2	289819-3	289819-4
Your Reference	UNITS	GW1	GW2	GW3	GWD101
Date Sampled		24/02/2022	24/02/2022	24/02/2022	24/02/2022
Type of sample		Water	Water	Water	Water
Date extracted	-	01/03/2022	01/03/2022	01/03/2022	01/03/2022
Date analysed	-	02/03/2022	02/03/2022	02/03/2022	02/03/2022
TRH C ₁₀ - C ₁₄	µg/L	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	µg/L	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	µg/L	<100	<100	<100	<100
Total +ve TRH (C10-C36)	µg/L	<50	<50	<50	<50
TRH >C ₁₀ - C ₁₆	µg/L	<50	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	µg/L	<50	<50	<50	<50
TRH >C ₁₆ - C ₃₄	µg/L	<100	<100	<100	<100
TRH >C ₃₄ - C ₄₀	µg/L	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	µg/L	<50	<50	<50	<50
Surrogate o-Terphenyl	%	100	86	90	86

PAHs in Water - Low Level					
Our Reference		289819-1	289819-2	289819-3	289819-4
Your Reference	UNITS	GW1	GW2	GW3	GWD101
Date Sampled		24/02/2022	24/02/2022	24/02/2022	24/02/2022
Type of sample		Water	Water	Water	Water
Date extracted	-	01/03/2022	01/03/2022	01/03/2022	01/03/2022
Date analysed	-	02/03/2022	02/03/2022	02/03/2022	02/03/2022
Naphthalene	µg/L	<0.2	<0.2	<0.2	<0.2
Acenaphthylene	µg/L	<0.1	<0.1	<0.1	<0.1
Acenaphthene	µg/L	<0.1	<0.1	<0.1	<0.1
Fluorene	µg/L	<0.1	<0.1	<0.1	<0.1
Phenanthrene	µg/L	<0.1	<0.1	<0.1	<0.1
Anthracene	µg/L	<0.1	<0.1	<0.1	<0.1
Fluoranthene	µg/L	<0.1	<0.1	<0.1	<0.1
Pyrene	µg/L	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	µg/L	<0.1	<0.1	<0.1	<0.1
Chrysene	µg/L	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	µg/L	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	µg/L	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	µg/L	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	µg/L	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	µg/L	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ	µg/L	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	µg/L	<0.1	<0.1	<0.1	<0.1
Surrogate <i>p</i> -Terphenyl-d14	%	100	101	102	99

HM in water - dissolved					
Our Reference		289819-1	289819-2	289819-3	289819-4
Your Reference	UNITS	GW1	GW2	GW3	GWD101
Date Sampled		24/02/2022	24/02/2022	24/02/2022	24/02/2022
Type of sample		Water	Water	Water	Water
Date prepared	-	02/03/2022	02/03/2022	02/03/2022	02/03/2022
Date analysed	-	02/03/2022	02/03/2022	02/03/2022	02/03/2022
Arsenic-Dissolved	µg/L	1	<1	<1	1
Cadmium-Dissolved	µg/L	<0.1	<0.1	<0.1	<0.1
Chromium-Dissolved	µg/L	<1	<1	<1	<1
Copper-Dissolved	µg/L	<1	6	<1	<1
Lead-Dissolved	µg/L	<1	<1	<1	<1
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05	<0.05
Nickel-Dissolved	µg/L	3	<1	2	3
Zinc-Dissolved	µg/L	3	5	5	3

Method ID	Methodology Summary
Metals-021	Determination of Mercury by Cold Vapour AAS.
Metals-022	Determination of various metals by ICP-MS.
Org-020	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-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Org-023	Water samples are analysed directly by purge and trap GC-MS.
Org-023	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.

Client Reference: E2232-2, Punchbowl

QUALITY CONTROL: VOCs in water					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
Date extracted	-			01/03/2022	1	01/03/2022	02/03/2022		01/03/2022	[NT]
Date analysed	-			01/03/2022	1	01/03/2022	02/03/2022		01/03/2022	[NT]
Dichlorodifluoromethane	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
Chloromethane	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
Vinyl Chloride	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
Bromomethane	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
Chloroethane	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
Trichlorofluoromethane	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
1,1-Dichloroethene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Trans-1,2-dichloroethene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,1-dichloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	112	[NT]
Cis-1,2-dichloroethene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Bromochloromethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Chloroform	µg/L	1	Org-023	<1	1	<1	<1	0	114	[NT]
2,2-dichloropropane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2-dichloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	106	[NT]
1,1,1-trichloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	109	[NT]
1,1-dichloropropene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Cyclohexane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Carbon tetrachloride	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Dibromomethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2-dichloropropane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Trichloroethene	µg/L	1	Org-023	<1	1	<1	<1	0	118	[NT]
Bromodichloromethane	µg/L	1	Org-023	<1	1	<1	<1	0	103	[NT]
trans-1,3-dichloropropene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
cis-1,3-dichloropropene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,1,2-trichloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Toluene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,3-dichloropropane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Dibromochloromethane	µg/L	1	Org-023	<1	1	<1	<1	0	106	[NT]
1,2-dibromoethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Tetrachloroethene	µg/L	1	Org-023	<1	1	<1	<1	0	103	[NT]
1,1,1,2-tetrachloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Chlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Bromoform	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
m+p-xylene	µg/L	2	Org-023	<2	1	<2	<2	0	[NT]	[NT]
Styrene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,1,2,2-tetrachloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]

QUALITY CONTROL: VOCs in water					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
o-xylene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2,3-trichloropropane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Isopropylbenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Bromobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
n-propyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
2-chlorotoluene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
4-chlorotoluene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,3,5-trimethyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Tert-butyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2,4-trimethyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,3-dichlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Sec-butyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,4-dichlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
4-isopropyl toluene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2-dichlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
n-butyl benzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2-dibromo-3-chloropropane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2,4-trichlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Hexachlorobutadiene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2,3-trichlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	117	1	113	111	2	92	[NT]
Surrogate toluene-d8	%		Org-023	102	1	95	95	0	100	[NT]
Surrogate 4-BFB	%		Org-023	107	1	105	105	0	100	[NT]

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
Date extracted	-			01/03/2022	1	01/03/2022	02/03/2022		01/03/2022	[NT]
Date analysed	-			01/03/2022	1	01/03/2022	02/03/2022		01/03/2022	[NT]
TRH C ₆ - C ₉	µg/L	10	Org-023	<10	1	<10	<10	0	113	[NT]
TRH C ₆ - C ₁₀	µg/L	10	Org-023	<10	1	<10	<10	0	113	[NT]
Benzene	µg/L	1	Org-023	<1	1	<1	<1	0	107	[NT]
Toluene	µg/L	1	Org-023	<1	1	<1	<1	0	111	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	1	<1	<1	0	114	[NT]
m+p-xylene	µg/L	2	Org-023	<2	1	<2	<2	0	117	[NT]
o-xylene	µg/L	1	Org-023	<1	1	<1	<1	0	114	[NT]
Naphthalene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	117	1	113	111	2	92	[NT]
Surrogate toluene-d8	%		Org-023	102	1	95	95	0	100	[NT]
Surrogate 4-BFB	%		Org-023	107	1	105	105	0	100	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	289819-2
Date extracted	-			01/03/2022	1	01/03/2022	01/03/2022		01/03/2022	01/03/2022
Date analysed	-			02/03/2022	1	02/03/2022	02/03/2022		02/03/2022	02/03/2022
TRH C ₁₀ - C ₁₄	µg/L	50	Org-020	<50	1	<50	<50	0	130	119
TRH C ₁₅ - C ₂₈	µg/L	100	Org-020	<100	1	<100	<100	0	125	106
TRH C ₂₉ - C ₃₆	µg/L	100	Org-020	<100	1	<100	<100	0	125	103
TRH >C ₁₀ - C ₁₆	µg/L	50	Org-020	<50	1	<50	<50	0	130	119
TRH >C ₁₆ - C ₃₄	µg/L	100	Org-020	<100	1	<100	<100	0	125	106
TRH >C ₃₄ - C ₄₀	µg/L	100	Org-020	<100	1	<100	<100	0	125	103
Surrogate o-Terphenyl	%		Org-020	104	1	100	87	14	102	96

QUALITY CONTROL: PAHs in Water - Low Level					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	289819-3
Date extracted	-			01/03/2022	1	01/03/2022	01/03/2022		01/03/2022	01/03/2022
Date analysed	-			02/03/2022	1	02/03/2022	02/03/2022		02/03/2022	02/03/2022
Naphthalene	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	86	101
Acenaphthylene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	91	107
Fluorene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	93	109
Phenanthrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	100	114
Anthracene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	94	104
Pyrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	95	105
Benzo(a)anthracene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chrysene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	74	75
Benzo(b,j+k)fluoranthene	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	104	114
Indeno(1,2,3-c,d)pyrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	105	1	100	98	2	101	103

QUALITY CONTROL: HM in water - dissolved					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	289819-2
Date prepared	-			02/03/2022	1	02/03/2022	02/03/2022		02/03/2022	02/03/2022
Date analysed	-			02/03/2022	1	02/03/2022	02/03/2022		02/03/2022	02/03/2022
Arsenic-Dissolved	µg/L	1	Metals-022	<1	1	1	<1	0	102	96
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	1	<0.1	<0.1	0	102	96
Chromium-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	96	90
Copper-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	101	95
Lead-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	103	94
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	1	<0.05	<0.05	0	100	113
Nickel-Dissolved	µg/L	1	Metals-022	<1	1	3	3	0	101	93
Zinc-Dissolved	µg/L	1	Metals-022	<1	1	3	2	40	102	96

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

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.
Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.	
The recommended maximums for analytes in urine are taken from "2018 TLVs and BEIs", as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.	
Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2	

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: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics 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.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.



EnviroLab Services
12 Ashley St
Chatswood NSW 1597
Ph: (02) 9910 6200

Job No:

289819

Date Received: 25/02/22

Time Received: 1440

Received by: [Signature]



Chain of Custody Record

Client Details:	Foundation Earth Sciences PO Box 4405, East Gosford NSW 2250 email: ben@foundations.com.au michael@foundations.com.au; ray@foundations.com.au emerson@foundations.com.au ph: +61466 385 221	Project Manager:	Michael Silk	Project #:	E2232-2
	Delivery Details:	Envirolab Pty Ltd 12 Ashley Street, Chatswood NSW 2067 email: ahie@envirolab.com.au ph: +612 9910 6200	Sampled By:	EY	Project Name:
		Purchase Order #:	N/A	Quote #:	
		Page #:	1	Turnaround time:	Standard

#	Sample ID	Depth	Date Sampled	Matrix	Analytes													Sample Comments
					Heavy Metals (8)	TRH	BTEXN	PAH Low	VOC	TRH C6-C10 & BTEXN							Envirolab Suites	
1	GW1	-	24.2.2022	Water	X	X	X	X	X								Combo 3L	Keep
2	GW2	-	24.2.2022	Water	X	X	X	X	X								Combo 3L	Keep
3	GW3	-	24.2.2022	Water	X	X	X	X	X								Combo 3L	Keep
4	GWD101	-	24.2.2022	Water	X	X	X	X	X								Combo 3L	Keep
5	TS101	-	24.2.2022	Water					X	X							-	Keep
6	TB101	-	24.2.2022	Water					X	X							-	Keep
7																		Keep
8																		Keep

Special Directions and Comments:			
Relinquished by	EY	Received By	May 25/2/2022
Signature	[Signature]	Signature	[Signature]
Date	25.2.2022	Date	25/2/2022
		Method of shipment	
		Courier	

1440

SAMPLE RECEIPT ADVICE

Client Details

Client	Foundation Earth Sciences Pty Ltd
Attention	Michael Silk

Sample Login Details

Your reference	E2232-2, Punchbowl
Envirolab Reference	289819
Date Sample Received	25/02/2022
Date Instructions Received	25/02/2022
Date Results Expected to be Reported	04/03/2022

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	6 Water
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	6
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	Phone: 02 9910 6200
Fax: 02 9910 6201	Fax: 02 9910 6201
Email: ahie@envirolab.com.au	Email: jhurst@envirolab.com.au

Analysis Underway, details on the following page:

Sample ID	VOCs in water	VTRH(C6-C10)/BTEXN in Water	svTRH (C10-C40) in Water	PAHs in Water - Low Level	HM in water - dissolved
GW1	✓	✓	✓	✓	✓
GW2	✓	✓	✓	✓	✓
GW3	✓	✓	✓	✓	✓
GWD101	✓	✓	✓	✓	✓
TS101		✓			
TB101	✓	✓			

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.

TAT for Micro is dependent on incubation. This varies from 3 to 6 days.



Chain of Custody Record

Client Details:

Foundation Earth Sciences
PO Box 4405, East Gosford NSW 2250
email: ben@foundations.com.au
michael@foundations.com.au; ray@foundations.com.au
p1: +61466 385 221

Delivery Details:

Eurofins MGT - Sydney Office
Unit F3-6 Building F, 16 Mars Road, Lane Cove 2066
email: EnviroSampleNSW@eurofins.com.au
ph: +612 9900 8400

Project Manager: Michael Silk

Sampled By: EY

Purchase Order #: N/A

Page #: 1

Project #: E2232-2

Project Name: Punchbowl

Quote #:

Turnaround: Standard

Sample Comments

Analytes

#	Sample ID	Depth	Date Sampled	Matrix	ph	CEC	%CLAY	HM	TRH	BTEXN	PAH	OC	VOC	Asbestos ID	Asbestos %w/w (NEPM /WA)	Phenol	Suites	Sample Comments
1	GWSS101		24.2.2022	Water				X	X	X	X		X				B7	Keep

Special Directions and Comments:

Relinquished by: EY

Signature

Date: 25.2.2022

Received By

Signature

Date

9-82C 867 38

25/2/22

GIL syd

3PM

Eurofins Environment Testing Australia Pty Ltd

ABN: 50 005 085 521

Melbourne 6 Monterey Road Dandenong South VIC 3175 Phone : +61 3 8564 5000 NATA # 1261 Site # 1254	Sydney Unit F3, Building F 16 Mars Road Lane Cove West NSW 2066 Phone : +61 2 9900 8400 NATA # 1261 Site # 18217	Brisbane 1/21 Smallwood Place Murarrie QLD 4172 Phone : +61 7 3902 4600 NATA # 1261 Site # 20794	Newcastle 4/52 Industrial Drive Mayfield East NSW 2304 PO Box 60 Wickham 2293 Phone : +61 2 4968 8448 NATA # 1261 Site # 25079	Perth 46-48 Banksia Road Welshpool WA 6106 Phone : +61 8 6253 4444 NATA # 2377 Site # 2370	Auckland 35 O'Rorke Road Penrose, Auckland 1061 Phone : +64 9 526 45 51 IANZ # 1327	Christchurch 43 Detroit Drive Rolleston, Christchurch 7675 Phone : 0800 856 450 IANZ # 1290
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Eurofins ARL Pty Ltd

ABN: 91 05 0159 898

Eurofins Environment Testing NZ Limited

NZBN: 9429046024954

Sample Receipt Advice

Company name:	Foundation Earth Sciences
Contact name:	Michael Silk (cc results)
Project name:	PUNCHBOWL
Project ID:	E2232-2
Turnaround time:	5 Day
Date/Time received	Feb 25, 2022 3:00 PM
Eurofins reference	867386

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.
- ✓ Sample containers for volatile analysis received with zero headspace.
- ✗ Split sample sent to requested external lab.
- ✗ Some samples have been subcontracted.
- N/A Custody Seals intact (if used).

Notes

Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

Ursula Long on phone : or by email: UrsulaLong@eurofins.com

Results will be delivered electronically via email to Michael Silk (cc results) - michael@foundationes.com.au.



Environment Testing

Eurofins Environment Testing Australia Pty Ltd

ABN: 50 005 085 521

Melbourne
6 Monterey Road
Dandenong South VIC 3175
Phone : +61 3 8564 5000
NATA # 1261 Site # 1254

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Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

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

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4/52 Industrial Drive
Mayfield East NSW 2304
PO Box 60 Wickham 2293
Phone : +61 2 4968 8448
NATA # 1261 Site # 25079

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NATA # 2377 Site # 2370

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NZBN: 9429046024954

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35 O'Rorke Road
Penrose, Auckland 1061
Phone : +64 9 526 45 51
IANZ # 1327

Christchurch
43 Detroit Drive
Rolleston, Christchurch 7675
Phone : 0800 856 450
IANZ # 1290

web: www.eurofins.com.au
email: EnviroSales@eurofins.com

Company Name: Foundation Earth Sciences
Address: PO BOX 4405
East Gosford
NSW 2250

Project Name: PUNCHBOWL
Project ID: E2232-2

Order No.:
Report #: 867386
Phone:
Fax:

Received: Feb 25, 2022 3:00 PM
Due: Mar 4, 2022
Priority: 5 Day
Contact Name: Michael Silk (cc results)

Eurofins Analytical Services Manager : Ursula Long

Sample Detail

Volatile Organics

Eurofins Suite B7

Melbourne Laboratory - NATA # 1261 Site # 1254

Sydney Laboratory - NATA # 1261 Site # 18217

Brisbane Laboratory - NATA # 1261 Site # 20794

Mayfield Laboratory - NATA # 1261 Site # 25079

Perth Laboratory - NATA # 2377 Site # 2370

External Laboratory

No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID		
1	GWSS101	Feb 24, 2022		Water	S22-Ma01293	X	X
Test Counts						1	1

Foundation Earth Sciences
PO BOX 4405
East Gosford
NSW 2250



NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
NATA is a signatory to the ILAC Mutual Recognition
Arrangement for the mutual recognition of the
equivalence of testing, medical testing, calibration,
inspection, proficiency testing scheme providers and
reference materials producers reports and certificates.

Attention: Michael Silk (cc results)

Report 867386-W
Project name PUNCHBOWL
Project ID E2232-2
Received Date Feb 25, 2022

Client Sample ID			GWSS101
Sample Matrix			Water
Eurofins Sample No.			S22-Ma01293
Date Sampled			Feb 24, 2022
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons			
TRH C6-C9	0.02	mg/L	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05
TRH C15-C28	0.1	mg/L	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	< 0.1
Naphthalene ^{N02}	0.01	mg/L	< 0.01
TRH C6-C10	0.02	mg/L	< 0.02
TRH C6-C10 less BTEX (F1) ^{N04}	0.02	mg/L	< 0.02
TRH >C10-C16	0.05	mg/L	< 0.05
TRH >C10-C16 less Naphthalene (F2) ^{N01}	0.05	mg/L	< 0.05
TRH >C16-C34	0.1	mg/L	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1
BTEX			
Benzene	0.001	mg/L	< 0.001
Toluene	0.001	mg/L	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002
o-Xylene	0.001	mg/L	< 0.001
Xylenes - Total*	0.003	mg/L	< 0.003
4-Bromofluorobenzene (surr.)	1	%	91
Volatile Organics			
1.1-Dichloroethane	0.001	mg/L	< 0.001
1.1-Dichloroethene	0.001	mg/L	< 0.001
1.1.1-Trichloroethane	0.001	mg/L	< 0.001
1.1.1.2-Tetrachloroethane	0.001	mg/L	< 0.001
1.1.2-Trichloroethane	0.001	mg/L	< 0.001
1.1.2.2-Tetrachloroethane	0.001	mg/L	< 0.001
1.2-Dibromoethane	0.001	mg/L	< 0.001
1.2-Dichlorobenzene	0.001	mg/L	< 0.001
1.2-Dichloroethane	0.001	mg/L	< 0.001
1.2-Dichloropropane	0.001	mg/L	< 0.001
1.2.3-Trichloropropane	0.001	mg/L	< 0.001
1.2.4-Trimethylbenzene	0.001	mg/L	< 0.001
1.3-Dichlorobenzene	0.001	mg/L	< 0.001

Client Sample ID			GWSS101
Sample Matrix			Water
Eurofins Sample No.			S22-Ma01293
Date Sampled			Feb 24, 2022
Test/Reference	LOR	Unit	
Volatile Organics			
1,3-Dichloropropane	0.001	mg/L	< 0.001
1,3,5-Trimethylbenzene	0.001	mg/L	< 0.001
1,4-Dichlorobenzene	0.001	mg/L	< 0.001
2-Butanone (MEK)	0.005	mg/L	< 0.005
2-Propanone (Acetone)	0.005	mg/L	< 0.005
4-Chlorotoluene	0.001	mg/L	< 0.001
4-Methyl-2-pentanone (MIBK)	0.005	mg/L	< 0.005
Allyl chloride	0.001	mg/L	< 0.001
Benzene	0.001	mg/L	< 0.001
Bromobenzene	0.001	mg/L	< 0.001
Bromochloromethane	0.001	mg/L	< 0.001
Bromodichloromethane	0.001	mg/L	< 0.001
Bromoform	0.001	mg/L	< 0.001
Bromomethane	0.005	mg/L	< 0.005
Carbon disulfide	0.001	mg/L	< 0.001
Carbon Tetrachloride	0.001	mg/L	< 0.001
Chlorobenzene	0.001	mg/L	< 0.001
Chloroethane	0.005	mg/L	< 0.005
Chloroform	0.005	mg/L	< 0.005
Chloromethane	0.005	mg/L	< 0.005
cis-1,2-Dichloroethene	0.001	mg/L	< 0.001
cis-1,3-Dichloropropene	0.001	mg/L	< 0.001
Dibromochloromethane	0.001	mg/L	< 0.001
Dibromomethane	0.001	mg/L	< 0.001
Dichlorodifluoromethane	0.005	mg/L	< 0.005
Ethylbenzene	0.001	mg/L	< 0.001
Iodomethane	0.001	mg/L	< 0.001
Isopropyl benzene (Cumene)	0.001	mg/L	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002
Methylene Chloride	0.005	mg/L	< 0.005
o-Xylene	0.001	mg/L	< 0.001
Styrene	0.001	mg/L	< 0.001
Tetrachloroethene	0.001	mg/L	< 0.001
Toluene	0.001	mg/L	< 0.001
trans-1,2-Dichloroethene	0.001	mg/L	< 0.001
trans-1,3-Dichloropropene	0.001	mg/L	< 0.001
Trichloroethene	0.001	mg/L	< 0.001
Trichlorofluoromethane	0.005	mg/L	< 0.005
Vinyl chloride	0.005	mg/L	< 0.005
Xylenes - Total*	0.003	mg/L	< 0.003
Total MAH*	0.003	mg/L	< 0.003
Vic EPA IWRG 621 CHC (Total)*	0.005	mg/L	< 0.005
Vic EPA IWRG 621 Other CHC (Total)*	0.005	mg/L	< 0.005
4-Bromofluorobenzene (surr.)	1	%	91
Toluene-d8 (surr.)	1	%	73

Client Sample ID			GWSS101
Sample Matrix			Water
Eurofins Sample No.			S22-Ma01293
Date Sampled			Feb 24, 2022
Test/Reference	LOR	Unit	
Polycyclic Aromatic Hydrocarbons			
Acenaphthene	0.001	mg/L	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001
Anthracene	0.001	mg/L	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001
Benzo(b&j)fluoranthene ^{N07}	0.001	mg/L	< 0.001
Benzo(g,h,i)perylene	0.001	mg/L	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001
Chrysene	0.001	mg/L	< 0.001
Dibenz(a,h)anthracene	0.001	mg/L	< 0.001
Fluoranthene	0.001	mg/L	< 0.001
Fluorene	0.001	mg/L	< 0.001
Indeno(1,2,3-cd)pyrene	0.001	mg/L	< 0.001
Naphthalene	0.001	mg/L	< 0.001
Phenanthrene	0.001	mg/L	< 0.001
Pyrene	0.001	mg/L	< 0.001
Total PAH*	0.001	mg/L	< 0.001
2-Fluorobiphenyl (surr.)	1	%	59
p-Terphenyl-d14 (surr.)	1	%	134
Heavy Metals			
Arsenic	0.001	mg/L	0.005
Cadmium	0.0002	mg/L	< 0.0002
Chromium	0.001	mg/L	0.003
Copper	0.001	mg/L	0.004
Lead	0.001	mg/L	0.002
Mercury	0.0001	mg/L	< 0.0001
Nickel	0.001	mg/L	0.007
Zinc	0.005	mg/L	0.011

Sample History

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

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 - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Mar 03, 2022	7 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Mar 01, 2022	7 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Mar 03, 2022	7 Days
BTEX - Method: LTM-ORG-2010 BTEX and Volatile TRH	Sydney	Mar 01, 2022	14 Days
Polycyclic Aromatic Hydrocarbons - Method: LTM-ORG-2130 PAH and Phenols in Soil and Water	Sydney	Mar 03, 2022	7 Days
Metals M8 - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS	Sydney	Mar 03, 2022	28 Days
Volatile Organics - Method: LTM-ORG-2150 VOCs in Soils Liquid and other Aqueous Matrices	Sydney	Mar 01, 2022	7 Days

Company Name:	Foundation Earth Sciences	Order No.:		Received:	Feb 25, 2022 3:00 PM
Address:	PO BOX 4405 East Gosford NSW 2250	Report #:	867386	Due:	Mar 4, 2022
Project Name:	PUNCHBOWL	Phone:		Priority:	5 Day
Project ID:	E2232-2	Fax:		Contact Name:	Michael Silk (cc results)
Eurofins Analytical Services Manager : Ursula Long					

Sample Detail						Volatile Organics	Eurofins Suite B7
Melbourne Laboratory - NATA # 1261 Site # 1254							
Sydney Laboratory - NATA # 1261 Site # 18217						X	X
Brisbane Laboratory - NATA # 1261 Site # 20794							
Mayfield Laboratory - NATA # 1261 Site # 25079							
Perth Laboratory - NATA # 2377 Site # 2370							
External Laboratory							
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID		
1	GWSS101	Feb 24, 2022		Water	S22-Ma01293	X	X
Test Counts						1	1

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer that may have an impact on the results.
9. 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 SRA.

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.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

Units

mg/kg: milligrams per kilogram	mg/L: milligrams per litre	µg/L: micrograms per litre
ppm: parts per million	ppb: parts per billion	%: Percentage
org/100 mL: Organisms per 100 millilitres	NTU: Nephelometric Turbidity Units	MPN/100 mL: Most Probable Number of organisms per 100 millilitres

Terms

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
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.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	Tributyltin oxide (<i>bis</i> -tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment however free tributyltin was measured and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should be used as a guide only and may be different when site specific Sampling Analysis and Quality Plan (SAQP) have been implemented

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%

NOTE: pH duplicates are reported as a range not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.4 where no positive PFAS results have been reported have been reviewed and no data was affected.

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. 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.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs 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							
TRH C10-C14	mg/L	< 0.05			0.05	Pass	
TRH C15-C28	mg/L	< 0.1			0.1	Pass	
TRH C29-C36	mg/L	< 0.1			0.1	Pass	
TRH >C10-C16	mg/L	< 0.05			0.05	Pass	
TRH >C16-C34	mg/L	< 0.1			0.1	Pass	
TRH >C34-C40	mg/L	< 0.1			0.1	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/L	< 0.001			0.001	Pass	
Acenaphthylene	mg/L	< 0.001			0.001	Pass	
Anthracene	mg/L	< 0.001			0.001	Pass	
Benz(a)anthracene	mg/L	< 0.001			0.001	Pass	
Benzo(a)pyrene	mg/L	< 0.001			0.001	Pass	
Benzo(b&j)fluoranthene	mg/L	< 0.001			0.001	Pass	
Benzo(g,h,i)perylene	mg/L	< 0.001			0.001	Pass	
Benzo(k)fluoranthene	mg/L	< 0.001			0.001	Pass	
Chrysene	mg/L	< 0.001			0.001	Pass	
Dibenz(a,h)anthracene	mg/L	< 0.001			0.001	Pass	
Fluoranthene	mg/L	< 0.001			0.001	Pass	
Fluorene	mg/L	< 0.001			0.001	Pass	
Indeno(1,2,3-cd)pyrene	mg/L	< 0.001			0.001	Pass	
Naphthalene	mg/L	< 0.001			0.001	Pass	
Phenanthrene	mg/L	< 0.001			0.001	Pass	
Pyrene	mg/L	< 0.001			0.001	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/L	< 0.001			0.001	Pass	
Cadmium	mg/L	< 0.0002			0.0002	Pass	
Chromium	mg/L	< 0.001			0.001	Pass	
Copper	mg/L	< 0.001			0.001	Pass	
Lead	mg/L	< 0.001			0.001	Pass	
Mercury	mg/L	< 0.0001			0.0001	Pass	
Nickel	mg/L	< 0.001			0.001	Pass	
Zinc	mg/L	< 0.005			0.005	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons							
TRH C10-C14	%	130			70-130	Pass	
TRH >C10-C16	%	125			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	116			70-130	Pass	
Acenaphthylene	%	105			70-130	Pass	
Anthracene	%	106			70-130	Pass	
Benz(a)anthracene	%	96			70-130	Pass	
Benzo(a)pyrene	%	107			70-130	Pass	
Benzo(b&j)fluoranthene	%	106			70-130	Pass	
Benzo(g,h,i)perylene	%	108			70-130	Pass	
Benzo(k)fluoranthene	%	103			70-130	Pass	
Chrysene	%	92			70-130	Pass	
Dibenz(a,h)anthracene	%	100			70-130	Pass	

Test				Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Fluoranthene				%	110			70-130	Pass	
Fluorene				%	111			70-130	Pass	
Indeno(1.2.3-cd)pyrene				%	102			70-130	Pass	
Naphthalene				%	90			70-130	Pass	
Phenanthrene				%	115			70-130	Pass	
Pyrene				%	112			70-130	Pass	
LCS - % Recovery										
Heavy Metals										
Arsenic				%	110			80-120	Pass	
Cadmium				%	106			80-120	Pass	
Chromium				%	106			80-120	Pass	
Copper				%	105			80-120	Pass	
Lead				%	106			80-120	Pass	
Mercury				%	103			80-120	Pass	
Nickel				%	106			80-120	Pass	
Zinc				%	96			80-120	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1				Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery										
Polycyclic Aromatic Hydrocarbons					Result 1					
Acenaphthene	S22-Fe50936	NCP	%	108				70-130	Pass	
Acenaphthylene	S22-Fe50936	NCP	%	101				70-130	Pass	
Anthracene	S22-Fe50936	NCP	%	106				70-130	Pass	
Benz(a)anthracene	S22-Fe50936	NCP	%	98				70-130	Pass	
Benzo(a)pyrene	S22-Fe50936	NCP	%	110				70-130	Pass	
Benzo(b&j)fluoranthene	S22-Fe50936	NCP	%	99				70-130	Pass	
Benzo(g,h,i)perylene	S22-Fe50936	NCP	%	109				70-130	Pass	
Benzo(k)fluoranthene	S22-Fe50936	NCP	%	111				70-130	Pass	
Chrysene	S22-Fe50936	NCP	%	90				70-130	Pass	
Dibenz(a,h)anthracene	S22-Fe50936	NCP	%	107				70-130	Pass	
Fluoranthene	S22-Fe50936	NCP	%	101				70-130	Pass	
Fluorene	S22-Fe50936	NCP	%	106				70-130	Pass	
Indeno(1.2.3-cd)pyrene	S22-Fe50936	NCP	%	107				70-130	Pass	
Naphthalene	S22-Fe50936	NCP	%	80				70-130	Pass	
Phenanthrene	S22-Fe50936	NCP	%	113				70-130	Pass	
Pyrene	S22-Fe50936	NCP	%	101				70-130	Pass	
Spike - % Recovery										
Heavy Metals					Result 1					
Arsenic	S22-Fe54116	NCP	%	96				75-125	Pass	
Cadmium	S22-Fe54116	NCP	%	95				75-125	Pass	
Chromium	S22-Fe54116	NCP	%	98				75-125	Pass	
Copper	S22-Fe54116	NCP	%	95				75-125	Pass	
Lead	S22-Fe54116	NCP	%	96				75-125	Pass	
Mercury	S22-Fe54116	NCP	%	92				75-125	Pass	
Nickel	S22-Fe54116	NCP	%	96				75-125	Pass	
Zinc	S22-Fe54116	NCP	%	96				75-125	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1				Acceptance Limits	Pass Limits	Qualifying Code
Duplicate										
Total Recoverable Hydrocarbons					Result 1	Result 2	RPD			
TRH C10-C14	S22-Ma02454	NCP	mg/L	0.19	0.17	13	30%	Pass		
TRH C15-C28	S22-Ma02454	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass		
TRH C29-C36	S22-Ma02454	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass		
TRH >C10-C16	S22-Ma02454	NCP	mg/L	0.08	0.08	8.0	30%	Pass		
TRH >C16-C34	S22-Ma02454	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass		
TRH >C34-C40	S22-Ma02454	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass		

Duplicate								
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD		
Acenaphthene	S22-Fe50935	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Acenaphthylene	S22-Fe50935	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Anthracene	S22-Fe50935	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Benz(a)anthracene	S22-Fe50935	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Benzo(a)pyrene	S22-Fe50935	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Benzo(b&j)fluoranthene	S22-Fe50935	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Benzo(g,h,i)perylene	S22-Fe50935	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Benzo(k)fluoranthene	S22-Fe50935	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Chrysene	S22-Fe50935	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Dibenz(a,h)anthracene	S22-Fe50935	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Fluoranthene	S22-Fe50935	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Fluorene	S22-Fe50935	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Indeno(1,2,3-cd)pyrene	S22-Fe50935	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Naphthalene	S22-Fe50935	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Phenanthrene	S22-Fe50935	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Pyrene	S22-Fe50935	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic	S22-Ma05690	NCP	mg/L	0.010	0.015	10	30%	Pass
Cadmium	S22-Ma05690	NCP	mg/L	< 0.0002	0.013	8.0	30%	Pass
Chromium	S22-Ma05690	NCP	mg/L	0.048	0.003	13	30%	Pass
Copper	S22-Ma05690	NCP	mg/L	0.027	0.11	7.0	30%	Pass
Lead	S22-Ma05690	NCP	mg/L	0.048	0.003	9.0	30%	Pass
Mercury	S22-Ma05690	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Nickel	S22-Ma05690	NCP	mg/L	0.031	0.029	5.0	30%	Pass
Zinc	S22-Ma05690	NCP	mg/L	0.085	0.53	6.0	30%	Pass

Comments

Eurofins | Environment Testing accreditation number 1261, site 18217 is currently in progress of a controlled transition to a new custom built location at 179 Magowar Road, Girraween, NSW 2145. All results on this report denoted as being performed by Eurofins | Environment Testing Unit F3, Building F, 16 Mars road, Lane Cove West, NSW 2066, corporate site 18217, will have been performed on either Lane Cove or new Girraween site

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

Authorised by:

Ursula Long	Analytical Services Manager
Andrew Sullivan	Senior Analyst-Organic (NSW)
John Nguyen	Senior Analyst-Metal (NSW)
Roopesh Rangarajan	Senior Analyst-Volatile (NSW)



Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

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

Measurement uncertainty of test data is available on request or please [click here](#).

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CERTIFICATE OF ANALYSIS

147936

Client:

Benviron Group

PO Box 4405

East Gosford

NSW 2250

Attention: Samer Ghanem

Sample log in details:

Your Reference:

E881, Punchbowl

No. of samples:

4 Waters

Date samples received / completed instructions received

03/06/16 / 03/06/16

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:

10/06/16 / 8/06/16

Date of Preliminary Report:

Not Issued

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Tests not covered by NATA are denoted with *.

Results Approved By:


Jacinta Hurst
Laboratory Manager

Envirolab Reference: 147936

Revision No: R 00



vTRH(C6-C10)/BTEXN in Water	UNITS	147936-1	147936-2	147936-3	147936-4
Our Reference:	-----	GW1	GW2	GW3	D1
Your Reference	-				
Type of sample	-----	Water	Water	Water	Water
Date extracted	-	06/06/2016	06/06/2016	06/06/2016	06/06/2016
Date analysed	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016
TRHC ₆ - C ₉	µg/L	<10	<10	<10	<10
TRHC ₆ - C ₁₀	µg/L	<10	<10	<10	<10
TRHC ₆ - C ₁₀ less BTEX (F1)	µg/L	<10	<10	<10	<10
Benzene	µg/L	<1	<1	<1	<1
Toluene	µg/L	<1	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1	<1
m+p-xylene	µg/L	<2	<2	<2	<2
o-xylene	µg/L	<1	<1	<1	<1
Naphthalene	µg/L	<1	<1	<1	<1
Surrogate Dibromofluoromethane	%	98	97	97	95
Surrogate toluene-d8	%	97	96	95	95
Surrogate 4-BFB	%	96	95	97	97

svTRH (C10-C40) in Water					
Our Reference:	UNITS	147936-1	147936-2	147936-3	147936-4
Your Reference	-----	GW1	GW2	GW3	D1
	-				
Type of sample	-----	Water	Water	Water	Water
Date extracted	-	6/06/2016	6/06/2016	6/06/2016	6/06/2016
Date analysed	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016
TRHC ₁₀ - C ₁₄	µg/L	<50	<50	<50	<50
TRHC ₁₅ - C ₂₈	µg/L	<100	<100	<100	<100
TRHC ₂₉ - C ₃₆	µg/L	<100	<100	<100	<100
TRH>C ₁₀ - C ₁₆	µg/L	<50	<50	<50	<50
TRH>C ₁₀ - C ₁₆ less Naphthalene (F2)	µg/L	<50	<50	<50	<50
TRH>C ₁₆ - C ₃₄	µg/L	<100	<100	<100	<100
TRH>C ₃₄ - C ₄₀	µg/L	<100	<100	<100	<100
Surrogate o-Terphenyl	%	92	89	86	81

PAHs in Water Our Reference: Your Reference	UNITS ----- -	147936-1 GW1	147936-2 GW2	147936-3 GW3	147936-4 D1
Type of sample	-----	Water	Water	Water	Water
Date extracted	-	06/06/2016	06/06/2016	07/06/2016	06/06/2016
Date analysed	-	06/06/2016	06/06/2016	07/06/2016	06/06/2016
Naphthalene	µg/L	<1	<1	<1	<1
Acenaphthylene	µg/L	<1	<1	<1	<1
Acenaphthene	µg/L	<1	<1	<1	<1
Fluorene	µg/L	<1	<1	<1	<1
Phenanthrene	µg/L	<1	<1	<1	<1
Anthracene	µg/L	<1	<1	<1	<1
Fluoranthene	µg/L	<1	<1	<1	<1
Pyrene	µg/L	<1	<1	<1	<1
Benzo(a)anthracene	µg/L	<1	<1	<1	<1
Chrysene	µg/L	<1	<1	<1	<1
Benzo(b,j+k)fluoranthene	µg/L	<2	<2	<2	<2
Benzo(a)pyrene	µg/L	<1	<1	<1	<1
Indeno(1,2,3-c,d)pyrene	µg/L	<1	<1	<1	<1
Dibenzo(a,h)anthracene	µg/L	<1	<1	<1	<1
Benzo(g,h,i)perylene	µg/L	<1	<1	<1	<1
Benzo(a)pyrene TEQ	µg/L	<5	<5	<5	<5
Total +ve PAH's	µg/L	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	87	78	86	69

OCP in water Our Reference: Your Reference	UNITS ----- -	147936-1 GW1	147936-2 GW2	147936-3 GW3	147936-4 D1
Type of sample	-----	Water	Water	Water	Water
Date extracted	-	06/06/2016	06/06/2016	06/06/2016	06/06/2016
Date analysed	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016
HCB	µg/L	<0.2	<0.2	<0.2	<0.2
alpha-BHC	µg/L	<0.2	<0.2	<0.2	<0.2
gamma-BHC	µg/L	<0.2	<0.2	<0.2	<0.2
beta-BHC	µg/L	<0.2	<0.2	<0.2	<0.2
Heptachlor	µg/L	<0.2	<0.2	<0.2	<0.2
delta-BHC	µg/L	<0.2	<0.2	<0.2	<0.2
Aldrin	µg/L	<0.2	<0.2	<0.2	<0.2
Heptachlor Epoxide	µg/L	<0.2	<0.2	<0.2	<0.2
gamma-Chlordane	µg/L	<0.2	<0.2	<0.2	<0.2
alpha-Chlordane	µg/L	<0.2	<0.2	<0.2	<0.2
Endosulfan I	µg/L	<0.2	<0.2	<0.2	<0.2
pp-DDE	µg/L	<0.2	<0.2	<0.2	<0.2
Dieldrin	µg/L	<0.2	<0.2	<0.2	<0.2
Endrin	µg/L	<0.2	<0.2	<0.2	<0.2
pp-DDD	µg/L	<0.2	<0.2	<0.2	<0.2
Endosulfan II	µg/L	<0.2	<0.2	<0.2	<0.2
pp-DDT	µg/L	<0.2	<0.2	<0.2	<0.2
Endrin Aldehyde	µg/L	<0.2	<0.2	<0.2	<0.2
Endosulfan Sulphate	µg/L	<0.2	<0.2	<0.2	<0.2
Methoxychlor	µg/L	<0.2	<0.2	<0.2	<0.2
Surrogate TCMX	%	107	102	101	96

PCBs in Water Our Reference: Your Reference	UNITS ----- -	147936-1 GW1	147936-2 GW2	147936-3 GW3	147936-4 D1
Type of sample	-----	Water	Water	Water	Water
Date extracted	-	06/06/2016	06/06/2016	06/06/2016	06/06/2016
Date analysed	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Aroclor 1016	µg/L	<2	<2	<2	<2
Aroclor 1221	µg/L	<2	<2	<2	<2
Aroclor 1232	µg/L	<2	<2	<2	<2
Aroclor 1242	µg/L	<2	<2	<2	<2
Aroclor 1248	µg/L	<2	<2	<2	<2
Aroclor 1254	µg/L	<2	<2	<2	<2
Aroclor 1260	µg/L	<2	<2	<2	<2
Surrogate TCLMX	%	107	102	101	96

HM in water - dissolved					
Our Reference:	UNITS	147936-1	147936-2	147936-3	147936-4
Your Reference	-----	GW1	GW2	GW3	D1
	-				
Type of sample	-----	Water	Water	Water	Water
Date prepared	-	06/06/2016	06/06/2016	06/06/2016	06/06/2016
Date analysed	-	06/06/2016	06/06/2016	06/06/2016	06/06/2016
Arsenic-Dissolved	µg/L	1	1	<1	1
Cadmium-Dissolved	µg/L	0.8	0.7	0.2	0.8
Chromium-Dissolved	µg/L	2	<1	<1	2
Copper-Dissolved	µg/L	1	2	<1	1
Lead-Dissolved	µg/L	<1	<1	<1	<1
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05	<0.05
Nickel-Dissolved	µg/L	11	8	4	11
Zinc-Dissolved	µg/L	920	760	440	820

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-013	Water samples are analysed directly 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	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-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Metals-022 ICP-MS	Determination of various metals by ICP-MS.
Metals-021	Determination of Mercury by Cold Vapour AAS.

Client Reference: E881, Punchbowl

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	-			06/06/2016	[NT]	[NT]	LCS-W3	06/06/2016
Date analysed	-			07/06/2016	[NT]	[NT]	LCS-W3	07/06/2016
TRHC ₆ - C ₉	µg/L	10	Org-016	<10	[NT]	[NT]	LCS-W3	91%
TRHC ₆ - C ₁₀	µg/L	10	Org-016	<10	[NT]	[NT]	LCS-W3	91%
Benzene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W3	91%
Toluene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W3	92%
Ethylbenzene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W3	90%
m+p-xylene	µg/L	2	Org-016	<2	[NT]	[NT]	LCS-W3	92%
o-xylene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W3	91%
Naphthalene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Surrogate Dibromofluoromethane	%		Org-016	98	[NT]	[NT]	LCS-W3	98%
Surrogate toluene-d8	%		Org-016	96	[NT]	[NT]	LCS-W3	98%
Surrogate 4-BFB	%		Org-016	96	[NT]	[NT]	LCS-W3	96%
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	-			06/06/2016	147936-1	6/06/2016 6/06/2016	LCS-W2	06/06/2016
Date analysed	-			06/06/2016	147936-1	07/06/2016 07/06/2016	LCS-W2	06/06/2016
TRHC ₁₀ - C ₁₄	µg/L	50	Org-003	<50	147936-1	<50 <50	LCS-W2	69%
TRHC ₁₅ - C ₂₈	µg/L	100	Org-003	<100	147936-1	<100 <100	LCS-W2	67%
TRHC ₂₉ - C ₃₆	µg/L	100	Org-003	<100	147936-1	<100 <100	LCS-W2	83%
TRH>C ₁₀ - C ₁₆	µg/L	50	Org-003	<50	147936-1	<50 <50	LCS-W2	69%
TRH>C ₁₆ - C ₃₄	µg/L	100	Org-003	<100	147936-1	<100 <100	LCS-W2	67%
TRH>C ₃₄ - C ₄₀	µg/L	100	Org-003	<100	147936-1	<100 <100	LCS-W2	83%
Surrogate o-Terphenyl	%		Org-003	87	147936-1	92 90 RPD: 2	LCS-W2	113%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Water						Base II Duplicate II %RPD		
Date extracted	-			07/06/2016	147936-1	06/06/2016 06/06/2016	LCS-W2	07/06/2016
Date analysed	-			07/06/2016	147936-1	06/06/2016 06/06/2016	LCS-W2	07/06/2016
Naphthalene	µg/L	1	Org-012	<1	147936-1	<1 <1	LCS-W2	72%
Acenaphthylene	µg/L	1	Org-012	<1	147936-1	<1 <1	[NR]	[NR]
Acenaphthene	µg/L	1	Org-012	<1	147936-1	<1 <1	[NR]	[NR]
Fluorene	µg/L	1	Org-012	<1	147936-1	<1 <1	LCS-W2	72%
Phenanthrene	µg/L	1	Org-012	<1	147936-1	<1 <1	LCS-W2	74%
Anthracene	µg/L	1	Org-012	<1	147936-1	<1 <1	[NR]	[NR]
Fluoranthene	µg/L	1	Org-012	<1	147936-1	<1 <1	LCS-W2	73%
Pyrene	µg/L	1	Org-012	<1	147936-1	<1 <1	LCS-W2	75%
Benzo(a)anthracene	µg/L	1	Org-012	<1	147936-1	<1 <1	[NR]	[NR]

Client Reference: E881, Punchbowl

QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Water						Base II Duplicate II %RPD		
Chrysene	µg/L	1	Org-012	<1	147936-1	<1 <1	LCS-W2	71%
Benzo(b,j +k)fluoranthene	µg/L	2	Org-012	<2	147936-1	<2 <2	[NR]	[NR]
Benzo(a)pyrene	µg/L	1	Org-012	<1	147936-1	<1 <1	LCS-W2	70%
Indeno(1,2,3-c,d)pyrene	µg/L	1	Org-012	<1	147936-1	<1 <1	[NR]	[NR]
Dibenzo(a,h)anthracene	µg/L	1	Org-012	<1	147936-1	<1 <1	[NR]	[NR]
Benzo(g,h,i)perylene	µg/L	1	Org-012	<1	147936-1	<1 <1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012	94	147936-1	87 80 RPD: 8	LCS-W2	70%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
OCP in water						Base II Duplicate II %RPD		
Date extracted	-			06/06/2016	147936-1	06/06/2016 06/06/2016	LCS-W1	06/06/2016
Date analysed	-			07/06/2016	147936-1	07/06/2016 07/06/2016	LCS-W1	07/06/2016
HCB	µg/L	0.2	Org-005	<0.2	147936-1	<0.2 <0.2	[NR]	[NR]
alpha-BHC	µg/L	0.2	Org-005	<0.2	147936-1	<0.2 <0.2	LCS-W1	80%
gamma-BHC	µg/L	0.2	Org-005	<0.2	147936-1	<0.2 <0.2	[NR]	[NR]
beta-BHC	µg/L	0.2	Org-005	<0.2	147936-1	<0.2 <0.2	LCS-W1	71%
Heptachlor	µg/L	0.2	Org-005	<0.2	147936-1	<0.2 <0.2	LCS-W1	74%
delta-BHC	µg/L	0.2	Org-005	<0.2	147936-1	<0.2 <0.2	[NR]	[NR]
Aldrin	µg/L	0.2	Org-005	<0.2	147936-1	<0.2 <0.2	LCS-W1	84%
Heptachlor Epoxide	µg/L	0.2	Org-005	<0.2	147936-1	<0.2 <0.2	LCS-W1	72%
gamma-Chlordane	µg/L	0.2	Org-005	<0.2	147936-1	<0.2 <0.2	[NR]	[NR]
alpha-Chlordane	µg/L	0.2	Org-005	<0.2	147936-1	<0.2 <0.2	[NR]	[NR]
Endosulfan I	µg/L	0.2	Org-005	<0.2	147936-1	<0.2 <0.2	[NR]	[NR]
pp-DDE	µg/L	0.2	Org-005	<0.2	147936-1	<0.2 <0.2	LCS-W1	72%
Dieldrin	µg/L	0.2	Org-005	<0.2	147936-1	<0.2 <0.2	LCS-W1	79%
Endrin	µg/L	0.2	Org-005	<0.2	147936-1	<0.2 <0.2	LCS-W1	92%
pp-DDD	µg/L	0.2	Org-005	<0.2	147936-1	<0.2 <0.2	LCS-W1	74%
Endosulfan II	µg/L	0.2	Org-005	<0.2	147936-1	<0.2 <0.2	[NR]	[NR]
pp-DDT	µg/L	0.2	Org-005	<0.2	147936-1	<0.2 <0.2	[NR]	[NR]
Endrin Aldehyde	µg/L	0.2	Org-005	<0.2	147936-1	<0.2 <0.2	[NR]	[NR]
Endosulfan Sulphate	µg/L	0.2	Org-005	<0.2	147936-1	<0.2 <0.2	LCS-W1	84%
Methoxychlor	µg/L	0.2	Org-005	<0.2	147936-1	<0.2 <0.2	[NR]	[NR]
Surrogate TCMX	%		Org-005	71	147936-1	107 104 RPD: 3	LCS-W1	67%

Client Reference: E881, Punchbowl

QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PCBs in Water						Base II Duplicate II %RPD		
Date extracted	-			06/06/2016	147936-1	06/06/2016 06/06/2016	LCS-W1	06/06/2016
Date analysed	-			07/06/2016	147936-1	07/06/2016 07/06/2016	LCS-W1	07/06/2016
Aroclor 1016	µg/L	2	Org-006	<2	147936-1	<2 <2	[NR]	[NR]
Aroclor 1221	µg/L	2	Org-006	<2	147936-1	<2 <2	[NR]	[NR]
Aroclor 1232	µg/L	2	Org-006	<2	147936-1	<2 <2	[NR]	[NR]
Aroclor 1242	µg/L	2	Org-006	<2	147936-1	<2 <2	[NR]	[NR]
Aroclor 1248	µg/L	2	Org-006	<2	147936-1	<2 <2	[NR]	[NR]
Aroclor 1254	µg/L	2	Org-006	<2	147936-1	<2 <2	LCS-W1	119%
Aroclor 1260	µg/L	2	Org-006	<2	147936-1	<2 <2	[NR]	[NR]
Surrogate TCLMX	%		Org-006	71	147936-1	107 104 RPD: 3	LCS-W1	73%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
HM in water - dissolved						Base II Duplicate II %RPD		
Date prepared	-			06/06/2016	[NT]	[NT]	LCS-W2	06/06/2016
Date analysed	-			06/06/2016	[NT]	[NT]	LCS-W2	06/06/2016
Arsenic-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W2	97%
Cadmium-Dissolved	µg/L	0.1	Metals-022 ICP-MS	<0.1	[NT]	[NT]	LCS-W2	106%
Chromium-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W2	98%
Copper-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W2	103%
Lead-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W2	104%
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	[NT]	[NT]	LCS-W2	84%
Nickel-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W2	100%
Zinc-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W2	100%

Report Comments:

Dissolved Metals: no preserved sample was received, therefore the unpreserved sample was filtered through 0.45um filter at the lab.
Note: there is a possibility some elements may be underestimated.

Asbestos ID was analysed by Approved Identifier:	Not applicable for this job
Asbestos ID was authorised by Approved Signatory:	Not applicable for this job

INS: Insufficient sample for this test	PQL: Practical Quantitation Limit	NT: Not tested
NR: Test not required	RPD: Relative Percent Difference	NA: Test not required
<: Less than	>: Greater than	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 (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics 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.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.



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CERTIFICATE OF ANALYSIS

148009

Client:

Benviron Group

PO Box 4405

East Gosford

NSW 2250

Attention: Ben Buckley

Sample log in details:

Your Reference:

E881, Punchbowl

No. of samples:

65 soils

Date samples received / completed instructions received

06/06/16

/ 06/06/16

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:

14/06/16

/

9/06/16

Date of Preliminary Report:

Not Issued

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Tests not covered by NATA are denoted with *.

Results Approved By:


Jacinta Hurst
Laboratory Manager

Envirolab Reference: 148009

Revision No: R 00



vTRH(C6-C10)/BTEXN in Soil Our Reference: Your Reference	UNITS ----- -	148009-1 BH1/GW1	148009-3 BH2	148009-5 BH3	148009-7 BH4	148009-9 BH5
Depth	-----	0.3	0.2	0.3	0.2	0.2
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	08/06/2016	08/06/2016	08/06/2016	08/06/2016	08/06/2016
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	%	91	87	90	86	90

vTRH(C6-C10)/BTEXN in Soil Our Reference: Your Reference	UNITS ----- -	148009-10 BH5	148009-11 BH6	148009-13 BH7/GW2	148009-15 BH8	148009-17 BH9
Depth	-----	0.5	0.3	0.2	0.2	0.2
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	08/06/2016	08/06/2016	09/06/2016	09/06/2016	09/06/2016
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	%	92	84	86	89	89

vTRH(C6-C10)/BTEXN in Soil	UNITS	148009-19	148009-20	148009-21	148009-23	148009-25
Our Reference:	-----	BH10	BH10	BH11	BH12	BH13
Your Reference	-					
Depth	-----	0.2	0.5	0.2	0.2	0.2
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	09/06/2016	09/06/2016	09/06/2016	09/06/2016	09/06/2016
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	%	86	84	82	84	84

vTRH(C6-C10)/BTEXN in Soil	UNITS	148009-27	148009-29	148009-30	148009-31	148009-33
Our Reference:	-----	BH14/GW3	BH15	BH15	BH16	BH17
Your Reference	-					
Depth	-----	0.3	0.2	0.8	0.2	0.3
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	09/06/2016	09/06/2016	09/06/2016	09/06/2016	09/06/2016
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	%	81	79	80	93	85

vTRH(C6-C10)/BTEXN in Soil Our Reference: Your Reference	UNITS ----- -	148009-35 BH18	148009-37 BH19	148009-39 BH20	148009-40 BH20	148009-41 BH21
Depth	-----	0.2	0.2	0.3	1.0	0.3
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	09/06/2016	09/06/2016	09/06/2016	09/06/2016	09/06/2016
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	%	91	87	92	91	93

vTRH(C6-C10)/BTEXN in Soil Our Reference: Your Reference	UNITS ----- -	148009-43 BH22	148009-45 BH23	148009-47 BH24	148009-49 BH25	148009-50 BH25
Depth	-----	0.2	0.2	0.3	0.2	0.6
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	09/06/2016	09/06/2016	09/06/2016	09/06/2016	09/06/2016
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	%	93	84	82	94	86

vTRH(C6-C10)/BTEXN in Soil	UNITS	148009-51	148009-53	148009-55	148009-57	148009-59
Our Reference:	-----	BH26	BH27	BH28	BH29	BH30
Your Reference	-					
Depth	-----	0.3	0.3	0.2	0.3	0.2
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	09/06/2016	09/06/2016	09/06/2016	09/06/2016	09/06/2016
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	%	92	84	81	87	86

vTRH(C6-C10)/BTEXN in Soil	UNITS	148009-61	148009-62	148009-63
Our Reference:	-----	D1	D2	D3
Your Reference	-			
Depth	-----	-	-	-
Date Sampled		1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil
Date extracted	-	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	09/06/2016	09/06/2016	09/06/2016
TRHC ₆ - C ₉	mg/kg	<25	<25	<25
TRHC ₆ - C ₁₀	mg/kg	<25	<25	<25
vTPHC ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	91	95	101

svTRH (C10-C40) in Soil Our Reference: Your Reference	UNITS ----- -	148009-1 BH1/GW1	148009-3 BH2	148009-5 BH3	148009-7 BH4	148009-9 BH5
Depth	-----	0.3	0.2	0.3	0.2	0.2
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
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	200	<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	140	<100	<100	<100	<100
TRH>C ₃₄ -C ₄₀	mg/kg	290	<100	<100	150	<100
Surrogate o-Terphenyl	%	103	103	98	101	100

svTRH (C10-C40) in Soil Our Reference: Your Reference	UNITS ----- -	148009-10 BH5	148009-11 BH6	148009-13 BH7/GW2	148009-15 BH8	148009-17 BH9
Depth	-----	0.5	0.3	0.2	0.2	0.2
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
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	140	340	<100	120
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	230	<100	<100
TRH>C ₃₄ -C ₄₀	mg/kg	<100	220	540	110	200
Surrogate o-Terphenyl	%	80	101	102	98	99

Client Reference: E881, Punchbowl

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	148009-19	148009-20	148009-21	148009-23	148009-25
Your Reference	-----	BH10	BH10	BH11	BH12	BH13
	-					
Depth	-----	0.2	0.5	0.2	0.2	0.2
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
TRHC ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRHC ₁₅ - C ₂₈	mg/kg	160	<100	<100	<100	<100
TRHC ₂₉ - C ₃₆	mg/kg	590	<100	110	260	400
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	510	<100	<100	180	300
TRH>C ₃₄ -C ₄₀	mg/kg	730	<100	180	420	610
Surrogate o-Terphenyl	%	105	112	99	100	97

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	148009-27	148009-29	148009-30	148009-31	148009-33
Your Reference	-----	BH14/GW3	BH15	BH15	BH16	BH17
	-					
Depth	-----	0.3	0.2	0.8	0.2	0.3
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	07/06/2016	07/06/2016	07/06/2016	08/06/2016	08/06/2016
TRHC ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRHC ₁₅ - C ₂₈	mg/kg	130	<100	<100	<100	<100
TRHC ₂₉ - C ₃₆	mg/kg	450	<100	<100	<100	130
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	410	<100	<100	<100	<100
TRH>C ₃₄ -C ₄₀	mg/kg	640	<100	<100	<100	220
Surrogate o-Terphenyl	%	104	99	97	113	102

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	148009-35	148009-37	148009-39	148009-40	148009-41
Your Reference	-----	BH18	BH19	BH20	BH20	BH21
	-					
Depth	-----	0.2	0.2	0.3	1.0	0.3
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	08/06/2016	08/06/2016	08/06/2016	08/06/2016	08/06/2016
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	130	<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	250	<100	<100	<100
Surrogate o-Terphenyl	%	95	96	103	101	112

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	148009-43	148009-45	148009-47	148009-49	148009-50
Your Reference	-----	BH22	BH23	BH24	BH25	BH25
	-					
Depth	-----	0.2	0.2	0.3	0.2	0.6
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	08/06/2016	08/06/2016	08/06/2016	08/06/2016	08/06/2016
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	170	<100
Surrogate o-Terphenyl	%	100	99	101	97	98

Client Reference: E881, Punchbowl

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	148009-51	148009-53	148009-55	148009-57	148009-59
Your Reference	-----	BH26	BH27	BH28	BH29	BH30
	-					
Depth	-----	0.3	0.3	0.2	0.3	0.2
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	08/06/2016	08/06/2016	08/06/2016	08/06/2016	08/06/2016
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	%	65	98	111	101	98

svTRH (C10-C40) in Soil				
Our Reference:	UNITS	148009-61	148009-62	148009-63
Your Reference	-----	D1	D2	D3
	-			
Depth	-----	-	-	-
Date Sampled		1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil
Date extracted	-	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	08/06/2016	08/06/2016	08/06/2016
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	140
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	200
Surrogate o-Terphenyl	%	65	84	83

PAHs in Soil Our Reference: Your Reference	UNITS ----- -	148009-1 BH1/GW1	148009-3 BH2	148009-5 BH3	148009-7 BH4	148009-9 BH5
Depth	-----	0.3	0.2	0.3	0.2	0.2
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	08/06/2016	08/06/2016	08/06/2016	08/06/2016	08/06/2016
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	0.3	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	0.3	<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	0.2	<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	0.1	<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 calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total Positive PAHs	mg/kg	NIL(+)VE	NIL(+)VE	NIL(+)VE	1.4	NIL(+)VE
Surrogate p-Terphenyl-d14	%	103	106	107	104	105

PAHs in Soil Our Reference: Your Reference	UNITS ----- -	148009-10 BH5	148009-11 BH6	148009-13 BH7/GW2	148009-15 BH8	148009-17 BH9
Depth	-----	0.5	0.3	0.2	0.2	0.2
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	08/06/2016	08/06/2016	08/06/2016	08/06/2016	08/06/2016
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 calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total Positive PAHs	mg/kg	NIL (+)VE	NIL (+)VE	NIL (+)VE	0.11	0.14
Surrogate p-Terphenyl-d14	%	114	101	109	102	103

PAHs in Soil Our Reference: Your Reference	UNITS ----- -	148009-19 BH10	148009-20 BH10	148009-21 BH11	148009-23 BH12	148009-25 BH13
Depth	-----	0.2	0.5	0.2	0.2	0.2
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	08/06/2016	08/06/2016	08/06/2016	08/06/2016	08/06/2016
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	0.2	0.3	0.2
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	0.2	<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	<0.05	<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 calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total Positive PAHs	mg/kg	0.13	NIL(+)VE	0.19	0.56	0.17
Surrogate p-Terphenyl-d14	%	103	107	102	103	101

PAHs in Soil Our Reference: Your Reference	UNITS ----- -	148009-27 BH14/GW3	148009-29 BH15	148009-30 BH15	148009-31 BH16	148009-33 BH17
Depth	-----	0.3	0.2	0.8	0.2	0.3
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	08/06/2016	08/06/2016	08/06/2016	08/06/2016	08/06/2016
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	0.2	<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 calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total Positive PAHs	mg/kg	0.23	NIL(+)VE	NIL(+)VE	NIL(+)VE	0.22
Surrogate p-Terphenyl-d14	%	104	104	105	104	104

PAHs in Soil Our Reference: Your Reference	UNITS ----- -	148009-35 BH18	148009-37 BH19	148009-39 BH20	148009-40 BH20	148009-41 BH21
Depth	-----	0.2	0.2	0.3	1.0	0.3
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	08/06/2016	08/06/2016	08/06/2016	08/06/2016	08/06/2016
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	0.2	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 calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total Positive PAHs	mg/kg	NIL (+)VE	0.20	0.13	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	101	102	103	104	104

PAHs in Soil Our Reference: Your Reference	UNITS ----- -	148009-43 BH22	148009-45 BH23	148009-47 BH24	148009-49 BH25	148009-50 BH25
Depth	-----	0.2	0.2	0.3	0.2	0.6
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	08/06/2016	08/06/2016	08/06/2016	08/06/2016	08/06/2016
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	0.3	0.3	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 calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total Positive PAHs	mg/kg	NIL (+)VE	0.28	0.29	0.15	NIL (+)VE
Surrogate p-Terphenyl-d14	%	101	102	102	101	105

PAHs in Soil Our Reference: Your Reference	UNITS ----- -	148009-51 BH26	148009-53 BH27	148009-55 BH28	148009-57 BH29	148009-59 BH30
Depth	-----	0.3	0.3	0.2	0.3	0.2
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	08/06/2016	08/06/2016	08/06/2016	08/06/2016	08/06/2016
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	0.3	<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	0.05	<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 calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total Positive PAHs	mg/kg	NIL(+)VE	NIL(+)VE	NIL(+)VE	0.98	NIL(+)VE
Surrogate p-Terphenyl-d14	%	99	102	99	98	103

PAHs in Soil Our Reference: Your Reference	UNITS ----- -	148009-61 D1	148009-62 D2	148009-63 D3
Depth	-----	-	-	-
Date Sampled		1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil
Date extracted	-	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	08/06/2016	08/06/2016	08/06/2016
Naphthalene	mg/kg	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	0.2	0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5
Total Positive PAHs	mg/kg	0.11	0.23	0.19
Surrogate <i>p</i> -Terphenyl-d14	%	102	82	86

Organochlorine Pesticides in soil	UNITS	148009-9	148009-10	148009-19	148009-20	148009-21
Our Reference:	-----	BH5	BH5	BH10	BH10	BH11
Your Reference	-					
Depth	-----	0.2	0.5	0.2	0.5	0.2
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	08/06/2016	08/06/2016	08/06/2016	08/06/2016	08/06/2016
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	%	105	60	106	105	106

Organochlorine Pesticides in soil	UNITS	148009-27	148009-29	148009-30	148009-39	148009-40
Our Reference:	-----	BH14/GW3	BH15	BH15	BH20	BH20
Your Reference	-					
Depth	-----	0.3	0.2	0.8	0.3	1.0
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	08/06/2016	08/06/2016	08/06/2016	08/06/2016	08/06/2016
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	%	107	104	105	112	104

Organochlorine Pesticides in soil						
Our Reference:	UNITS	148009-49	148009-50	148009-61	148009-62	148009-63
Your Reference	-----	BH25	BH25	D1	D2	D3
	-					
Depth	-----	0.2	0.6	-	-	-
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	08/06/2016	08/06/2016	08/06/2016	08/06/2016	08/06/2016
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	%	127	103	60	60	62

PCBs in Soil Our Reference: Your Reference	UNITS ----- -	148009-9 BH5	148009-10 BH5	148009-19 BH10	148009-20 BH10	148009-21 BH11
Depth	-----	0.2	0.5	0.2	0.5	0.2
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	08/06/2016	08/06/2016	08/06/2016	08/06/2016	08/06/2016
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	105	60	106	105	106

PCBs in Soil Our Reference: Your Reference	UNITS ----- -	148009-27 BH14/GW3	148009-29 BH15	148009-30 BH15	148009-39 BH20	148009-40 BH20
Depth	-----	0.3	0.2	0.8	0.3	1.0
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	08/06/2016	08/06/2016	08/06/2016	08/06/2016	08/06/2016
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	107	104	105	112	104

PCBs in Soil Our Reference: Your Reference	UNITS ----- -	148009-49 BH25	148009-50 BH25	148009-61 D1	148009-62 D2	148009-63 D3
Depth Date Sampled Type of sample	----- ----- -----	0.2 1/06/2016 Soil	0.6 1/06/2016 Soil	- 1/06/2016 Soil	- 1/06/2016 Soil	- 1/06/2016 Soil
Date extracted	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	08/06/2016	08/06/2016	08/06/2016	08/06/2016	08/06/2016
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	127	103	60	60	62

Acid Extractable metals in soil	UNITS	148009-1	148009-3	148009-5	148009-7	148009-9
Our Reference:	-----	BH1/GW1	BH2	BH3	BH4	BH5
Your Reference	-					
Depth	-----	0.3	0.2	0.3	0.2	0.2
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Arsenic	mg/kg	<4	6	4	<4	<4
Cadmium	mg/kg	<0.4	0.4	<0.4	0.5	0.4
Chromium	mg/kg	16	44	30	84	50
Copper	mg/kg	32	28	21	50	30
Lead	mg/kg	16	20	11	10	8
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	26	25	21	65	48
Zinc	mg/kg	44	51	18	47	38

Acid Extractable metals in soil	UNITS	148009-10	148009-11	148009-13	148009-15	148009-17
Our Reference:	-----	BH5	BH6	BH7/GW2	BH8	BH9
Your Reference	-					
Depth	-----	0.5	0.3	0.2	0.2	0.2
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	0.4	0.4	<0.4	<0.4
Chromium	mg/kg	9	30	32	49	73
Copper	mg/kg	13	66	59	21	37
Lead	mg/kg	8	5	4	6	6
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	4	31	41	53	53
Zinc	mg/kg	10	43	40	39	34

Acid Extractable metals in soil						
Our Reference:	UNITS	148009-19	148009-20	148009-21	148009-23	148009-25
Your Reference	-----	BH10	BH10	BH11	BH12	BH13
	-					
Depth	-----	0.2	0.5	0.2	0.2	0.2
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Arsenic	mg/kg	<4	4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	0.5	0.4	0.5
Chromium	mg/kg	38	8	81	60	75
Copper	mg/kg	38	10	37	38	41
Lead	mg/kg	4	11	6	8	10
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	48	8	89	67	67
Zinc	mg/kg	33	10	51	43	50

Acid Extractable metals in soil						
Our Reference:	UNITS	148009-27	148009-29	148009-30	148009-31	148009-33
Your Reference	-----	BH14/GW3	BH15	BH15	BH16	BH17
	-					
Depth	-----	0.3	0.2	0.8	0.2	0.3
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Arsenic	mg/kg	<4	<4	4	11	4
Cadmium	mg/kg	<0.4	0.4	<0.4	0.6	0.5
Chromium	mg/kg	75	73	8	31	64
Copper	mg/kg	57	30	13	65	51
Lead	mg/kg	7	13	12	27	12
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	65	73	5	29	64
Zinc	mg/kg	55	45	11	100	54

Acid Extractable metals in soil	UNITS	148009-35	148009-37	148009-39	148009-40	148009-41
Our Reference:	-----	BH18	BH19	BH20	BH20	BH21
Your Reference	-					
Depth	-----	0.2	0.2	0.3	1.0	0.3
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Arsenic	mg/kg	7	<4	5	<4	<4
Cadmium	mg/kg	0.4	0.5	0.5	<0.4	<0.4
Chromium	mg/kg	24	100	72	9	66
Copper	mg/kg	28	31	28	8	26
Lead	mg/kg	19	10	17	9	10
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	20	82	61	6	46
Zinc	mg/kg	55	53	49	11	36

Acid Extractable metals in soil	UNITS	148009-43	148009-45	148009-47	148009-49	148009-50
Our Reference:	-----	BH22	BH23	BH24	BH25	BH25
Your Reference	-					
Depth	-----	0.2	0.2	0.3	0.2	0.6
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	0.5	0.5	0.5	<0.4	<0.4
Chromium	mg/kg	84	110	120	62	7
Copper	mg/kg	29	38	36	22	8
Lead	mg/kg	11	6	5	9	11
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	65	87	98	57	5
Zinc	mg/kg	53	51	63	43	6

Acid Extractable metals in soil	UNITS	148009-51	148009-53	148009-55	148009-57	148009-59
Our Reference:	-----	BH26	BH27	BH28	BH29	BH30
Your Reference	-					
Depth	-----	0.3	0.3	0.2	0.3	0.2
Date Sampled		1/06/2016	1/06/2016	1/06/2016	1/06/2016	1/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Arsenic	mg/kg	<4	6	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	43	33	7	8	36
Copper	mg/kg	10	15	6	14	12
Lead	mg/kg	8	12	9	89	34
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	34	23	6	11	29
Zinc	mg/kg	26	23	12	64	45

Acid Extractable metals in soil	UNITS	148009-61	148009-62	148009-63	148009-66	148009-67
Our Reference:	-----	D1	D2	D3	BH5 -	BH25 -
Your Reference	-				TRIPLICATE	TRIPLICATE
Depth	-----	-	-	-	0.2	0.2
Date Sampled		1/06/2016	1/06/2016	1/06/2016	01/06/2016	01/06/2016
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Date analysed	-	07/06/2016	07/06/2016	07/06/2016	07/06/2016	07/06/2016
Arsenic	mg/kg	5	<4	4	4	<4
Cadmium	mg/kg	0.4	<0.4	0.4	<0.4	<0.4
Chromium	mg/kg	62	65	63	14	49
Copper	mg/kg	24	33	32	14	22
Lead	mg/kg	17	8	19	8	9
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	49	64	46	10	47
Zinc	mg/kg	40	42	31	13	37

Client Reference: E881, Punchbowl

Moisture Our Reference: Your Reference	UNITS ----- -	148009-1 BH1/GW1	148009-3 BH2	148009-5 BH3	148009-7 BH4	148009-9 BH5
Depth Date Sampled Type of sample	----- Soil	0.3 1/06/2016 Soil	0.2 1/06/2016 Soil	0.3 1/06/2016 Soil	0.2 1/06/2016 Soil	0.2 1/06/2016 Soil
Date prepared	-	7/06/2016	7/06/2016	7/06/2016	7/06/2016	7/06/2016
Date analysed	-	8/06/2016	8/06/2016	8/06/2016	8/06/2016	8/06/2016
Moisture	%	2.9	12	14	4.5	17

Moisture Our Reference: Your Reference	UNITS ----- -	148009-10 BH5	148009-11 BH6	148009-13 BH7/GW2	148009-15 BH8	148009-17 BH9
Depth Date Sampled Type of sample	----- Soil	0.5 1/06/2016 Soil	0.3 1/06/2016 Soil	0.2 1/06/2016 Soil	0.2 1/06/2016 Soil	0.2 1/06/2016 Soil
Date prepared	-	7/06/2016	7/06/2016	7/06/2016	7/06/2016	7/06/2016
Date analysed	-	8/06/2016	8/06/2016	8/06/2016	8/06/2016	8/06/2016
Moisture	%	16	4.5	5.5	14	5.9

Moisture Our Reference: Your Reference	UNITS ----- -	148009-19 BH10	148009-20 BH10	148009-21 BH11	148009-23 BH12	148009-25 BH13
Depth Date Sampled Type of sample	----- Soil	0.2 1/06/2016 Soil	0.5 1/06/2016 Soil	0.2 1/06/2016 Soil	0.2 1/06/2016 Soil	0.2 1/06/2016 Soil
Date prepared	-	7/06/2016	7/06/2016	7/06/2016	7/06/2016	7/06/2016
Date analysed	-	8/06/2016	8/06/2016	8/06/2016	8/06/2016	8/06/2016
Moisture	%	11	14	9.1	9.5	9.7

Moisture Our Reference: Your Reference	UNITS ----- -	148009-27 BH14/GW3	148009-29 BH15	148009-30 BH15	148009-31 BH16	148009-33 BH17
Depth Date Sampled Type of sample	----- Soil	0.3 1/06/2016 Soil	0.2 1/06/2016 Soil	0.8 1/06/2016 Soil	0.2 1/06/2016 Soil	0.3 1/06/2016 Soil
Date prepared	-	7/06/2016	7/06/2016	7/06/2016	7/06/2016	7/06/2016
Date analysed	-	8/06/2016	8/06/2016	8/06/2016	8/06/2016	8/06/2016
Moisture	%	5.2	7.4	15	12	5.1

Client Reference: E881, Punchbowl

Moisture Our Reference: Your Reference	UNITS ----- -	148009-35 BH18	148009-37 BH19	148009-39 BH20	148009-40 BH20	148009-41 BH21
Depth Date Sampled Type of sample	----- 	0.2 1/06/2016 Soil	0.2 1/06/2016 Soil	0.3 1/06/2016 Soil	1.0 1/06/2016 Soil	0.3 1/06/2016 Soil
Date prepared	-	7/06/2016	7/06/2016	7/06/2016	7/06/2016	7/06/2016
Date analysed	-	8/06/2016	8/06/2016	8/06/2016	8/06/2016	8/06/2016
Moisture	%	15	11	8.1	9.3	9.0

Moisture Our Reference: Your Reference	UNITS ----- -	148009-43 BH22	148009-45 BH23	148009-47 BH24	148009-49 BH25	148009-50 BH25
Depth Date Sampled Type of sample	----- 	0.2 1/06/2016 Soil	0.2 1/06/2016 Soil	0.3 1/06/2016 Soil	0.2 1/06/2016 Soil	0.6 1/06/2016 Soil
Date prepared	-	7/06/2016	7/06/2016	7/06/2016	7/06/2016	7/06/2016
Date analysed	-	8/06/2016	8/06/2016	8/06/2016	8/06/2016	8/06/2016
Moisture	%	5.9	9.0	7.0	5.1	14

Moisture Our Reference: Your Reference	UNITS ----- -	148009-51 BH26	148009-53 BH27	148009-55 BH28	148009-57 BH29	148009-59 BH30
Depth Date Sampled Type of sample	----- 	0.3 1/06/2016 Soil	0.3 1/06/2016 Soil	0.2 1/06/2016 Soil	0.3 1/06/2016 Soil	0.2 1/06/2016 Soil
Date prepared	-	7/06/2016	7/06/2016	7/06/2016	7/06/2016	7/06/2016
Date analysed	-	8/06/2016	8/06/2016	8/06/2016	8/06/2016	8/06/2016
Moisture	%	13	16	15	18	19

Moisture Our Reference: Your Reference	UNITS ----- -	148009-61 D1	148009-62 D2	148009-63 D3
Depth Date Sampled Type of sample	----- 	- 1/06/2016 Soil	- 1/06/2016 Soil	- 1/06/2016 Soil
Date prepared	-	7/06/2016	7/06/2016	7/06/2016
Date analysed	-	8/06/2016	8/06/2016	8/06/2016
Moisture	%	8.7	7.2	3.8

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	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. For soil results:- 1. 'TEQ PQL' values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'TEQ zero' values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'TEQ half PQL' values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-005	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.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	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.

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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	-			07/06/2016	148009-9	07/06/2016 07/06/2016	LCS-5	07/06/2016
Date analysed	-			09/06/2016	148009-9	08/06/2016 08/06/2016	LCS-5	08/06/2016
TRHC ₆ - C ₉	mg/kg	25	Org-016	<25	148009-9	<25 <25	LCS-5	76%
TRHC ₆ - C ₁₀	mg/kg	25	Org-016	<25	148009-9	<25 <25	LCS-5	76%
Benzene	mg/kg	0.2	Org-016	<0.2	148009-9	<0.2 <0.2	LCS-5	67%
Toluene	mg/kg	0.5	Org-016	<0.5	148009-9	<0.5 <0.5	LCS-5	71%
Ethylbenzene	mg/kg	1	Org-016	<1	148009-9	<1 <1	LCS-5	79%
m+p-xylene	mg/kg	2	Org-016	<2	148009-9	<2 <2	LCS-5	82%
o-Xylene	mg/kg	1	Org-016	<1	148009-9	<1 <1	LCS-5	77%
naphthalene	mg/kg	1	Org-014	<1	148009-9	<1 <1	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%		Org-016	94	148009-9	90 89 RPD: 1	LCS-5	71%
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	-			07/06/2016	148009-9	07/06/2016 07/06/2016	LCS-5	07/06/2016
Date analysed	-			08/06/2016	148009-9	07/06/2016 07/06/2016	LCS-5	07/06/2016
TRHC ₁₀ - C ₁₄	mg/kg	50	Org-003	<50	148009-9	<50 <50	LCS-5	96%
TRHC ₁₅ - C ₂₈	mg/kg	100	Org-003	<100	148009-9	<100 <100	LCS-5	89%
TRHC ₂₈ - C ₃₆	mg/kg	100	Org-003	<100	148009-9	<100 <100	LCS-5	92%
TRH>C ₁₀ -C ₁₆	mg/kg	50	Org-003	<50	148009-9	<50 <50	LCS-5	96%
TRH>C ₁₆ -C ₃₄	mg/kg	100	Org-003	<100	148009-9	<100 <100	LCS-5	89%
TRH>C ₃₄ -C ₄₀	mg/kg	100	Org-003	<100	148009-9	<100 <100	LCS-5	92%
Surrogate o-Terphenyl	%		Org-003	120	148009-9	100 60 RPD: 50	LCS-5	82%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Soil						Base II Duplicate II %RPD		
Date extracted	-			07/06/2016	148009-9	07/06/2016 07/06/2016	LCS-5	07/06/2016
Date analysed	-			08/06/2016	148009-9	08/06/2016 08/06/2016	LCS-5	08/06/2016
Naphthalene	mg/kg	0.1	Org-012	<0.1	148009-9	<0.1 <0.1	LCS-5	123%
Acenaphthylene	mg/kg	0.1	Org-012	<0.1	148009-9	<0.1 <0.1	[NR]	[NR]
Acenaphthene	mg/kg	0.1	Org-012	<0.1	148009-9	<0.1 <0.1	[NR]	[NR]
Fluorene	mg/kg	0.1	Org-012	<0.1	148009-9	<0.1 <0.1	LCS-5	111%
Phenanthrene	mg/kg	0.1	Org-012	<0.1	148009-9	<0.1 <0.1	LCS-5	128%
Anthracene	mg/kg	0.1	Org-012	<0.1	148009-9	<0.1 <0.1	[NR]	[NR]
Fluoranthene	mg/kg	0.1	Org-012	<0.1	148009-9	<0.1 <0.1	LCS-5	122%
Pyrene	mg/kg	0.1	Org-012	<0.1	148009-9	<0.1 <0.1	LCS-5	132%
Benzo(a)anthracene	mg/kg	0.1	Org-012	<0.1	148009-9	<0.1 <0.1	[NR]	[NR]
Chrysene	mg/kg	0.1	Org-012	<0.1	148009-9	<0.1 <0.1	LCS-5	119%
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012	<0.2	148009-9	<0.2 <0.2	[NR]	[NR]

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QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Soil						Base II Duplicate II %RPD		
Benzo(a)pyrene	mg/kg	0.05	Org-012	<0.05	148009-9	<0.05 <0.05	LCS-5	131%
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	<0.1	148009-9	<0.1 <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	<0.1	148009-9	<0.1 <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	<0.1	148009-9	<0.1 <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012	122	148009-9	105 116 RPD: 10	LCS-5	98%
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	-			07/06/2016	148009-9	07/06/2016 07/06/2016	LCS-5	07/06/2016
Date analysed	-			08/06/2016	148009-9	08/06/2016 08/06/2016	LCS-5	08/06/2016
HCB	mg/kg	0.1	Org-005	<0.1	148009-9	<0.1 <0.1	[NR]	[NR]
alpha-BHC	mg/kg	0.1	Org-005	<0.1	148009-9	<0.1 <0.1	LCS-5	85%
gamma-BHC	mg/kg	0.1	Org-005	<0.1	148009-9	<0.1 <0.1	[NR]	[NR]
beta-BHC	mg/kg	0.1	Org-005	<0.1	148009-9	<0.1 <0.1	LCS-5	114%
Heptachlor	mg/kg	0.1	Org-005	<0.1	148009-9	<0.1 <0.1	LCS-5	91%
delta-BHC	mg/kg	0.1	Org-005	<0.1	148009-9	<0.1 <0.1	[NR]	[NR]
Aldrin	mg/kg	0.1	Org-005	<0.1	148009-9	<0.1 <0.1	LCS-5	108%
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	148009-9	<0.1 <0.1	LCS-5	115%
gamma-Chlordane	mg/kg	0.1	Org-005	<0.1	148009-9	<0.1 <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	0.1	Org-005	<0.1	148009-9	<0.1 <0.1	[NR]	[NR]
Endosulfan I	mg/kg	0.1	Org-005	<0.1	148009-9	<0.1 <0.1	[NR]	[NR]
pp-DDE	mg/kg	0.1	Org-005	<0.1	148009-9	<0.1 <0.1	LCS-5	121%
Dieldrin	mg/kg	0.1	Org-005	<0.1	148009-9	<0.1 <0.1	LCS-5	127%
Endrin	mg/kg	0.1	Org-005	<0.1	148009-9	<0.1 <0.1	LCS-5	110%
pp-DDD	mg/kg	0.1	Org-005	<0.1	148009-9	<0.1 <0.1	LCS-5	106%
Endosulfan II	mg/kg	0.1	Org-005	<0.1	148009-9	<0.1 <0.1	[NR]	[NR]
pp-DDT	mg/kg	0.1	Org-005	<0.1	148009-9	<0.1 <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	0.1	Org-005	<0.1	148009-9	<0.1 <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	0.1	Org-005	<0.1	148009-9	<0.1 <0.1	LCS-5	99%
Methoxychlor	mg/kg	0.1	Org-005	<0.1	148009-9	<0.1 <0.1	[NR]	[NR]
Surrogate TCMX	%		Org-005	109	148009-9	105 64 RPD: 49	LCS-5	89%

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QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PCBs in Soil						Base Duplicate %RPD		
Date extracted	-			07/06/2016	148009-9	07/06/2016 07/06/2016	LCS-5	07/06/2016
Date analysed	-			08/06/2016	148009-9	08/06/2016 08/06/2016	LCS-5	08/06/2016
Aroclor 1016	mg/kg	0.1	Org-006	<0.1	148009-9	<0.1 <0.1	[NR]	[NR]
Aroclor 1221	mg/kg	0.1	Org-006	<0.1	148009-9	<0.1 <0.1	[NR]	[NR]
Aroclor 1232	mg/kg	0.1	Org-006	<0.1	148009-9	<0.1 <0.1	[NR]	[NR]
Aroclor 1242	mg/kg	0.1	Org-006	<0.1	148009-9	<0.1 <0.1	[NR]	[NR]
Aroclor 1248	mg/kg	0.1	Org-006	<0.1	148009-9	<0.1 <0.1	[NR]	[NR]
Aroclor 1254	mg/kg	0.1	Org-006	<0.1	148009-9	<0.1 <0.1	LCS-5	122%
Aroclor 1260	mg/kg	0.1	Org-006	<0.1	148009-9	<0.1 <0.1	[NR]	[NR]
Surrogate TCLMX	%		Org-006	109	148009-9	105 64 RPD: 49	LCS-5	107%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Acid Extractable metals in soil						Base Duplicate %RPD		
Date prepared	-			07/06/2016	148009-9	07/06/2016 07/06/2016	LCS-5	07/06/2016
Date analysed	-			07/06/2016	148009-9	07/06/2016 07/06/2016	LCS-5	07/06/2016
Arsenic	mg/kg	4	Metals-020	<4	148009-9	<4 <4	LCS-5	110%
Cadmium	mg/kg	0.4	Metals-020	<0.4	148009-9	0.4 <0.4	LCS-5	108%
Chromium	mg/kg	1	Metals-020	<1	148009-9	50 14 RPD: 112	LCS-5	109%
Copper	mg/kg	1	Metals-020	<1	148009-9	30 14 RPD: 73	LCS-5	110%
Lead	mg/kg	1	Metals-020	<1	148009-9	8 6 RPD: 29	LCS-5	106%
Mercury	mg/kg	0.1	Metals-021	<0.1	148009-9	<0.1 <0.1	LCS-5	104%
Nickel	mg/kg	1	Metals-020	<1	148009-9	48 11 RPD: 125	LCS-5	102%
Zinc	mg/kg	1	Metals-020	<1	148009-9	38 15 RPD: 87	LCS-5	104%
QUALITYCONTROL	UNITS	Dup. Sm#		Duplicate		Spike Sm#	Spike % Recovery	
vTRH(C6-C10)/BTEXN in Soil				Base + Duplicate + %RPD				
Date extracted	-	148009-23		07/06/2016 07/06/2016		LCS-6	07/06/2016	
Date analysed	-	148009-23		09/06/2016 09/06/2016		LCS-6	09/06/2016	
TRHC ₆ - C ₉	mg/kg	148009-23		<25 <25		LCS-6	91%	
TRHC ₆ - C ₁₀	mg/kg	148009-23		<25 <25		LCS-6	91%	
Benzene	mg/kg	148009-23		<0.2 <0.2		LCS-6	80%	
Toluene	mg/kg	148009-23		<0.5 <0.5		LCS-6	85%	
Ethylbenzene	mg/kg	148009-23		<1 <1		LCS-6	94%	
m+p-xylene	mg/kg	148009-23		<2 <2		LCS-6	98%	
o-Xylene	mg/kg	148009-23		<1 <1		LCS-6	93%	
naphthalene	mg/kg	148009-23		<1 <1		[NR]	[NR]	
Surrogate aaa-Trifluorotoluene	%	148009-23		84 81 RPD: 4		LCS-6	84%	

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QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	148009-23	07/06/2016 07/06/2016	LCS-6	07/06/2016
Date analysed	-	148009-23	07/06/2016 07/06/2016	LCS-6	08/06/2016
TRHC ₁₀ - C ₁₄	mg/kg	148009-23	<50 <50	LCS-6	94%
TRHC ₁₅ - C ₂₃	mg/kg	148009-23	<100 110	LCS-6	70%
TRHC ₂₉ - C ₃₆	mg/kg	148009-23	260 440 RPD: 51	LCS-6	114%
TRH>C ₁₀ -C ₁₆	mg/kg	148009-23	<50 <50	LCS-6	94%
TRH>C ₁₆ -C ₃₄	mg/kg	148009-23	180 380 RPD: 71	LCS-6	70%
TRH>C ₃₄ -C ₄₀	mg/kg	148009-23	420 630 RPD: 40	LCS-6	114%
Surrogate o-Terphenyl	%	148009-23	100 101 RPD: 1	LCS-6	94%
QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	148009-23	07/06/2016 07/06/2016	LCS-6	07/06/2016
Date analysed	-	148009-23	08/06/2016 08/06/2016	LCS-6	08/06/2016
Naphthalene	mg/kg	148009-23	<0.1 <0.1	LCS-6	108%
Acenaphthylene	mg/kg	148009-23	<0.1 <0.1	[NR]	[NR]
Acenaphthene	mg/kg	148009-23	<0.1 <0.1	[NR]	[NR]
Fluorene	mg/kg	148009-23	<0.1 <0.1	LCS-6	106%
Phenanthrene	mg/kg	148009-23	0.3 0.3 RPD: 0	LCS-6	113%
Anthracene	mg/kg	148009-23	<0.1 <0.1	[NR]	[NR]
Fluoranthene	mg/kg	148009-23	0.1 0.1 RPD: 0	LCS-6	109%
Pyrene	mg/kg	148009-23	0.2 0.2 RPD: 0	LCS-6	118%
Benzo(a)anthracene	mg/kg	148009-23	<0.1 <0.1	[NR]	[NR]
Chrysene	mg/kg	148009-23	<0.1 <0.1	LCS-6	106%
Benzo(b,j,k)fluoranthene	mg/kg	148009-23	<0.2 <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	148009-23	<0.05 <0.05	LCS-6	110%
Indeno(1,2,3-c,d)pyrene	mg/kg	148009-23	<0.1 <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	148009-23	<0.1 <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	148009-23	<0.1 <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%	148009-23	103 103 RPD: 0	LCS-6	89%

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QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	148009-23	07/06/2016 07/06/2016	LCS-6	07/06/2016
Date analysed	-	148009-23	07/06/2016 07/06/2016	LCS-6	07/06/2016
Arsenic	mg/kg	148009-23	<4 <4	LCS-6	113%
Cadmium	mg/kg	148009-23	0.4 0.4 RPD: 0	LCS-6	111%
Chromium	mg/kg	148009-23	60 64 RPD: 6	LCS-6	111%
Copper	mg/kg	148009-23	38 31 RPD: 20	LCS-6	109%
Lead	mg/kg	148009-23	8 9 RPD: 12	LCS-6	106%
Mercury	mg/kg	148009-23	<0.1 <0.1	LCS-6	105%
Nickel	mg/kg	148009-23	67 71 RPD: 6	LCS-6	104%
Zinc	mg/kg	148009-23	43 48 RPD: 11	LCS-6	107%
QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	148009-35	07/06/2016 07/06/2016	148009-10	07/06/2016
Date analysed	-	148009-35	09/06/2016 09/06/2016	148009-10	08/06/2016
TRHC ₆ - C ₉	mg/kg	148009-35	<25 <25	148009-10	106%
TRHC ₆ - C ₁₀	mg/kg	148009-35	<25 <25	148009-10	106%
Benzene	mg/kg	148009-35	<0.2 <0.2	148009-10	92%
Toluene	mg/kg	148009-35	<0.5 <0.5	148009-10	98%
Ethylbenzene	mg/kg	148009-35	<1 <1	148009-10	110%
m+p-xylene	mg/kg	148009-35	<2 <2	148009-10	115%
o-Xylene	mg/kg	148009-35	<1 <1	148009-10	110%
naphthalene	mg/kg	148009-35	<1 <1	[NR]	[NR]
Surrogate aaa- Trifluorotoluene	%	148009-35	91 92 RPD: 1	148009-10	93%
QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	148009-35	07/06/2016 07/06/2016	148009-10	7/06/2016
Date analysed	-	148009-35	08/06/2016 08/06/2016	148009-10	07/06/2016
TRHC ₁₀ - C ₁₄	mg/kg	148009-35	<50 <50	148009-10	100%
TRHC ₁₅ - C ₂₈	mg/kg	148009-35	<100 <100	148009-10	97%
TRHC ₂₉ - C ₃₆	mg/kg	148009-35	<100 <100	148009-10	97%
TRH>C ₁₀ -C ₁₆	mg/kg	148009-35	<50 <50	148009-10	100%
TRH>C ₁₆ -C ₃₄	mg/kg	148009-35	<100 <100	148009-10	97%
TRH>C ₃₄ -C ₄₀	mg/kg	148009-35	<100 <100	148009-10	97%
Surrogate o-Terphenyl	%	148009-35	95 99 RPD: 4	148009-10	108%

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QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	148009-35	07/06/2016 07/06/2016	148009-10	07/06/2016
Date analysed	-	148009-35	08/06/2016 08/06/2016	148009-10	08/06/2016
Naphthalene	mg/kg	148009-35	<0.1 <0.1	148009-10	106%
Acenaphthylene	mg/kg	148009-35	<0.1 <0.1	[NR]	[NR]
Acenaphthene	mg/kg	148009-35	<0.1 <0.1	[NR]	[NR]
Fluorene	mg/kg	148009-35	<0.1 <0.1	148009-10	100%
Phenanthrene	mg/kg	148009-35	<0.1 <0.1	148009-10	115%
Anthracene	mg/kg	148009-35	<0.1 <0.1	[NR]	[NR]
Fluoranthene	mg/kg	148009-35	<0.1 <0.1	148009-10	107%
Pyrene	mg/kg	148009-35	<0.1 <0.1	148009-10	119%
Benzo(a)anthracene	mg/kg	148009-35	<0.1 <0.1	[NR]	[NR]
Chrysene	mg/kg	148009-35	<0.1 <0.1	148009-10	92%
Benzo(b,j,k)fluoranthene	mg/kg	148009-35	<0.2 <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	148009-35	<0.05 <0.05	148009-10	116%
Indeno(1,2,3-c,d)pyrene	mg/kg	148009-35	<0.1 <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	148009-35	<0.1 <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	148009-35	<0.1 <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%	148009-35	101 102 RPD: 1	148009-10	119%
QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	148009-10	07/06/2016
Date analysed	-	[NT]	[NT]	148009-10	08/06/2016
HCB	mg/kg	[NT]	[NT]	[NR]	[NR]
alpha-BHC	mg/kg	[NT]	[NT]	148009-10	89%
gamma-BHC	mg/kg	[NT]	[NT]	[NR]	[NR]
beta-BHC	mg/kg	[NT]	[NT]	148009-10	98%
Heptachlor	mg/kg	[NT]	[NT]	148009-10	76%
delta-BHC	mg/kg	[NT]	[NT]	[NR]	[NR]
Aldrin	mg/kg	[NT]	[NT]	148009-10	92%
Heptachlor Epoxide	mg/kg	[NT]	[NT]	148009-10	77%
gamma-Chlordane	mg/kg	[NT]	[NT]	[NR]	[NR]
alpha-chlordane	mg/kg	[NT]	[NT]	[NR]	[NR]
Endosulfan I	mg/kg	[NT]	[NT]	[NR]	[NR]
pp-DDE	mg/kg	[NT]	[NT]	148009-10	81%
Dieldrin	mg/kg	[NT]	[NT]	148009-10	107%
Endrin	mg/kg	[NT]	[NT]	148009-10	98%
pp-DDD	mg/kg	[NT]	[NT]	148009-10	80%
Endosulfan II	mg/kg	[NT]	[NT]	[NR]	[NR]
pp-DDT	mg/kg	[NT]	[NT]	[NR]	[NR]
Endrin Aldehyde	mg/kg	[NT]	[NT]	[NR]	[NR]
Endosulfan Sulphate	mg/kg	[NT]	[NT]	148009-10	73%

Client Reference: E881, Punchbowl

QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Methoxychlor	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate TCMX	%	[NT]	[NT]	148009-10	110%
QUALITY CONTROL PCBs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	148009-10	07/06/2016
Date analysed	-	[NT]	[NT]	148009-10	08/06/2016
Aroclor 1016	mg/kg	[NT]	[NT]	[NR]	[NR]
Aroclor 1221	mg/kg	[NT]	[NT]	[NR]	[NR]
Aroclor 1232	mg/kg	[NT]	[NT]	[NR]	[NR]
Aroclor 1242	mg/kg	[NT]	[NT]	[NR]	[NR]
Aroclor 1248	mg/kg	[NT]	[NT]	[NR]	[NR]
Aroclor 1254	mg/kg	[NT]	[NT]	148009-10	123%
Aroclor 1260	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate TCLMX	%	[NT]	[NT]	148009-10	103%
QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	148009-35	07/06/2016 07/06/2016	148009-10	07/06/2016
Date analysed	-	148009-35	07/06/2016 07/06/2016	148009-10	07/06/2016
Arsenic	mg/kg	148009-35	7 8 RPD: 13	148009-10	88%
Cadmium	mg/kg	148009-35	0.4 0.5 RPD: 22	148009-10	94%
Chromium	mg/kg	148009-35	24 31 RPD: 25	148009-10	112%
Copper	mg/kg	148009-35	28 31 RPD: 10	148009-10	107%
Lead	mg/kg	148009-35	19 19 RPD: 0	148009-10	93%
Mercury	mg/kg	148009-35	<0.1 <0.1	148009-10	90%
Nickel	mg/kg	148009-35	20 26 RPD: 26	148009-10	103%
Zinc	mg/kg	148009-35	55 56 RPD: 2	148009-10	113%
QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	148009-49	07/06/2016 07/06/2016	148009-37	07/06/2016
Date analysed	-	148009-49	09/06/2016 09/06/2016	148009-37	09/06/2016
TRHC ₆ - C ₉	mg/kg	148009-49	<25 <25	148009-37	109%
TRHC ₆ - C ₁₀	mg/kg	148009-49	<25 <25	148009-37	109%
Benzene	mg/kg	148009-49	<0.2 <0.2	148009-37	94%
Toluene	mg/kg	148009-49	<0.5 <0.5	148009-37	102%
Ethylbenzene	mg/kg	148009-49	<1 <1	148009-37	112%
m+p-xylene	mg/kg	148009-49	<2 <2	148009-37	118%
o-Xylene	mg/kg	148009-49	<1 <1	148009-37	112%
naphthalene	mg/kg	148009-49	<1 <1	[NR]	[NR]
Surrogate aaa- Trifluorotoluene	%	148009-49	94 88 RPD: 7	148009-37	93%

Client Reference: E881, Punchbowl

QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	148009-49	07/06/2016 07/06/2016	148009-37	7/06/2016
Date analysed	-	148009-49	08/06/2016 08/06/2016	148009-37	08/06/2016
TRHC ₁₀ - C ₁₄	mg/kg	148009-49	<50 <50	148009-37	89%
TRHC ₁₅ - C ₂₃	mg/kg	148009-49	<100 <100	148009-37	79%
TRHC ₂₉ - C ₃₆	mg/kg	148009-49	<100 110	148009-37	#
TRH>C ₁₀ -C ₁₆	mg/kg	148009-49	<50 <50	148009-37	89%
TRH>C ₁₆ -C ₃₄	mg/kg	148009-49	<100 <100	148009-37	79%
TRH>C ₃₄ -C ₄₀	mg/kg	148009-49	170 200 RPD: 16	148009-37	#
Surrogate o-Terphenyl	%	148009-49	97 99 RPD: 2	148009-37	96%
QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	148009-49	07/06/2016 07/06/2016	148009-37	07/06/2016
Date analysed	-	148009-49	08/06/2016 08/06/2016	148009-37	08/06/2016
Naphthalene	mg/kg	148009-49	<0.1 <0.1	148009-37	102%
Acenaphthylene	mg/kg	148009-49	<0.1 <0.1	[NR]	[NR]
Acenaphthene	mg/kg	148009-49	<0.1 <0.1	[NR]	[NR]
Fluorene	mg/kg	148009-49	<0.1 <0.1	148009-37	105%
Phenanthrene	mg/kg	148009-49	0.1 0.1 RPD: 0	148009-37	112%
Anthracene	mg/kg	148009-49	<0.1 <0.1	[NR]	[NR]
Fluoranthene	mg/kg	148009-49	<0.1 <0.1	148009-37	108%
Pyrene	mg/kg	148009-49	<0.1 <0.1	148009-37	115%
Benzo(a)anthracene	mg/kg	148009-49	<0.1 <0.1	[NR]	[NR]
Chrysene	mg/kg	148009-49	<0.1 <0.1	148009-37	92%
Benzo(b,j,k)fluoranthene	mg/kg	148009-49	<0.2 <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	148009-49	<0.05 <0.05	148009-37	114%
Indeno(1,2,3-c,d)pyrene	mg/kg	148009-49	<0.1 <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	148009-49	<0.1 <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	148009-49	<0.1 <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%	148009-49	101 101 RPD: 0	148009-37	113%

QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Date extracted	-	148009-49	07/06/2016 07/06/2016
Date analysed	-	148009-49	08/06/2016 08/06/2016
HCB	mg/kg	148009-49	<0.1 <0.1
alpha-BHC	mg/kg	148009-49	<0.1 <0.1
gamma-BHC	mg/kg	148009-49	<0.1 <0.1
beta-BHC	mg/kg	148009-49	<0.1 <0.1
Heptachlor	mg/kg	148009-49	<0.1 <0.1
delta-BHC	mg/kg	148009-49	<0.1 <0.1
Aldrin	mg/kg	148009-49	<0.1 <0.1
Heptachlor Epoxide	mg/kg	148009-49	<0.1 <0.1
gamma-Chlordane	mg/kg	148009-49	<0.1 <0.1
alpha-chlordane	mg/kg	148009-49	<0.1 <0.1
Endosulfan I	mg/kg	148009-49	<0.1 <0.1
pp-DDE	mg/kg	148009-49	<0.1 <0.1
Dieldrin	mg/kg	148009-49	<0.1 <0.1
Endrin	mg/kg	148009-49	<0.1 <0.1
pp-DDD	mg/kg	148009-49	<0.1 <0.1
Endosulfan II	mg/kg	148009-49	<0.1 <0.1
pp-DDT	mg/kg	148009-49	<0.1 <0.1
Endrin Aldehyde	mg/kg	148009-49	<0.1 <0.1
Endosulfan Sulphate	mg/kg	148009-49	<0.1 <0.1
Methoxychlor	mg/kg	148009-49	<0.1 <0.1
Surrogate TCMX	%	148009-49	127 108 RPD: 16

Client Reference: E881, Punchbowl

QUALITY CONTROL PCBs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD		
Date extracted	-	148009-49	07/06/2016 07/06/2016		
Date analysed	-	148009-49	08/06/2016 08/06/2016		
Aroclor 1016	mg/kg	148009-49	<0.1 <0.1		
Aroclor 1221	mg/kg	148009-49	<0.1 <0.1		
Aroclor 1232	mg/kg	148009-49	<0.1 <0.1		
Aroclor 1242	mg/kg	148009-49	<0.1 <0.1		
Aroclor 1248	mg/kg	148009-49	<0.1 <0.1		
Aroclor 1254	mg/kg	148009-49	<0.1 <0.1		
Aroclor 1260	mg/kg	148009-49	<0.1 <0.1		
Surrogate TCLMX	%	148009-49	127 108 RPD: 16		
QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date prepared	-	148009-49	07/06/2016 07/06/2016	148009-37	07/06/2016
Date analysed	-	148009-49	07/06/2016 07/06/2016	148009-37	07/06/2016
Arsenic	mg/kg	148009-49	<4 <4	148009-37	88%
Cadmium	mg/kg	148009-49	<0.4 <0.4	148009-37	83%
Chromium	mg/kg	148009-49	62 12 RPD: 135	148009-37	97%
Copper	mg/kg	148009-49	22 9 RPD: 84	148009-37	113%
Lead	mg/kg	148009-49	9 7 RPD: 25	148009-37	71%
Mercury	mg/kg	148009-49	<0.1 <0.1	148009-37	95%
Nickel	mg/kg	148009-49	57 5 RPD: 168	148009-37	93%
Zinc	mg/kg	148009-49	43 8 RPD: 137	148009-37	84%

Report Comments:

Acid Extractable Metals in Soil: The laboratory RPD acceptance criteria has been exceeded for 148009-9 for Cr, Cu, Ni and Zn. Therefore a triplicate result has been issued as laboratory sample number 148009-66.

Acid Extractable Metals in Soil: The laboratory RPD acceptance criteria has been exceeded for 148009-49 for Cr, Cu, Ni and Zn. Therefore a triplicate result has been issued as laboratory sample number 148009-67.

sTRH in soil: # Percent recovery is not possible to report due to interference from analytes (other than those being tested) in the sample/s.

Asbestos ID was analysed by Approved Identifier:	Not applicable for this job
Asbestos ID was authorised by Approved Signatory:	Not applicable for this job

INS: Insufficient sample for this test
NR: 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 (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics 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.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.



Benviron group
sample analysis solutions

Chain of Custody Record

Client Details:

Benviron Group
PO Box 4405, East Gosford NSW 2250
email: ben@benvirongroup.com.au
ph: +61466 385 221

Delivery Details:

Envirolab Pty Ltd - Sydney Office
12 Ashley Street, Chatswood NSW 2067
email: ahie@envirolab.com.au
ph: +612 9910 6200

Project Manager:

Ben Buckley

Sampled By:

Danny Taylor

Purchase Order #:

N/A

Page #:

1 of 6

Project #: E881

Project Name: Punchbowl

Quote #:

Turnaround time: Standard

#	Sample ID	Date Sampled	Matrix	Analytes												Sample Comments
				Combo 3	Combo 5											
1	BH1/GW1 0.3m	01/06/16	SOIL	X												
2	BH1/GW1 1.0m	01/06/16	SOIL													
3	BH2 0.2m	01/06/16	SOIL	X												
4	BH2 0.7m	01/06/16	SOIL													
5	BH3 0.3m	01/06/16	SOIL	X												
6	BH3 1.0m	01/06/16	SOIL													
7	BH4 0.2m	01/06/16	SOIL	X												
8	BH4 0.9m	01/06/16	SOIL													
9	BH5 0.2m	01/06/16	SOIL	X	X											
10	BH5 0.5m	01/06/16	SOIL		X											
11	BH6 0.3m	01/06/16	SOIL	X												
12	BH6 1.0m	01/06/16	SOIL													

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

Job No: 148009

Date Received: 06/06/2016

Time Received: 17:30

Received by: CB

Temp: 500/Ambient

Condition: 100% intact

Security: Intact/Broken/None

Special Directions and Comments:

Relinquished by	Ben Buckley	Received By	ELS	Method of shipment
Signature	<i>Ben Buckley</i>	Signature	CB	
Date	16/05/16	Date	06/06/2016	



Chain of Custody Record

Client Details:

Benviron Group
PO Box 4405, East Gosford NSW 2250
email: ben@benvirongroup.com.au
ph: +61466 385 221

Delivery Details:
Envirolab Pty Ltd - Sydney Office
12 Ashley Street, Chatswood NSW 2067
email: ahie@envirolab.com.au
ph: +612 9910 6200

Project Manager:

Ben Buckley

Project #: E881

Sampled By:

Daniel Taylor

Project Name: Punchbowl

Purchase Order #:

N/A

Quote #:

Page #:

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Turnaround time: Standard

#	Sample ID	Date Sampled	Matrix	Analytes										Sample Comments
				Combo 3	Combo 5									
13	BH7/GW2 0.2m	01/06/16	SOIL	X										
14	BH7/GW2 2.5M	01/06/16	SOIL											
15	BH8 0.2m	01/06/16	SOIL	X										
16	BH8 0.8m	01/06/16	SOIL											
17	BH9 0.2m	01/06/16	SOIL	X										
18	BH9 0.5m	01/06/16	SOIL											
19	BH10 0.2m	01/06/16	SOIL	X	X									
20	BH10 0.5m	01/06/16	SOIL		X									
21	BH11 0.2m	01/06/16	SOIL	X	X									
22	BH11 1.1m	01/06/16	SOIL											
23	BH12 0.2m	01/06/16	SOIL	X										
24	BH12 0.8m	01/06/16	SOIL											

Special Directions and Comments:

Relinquished by	Ben Buckley	Received By	ELJ	Method of shipment	
Signature	<i>Ben Buckley</i>	Signature	<i>CB</i>		
Date	16/05/16	Date	06/06/2016		



Benviron group
sample sustainable solutions

Chain of Custody Record

Client Details: Benviron Group PO Box 4405, East Gosford NSW 2250 email: ben@benvirongroup.com.au ph: +61466 385 221				Project Manager: Ben Buckley				Project #: E881			
Delivery Details: Envirolab Pty Ltd - Sydney Office 12 Ashley Street, Chatswood NSW 2067 email: ahie@envirolab.com.au ph: +612 9910 6200				Sampled By: Daniel Taylor				Project Name: Punchbowl			
Purchase Order #: N/A				Quote #: Turnaround time: Standard				Page #: 3 of 6			

#	Sample ID	Date Sampled	Matrix	Analytes										Sample Comments			
				1	2	3	4	5	6	7	8	9	10				
25	BH13 0.2m	01/06/16	SOIL														
26	BH13 1.1m	01/06/16	SOIL														
27	BH14/GW3 0.3m	01/06/16	SOIL														
28	BH14/GW3 2.5m	01/06/16	SOIL														
29	BH15 0.2m	01/06/16	SOIL														
30	BH15 0.8m	01/06/16	SOIL														
31	BH16 0.2m	01/06/16	SOIL														
32	BH16 0.6m	01/06/16	SOIL														
33	BH17 0.3m	01/06/16	SOIL														
34	BH17 0.5m	01/06/16	SOIL														
35	BH18 0.2m	01/06/16	SOIL														
36	BH18 0.9m	01/06/16	SOIL														

Special Directions and Comments:			
Relinquished by	Ben Buckley	Received By	ELS
Signature	<i>Ben Buckley</i>	Signature	CB
Date	16/05/16	Date	06062016
		Method of shipment	



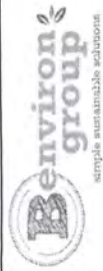
Delivery Details:
Envirolab Pty Ltd - Sydney Office
12 Ashley Street, Chatswood NSW 2067
email: ahie@envirolab.com.au
ph: +612 9910 6200

Project Manager:	Ben Buckley
Sampled By:	Daniel Taylor
Purchase Order #:	N/A
Page #:	4 of 6

Project #: E881
Project Name: Punchbowl
Quote #:
Turnaround time: Standard

[illegible]

Relinquished by	Ben Buckley	Received By	ELS	Method of shipment
Signature	<i>Ben Buckley</i>	Signature	CB	
Date	16/05/16	Date	06062016	



Chain of Custody Record

Client Details: Benviron Group PO Box 4405, East Gosford NSW 2250 email: ben@benvirongroup.com.au ph: +61466 385 221	Project Manager: Ben Buckley Sampled By: Daniel Taylor Purchase Order #: N/A Page #: 5 of 6	Project #: E881 Project Name: Punchbowl Quote #: Turnaround time: Standard
Delivery Details: EnviroLab Pty Ltd - Sydney Office 12 Ashley Street, Chatswood NSW 2067 email: ahie@envirolab.com.au ph: +612 9910 6200		

#	Sample ID	Date Sampled	Matrix	Analytes										Sample Comments
				Combo 3										
49	BH25 0.2m	01/06/16	SOIL	X										
50	BH25 0.6m	01/06/16	SOIL											
51	BH26 0.3m	01/06/16	SOIL	X										
52	BH26 0.8m	01/06/16	SOIL											
53	BH27 0.3m	01/06/16	SOIL	X										
54	BH27 1.0m	01/06/16	SOIL											
55	BH28 0.2m	01/06/16	SOIL	X										
56	BH28 0.8m	01/06/16	SOIL											
57	BH29 0.3m	01/06/16	SOIL	X										
58	BH29 0.9m	01/06/16	SOIL											
59	BH30 0.2m	01/06/16	SOIL	X										
60	BH30 1.0m	01/06/16	SOIL											

Special Directions and Comments:

Relinquished by	Ben Buckley	Received By	CB	Method of shipment	
Signature	<i>Ben Buckley</i>	Signature	ELS		
Date	16/05/16	Date	06062016		



Delivery Details:
Envirolab Pty Ltd - Sydney Office
12 Ashley Street, Chatswood NSW 2067
email: ahie@envirolab.com.au
ph. +612 9910 6200

6 of 6

[illegible]

Special Directions and Comments:

Relinquished by

Ben Buckley

Received By

B

Signature

Don Buckley

Signature

219

Date

06/06/16

Date _____

06062016

Method of shipment



Job No: 151708
Date Received: 11/8/2016

Time Received: 17:55
Received by: R
Temp: Cool/Ambient 4.2
Cooling: Ice/icepack

Chain of Custody Record



Client Details: Benviron Group PO Box 4405, East Gosford NSW 2250 email: ben@benvirongroup.com.au michael@benvirongroup.com.au ph: +61466 385 221	Project Manager: Michael Silk	Project #: E881
Delivery Details: Envirolab Pty Ltd 12 Ashley Street, Chatswood NSW 2067 email: ahie@envirolab.com.au ph: +612 9910 6200	Sampled By: Michael Silk	Project Name: Punchbowl
	Purchase Order #: N/A	Quote #:
	Page #: 1	Turnaround time: Standard

#	Sample ID	Depth	Date Sampled	Matrix	Analytes										Sample Comments
					ph	CEC	%CLAY								
1	BH31	0.1-0.2	11.8.16	soil	X	X	X								
2	BH31	0.4-0.5	11.8.16	soil	X	X	X								
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															

Special Directions and Comments:

Relinquished by	Michael Silk	Received By	P. Ray	Method of shipment
Signature	<i>MS</i>	Signature	<i>PR</i>	Courier
Date	11.8.16	Date	11/8/2016	

SAMPLE RECEIPT ADVICE

Client Details	
Client	Benviron Group
Attention	Michael Silk

Sample Login Details	
Your Reference	E881, Punchbowl
Envirolab Reference	151708
Date Sample Received	11/08/2016
Date Instructions Received	11/08/2016
Date Results Expected to be Reported	18/08/2016

Sample Condition	
Samples received in appropriate condition for analysis	YES
No. of Samples Provided	2 soils
Turnaround Time Requested	Standard
Temperature on receipt (°C)	na
Cooling Method	None
Sampling Date Provided	YES

Comments
Samples will be held for 1 month for water samples and 2 months for soil samples from date of receipt of samples

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	Phone: 02 9910 6200
Fax: 02 9910 6201	Fax: 02 9910 6201
Email: ahie@envirolabservices.com.au	Email: jhurst@envirolabservices.com.au

Sample and Testing Details on following page



Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

<i>Sample Id</i>	<i>CEC</i>	<i>Clay 50-120g</i>	<i>pH 1:5 soil:water</i>
BH31-0.1-0.2	✓	✓	✓
BH31-0.4-0.5	✓	✓	✓



Chain of Custody Record

Client Details: Benviron Group PO Box 4405, East Gosford NSW 2250 email: ben@benvirongroup.com.au ph: +61466 385 221	Project Manager: Ben Buckley Sampled By: Danny Taylor Purchase Order #: N/A Page #: 1 of 1	Project #: E881 Project Name: Punchbowl Quote #: Turnaround time: Standard
Delivery Details: Eurofins MGT - Sydney Office Unit F3-6 Building F, 16 Mars Road, Lane Cove 2066 email: EnviroSampleNSW@eurofins.com.au ph: +612 9900 8400		

#	Sample ID	Date Sampled	Matrix	Analytes															Sample Comments
				Suite B7	Suite B13														
1	SS1	01/06/16	SOIL	X	X														
2	SS2	01/06/16	SOIL	X	X														
3	SS3	01/06/16	SOIL	X	X														

Special Directions and Coments:			
Relinquished by	Ben Buckley	Received By	Ben n/b
Signature	<i>Ben Buckley</i>	Signature	<i>0606/16 1640 gja</i>
Date	06/06/16	Date	
		Method of shipment	
		503420	



Turnaround time: Standard

Relinquished by	Ben Buckley	Received By	g. Ellen Hg.	Method of shipment
Signature	<i>Ben Buckley</i>	Signature	<i>[Signature]</i>	
Date	06/06/16	Date	07/06/16 11:50	

Samples SS2 & SS3 rec'd 070616 ~~for~~ #503420



Chain of Custody Record

Client Details: Benviron Group PO Box 4405, East Gosford NSW 2250 email: ben@benvirongroup.com.au ph: +61466 385 221	Project Manager: Ben Buckley Sampled By: Danny Taylor Purchase Order #: N/A Page #: 1 of 1	Project #: E881 Project Name: Punchbowl Quote #: Turnaround time: Standard
Delivery Details: Eurofins MGT - Sydney Office Unit F3-6 Building F, 16 Mars Road, Lane Cove 2066 email: EnviroSampleNSW@eurofins.com.au ph: +612 9900 8400		

#	Sample ID	Date Sampled	Matrix	Analytes														Sample Comments
				Suite B7	Suite B13													
1	SS1	01/06/16	SOIL	X	X													
2	SS2	01/06/16	SOIL	X	X													
3	SS3	01/06/16	SOIL	X	X													

Special Directions and Comments:			
Relinquished by	Ben Buckley	Received By	Method of shipment
Signature	<i>Ben Buckley</i>	Signature	
Date	06/06/16	Date	

Elton Ng
010616 11:50
Samples SS2 & SS3 rec'd 070616 [signature] #503420

Sample Receipt Advice

Company name: **Benviron Group**
Contact name: Ben Buckley
Project name: PUNCHBOWL
Project ID: E881
COC number: Not provided
Turn around time: 5 Day
Date/Time received: Jun 7, 2016 11:50 AM
Eurofins | mgt reference: **503420**

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).

Notes

Samples SS2, SS3 received 07/06

Contact notes

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

Andrew Black on Phone : (+61) 2 9900 8490 or by e.mail: AndrewBlack@eurofins.com

Results will be delivered electronically via e.mail to Ben Buckley - ben@benvirongroup.com.au.

Company Name:	Benviron Group	Order No.:		Received:	Jun 7, 2016 11:50 AM
Address:	PO BOX 4405	Report #:	503420	Due:	Jun 15, 2016
	East Gosford	Phone:		Priority:	5 Day
	NSW 2250	Fax:		Contact Name:	Ben Buckley
Project Name:	PUNCHBOWL				
Project ID:	E881				
Eurofins mgt Analytical Services Manager : Andrew Black					

Sample Detail						Eurofins mgt Suite B13	Moisture Set	Eurofins mgt Suite B7
Melbourne Laboratory - NATA Site # 1254 & 14271								
Sydney Laboratory - NATA Site # 18217						X	X	X
Brisbane Laboratory - NATA Site # 20794								
External Laboratory								
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID			
1	SS1	Jun 01, 2016		Soil	S16-Jn06089	X	X	X
2	SS2	Jun 01, 2016		Soil	S16-Jn06090	X	X	X
3	SS3	Jun 01, 2016		Soil	S16-Jn06091	X	X	X
Test Counts						3	3	3

Certificate of Analysis

Benvion Group
PO BOX 4405
East Gosford
NSW 2250



NATA Accredited
Accreditation Number 1261
Site Number 18217

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

Attention: **Ben Buckley**

Report **503420-S**
Project name **PUNCHBOWL**
Project ID **E881**
Received Date **Jun 07, 2016**

Client Sample ID			SS1 Soil	SS2 Soil	SS3 Soil
Sample Matrix					
Eurofins mgt Sample No.			S16-Jn06089	S16-Jn06090	S16-Jn06091
Date Sampled			Jun 01, 2016	Jun 01, 2016	Jun 01, 2016
Test/Reference	LOR	Unit			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions					
TRH C6-C9	20	mg/kg	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	140
TRH C10-36 (Total)	50	mg/kg	< 50	< 50	140
BTEX					
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	96	86	85
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	< 20	< 20
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	< 50	< 50
Polycyclic Aromatic Hydrocarbons					
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Indeno(1,2,3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5

Client Sample ID			SS1	SS2	SS3
Sample Matrix			Soil	Soil	Soil
Eurofins mgt Sample No.			S16-Jn06089	S16-Jn06090	S16-Jn06091
Date Sampled			Jun 01, 2016	Jun 01, 2016	Jun 01, 2016
Test/Reference	LOR	Unit			
Polycyclic Aromatic Hydrocarbons					
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	75	102	93
p-Terphenyl-d14 (surr.)	1	%	80	113	100
Organochlorine Pesticides					
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1
4,4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05
4,4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05
4,4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05
a-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05
b-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05
d-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05
g-BHC (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Methoxychlor	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Toxaphene	1	mg/kg	< 1	< 1	< 1
Dibutylchloredate (surr.)	1	%	64	94	92
Tetrachloro-m-xylene (surr.)	1	%	97	102	97
Polychlorinated Biphenyls (PCB)					
Aroclor-1016	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Aroclor-1232	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Aroclor-1242	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Aroclor-1248	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Aroclor-1254	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Aroclor-1260	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Total PCB*	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Dibutylchloredate (surr.)	1	%	64	94	92
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	180
TRH >C34-C40	100	mg/kg	< 100	280	460
Heavy Metals					
Arsenic	2	mg/kg	4.4	2.8	3.2
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	68	110	94
Copper	5	mg/kg	23	34	46
Lead	5	mg/kg	14	6.2	11

Client Sample ID			SS1	SS2	SS3
Sample Matrix			Soil	Soil	Soil
Eurofins mgt Sample No.			S16-Jn06089	S16-Jn06090	S16-Jn06091
Date Sampled			Jun 01, 2016	Jun 01, 2016	Jun 01, 2016
Test/Reference	LOR	Unit			
Heavy Metals					
Mercury	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Nickel	5	mg/kg	65	120	78
Zinc	5	mg/kg	53	70	59
% Moisture	1	%	7.5	7.8	17

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	Jun 10, 2016	14 Day
- Method: TRH C6-C36 - LTM-ORG-2010			
BTEX	Sydney	Jun 08, 2016	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Jun 08, 2016	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Polycyclic Aromatic Hydrocarbons	Sydney	Jun 10, 2016	14 Day
- Method: E007 Polyaromatic Hydrocarbons (PAH)			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Jun 10, 2016	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Metals M8	Sydney	Jun 08, 2016	28 Day
- Method: LTM-MET-3040_R0 TOTAL AND DISSOLVED METALS AND MERCURY IN WATERS BY ICP-MS			
Eurofins mgt Suite B13			
Organochlorine Pesticides	Sydney	Jun 10, 2016	14 Day
- Method: E013 Organochlorine Pesticides (OC)			
Polychlorinated Biphenyls (PCB)	Sydney	Jun 10, 2016	28 Day
- Method: E013 Polychlorinated Biphenyls (PCB)			
% Moisture	Sydney	Jun 08, 2016	14 Day
- Method: LTM-GEN-7080 Moisture			

Company Name: Benviron Group
Address: PO BOX 4405
East Gosford
NSW 2250
Project Name: PUNCHBOWL
Project ID: E881

Order No.:
Report #: 503420
Phone:
Fax:

Received: Jun 7, 2016 11:50 AM
Due: Jun 15, 2016
Priority: 5 Day
Contact Name: Ben Buckley

Eurofins | mgt Analytical Services Manager : Andrew Black

Sample Detail						Eurofins mgt Suite B7	Moisture Set	Eurofins mgt Suite B13
Melbourne Laboratory - NATA Site # 1254 & 14271								
Sydney Laboratory - NATA Site # 18217						X	X	X
Brisbane Laboratory - NATA Site # 20794								
External Laboratory								
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID			
1	SS1	Jun 01, 2016		Soil	S16-Jn06089	X	X	X
2	SS2	Jun 01, 2016		Soil	S16-Jn06090	X	X	X
3	SS3	Jun 01, 2016		Soil	S16-Jn06091	X	X	X
Test Counts						3	3	3

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
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 & PFASs 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, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene 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 Aroclor 1260 in Matrix Spikes and LCS.
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 RPDs 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	
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	
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	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
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	< 0.5			0.5	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
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							
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	%	93			70-130	Pass	
TRH C10-C14	%	89			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	98			70-130	Pass	
Toluene	%	100			70-130	Pass	
Ethylbenzene	%	97			70-130	Pass	
m&p-Xylenes	%	99			70-130	Pass	
o-Xylene	%	98			70-130	Pass	
Xylenes - Total	%	99			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	109			70-130	Pass	
TRH C6-C10	%	99			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	102			70-130	Pass	
Acenaphthylene	%	106			70-130	Pass	
Anthracene	%	107			70-130	Pass	
Benz(a)anthracene	%	98			70-130	Pass	
Benzo(a)pyrene	%	94			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Benzo(b&j)fluoranthene	%	95			70-130	Pass	
Benzo(g,h,i)perylene	%	71			70-130	Pass	
Benzo(k)fluoranthene	%	102			70-130	Pass	
Chrysene	%	109			70-130	Pass	
Dibenz(a,h)anthracene	%	74			70-130	Pass	
Fluoranthene	%	104			70-130	Pass	
Fluorene	%	101			70-130	Pass	
Indeno(1,2,3-cd)pyrene	%	72			70-130	Pass	
Naphthalene	%	107			70-130	Pass	
Phenanthrene	%	111			70-130	Pass	
Pyrene	%	106			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	105			70-130	Pass	
4,4'-DDD	%	113			70-130	Pass	
4,4'-DDE	%	103			70-130	Pass	
4,4'-DDT	%	78			70-130	Pass	
a-BHC	%	107			70-130	Pass	
Aldrin	%	103			70-130	Pass	
b-BHC	%	111			70-130	Pass	
d-BHC	%	110			70-130	Pass	
Dieldrin	%	109			70-130	Pass	
Endosulfan I	%	108			70-130	Pass	
Endosulfan II	%	108			70-130	Pass	
Endosulfan sulphate	%	92			70-130	Pass	
Endrin	%	116			70-130	Pass	
Endrin aldehyde	%	97			70-130	Pass	
Endrin ketone	%	84			70-130	Pass	
g-BHC (Lindane)	%	111			70-130	Pass	
Heptachlor	%	120			70-130	Pass	
Heptachlor epoxide	%	109			70-130	Pass	
Hexachlorobenzene	%	106			70-130	Pass	
Methoxychlor	%	77			70-130	Pass	
Toxaphene	%	118			70-130	Pass	
LCS - % Recovery							
Polychlorinated Biphenyls (PCB)							
Aroclor-1260	%	106			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	%	95			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	82			70-130	Pass	
Cadmium	%	85			70-130	Pass	
Chromium	%	82			70-130	Pass	
Copper	%	83			70-130	Pass	
Lead	%	83			70-130	Pass	
Mercury	%	90			70-130	Pass	
Nickel	%	83			70-130	Pass	
Zinc	%	86			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1				
TRH C6-C9	S16-Jn07280	NCP	%	87		70-130	Pass	
TRH C10-C14	S16-Jn06236	NCP	%	104		70-130	Pass	
Spike - % Recovery								
BTEX				Result 1				
Benzene	S16-Jn07280	NCP	%	95		70-130	Pass	
Toluene	S16-Jn07280	NCP	%	96		70-130	Pass	
Ethylbenzene	S16-Jn07280	NCP	%	93		70-130	Pass	
m&p-Xylenes	S16-Jn07280	NCP	%	95		70-130	Pass	
o-Xylene	S16-Jn07280	NCP	%	94		70-130	Pass	
Xylenes - Total	S16-Jn07280	NCP	%	94		70-130	Pass	
Spike - % Recovery								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1				
Naphthalene	S16-Jn07280	NCP	%	102		70-130	Pass	
TRH C6-C10	S16-Jn07280	NCP	%	98		70-130	Pass	
Spike - % Recovery								
Polycyclic Aromatic Hydrocarbons				Result 1				
Acenaphthene	S16-Jn05964	NCP	%	101		70-130	Pass	
Acenaphthylene	S16-Jn05964	NCP	%	103		70-130	Pass	
Anthracene	S16-Jn05964	NCP	%	112		70-130	Pass	
Benz(a)anthracene	S16-Jn05964	NCP	%	96		70-130	Pass	
Benzo(a)pyrene	S16-Jn05964	NCP	%	83		70-130	Pass	
Benzo(b&j)fluoranthene	S16-Jn05964	NCP	%	88		70-130	Pass	
Benzo(g,h,i)perylene	S16-Jn04884	NCP	%	82		70-130	Pass	
Benzo(k)fluoranthene	S16-Jn05964	NCP	%	93		70-130	Pass	
Chrysene	S16-Jn05964	NCP	%	104		70-130	Pass	
Dibenz(a,h)anthracene	S16-Jn05964	NCP	%	78		70-130	Pass	
Fluoranthene	S16-Jn05964	NCP	%	103		70-130	Pass	
Fluorene	S16-Jn05964	NCP	%	102		70-130	Pass	
Indeno(1,2,3-cd)pyrene	S16-Jn04884	NCP	%	77		70-130	Pass	
Naphthalene	S16-Jn05964	NCP	%	103		70-130	Pass	
Phenanthrene	S16-Jn04884	NCP	%	111		70-130	Pass	
Pyrene	S16-Jn05964	NCP	%	101		70-130	Pass	
Spike - % Recovery								
Organochlorine Pesticides				Result 1				
Chlordanes - Total	S16-Jn07777	NCP	%	107		70-130	Pass	
4,4'-DDD	S16-Jn07777	NCP	%	126		70-130	Pass	
4,4'-DDE	S16-Jn07777	NCP	%	106		70-130	Pass	
4,4'-DDT	S16-Jn07777	NCP	%	89		70-130	Pass	
a-BHC	S16-Jn07777	NCP	%	105		70-130	Pass	
Aldrin	S16-Jn07777	NCP	%	108		70-130	Pass	
b-BHC	S16-Jn07777	NCP	%	116		70-130	Pass	
d-BHC	S16-Jn07777	NCP	%	115		70-130	Pass	
Dieldrin	S16-Jn07777	NCP	%	116		70-130	Pass	
Endosulfan I	S16-Jn07777	NCP	%	111		70-130	Pass	
Endosulfan II	S16-Jn07777	NCP	%	116		70-130	Pass	
Endosulfan sulphate	S16-Jn07777	NCP	%	97		70-130	Pass	
Endrin	S16-Jn07777	NCP	%	123		70-130	Pass	
Endrin aldehyde	S16-Jn07777	NCP	%	109		70-130	Pass	
Endrin ketone	S16-Jn07777	NCP	%	98		70-130	Pass	
g-BHC (Lindane)	S16-Jn07777	NCP	%	115		70-130	Pass	
Heptachlor	S16-Jn07777	NCP	%	116		70-130	Pass	
Heptachlor epoxide	S16-Jn07777	NCP	%	114		70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Hexachlorobenzene	S16-Jn07777	NCP	%	101			70-130	Pass	
Methoxychlor	S16-Jn07777	NCP	%	105			70-130	Pass	
Toxaphene	S16-Jn07777	NCP	%	111			70-130	Pass	
Spike - % Recovery									
Polychlorinated Biphenyls (PCB)				Result 1					
Aroclor-1260	S16-Jn07777	NCP	%	120			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	S16-Jn06236	NCP	%	109			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S16-Jn06752	NCP	%	86			70-130	Pass	
Cadmium	S16-Jn06752	NCP	%	90			70-130	Pass	
Chromium	S16-Jn06752	NCP	%	94			70-130	Pass	
Copper	S16-Jn06752	NCP	%	75			70-130	Pass	
Lead	S16-Jn06752	NCP	%	85			70-130	Pass	
Mercury	S16-Jn06752	NCP	%	89			70-130	Pass	
Nickel	S16-Jn06752	NCP	%	79			70-130	Pass	
Zinc	S16-Jn06752	NCP	%	83			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	S16-Jn07276	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	S16-Jn09039	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S16-Jn09039	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	S16-Jn09039	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S16-Jn07276	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S16-Jn07276	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S16-Jn07276	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S16-Jn07276	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S16-Jn07276	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total	S16-Jn07276	NCP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S16-Jn07276	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S16-Jn07276	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S16-Jn05963	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S16-Jn05963	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S16-Jn05963	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S16-Jn05963	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	S16-Jn05963	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	S16-Jn05963	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g,h,i)perylene	S16-Jn05963	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	S16-Jn05963	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	S16-Jn05963	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a,h)anthracene	S16-Jn05963	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S16-Jn05963	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	S16-Jn05963	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1,2,3-cd)pyrene	S16-Jn05963	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	S16-Jn05963	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Duplicate								
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD		
Phenanthrene	S16-Jn05963	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Pyrene	S16-Jn05963	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Duplicate								
Organochlorine Pesticides				Result 1	Result 2	RPD		
Chlordanes - Total	S16-Jn07786	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
4,4'-DDD	S16-Jn07786	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
4,4'-DDE	S16-Jn07786	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
4,4'-DDT	S16-Jn07786	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
a-BHC	S16-Jn07786	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Aldrin	S16-Jn07786	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
b-BHC	S16-Jn07786	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
d-BHC	S16-Jn07786	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Dieldrin	S16-Jn07786	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endosulfan I	S16-Jn07786	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endosulfan II	S16-Jn07786	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endosulfan sulphate	S16-Jn07786	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin	S16-Jn07786	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin aldehyde	S16-Jn07786	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin ketone	S16-Jn07786	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
g-BHC (Lindane)	S16-Jn07786	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Heptachlor	S16-Jn07786	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Heptachlor epoxide	S16-Jn07786	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Hexachlorobenzene	S16-Jn07786	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Methoxychlor	S16-Jn07786	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Toxaphene	S16-Jn07786	NCP	mg/kg	< 1	< 1	<1	30%	Pass
Duplicate								
Polychlorinated Biphenyls (PCB)				Result 1	Result 2	RPD		
Aroclor-1016	S16-Jn07786	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Aroclor-1232	S16-Jn07786	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Aroclor-1242	S16-Jn07786	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Aroclor-1248	S16-Jn07786	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Aroclor-1254	S16-Jn07786	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Aroclor-1260	S16-Jn07786	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
TRH >C10-C16	S16-Jn09039	NCP	mg/kg	< 50	< 50	<1	30%	Pass
TRH >C16-C34	S16-Jn09039	NCP	mg/kg	< 100	< 100	<1	30%	Pass
TRH >C34-C40	S16-Jn09039	NCP	mg/kg	< 100	< 100	<1	30%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic	S16-Jn06751	NCP	mg/kg	5.8	5.4	7.0	30%	Pass
Cadmium	S16-Jn06751	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass
Chromium	S16-Jn06751	NCP	mg/kg	6.3	6.4	1.0	30%	Pass
Copper	S16-Jn06751	NCP	mg/kg	6.1	6.1	<1	30%	Pass
Lead	S16-Jn06751	NCP	mg/kg	16	17	5.0	30%	Pass
Mercury	S16-Jn06751	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Nickel	S16-Jn06751	NCP	mg/kg	< 5	< 5	<1	30%	Pass
Zinc	S16-Jn06751	NCP	mg/kg	< 5	< 5	<1	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
% Moisture	S16-Jn04561	NCP	%	19	20	5.0	30%	Pass

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

Authorised By

Andrew Black	Analytical Services Manager
Bob Symons	Senior Analyst-Inorganic (NSW)
Ivan Taylor	Senior Analyst-Metal (NSW)
Ryan Hamilton	Senior Analyst-Organic (NSW)
Ryan Hamilton	Senior Analyst-Volatile (NSW)



Glenn Jackson

National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

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

Measurement uncertainty of test data is available on request or please [click here](#).

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Certificate of Analysis

Benviron Group
PO BOX 4405
East Gosford
NSW 2250



NATA Accredited
Accreditation Number 1261
Site Number 18217

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

Attention: **Ben Buckley**

Report **503772-W**
Project name PUNCHBOWL
Project ID E881
Received Date Jun 08, 2016

Client Sample ID			SS1
Sample Matrix			Water
Eurofins mgt Sample No.			S16-Jn07995
Date Sampled			Jun 01, 2016
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons - 1999 NEPM Fractions			
TRH C6-C9	0.02	mg/L	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05
TRH C15-C28	0.1	mg/L	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1
TRH C10-36 (Total)	0.1	mg/L	< 0.1
BTEX			
Benzene	0.001	mg/L	< 0.001
Toluene	0.001	mg/L	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002
o-Xylene	0.001	mg/L	< 0.001
Xylenes - Total	0.003	mg/L	< 0.003
4-Bromofluorobenzene (surr.)	1	%	86
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
Naphthalene ^{N02}	0.01	mg/L	< 0.01
TRH C6-C10	0.02	mg/L	< 0.02
TRH C6-C10 less BTEX (F1) ^{N04}	0.02	mg/L	< 0.02
TRH >C10-C16 less Naphthalene (F2) ^{N01}	0.05	mg/L	< 0.05
Polycyclic Aromatic Hydrocarbons			
Acenaphthene	0.001	mg/L	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001
Anthracene	0.001	mg/L	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001
Benzo(b&j)fluoranthene ^{N07}	0.001	mg/L	< 0.001
Benzo(g,h,i)perylene	0.001	mg/L	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001
Chrysene	0.001	mg/L	< 0.001
Dibenz(a,h)anthracene	0.001	mg/L	< 0.001
Fluoranthene	0.001	mg/L	< 0.001
Fluorene	0.001	mg/L	< 0.001
Indeno(1,2,3-cd)pyrene	0.001	mg/L	< 0.001
Naphthalene	0.001	mg/L	< 0.001
Phenanthrene	0.001	mg/L	< 0.001
Pyrene	0.001	mg/L	< 0.001

Client Sample ID			SS1
Sample Matrix			Water
Eurofins mgt Sample No.			S16-Jn07995
Date Sampled			Jun 01, 2016
Test/Reference	LOR	Unit	
Polycyclic Aromatic Hydrocarbons			
Total PAH*	0.001	mg/L	< 0.001
2-Fluorobiphenyl (surr.)	1	%	146
p-Terphenyl-d14 (surr.)	1	%	106
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
TRH >C10-C16	0.05	mg/L	< 0.05
TRH >C16-C34	0.1	mg/L	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1
Heavy Metals			
Arsenic (filtered)	0.001	mg/L	0.001
Cadmium (filtered)	0.0001	mg/L	0.0006
Chromium (filtered)	0.001	mg/L	0.002
Copper (filtered)	0.001	mg/L	0.003
Lead (filtered)	0.001	mg/L	< 0.001
Mercury (filtered)	0.0001	mg/L	< 0.0001
Nickel (filtered)	0.001	mg/L	0.019
Zinc (filtered)	0.005	mg/L	0.86

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 - Method: TRH C6-C36 - LTM-ORG-2010	Melbourne	Jun 10, 2016	7 Day
BTEX - Method: TRH C6-C40 - LTM-ORG-2010	Sydney	Jun 08, 2016	14 Day
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: TRH C6-C40 - LTM-ORG-2010	Melbourne	Jun 08, 2016	7 Day
Polycyclic Aromatic Hydrocarbons - Method: USEPA 8270 Polycyclic Aromatic Hydrocarbons	Melbourne	Jun 10, 2016	7 Day
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: TRH C6-C40 - LTM-ORG-2010	Melbourne	Jun 10, 2016	7 Day
Metals M8 filtered - Method: LTM-MET-3040 Metals in Waters by ICP-MS	Sydney	Jun 08, 2016	28 Day

Company Name: Benviron Group
Address: PO BOX 4405
East Gosford
NSW 2250
Project Name: PUNCHBOWL
Project ID: E881

Order No.:
Report #: 503772
Phone:
Fax:

Received: Jun 8, 2016 3:14 PM
Due: Jun 16, 2016
Priority: 5 Day
Contact Name: Ben Buckley

Eurofins | mgt Analytical Services Manager : Andrew Black

Sample Detail						Eurofins mgt Suite B7 (filtered metals)
Melbourne Laboratory - NATA Site # 1254 & 14271						X
Sydney Laboratory - NATA Site # 18217						X
Brisbane Laboratory - NATA Site # 20794						
External Laboratory						
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID	
1	SS1	Jun 01, 2016		Water	S16-Jn07995	X
Test Counts						1

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
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 & PFASs 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, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene 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 Aroclor 1260 in Matrix Spikes and LCS.
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 RPDs 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/L	< 0.02			0.02	Pass	
TRH C10-C14	mg/L	< 0.05			0.05	Pass	
TRH C15-C28	mg/L	< 0.1			0.1	Pass	
TRH C29-C36	mg/L	< 0.1			0.1	Pass	
Method Blank							
BTEX							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total	mg/L	< 0.003			0.003	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/L	< 0.01			0.01	Pass	
TRH C6-C10	mg/L	< 0.02			0.02	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/L	< 0.001			0.001	Pass	
Acenaphthylene	mg/L	< 0.001			0.001	Pass	
Anthracene	mg/L	< 0.001			0.001	Pass	
Benz(a)anthracene	mg/L	< 0.001			0.001	Pass	
Benzo(a)pyrene	mg/L	< 0.001			0.001	Pass	
Benzo(b&j)fluoranthene	mg/L	< 0.001			0.001	Pass	
Benzo(g,h,i)perylene	mg/L	< 0.001			0.001	Pass	
Benzo(k)fluoranthene	mg/L	< 0.001			0.001	Pass	
Chrysene	mg/L	< 0.001			0.001	Pass	
Dibenz(a,h)anthracene	mg/L	< 0.001			0.001	Pass	
Fluoranthene	mg/L	< 0.001			0.001	Pass	
Fluorene	mg/L	< 0.001			0.001	Pass	
Indeno(1,2,3-cd)pyrene	mg/L	< 0.001			0.001	Pass	
Naphthalene	mg/L	< 0.001			0.001	Pass	
Phenanthrene	mg/L	< 0.001			0.001	Pass	
Pyrene	mg/L	< 0.001			0.001	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	mg/L	< 0.05			0.05	Pass	
TRH >C16-C34	mg/L	< 0.1			0.1	Pass	
TRH >C34-C40	mg/L	< 0.1			0.1	Pass	
Method Blank							
Heavy Metals							
Arsenic (filtered)	mg/L	< 0.001			0.001	Pass	
Cadmium (filtered)	mg/L	< 0.0001			0.0001	Pass	
Chromium (filtered)	mg/L	< 0.001			0.001	Pass	
Copper (filtered)	mg/L	< 0.001			0.001	Pass	
Lead (filtered)	mg/L	< 0.001			0.001	Pass	
Mercury (filtered)	mg/L	< 0.0001			0.0001	Pass	
Nickel (filtered)	mg/L	< 0.001			0.001	Pass	
Zinc (filtered)	mg/L	< 0.005			0.005	Pass	
LCS - % Recovery							

Test				Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Total Recoverable Hydrocarbons - 1999 NEPM Fractions										
TRH C6-C9			%	86				70-130	Pass	
TRH C10-C14			%	95				70-130	Pass	
LCS - % Recovery										
BTEX										
Benzene			%	97				70-130	Pass	
Toluene			%	94				70-130	Pass	
Ethylbenzene			%	93				70-130	Pass	
m&p-Xylenes			%	94				70-130	Pass	
o-Xylene			%	95				70-130	Pass	
Xylenes - Total			%	95				70-130	Pass	
LCS - % Recovery										
Total Recoverable Hydrocarbons - 2013 NEPM Fractions										
Naphthalene			%	94				70-130	Pass	
TRH C6-C10			%	95				70-130	Pass	
LCS - % Recovery										
Polycyclic Aromatic Hydrocarbons										
Acenaphthene			%	118				70-130	Pass	
Acenaphthylene			%	119				70-130	Pass	
Anthracene			%	115				70-130	Pass	
Benz(a)anthracene			%	126				70-130	Pass	
Benzo(a)pyrene			%	85				70-130	Pass	
Benzo(b&j)fluoranthene			%	121				70-130	Pass	
Benzo(g,h,i)perylene			%	102				70-130	Pass	
Benzo(k)fluoranthene			%	93				70-130	Pass	
Chrysene			%	127				70-130	Pass	
Dibenz(a,h)anthracene			%	98				70-130	Pass	
Fluoranthene			%	129				70-130	Pass	
Fluorene			%	121				70-130	Pass	
Indeno(1.2.3-cd)pyrene			%	102				70-130	Pass	
Naphthalene			%	113				70-130	Pass	
Phenanthrene			%	120				70-130	Pass	
Pyrene			%	126				70-130	Pass	
LCS - % Recovery										
Total Recoverable Hydrocarbons - 2013 NEPM Fractions										
TRH >C10-C16			%	96				70-130	Pass	
LCS - % Recovery										
Heavy Metals										
Arsenic (filtered)			%	105				70-130	Pass	
Cadmium (filtered)			%	102				70-130	Pass	
Chromium (filtered)			%	107				70-130	Pass	
Copper (filtered)			%	108				70-130	Pass	
Lead (filtered)			%	101				70-130	Pass	
Mercury (filtered)			%	97				70-130	Pass	
Nickel (filtered)			%	107				70-130	Pass	
Zinc (filtered)			%	106				70-130	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1				Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery										
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1						
TRH C6-C9	S16-Jn08985	NCP	%	85				70-130	Pass	
TRH C10-C14	S16-Jn07996	NCP	%	83				70-130	Pass	
Spike - % Recovery										
BTEX				Result 1						
Benzene	S16-Jn08985	NCP	%	101				70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Toluene	S16-Jn08985	NCP	%	99			70-130	Pass	
Ethylbenzene	S16-Jn08985	NCP	%	97			70-130	Pass	
m&p-Xylenes	S16-Jn08985	NCP	%	98			70-130	Pass	
o-Xylene	S16-Jn08985	NCP	%	98			70-130	Pass	
Xylenes - Total	S16-Jn08985	NCP	%	98			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S16-Jn08985	NCP	%	85			70-130	Pass	
TRH C6-C10	S16-Jn08985	NCP	%	90			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	S16-Jn07996	NCP	%	84			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic (filtered)	S16-Jn08305	NCP	%	109			70-130	Pass	
Cadmium (filtered)	S16-Jn08305	NCP	%	109			70-130	Pass	
Chromium (filtered)	S16-Jn08305	NCP	%	107			70-130	Pass	
Copper (filtered)	S16-Jn08305	NCP	%	87			70-130	Pass	
Mercury (filtered)	S16-Jn08305	NCP	%	96			70-130	Pass	
Nickel (filtered)	S16-Jn08305	NCP	%	103			70-130	Pass	
Zinc (filtered)	S16-Jn08305	NCP	%	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	S16-Jn08984	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH C10-C14	S16-Jn07995	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH C15-C28	S16-Jn07995	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C29-C36	S16-Jn07995	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S16-Jn08984	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Toluene	S16-Jn08984	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Ethylbenzene	S16-Jn08984	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	S16-Jn08984	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
o-Xylene	S16-Jn08984	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Xylenes - Total	S16-Jn08984	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S16-Jn08984	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
TRH C6-C10	S16-Jn08984	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S16-Jn07995	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Acenaphthylene	S16-Jn07995	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Anthracene	S16-Jn07995	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benz(a)anthracene	S16-Jn07995	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(a)pyrene	S16-Jn07995	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(b&j)fluoranthene	S16-Jn07995	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(g,h,i)perylene	S16-Jn07995	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(k)fluoranthene	S16-Jn07995	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Chrysene	S16-Jn07995	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Dibenz(a,h)anthracene	S16-Jn07995	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluoranthene	S16-Jn07995	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluorene	S16-Jn07995	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	

Duplicate								
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD		
Indeno(1.2.3-cd)pyrene	S16-Jn07995	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Naphthalene	S16-Jn07995	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Phenanthrene	S16-Jn07995	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Pyrene	S16-Jn07995	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
TRH >C10-C16	S16-Jn07995	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass
TRH >C16-C34	S16-Jn07995	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass
TRH >C34-C40	S16-Jn07995	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic (filtered)	S16-Jn08302	NCP	mg/L	0.004	0.004	3.0	30%	Pass
Cadmium (filtered)	S16-Jn08302	NCP	mg/L	0.0001	0.0001	<1	30%	Pass
Chromium (filtered)	S16-Jn08302	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Copper (filtered)	S16-Jn08302	NCP	mg/L	0.001	0.001	13	30%	Pass
Lead (filtered)	S16-Jn08302	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Mercury (filtered)	S16-Jn08302	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Nickel (filtered)	S16-Jn08302	NCP	mg/L	0.010	0.010	4.0	30%	Pass
Zinc (filtered)	S16-Jn08302	NCP	mg/L	0.017	0.017	1.0	30%	Pass

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

Authorised By

Andrew Black	Analytical Services Manager
Ivan Taylor	Senior Analyst-Metal (NSW)
Mele Singh	Senior Analyst-Organic (VIC)
Ryan Hamilton	Senior Analyst-Volatile (NSW)



Glenn Jackson

National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

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

Measurement uncertainty of test data is available on request or please [click here](#).

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CERTIFICATE OF ANALYSIS

151708

Client:

Benviron Group
PO Box 4405
East Gosford
NSW 2250

Attention: Michael Silk

Sample log in details:

Your Reference:	<u>E881, Punchbowl</u>
No. of samples:	2 soils
Date samples received / completed instructions received	11/08/16 / 11/08/16

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:

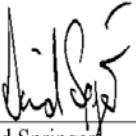
Date results requested by: / Issue Date:	18/08/16 / 18/08/16
Date of Preliminary Report:	Not Issued

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Accredited for compliance with ISO/IEC 17025 - Testing

Tests not covered by NATA are denoted with *.

Results Approved By:



David Springer
General Manager

Envirolab Reference: 151708
Revision No: R 00



CEC			
Our Reference:	UNITS	151708-1	151708-2
Your Reference	-----	BH31	BH31
	-		
Depth	-----	0.1-0.2	0.4-0.5
Date Sampled		11/08/2016	11/08/2016
Type of sample		soil	soil
Date prepared	-	16/08/2016	16/08/2016
Date analysed	-	16/08/2016	16/08/2016
Exchangeable Ca	meq/100g	25	14
Exchangeable K	meq/100g	0.3	0.1
Exchangeable Mg	meq/100g	3.4	2.2
Exchangeable Na	meq/100g	0.14	0.35
Cation Exchange Capacity	meq/100g	29	16

Clay 50-120g Our Reference: Your Reference	UNITS ----- -	151708-1 BH31	151708-2 BH31
Depth Date Sampled Type of sample	----- 	0.1-0.2 11/08/2016 soil	0.4-0.5 11/08/2016 soil
Date prepared	-	12/08/2016	12/08/2016
Date analysed	-	15/08/2016	15/08/2016
Clay in soils <2um	% (w/w)	9	58

Misc Inorg - Soil	UNITS	151708-1	151708-2
Our Reference:	-----	BH31	BH31
Your Reference	-		
Depth	-----	0.1-0.2	0.4-0.5
Date Sampled		11/08/2016	11/08/2016
Type of sample		soil	soil
Date prepared	-	15/08/2016	15/08/2016
Date analysed	-	15/08/2016	15/08/2016
pH 1:5 soil:water	pH Units	7.7	7.5

Method ID	Methodology Summary
Metals-009	Determination of exchangeable cations and cation exchange capacity in soils using 1M Ammonium Chloride exchange and ICP-AES analytical finish.
AS1289.3.6.3	Determination Particle Size Analysis using AS1289.3.6.3 and AS1289.3.6.1 and in house method INORG-107. Clay fraction at <2um reported.
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.

Client Reference: E881, Punchbowl

QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
CEC						Base II Duplicate II %RPD		
Date prepared	-			16/08/2016	151708-1	16/08/2016 16/08/2016	LCS-1	16/08/2016
Date analysed	-			16/08/2016	151708-1	16/08/2016 16/08/2016	LCS-1	16/08/2016
Exchangeable Ca	meq/100 g	0.1	Metals-009	<0.1	151708-1	25 25 RPD: 0	LCS-1	111%
Exchangeable K	meq/100 g	0.1	Metals-009	<0.1	151708-1	0.3 0.4 RPD: 29	LCS-1	104%
Exchangeable Mg	meq/100 g	0.1	Metals-009	<0.1	151708-1	3.4 3.4 RPD: 0	LCS-1	110%
Exchangeable Na	meq/100 g	0.1	Metals-009	<0.1	151708-1	0.14 0.14 RPD: 0	LCS-1	117%
QUALITY CONTROL Clay 50-120g	UNITS	PQL	METHOD	Blank				
Date prepared	-			[NT]				
Date analysed	-			[NT]				
Clay in soils <2um	% (w/w)		AS1289.3.6 .3	[NT]				
QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Misc Inorg - Soil						Base II Duplicate II %RPD		
Date prepared	-			15/08/2016	[NT]	[NT]	LCS-1	15/08/2016
Date analysed	-			15/08/2016	[NT]	[NT]	LCS-1	15/08/2016
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	[NT]	[NT]	LCS-1	100%

Report Comments:

Asbestos ID was analysed by Approved Identifier: Not applicable for this job
Asbestos ID was authorised by Approved Signatory: Not applicable for this job

INS: Insufficient sample for this test	PQL: Practical Quantitation Limit	NT: Not tested
NR: Test not required	RPD: Relative Percent Difference	NA: Test not required
<: Less than	>: Greater than	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 (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics 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.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

APPENDIX I: FIELD RECORD FORMS

SITE INSPECTION DAILY WORKSHEET RECORD

Project name: D82	Project #: 22324
Client:	Date: 17/2/22
Site Address: 921 Puckett Road, Puckett	
Site Contact: Chris	Phone:
Representative: James & Ray	
Title: Zsneer	Phone: 0409784783
Field Notes:	

Start Time: 7:00	Finish Time: 4:00
Weather:	Rainfall (mm):
Wind Direction:	Wind Speed:
Humidity:	
Odours present:	Staining Present:
Environmental and Safety Concerns:	
shallow BGS & acid sulphate soil	
Actions:	
Site Safety Induction:	Stormwater Control:
Dust Suppression:	Traffic Control:
Machinery onsite:	Equipment onsite:
Additional Observations:	

Well Installation and Development Details

<u>PROJECT DETAILS</u>	
Client:	Monitoring Well ID: <i>GW1</i>
Site Address: <i>921 Prohibus Road.</i>	Logged By: <i>RL</i>
Project: <i>D52</i>	Date: <i>17/2/22</i>
<u>METHODOLOGY AND EQUIPMENT</u>	
Water Measurement Device	Reference Zone: <i>GW1</i>
Groundwater Extraction Method:	Reference Point to Ground Surface (mm):
<u>WELL INSTALLATION DETAILS</u>	
Total Bore Depth (m): <i>4.1</i>	Screening Zone (m bgl):
Borehole Diameter:	Finish:
Standpipe Diameter:	Coordinates:
<u>GROUNDWATER GAUGING (PRE-DEVELOPMENT)</u>	<u>GROUNDWATER GAUGING (POST-DEVELOPMENT)</u>
SWL (m bgl): <i>1.8m</i>	SWL (m bgl): <i>4.0</i>
Depth to product (m bgl):	Depth to product (m bgl):
Product Thickness (mm):	Product Thickness (mm):
Time:	Time:
	Total GW Volume Extracted (L):
<u>OBSERVATIONS (PRE-DEVELOPMENT)</u>	<u>OBSERVATIONS (POST-DEVELOPMENT)</u>
Odour: <i>no</i>	Odour:
Sheen: <i>no</i>	Sheen:
Colour: <i>some brown gey</i>	Colour:
Turbidity: <i>low</i>	Turbidity:
Other:	Other:

Well Installation and Development Details

<u>PROJECT DETAILS</u>	
Client:	Monitoring Well ID: <i>Cr2</i>
Site Address: <i>921 Puchest Road, Puchest</i>	Logged By: <i>RL</i>
Project: <i>DR</i>	Date: <i>17/2/22</i>
<u>METHODOLOGY AND EQUIPMENT</u>	
Water Measurement Device	Reference Zone:
Groundwater Extraction Method:	Reference Point to Ground Surface (mm):
<u>WELL INSTALLATION DETAILS</u>	
Total Bore Depth (m): <i>3.6</i>	Screening Zone (m bgl):
Borehole Diameter:	Finish:
Standpipe Diameter:	Coordinates:
<u>GROUNDWATER GAUGING (PRE-DEVELOPMENT)</u>	<u>GROUNDWATER GAUGING (POST-DEVELOPMENT)</u>
SWL (m bgl): <i>1.6</i>	SWL (m bgl):
Depth to product (m bgl):	Depth to product (m bgl):
Product Thickness (mm):	Product Thickness (mm):
Time:	Time:
	Total GW Volume Extracted (L):
<u>OBSERVATIONS (PRE-DEVELOPMENT)</u>	<u>OBSERVATIONS (POST-DEVELOPMENT)</u>
Odour: <i>N/A</i>	Odour:
Sheen: <i>N/A</i>	Sheen:
Colour: <i>light grey - brown</i>	Colour:
Turbidity: <i>2-3 turb</i>	Turbidity:
Other:	Other:

Well Installation and Development Details

<u>PROJECT DETAILS</u>	
Client:	Monitoring Well ID: <i>Am 3</i>
Site Address: <i>a 921 10th product road product road</i>	Logged By: <i>RL</i>
Project: <i>D32</i>	Date: <i>17/12/22</i>
<u>METHODOLOGY AND EQUIPMENT</u>	
Water Measurement Device	Reference Zone:
Groundwater Extraction Method:	Reference Point to Ground Surface (mm):
<u>WELL INSTALLATION DETAILS</u>	
Total Bore Depth (m): <i>5.28</i>	Screening Zone (m bgl):
Borehole Diameter:	Finish:
Standpipe Diameter:	Coordinates:
<u>GROUNDWATER GAUGING (PRE-DEVELOPMENT)</u>	<u>GROUNDWATER GAUGING (POST-DEVELOPMENT)</u>
SWL (m bgl): <i>1.75</i>	SWL (m bgl): <i>5.00</i>
Depth to product (m bgl):	Depth to product (m bgl):
Product Thickness (mm):	Product Thickness (mm):
Time:	Time:
	Total GW Volume Extracted (L):
<u>OBSERVATIONS (PRE-DEVELOPMENT)</u>	<u>OBSERVATIONS (POST-DEVELOPMENT)</u>
Odour: <i>no</i>	Odour:
Sheen: <i>no</i>	Sheen:
Colour: <i>brown yellow</i>	Colour:
Turbidity: <i>Low</i>	Turbidity:
Other:	Other:

APPENDIX J: AERIAL PHOTOGRAPHS

Historical Aerial Photographs

921 Punchbowl Road,
Punchbowl NSW

1943:



1955:



1971:



1982:



1994:



2004:

