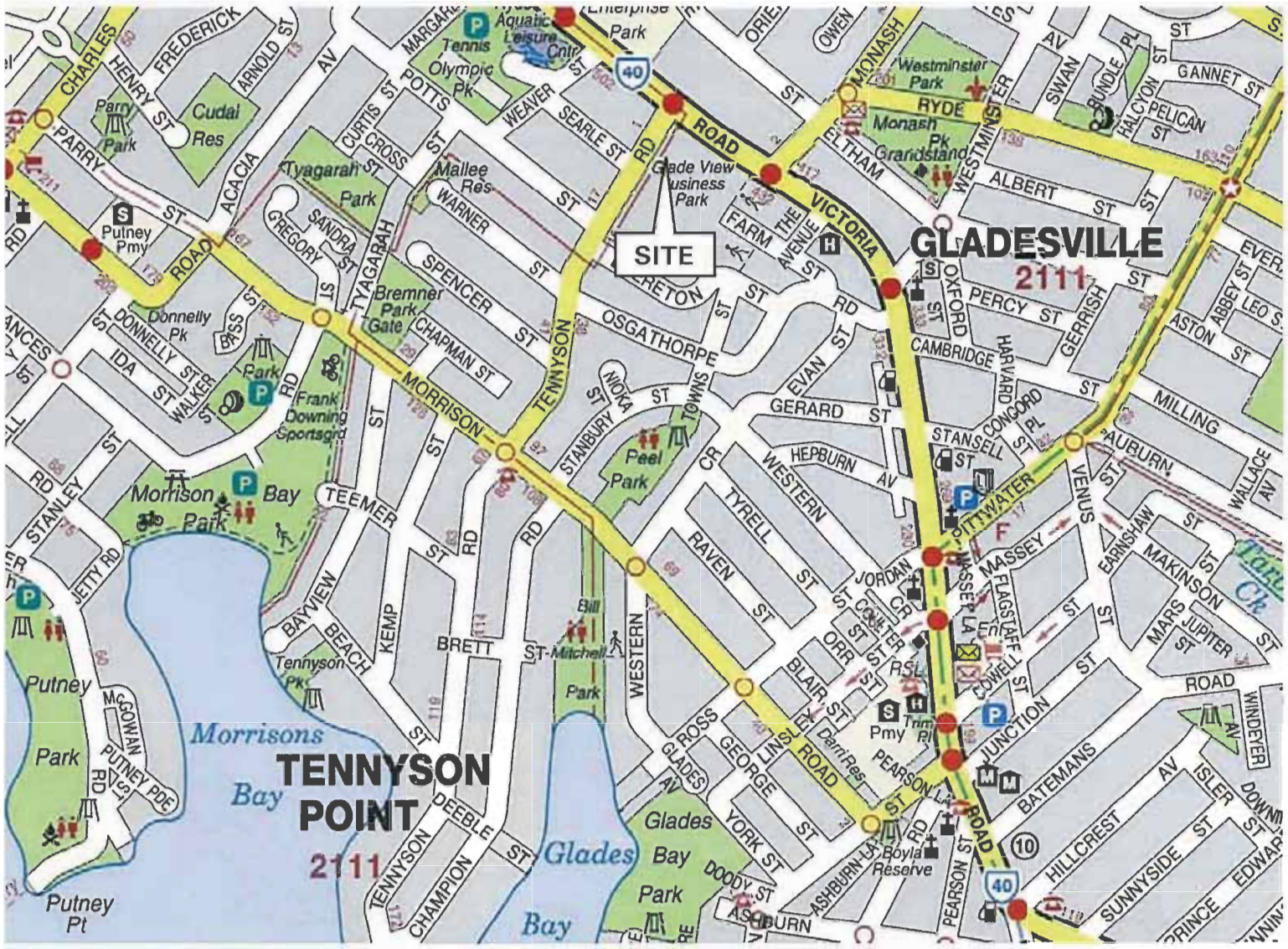
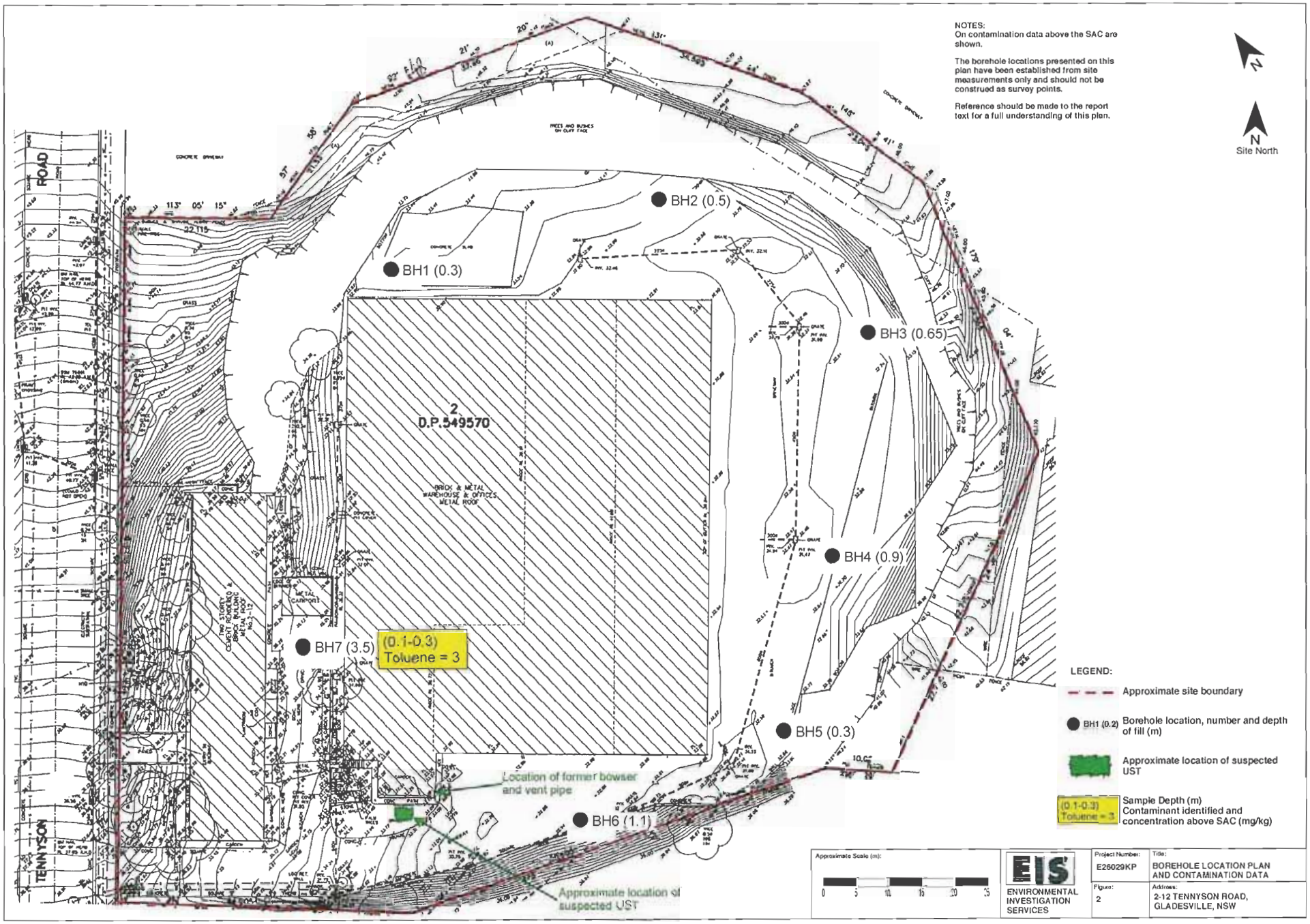


NOTES:
Figure 1 has been recreated from UBD on disc (version 5.0). Figure is not to scale.

UBD Map ref: 214 B6

Reference should be made to the report text for a full understanding of this plan.

EIS ENVIRONMENTAL INVESTIGATION SERVICES	Project Number: E26029KP	Title: SITE LOCATION PLAN
	Figure: 1	Address: 2-12 TENNYSON ROAD, GLADESVILLE, NSW


NOTES:
On contamination data above the SAC are shown.
The borehole locations presented on this plan have been established from site measurements only and should not be construed as survey points.
Reference should be made to the report text for a full understanding of this plan.
N
Site North
BH1 (0.3)
BH2 (0.5)
BH3 (0.65)
BH4 (0.9)
BH5 (0.3)
BH6 (1.1)
BH7 (3.5)
(0.1-0.3) Toluene = 3
2 D.P.549570
BRICK & METAL WAREHOUSE & OFFICES METAL ROOF
METAL CARPORT
Location of former bowser and vent pipe
Approximate location of suspected UST
ROAD
TENNYSON
LEGEND:
Approximate site boundary
BH1 (0.2) Borehole location, number and depth of fill (m)
Approximate location of suspected UST
(0.1-0.3) Toluene = 3 Sample Depth (m) Contaminant identified and concentration above SAC (mg/kg)
Approximate Scale (m):
0 5 10 15 20 25
EIS
ENVIRONMENTAL INVESTIGATION SERVICES
Project Number: E26029KP
Title: BOREHOLE LOCATION PLAN AND CONTAMINATION DATA
Figure: 2
Address: 2-12 TENNYSON ROAD, GLADESVILLE, NSW

EIS

REPORT TABLES

TABLE A
CHEMICAL CONTAMINANT CRITERIA FOR WASTE CLASSIFICATION
Waste Classification Guidelines Part 1: Classifying Waste DECCW NSW July 2009
All data in mg/kg unless stated otherwise

CONTAMINANT	GENERAL SOLID WASTE			RESTRICTED SOLID WASTE		
	CT1 (mg/kg)	TCLP1 (mg/L)	SCC1 (mg/kg)	CT2 (mg/kg)	TCLP2 (mg/L)	SCC2 (mg/kg)
Heavy Metals						
Arsenic	100	5	500	400	20	2,000
Beryllium	20	1	100	80	4	400
Cadmium	20	1	100	80	4	400
Chromium VI	100	5	1,900	400	20	7,600
Cyanide (total)	320	16	5,900	1280	64	23,600
Cyanide (Amenable)	70	3.5	300	280	14	1,200
Fluoride	3,000	150	10,000	12,000	600	40,000
Lead	100	5	1,500	400	20	6,000
Mercury	4	0.2	50	16	0.8	200
Molybdenum	100	5	1,000	400	20	4,000
Nickel	40	2	1,050	160	8	4,200
Selenium	20	1	50	80	4	200
Silver	100	5	180	400	20	720
Monocyclic Aromatic Hydrocarbons (BTEX Compounds)						
Benzene	10	0.5	18	40	2	72
Toluene	288	14.4	518	1,152	57.6	2,073
Ethyl benzene	600	30	1,080	2,400	120	4,320
Total xylenes	1,000	50	1,800	4,000	200	7,200
Total Petroleum Hydrocarbons (TPHs)						
Light Fraction TPH (C6-C9)	nsl	nsl	650	nsl	nsl	2,600
Mid to Heavy Fraction TPH (C10-C36)	nsl	nsl	10,000	nsl	nsl	40,000
Polycyclic Aromatic Hydrocarbons (PAHs)						
Benzo(a)pyrene	0.8	0.04	10	3.2	0.16	23
Total PAHs	nsl	nsl	200	nsl	nsl	800
Others						
Polychlorinated biphenyls	nsl	nsl	<50	nsl	nsl	<50
Phenol (non-halogenated)	288	14.4	518	1,152	57.6	2,073
Scheduled chemicals	nsl	nsl	<50	nsl	nsl	<50

Explanation:
1). General Solid Waste (GSW):
- If SCC ≤ CT1 then TCLP not needed to classify the material as GSW
- If TCLP ≤ TCLP1 and SCC ≤ SCC1 then treat as GSW

2). Restricted Solid Waste (RSW):
- If SCC ≤ CT2 then TCLP not needed to classify the material as RSW
- If TCLP ≤ TCLP2 and SCC ≤ SCC2 then treat as RSW

3). Hazardous Waste (HW):
- If SCC > CT2 then TCLP not needed to classify the material as HW
- If TCLP > TCLP2 and/or SCC > SCC2 then treat as HW

Abbreviations:
SCC – Specific Contaminant Concentration
CT – Contaminant Threshold
TCLP – Toxicity Characteristics Leaching Procedure
nsl - No Set Limit
DECCW - NSW Department of Environment, Climate Change and Water (now EPA)

TABLE B
SUMMARY OF SOIL LABORATORY RESULTS
All data in mg/kg unless stated otherwise

			HEAVY METALS								PAHs		OCPs				TOTAL	Total	TPH					BTEX COMPOUNDS					ASBESTOS FIBRES
			Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Total PAHs	B(a)P	Aldrin & Dieldrin	Chlordane	DDT, DDD & DDE	Heptachlor	OPPs	PCBs	C_6-C_9	C_{10}-C_{14}	C_{15}-C_{28}	C_{29}-C_{36}	Total C_{10}-C_{36}	Benzene	Toluene	Ethyl benzene	Total Xylenes	FIELD PID VALUES	
PQL - Envirolab Services			4	0.5	1	1	1	0.1	1	1	-	0.05	0.1	0.1	0.1	0.1	0.1	0.1	25	50	100	100	250	0.5	0.5	1	3		100
Site Assessment Criteria (SAC) [1]			400	80	48%	4000	1200	60	2400	28000	80	4	40	200	800	40	0.1[a]	40	65[b]	nsl	nsl	nsl	1000[b]	1[b]	1.4[b]	3.1[b]	14[b]		100[c]
PPILs [2]			20	3	400	100	600	1	60	200	nsl	nsl	nsl	nsl	nsl	nsl	nsl	nsl	nsl	nsl	nsl	nsl	nsl	nsl	nsl	nsl	nsl		-
General Solid Waste CT1 [3]			100	20	100	nsl	100	4	40	nsl	nsl	0.8	nsl	nsl	nsl	nsl	detect[4]	nsl	nsl		nsl		nsl	10	288	600	1000	-	-
General Solid Waste SCC1 [3]			500	100	1900	nsl	1500	50	1050	nsl	200	10	Scheduled Chemicals <50					50	650		nsl		10000	18	518	1080	1800	-	-
Restricted Solid Waste CT2 [3]			400	80	400	nsl	400	16	160	nsl	nsl	3.2	nsl	nsl	nsl	nsl	detect[4]	nsl	nsl		nsl		nsl	40	1152	2400	4000	-	-
Restricted Solid Waste SCC2 [3]			2000	400	7600	nsl	6000	200	4200	nsl	800	23	Scheduled Chemicals <50					50	2600		nsl		40000	72	2073	4320	7200	-	-
Sample Reference	**Sample Depth**	**Sample Description**																											
BH1	0.1-0.3		5	LPQL	6	25	37	LPQL	15	74	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0.3	No asbestos detected
BH1	0.6-0.8		6	LPQL	6	34	23	LPQL	38	58	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0.4	LPQL	LPQL	LPQL	7.2	na
BH2	0.1-0.3		5	LPQL	34	48	14	LPQL	39	63	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0.4	No asbestos detected
BH3	0.0-0.2		7	LPQL	12	38	22	LPQL	16	100	0.26	0.06	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	2.3	No asbestos detected
BH4	0.1-0.2		LPQL	LPQL	61	33	7	LPQL	59	46	0.3	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	1.2	No asbestos detected
BH4	0.5-0.9		7	LPQL	11	30	29	LPQL	12	110	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0.7	No asbestos detected
BH5	0.1-0.2		4	LPQL	41	31	11	LPQL	38	47	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	3.1	No asbestos detected
BH6	0.1-0.2		LPQL	LPQL	84	31	5	LPQL	***83***	46	0.5	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	110	110	LPQL	LPQL	LPQL	LPQL	1	No asbestos detected
BH6	0.5-0.85		5	LPQL	12	23	15	LPQL	8	38	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0.2	No asbestos detected
BH7	0.1-0.3		LPQL	LPQL	68	26	7	LPQL	***67***	47	0.5	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	3	LPQL	LPQL	6.6	No asbestos detected
BH7	0.5-0.7		LPQL	LPQL	10	39	11	LPQL	10	64	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0	No asbestos detected
Total Number of samples			11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10
Maximum Value			7	LPQL	84	48	37	LPQL	83	110	0.5	0.06	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	110	110	0.4	3	LPQL	LPQL	7.2	nc

Explanation:

1 - Site Assessment Criteria (SAC): NEPM 1999 (NEPC Guidelines) HILs - Column D 'Residential with minimal opportunities for soil access'

2 - Provisional Phyto-toxicity Investigation Levels (PPILs)

3 - NSW DECCW Waste Classification Guidelines (2009)

4 - Some Individual OPPs have CT1 & CT2 values. Reference should be made to the Waste Classification Guidelines in the event of any detections

a - In the absence of Australian guidelines, the laboratory PQL has been adopted as the SAC

b - NSW DECC Guidelines for Assessing Service Station Sites (1994)

c - The PQL has been adopted as the SAC

Concentration above the SAC — VALUE

Concentration above PPILs — *VALUE*

Abbreviations:

PAHs: Polycyclic Aromatic Hydrocarbons
B(a)P: Benzo(a)pyrene
PQL: Practical Quantitation Limit
LPQL: Less than PQL
OPP: Organophosphorus Pesticides
PID: Photoionisation Detector
PCBs: Polychlorinated Biphenyls

UCL: Upper Level Confidence Limit on Mean Value
ALPQL: All values less than PQL
na: Not Analysed
nc: Not Calculated
nsl: No Set Limit
SAC: Site Assessment Criteria
TPH: Total Petroleum Hydrocarbons

BTEX: Monocyclic Aromatic Hydrocarbons
OCP: Organochlorine Pesticides
CT: Contaminant Threshold
SCC: Specific Contaminant Concentration
HILs: Health Investigation Levels
NEPM: National Environmental Protection Measure

E26029KRpt
October 2012

Preliminary Stage 1 Environmental Site Assessment
Proposed Mixed-use Development
2-12 Tennyson Road, Gladesville, NSW

TABLE C
SUMMARY OF LABORATORY RESULTS - TCLP
All data in mg/L unless stated otherwise

		Arsenic	Cadmium	Chromium	Lead	Mercury	Nickel	B(a)P
PQL - Envirolab Services		0.05	0.01	0.01	0.03	0.0005	0.02	0.001
TCLP1 - General Solid Waste [1]		5	1	5	5	0.2	2	0.04
TCLP2 - Restricted Solid Waste [1]		20	4	20	20	0.8	8	0.16
TCLP3 - Hazardous Waste [1]		>20	>4	>20	>20	>0.8	>8	>0.16
Sample Reference	Sample Depth							
BH4	0.1-0.2	na	na	na	na	na	0.05	na
BH6	0.1-0.2	na	na	na	na	na	0.07	na
BH7	0.1-0.3	na	na	na	na	na	0.09	na
Total Number of samples		0	0	0	0	0	3	0
Maximum Value		-	-	-	-	-	0.09	-

EXPLANATION:
1 - NSW DECCW Waste Classification Guidelines (2009)

Result above General Solid Waste criteria — VALUE
Result above Restricted Solid Waste criteria — VALUE
Result above Hazardous Waste criteria — VALUE

ABBREVIATIONS:
PQL: Practical Quantitation Limit
LPQL: Less than PQL
B(a)P: Benzo(a)pyrene
nc: Not Calculated
na: Not Analysed
TCLP: Toxicity Characteristics Leaching Procedure

E26029KPrpt
October 2012

TABLE D
SOIL INTRA-LABORATORY DUPLICATE RESULTS & RPD CALCULATIONS
All results in mg/kg unless stated otherwise

SAMPLE	ANALYSIS	Envirolab PQL	INITIAL	REPEAT	MEAN	RPD %
Sample Ref = BH1(0.1-0.3)	Arsenic	4	5	7	6	33.3
Dup Ref = Dup 1	Cadmium	0.5	LPQL	LPQL	nc	nc
	Chromium	1	6	7	6.5	15.4
Envirolab Report 79191	Copper	1	25	28	26.5	11.3
	Lead	1	37	40	38.5	7.8
	Mercury	0.1	LPQL	LPQL	nc	nc
	Nickel	1	15	16	15.5	6.5
	Zinc	1	74	67	70.5	9.9
	Naphthalene	0.1	LPQL	LPQL	nc	nc
	Acenaphthylene	0.1	LPQL	LPQL	nc	nc
	Acenaphthene	0.1	LPQL	LPQL	nc	nc
	Fluorene	0.1	LPQL	LPQL	nc	nc
	Phenanthrene	0.1	LPQL	LPQL	nc	nc
	Anthracene	0.1	LPQL	LPQL	nc	nc
	Fluoranthene	0.1	LPQL	LPQL	nc	nc
	Pyrene	0.1	LPQL	LPQL	nc	nc
	Benzo(a)anthracene	0.1	LPQL	LPQL	nc	nc
	Chrysene	0.1	LPQL	LPQL	nc	nc
	Benzo(b)&(k)fluorant	0.2	LPQL	LPQL	nc	nc
	Benzo(a)pyrene	0.05	LPQL	LPQL	nc	nc
	Indeno(123-cd)pyrene	0.1	LPQL	LPQL	nc	nc
	Dibenzo(ah)anthracene	0.1	LPQL	LPQL	nc	nc
	Benzo(ghi)perylene	0.1	LPQL	LPQL	nc	nc
	Total OCPs	0.1	LPQL	LPQL	nc	nc
	Total OPPs	0.1	LPQL	LPQL	nc	nc
	Total PCBs	0.1	LPQL	LPQL	nc	nc
	C_6-C_9 TPH	25	LPQL	LPQL	nc	nc
	C_{10}-C_{14} TPH	50	LPQL	LPQL	nc	nc
	C_{15}-C_{28} TPH	100	LPQL	LPQL	nc	nc
	C_{29}-C_{36} TPH	100	LPQL	LPQL	nc	nc
	Benzene	0.5	LPQL	LPQL	nc	nc
	Toluene	0.5	LPQL	LPQL	nc	nc
	Ethylbenzene	1	LPQL	LPQL	nc	nc
	m + p-xylene	2	LPQL	LPQL	nc	nc
	o-xylene	1	LPQL	LPQL	nc	nc

EXPLANATION:
The RPD value is calculated as the absolute value of the difference between the initial and repeat results divided by the average value expressed as a percentage. The following acceptance criteria will be used to assess the RPD results:
Results > 10 times PQL = RPD value < = 50% are acceptable
Results between 5 & 10 times PQL = RPD value < = 75% are acceptable
Results < 5 times PQL = RPD value < = 100% are acceptable

RPD Results Above the Acceptance Criteria VALUE

ABBREVIATIONS:
PQL: Practical Quantitation Limit
LPQL: Less than PQL
na: Not Analysed
nc: Not Calculated
OCP: Organochlorine Pesticides
OPP: Organophosphorus Pesticides
PCBs: Polychlorinated Biphenyls
TPH: Total Petroleum Hydrocarbons

E26029KPrpt
October 2012

Preliminary Stage 1 Environmental Site Assessment
Proposed Mixed-use Development
2-12 Tennyson Road, Gladesville, NSW

TABLE E
SUMMARY OF QA/QC - TRIP BLANK RESULTS

ANALYSIS	Envirolab PQL mg/kg	TB[S] mg/kg
Benzene	1	LPQL
Toluene	1	LPQL
Ethylbenzene	1	LPQL
m + p-xylene	2	LPQL
o-xylene	1	LPQL

EXPLANATION:
[S] Sample type (sand)
BTEX concentrations in trip spikes are presented as % recovery

Values above PQLs/Acceptance criteria VALUE

ABBREVIATIONS:
PQL: Practical Quantitation Limit
LPQL: Less than PQL
(-) : Not Applicable / Not Analysed
TB: Trip Blank

E26029KPrpt
October 2012

APPENDIX A

Borehole Logs and Explanatory Notes

J K **Geotechnics**
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

BOREHOLE LOG

Borehole No. 1 1/2

Client: DARSCOL PTY LTD
Project: PROPOSED DEVELOPMENT
Location: 2-12 TENNYSON ROAD, GLADESVILLE, NSW

Job No. 26029SP
Date: 19-9-12
Method: SPIRAL AUGER JK500
Logged/Checked by: R.V.C./P.W.
R.L. Surface: ⊠ 33.4m
Datum: AHD

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION OF AUGER-ING	■			■		0		-	CONCRETE: 100mm.t				10mm DIA. REINFORCEMENT
								-	FILL: Sandy gravel, fine to coarse grained crushed shale, fine to medium grained sand, trace of silt.	W			
									SHALE: dark grey.	DW	L-M		BANDED LOW TO MODERATE 'TC' BIT RESISTANCE
									REFER TO CORED BOREHOLE LOG				
						1							
						2							
						3							
						4							
						5							
						6							
						7							

J K **Geotechnics**
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

BOREHOLE LOG

Borehole No. 1/2

Client: DARCSOL PTY LTD
Project: PROPOSED DEVELOPMENT
Location: 2-12 TENNYSON ROAD, GLADESVILLE, NSW

Job No. 26029SP **Method:** SPIRAL AUGER JK500 **R.L. Surface:** ☒ 33.1m
Date: 19-9-12 **Datum:** AHD
Logged/Checked by: R.V.C./P.W.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION OF AUGERING						0		-	ASPHALTIC CONCRETE: 60mm.t				
									FILL: Sandy gravel, fine to coarse grained crushed shale gravel and fine to medium grained sand, trace of silt and clay.	M MC>PL			
					SPT 4/100mm REFUSAL			-	FILL: Gravelly silty clay, low to medium plasticity, dark grey, fine to coarse grained shale gravel, trace of fine grained sand.	DW	M-H		MODERATE TO HIGH 'TC' BIT RESISTANCE
						1			SHALE: dark grey.				'TC' BIT REFUSAL
									REFER TO CORED BOREHOLE LOG				
						2							
						3							
						4							
						5							
						6							
						7							

J K **Geotechnics**
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

BOREHOLE LOG

Borehole No. 1/2

Client: DARCSOL PTY LTD
Project: PROPOSED DEVELOPMENT
Location: 2-12 TENNYSON ROAD, GLADESVILLE, NSW

Job No. 26029SP
Date: 19-9-12
Method: SPIRAL AUGER JK500
Logged/Checked by: R.V.C./P.W.
R.L. Surface: ☒ 32. m
Datum: AHD

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION OF AUGERING	■		■			0			FILL: Gravelly silty clay, low to medium plasticity, rown and grey, fine to coarse grained shale and ironstone gravel.	MC PL	(H)		
				■	N > 13 3,13/50mm REFUSAL			-	SHALE: dark grey.	DW	M	400 520 460	
						1			REFER TO CORED BOREHOLE LOG				
						2							
						3							
						4							
						5							
						6							
						7							

J K **Geotechnics**
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

BOREHOLE LOG

Borehole No. 1/3

Client: DARCSOL
Project: PROPOSED DEVELOPMENT
Location: 2-12 TENNYSON ROAD, GLADESVILLE, NSW

Job No. 26029SP **Method:** SPIRAL AUGER JK500 **R.L. Surface:** ⊠ 32. m
Date: 20-9-12 **Datum:** AHD
Logged/Checked by: R.V.C./P.W.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION OF AUGER-ING					N 11 3,4,	0		-	ASPHALTIC CONCRETE: 60mm.t FILL: Gravelly silty clay, medium plasticity, dark grey, grey and orange rown, fine to coarse grained crushed shale gravel.	MC>PL		240 210 220	APPEARS MODERATELY COMPACTED
						1		-	SHALE: dark grey.	DW	L-M		LOW 'TC' BIT RESISTANCE MODERATE TO HIGH RESISTANCE
									REFER TO CORED BOREHOLE LOG				
						2							
						3							
						4							
						5							
						6							
						7							

J K Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

BOREHOLE LOG

Borehole No. 5 1/3

Client: DARCSOL
Project: PROPOSED DEVELOPMENT
Location: 2-12 TENNYSON ROAD, GLADESVILLE, NSW

Job No. 26029SP
Date: 20-9-12
Method: SPIRAL AUGER JK500
Logged/Checked by: R.V.C./P.W.
R.L. Surface: ⊠ 32.7m
Datum: AHD

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION OF AUGERING						0		-	ASPHALTIC CONCRETE: 40mm.t over CONCRETE: 70mm.t				6mm DIA. REINFORCEMENT
								-	FILL: Clayey gravel, fine to coarse grained crushed shale.	SW	H		MODERATE TO HIGH 'TC' BIT RESISTANCE
									SHALE: dark grey.				
									REFER TO CORED BOREHOLE LOG				
						1							
						2							
						3							
						4							
						5							
						6							
						7							

J K Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

BOREHOLE LOG

Borehole No. 1/3

Client: DARCSOL
Project: PROPOSED DEVELOPMENT
Location: 2-12 TENNYSON ROAD, GLADESVILLE, NSW

Job No. 26029SP
Date: 20-9-12
Method: SPIRAL AUGER JK500
Logged/Checked by: R.V.C./P.W.
R.L. Surface: ☒ 32.9m
Datum: AHD

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION OF AUGER-ING						0		-	ASPHALTIC CONCRETE: 60mm.t				
									FILL: Silty sandy gravel, fine to coarse grained crushed shale, dark grey, fine grained sand.	M			
					N 1 4,7,11				FILL: Gravelly silty clay, medium plasticity, orange rown, grey and dark grey, fine to coarse grained shale and ironstone gravel.	MC PL		440 550 600	HP READINGS AFFECTED BY GRAVEL
						1		-	SHALE: dark grey.	DW	L-M		LOW 'TC' BIT RESISTANCE
									REFER TO CORED BOREHOLE LOG				
						2							
						3							
						4							
						5							
						6							
						7							

J K Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

BOREHOLE LOG

Borehole No. 1/2

Client: DARCSOL
Project: PROPOSED DEVELOPMENT
Location: 2-12 TENNYSON ROAD, GLADESVILLE, NSW

Job No. 26029SP
Date: 24-9-12
Method: SPIRAL AUGER JK305
Logged/Checked by: R.V.C./P.W.
R.L. Surface: ☒ 35.1m
Datum: AHD

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION OF AUGER-ING					N 16 7, ,	0			ASPHALTIC CONCRETE: 60mm.t	M			
									FILL: Gravelly silty sand, fine to medium grained, grey rown, fine to medium grained shale and sandstone gravel.	MC PL		2 0 350 2 0	APPEARS MODERATELY TO WELL COMPACTED
						1			FILL: Silty clay, medium to high plasticity, grey and orange rown, with fine to coarse grained shale and ironstone gravel.	MC PL			
					N 16 6,7,9				as a ove, ut dark rown, grey and red rown.			240 400 310	
						2							
										MC PL			
					N 26 7,14,12	3						390 290 2 0	
								-	SHALE: dark grey.	DW	L-M		BANDED LOW 'TC' BIT RESISTANCE
						4			REFER TO CORED BOREHOLE LOG				
						5							
						6							
						7							

J K Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

CORED BOREHOLE LOG

Borehole No. /

Client: DARCSOL
Project: PROPOSED DEVELOPMENT
Location: 2-12 TENNYSON ROAD, GLADESVILLE, NSW

Job No. 26029SP | Core Si e: NMLC | R.L. Surface: ⊠ 33.4m
Date: 19-9-12 | Inclination: VERTICAL | Datum: AHD
Drill Ty e: JK500 | Bearing: - | Logged/Checked by: R.V.C./P.W.

Water Loss/Level	Barrel Lift	Depth (m)	Graphic Log	CORE DESCRIPTION Rock Type, grain character-istics, colour, structure, minor components.	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_S(50)$ EL VL L M H VH EH	DEFECT DETAILS DEFECT SPACING (mm) 600 300 100 60 30 10	DESCRIPTION Type, inclination, thickness, planarity, roughness, coating. Specific / General
		0		START CORING AT 0.7 m					
		1		SHALE: dark grey.	FR	H			- J, 85°, P, R, IS, 345mm.t
		2		SANDSTONE: fine grained, light grey, with dark grey laminae, edded at 0-10 .					
		3				H-VH			
FULL RET-URN		4		INTERBEDDED SANDSTONE: fine grained, light grey, and SHALE: dark grey, edded at 0-10 .					
		5		SANDSTONE: fine to medium grained, light grey, with dark grey laminae, edded at 0-10 .		H			- Be, 0°, 4mm.t
		6		SANDSTONE: medium grained, light grey, edded at 0-10 .					
		7		END OF BOREHOLE AT 6. 5m					

J K Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

CORED BOREHOLE LOG

Borehole No. /

Client: DARCSOL
Project: PROPOSED DEVELOPMENT
Location: 2-12 TENNYSON ROAD, GLADESVILLE, NSW

Job No. 26029SP | Core Si e: NMLC | R.L. Surface: ⊠ 33.1m
Date: 19-9-12 | Inclination: VERTICAL | Datum: AHD
Drill Ty e: JK500 | Bearing: - | Logged/Checked by: R.V.C./P.W.

Water Loss/Level	Barrel Lift	Depth (m)	Graphic Log	CORE DESCRIPTION (Rock Type, grain character-istics, colour, structure, minor components.)	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_S(50)$ (EL VL L M H VH EH)	DEFECT DETAILS: DEFECT SPACING (mm) (500 300 100 50 30 10)	DEFECT DETAILS: DESCRIPTION (Type, inclination, thickness, planarity, roughness, coating.) Specific / General
		0		START CORING AT 0.73m					
FULL RET-URN		1		SHALE: dark grey.	FR	VH			- Cr, 25mm.t, IS
				SANDSTONE: fine grained, light grey, with dark grey laminae, edded at 0-10 .					
		2							
		3		INTERBEDDED SANDSTONE: light grey, and SHALE: dark grey, edded at 0 .		H			
		4		SANDSTONE: fine to medium grained, light grey, with occasional dark grey laminae, edded at 0-10 .					
				as a ove, ut cross edded at 20 .					
		5		SANDSTONE: medium grained, light grey, edded at 0-10 .					
		6		END OF BOREHOLE AT 6. 7m					
		7							

J K Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

CORED BOREHOLE LOG

Borehole No. /

Client: DARCSOL
Project: PROPOSED DEVELOPMENT
Location: 2-12 TENNYSON ROAD, GLADESVILLE, NSW

Job No. 26029SP | Core Si e: NMLC | R.L. Surface: ☒ 32.7m
Date: 19-9-12 | Inclination: VERTICAL | Datum: AHD
Drill Ty e: JK500 | Bearing: - | Logged/Checked by: R.V.C./P.W.

Water Loss/Level	Barrel Lift	Depth (m)	Graphic Log	CORE DESCRIPTION (Rock Type, grain characteristics, colour, structure, minor components.)	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_S(50)$ (EL VL L M H VH EH)	DEFECT DETAILS: DEFECT SPACING (mm) (500 300 100 60 30 10)	DEFECT DETAILS: DESCRIPTION Specific	DEFECT DETAILS: DESCRIPTION General
		0		START CORING AT 0. 1m						
FULL RET URN		1		SHALE: dark grey, edded at 0 .	DW	M			- Cr, 34mm.t, IS	
				SANDSTONE: fine grained, light grey, edded at 0-5 .	FR	VH				
		2								
		3		INTERBEDDED SANDSTONE: fine grained, light grey, and SHALE: dark grey, edded at 0-5 .		H				
		4		SANDSTONE: fine to medium grained, light grey.					- Cr, 4mm.t	
		5		INTERBEDDED SANDSTONE: fine grained, light grey, and SHALE: dark grey, edded at 0-5 .						
				SANDSTONE: fine to medium grained, light grey, edded at 5-15 .						
		6								
		7		END OF BOREHOLE AT 6.93m						

J K Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

CORED BOREHOLE LOG

Borehole No. /

Client: DARCSOL
Project: PROPOSED DEVELOPMENT
Location: 2-12 TENNYSON ROAD, GLADESVILLE, NSW

Job No. 26029SP | Core Si e: NMLC | R.L. Surface: ⊠ 32.7m
Date: 20-9-12 | Inclination: VERTICAL | Datum: AHD
Drill Ty e: JK500 | Bearing: - | Logged/Checked by: R.V.C./P.W.

Water Loss/Level	Barrel Lift	Depth (m)	Graphic Log	CORE DESCRIPTION: Rock Type, grain characteristics, colour, structure, minor components.	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_S(50)$ EL VL L M H VH EH	DEFECT DETAILS: DEFECT SPACING (mm) 500 300 100 50 30 10	DESCRIPTION: Type, inclination, thickness, planarity, roughness, coating. Specific / General
		1		START CORING AT 1.2 m					
FULL RET-URN		2		SHALE: dark grey.	FR	H			- HIGHLY FRACTURED ZONE, 136mm.t - Cr, 30mm.t
				SANDSTONE: fine grained, light grey, with dark grey laminae.		VH			DEFECTS NOT INDIVIDUALLY DESCRIBED ARE Be, 0°, P, S
		3							
		4		INTERBEDDED SANDSTONE: fine grained, light grey, and SHALE: dark grey, edded at 0-5 .					- Cr, 17mm.t
		5		SANDSTONE: fine to medium grained, light grey, with dark grey laminae, edded at 0-5 .					
		6							
				SANDSTONE: medium grained, light grey, with dark grey laminae, edded at 0-10 .		H			- Be, 4°, 3mm.t, P, S
		7							
				as a ove, ut cross edded at 15-20 .					
		8							

J K Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

CORED BOREHOLE LOG

Borehole No. /

Client: DARCSOL
Project: PROPOSED DEVELOPMENT
Location: 2-12 TENNYSON ROAD, GLADESVILLE, NSW

Job No. 26029SP | Core Si e: NMLC | R.L. Surface: ⊠ 32.7m
Date: 20-9-12 | Inclination: VERTICAL | Datum: AHD
Drill Ty e: JK500 | Bearing: - | Logged/Checked by: R.V.C./P.W.

Water Loss/Level	Barrel Lift	Depth (m)	Graphic Log	CORE DESCRIPTION Rock Type, grain characteristics, colour, structure, minor components.	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_S(50)$ EL VL L M H VH EH	DEFECT DETAILS DEFECT SPACING (mm) 600 300 100 50 30 10	DESCRIPTION Type, inclination, thickness, planarity, roughness, coating. Specific / General
				SANDSTONE: medium grained, light grey, with dark grey laminae, edded at 0-10 .	FR	H	• •		
		9		END OF BOREHOLE AT . 5m					
		10							
		11							
		12							
		13							
		14							

J K Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

CORED BOREHOLE LOG

Borehole No. 5 /

Client: DARCSOL
Project: PROPOSED DEVELOPMENT
Location: 2-12 TENNYSON ROAD, GLADESVILLE, NSW

Job No. 26029SP | Core Si e: NMLC | R.L. Surface: ⊠ 32.7m
Date: 20-9-12 | Inclination: VERTICAL | Datum: AHD
Drill Ty e: JK500 | Bearing: - | Logged/Checked by: R.V.C./P.W.

Water Loss/Level	Barrel Lift	Depth (m)	Graphic Log	CORE DESCRIPTION (Rock Type, grain character-istics, colour, structure, minor components.)	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_S(50)$ (EL VL L M H VH EH)	DEFECT DETAILS: DEFECT SPACING (mm) (500 300 100 50 30 10)	DEFECT DETAILS: DESCRIPTION Type, inclination, thickness, planarity, roughness, coating. Specific	General
		0		START CORING AT 0. 0m						
		1		SHALE: dark grey, edded at 0 .	FR	H			- J, 60°, P, S, IS - J, 45°, P, S, IS	
		2		as a ove, ut with numerous crushed seams etween 35mm and 160mm spacing.					- J, 70°, P, S, IS - J, 80°, P, S, IS	
				SHALE: dark grey.						
		3		SANDSTONE: fine grained, light grey, with dark grey laminae, edded at 0-10 .		VH				
0 RET-URN		4								
		5		INTERBEDDED SANDSTONE: fine grained, light grey, and SHALE: dark grey, edded at 0-5 .						
		6		SANDSTONE: fine to medium grained, light grey, with dark grey laminae, edded at 0-5 .						
		7				H				

J K Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

CORED BOREHOLE LOG

Borehole No. 5 /

Client: DARCSOL
Project: PROPOSED DEVELOPMENT
Location: 2-12 TENNYSON ROAD, GLADESVILLE, NSW

Job No. 26029SP | Core Si e: NMLC | R.L. Surface: ☒ 32.7m
Date: 20-9-12 | Inclination: VERTICAL | Datum: AHD
Drill Ty e: JK500 | Bearing: - | Logged/Checked by: R.V.C./P.W.

Water Loss/Level	Barrel Lift	Depth (m)	Graphic Log	CORE DESCRIPTION Rock Type, grain character-istics, colour, structure, minor components.	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_S(50)$ EL VL L M H VH EH	DEFECT DETAILS DEFECT SPACING (mm) 500 300 100 50 30 10	DESCRIPTION Type, inclination, thickness, planarity, roughness, coating. Specific / General
		8		SANDSTONE: fine to medium grained, light grey, with dark grey laminae, edded at 0-5	FR	H	•		
		9		SANDSTONE: medium grained, light grey, with dark grey laminae, edded at 0-10 .			• •		
		10		END OF BOREHOLE AT 9.25m					
		11							
		12							
		13							
		14							

J K Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

CORED BOREHOLE LOG

Borehole No. /

Client: DARCSOL
Project: PROPOSED DEVELOPMENT
Location: 2-12 TENNYSON ROAD, GLADESVILLE, NSW

Job No. 26029SP | Core Si e: NMLC | R.L. Surface: ⊠ 32.9m
Date: 20-9-12 | Inclination: VERTICAL | Datum: AHD
Drill Ty e: JK500 | Bearing: - | Logged/Checked by: R.V.C./P.W.

Water Loss/Level	Barrel Lift	Depth (m)	Graphic Log	CORE DESCRIPTION: Rock Type, grain character-istics, colour, structure, minor components.	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_S(50)$ EL VL L M H VH EH	DEFECT DETAILS: DEFECT SPACING (mm) 500 300 100 50 30 10	DESCRIPTION: Type, inclination, thickness, planarity, roughness, coating. Specific	General
		1		START CORING AT 1.55m						
		2		SHALE: dark grey and orange rown, highly weathered and fractured.	XW-DW	EL-VL				
				SANDSTONE: fine grained, light grey, with orange rown staining.	DW	VH			FRAGMENTED TO 2.15m DEPTH	
		3		as a ove, ut light grey, with dark grey laminae.	FR				- J, 70-90°, UN, R, IS	
				INTERBEDDED SANDSTONE: fine grained, light grey, and SHALE: dark grey, edded at 0-10 .						
		4								
		5		SANDSTONE: fine to medium grained, light grey, with dark grey laminae, edded at 0-10 . Shale and, 0.2m.t.						
		6				H				
		7		SANDSTONE: medium grained, light grey, with dark grey laminae, edded at 10-15 .						
		8								

J K Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

CORED BOREHOLE LOG

Borehole No. /

Client: DARCSOL
Project: PROPOSED DEVELOPMENT
Location: 2-12 TENNYSON ROAD, GLADESVILLE, NSW

Job No. 26029SP | Core Si e: NMLC | R.L. Surface: ⊠ 32.9m
Date: 20-9-12 | Inclination: VERTICAL | Datum: AHD
Drill Ty e: JK500 | Bearing: - | Logged/Checked by: R.V.C./P.W.

Water Loss/Level	Barrel Lift	Depth (m)	Graphic Log	CORE DESCRIPTION Rock Type, grain character-istics, colour, structure, minor components.	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_S(50)$ EL VL L M H VH EH	DEFECT DETAILS DEFECT SPACING (mm) 600 300 100 50 30 10	DESCRIPTION Type, inclination, thickness, planarity, roughness, coating. Specific / General
		9		SANDSTONE: medium grained, light grey, with dark grey laminae, edded at 10-15 .	FR	H	• • •		
		10		END OF BOREHOLE AT 9.6 m					
		11							
		12							
		13							
		14							

J K Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

CORED BOREHOLE LOG

Borehole No. /

Client: DARCSOL
Project: PROPOSED DEVELOPMENT
Location: 2-12 TENNYSON ROAD, GLADESVILLE, NSW

Job No. 26029SP | Core Si e: NMLC | R.L. Surface: ☒ 35.1m
Date: 20-9-12 | Inclination: VERTICAL | Datum: AHD
Drill Ty e: JK350 | Bearing: - | Logged/Checked by: R.V.C./P.W.

Water Loss/Level	Barrel Lift	Depth (m)	Graphic Log	CORE DESCRIPTION (Rock Type, grain characteristics, colour, structure, minor components.)	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_S(50)$ (EL VL L M H VH EH)	DEFECT DETAILS: DEFECT SPACING (mm) (500 300 100 50 30 10)	DEFECT DETAILS: DESCRIPTION Type, inclination, thickness, planarity, roughness, coating. Specific / General
		4		START CORING AT 4.24m					
FULL RET-URN		5		SANDSTONE: fine grained, light grey, with dark grey laminae, edded at 0-10 .	SW / FR	H-VH			
		6		INTERBEDDED SANDSTONE: fine grained, light grey, and SHALE: dark grey, edded at 0-10 .					- Be, 10°, 5mm.t, Un, S, IS - XWS, 0°, 13mm.t, P, S - Cr, 15mm.t
		7		SANDSTONE: fine grained, light grey, with dark grey laminae, edded at 0-10 .					
		8				H			
		9							- XWS, 0°, 4mm.t
		10		END OF BOREHOLE AT 10.19m					

JK Geotechnics
GEOTECHNICAL & ENVIRONMENTAL ENGINEERS

REPORT EXPLANATION NOTES

INTRODUCTION

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

The ground is a product of continuing natural and man-made processes and therefore exhibits a variety of characteristics and properties which vary from place to place and can change with time. Geotechnical engineering involves gathering and assimilating limited facts about these characteristics and properties in order to understand or predict the behaviour of the ground on a particular site under certain conditions. This report may contain such facts obtained by inspection, excavation, probing, sampling, testing or other means of investigation. If so, they are directly relevant only to the ground at the place where and time when the investigation was carried out.

DESCRIPTION AND CLASSIFICATION METHODS

The methods of description and classification of soils and rocks used in this report are based on Australian Standard 1726, the SAA Site Investigation Code. In general, descriptions cover the following properties – soil or rock type, colour, structure, strength or density, and inclusions. Identification and classification of soil and rock involves judgement and the Company infers accuracy only to the extent that is common in current geotechnical practice.

Soil types are described according to the predominating particle size and behaviour as set out in the attached Unified Soil Classification Table qualified by the grading of other particles present (eg sandy clay) as set out below:

Soil Classification	Particle Size
Clay	less than 0.002mm
Silt	0.002 to 0.06mm
Sand	0.06 to 2mm
Gravel	2 to 60mm

Non-cohesive soils are classified on the basis of relative density, generally from the results of Standard Penetration Test (SPT) as below:

Relative Density	SPT 'N' Value (blows/300mm)
Very loose	less than 4
Loose	4 – 10
Medium dense	10 – 30
Dense	30 – 50
Very Dense	greater than 50

Cohesive soils are classified on the basis of strength (consistency) either by use of hand penetrometer, laboratory testing or engineering examination. The strength terms are defined as follows.

Classification	Unconfined Compressive Strength kPa
Very Soft	less than 25
Soft	25 – 50
Firm	50 – 100
Stiff	100 – 200
Very Stiff	200 – 400
Hard	Greater than 400
Friable	Strength not attainable – soil crumbles

Rock types are classified by their geological names, together with descriptive terms regarding weathering, strength, defects, etc. Where relevant, further information regarding rock classification is given in the text of the report. In the Sydney Basin, 'Shale' is used to describe thinly bedded to laminated siltstone.

SAMPLING

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

Disturbed samples taken during drilling provide information on plasticity, grain size, colour, moisture content, minor constituents and, depending upon the degree of disturbance, some information on strength and structure. Bulk samples are similar but of greater volume required for some test procedures.

Undisturbed samples are taken by pushing a thin-walled sample tube, usually 50mm diameter (known as a U50), into the soil and withdrawing it with a sample of the soil contained in a relatively undisturbed state. Such samples yield information on structure and strength, and are necessary for laboratory determination of shear strength and compressibility. Undisturbed sampling is generally effective only in cohesive soils.

Details of the type and method of sampling used are given on the attached logs.

INVESTIGATION METHODS

The following is a brief summary of investigation methods currently adopted by the Company and some comments on their use and application. All except test pits, hand auger drilling and portable dynamic cone penetrometers require the use of a mechanical drilling rig which is commonly mounted on a truck chassis.

Test Pits: These are normally excavated with a backhoe or a tracked excavator, allowing close examination of the insitu soils if it is safe to descend into the pit. The depth of penetration is limited to about 3m for a backhoe and up to 6m for an excavator. Limitations of test pits are the problems associated with disturbance and difficulty of reinstatement and the consequent effects on close-by structures. Care must be taken if construction is to be carried out near test pit locations to either properly recompact the backfill during construction or to design and construct the structure so as not to be adversely affected by poorly compacted backfill at the test pit location.

Hand Auger Drilling: A borehole of 50mm to 100mm diameter is advanced by manually operated equipment. Premature refusal of the hand augers can occur on a variety of materials such as hard clay, gravel or ironstone, and does not necessarily indicate rock level.

Continuous Spiral Flight Augers: The borehole is advanced using 75mm to 115mm diameter continuous spiral flight augers, which are withdrawn at intervals to allow sampling and insitu testing. This is a relatively economical means of drilling in clays and in sands above the water table. Samples are returned to the surface by the flights or may be collected after withdrawal of the auger flights, but they can be very disturbed and layers may become mixed. Information from the auger sampling (as distinct from specific sampling by SPTs or undisturbed samples) is of relatively lower reliability due to mixing or softening of samples by groundwater, or uncertainties as to the original depth of the samples. Augering below the groundwater table is of even lesser reliability than augering above the water table.

Rock Augering: Use can be made of a Tungsten Carbide (TC) bit for auger drilling into rock to indicate rock quality and continuity by variation in drilling resistance and from examination of recovered rock fragments. This method of investigation is quick and relatively inexpensive but provides only an indication of the likely rock strength and predicted values may be in error by a strength order. Where rock strengths may have a significant impact on construction feasibility or costs, then further investigation by means of cored boreholes may be warranted.

Wash Boring: The borehole is usually advanced by a rotary bit, with water being pumped down the drill rods and returned up the annulus, carrying the drill cuttings. Only major changes in stratification can be determined from the cuttings, together with some information from "feel" and rate of penetration.

Mud Stabilised Drilling: Either Wash Boring or Continuous Core Drilling can use drilling mud as a circulating fluid to stabilise the borehole. The term 'mud' encompasses a range of products ranging from bentonite to polymers such as Revert or Biogel. The mud tends to mask the cuttings and reliable identification is only possible from intermittent intact sampling (eg from SPT and U50 samples) or from rock coring, etc.

Continuous Core Drilling: A continuous core sample is obtained using a diamond tipped core barrel. Provided full core recovery is achieved (which is not always possible in very low strength rocks and granular soils), this technique provides a very reliable (but relatively expensive) method of investigation. In rocks, an NMLC triple tube core barrel, which gives a core of about 50mm diameter, is usually used with water flush. The length of core recovered is compared to the length drilled and any length not recovered is shown as CORE LOSS. The location of losses are determined on site by the supervising engineer; where the location is uncertain, the loss is placed at the top end of the drill run.

Standard Penetration Tests: Standard Penetration Tests (SPT) are used mainly in non-cohesive soils, but can also be used in cohesive soils as a means of indicating density or strength and also of obtaining a relatively undisturbed sample. The test procedure is described in Australian Standard 1289, "Methods of Testing Soils for Engineering Purposes" – Test F3.1.

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

The test results are reported in the following form:

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

  N = 13
  4, 6, 7

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

  N>30
  15, 30/40mm

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

Occasionally, the drop hammer is used to drive 50mm diameter thin walled sample tubes (U50) in clays. In such circumstances, the test results are shown on the borehole logs in brackets.

A modification to the SPT test is where the same driving system is used with a solid 60° tipped steel cone of the same diameter as the SPT hollow sampler. The solid cone can be continuously driven for some distance in soft clays or loose sands, or may be used where damage would otherwise occur to the SPT. The results of this Solid Cone Penetration Test (SCPT) are shown as "N_c" on the borehole logs, together with the number of blows per 150mm penetration.

Static Cone Penetrometer Testing and Interpretation: Cone penetrometer testing (sometimes referred to as a Dutch Cone) described in this report has been carried out using an Electronic Friction Cone Penetrometer (EFCP). The test is described in Australian Standard 1289, Test F5.1.

In the tests, a 35mm diameter rod with a conical tip is pushed continuously into the soil, the reaction being provided by a specially designed truck or rig which is fitted with an hydraulic ram system. Measurements are made of the end bearing resistance on the cone and the frictional resistance on a separate 134mm long sleeve, immediately behind the cone. Transducers in the tip of the assembly are electrically connected by wires passing through the centre of the push rods to an amplifier and recorder unit mounted on the control truck.

As penetration occurs (at a rate of approximately 20mm per second) the information is output as incremental digital records every 10mm. The results given in this report have been plotted from the digital data.

The information provided on the charts comprise:

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

  The ratios of the sleeve resistance to cone resistance will vary with the type of soil encountered, with higher relative friction in clays than in sands. Friction ratios of 1% to 2% are commonly encountered in sands and occasionally very soft clays, rising to 4% to 10% in stiff clays and peats. Soil descriptions based on cone resistance and friction ratios are only inferred and must not be considered as exact.

Correlations between EFCP and SPT values can be developed for both sands and clays but may be site specific.

Interpretation of EFCP values can be made to empirically derive modulus or compressibility values to allow calculation of foundation settlements.

Stratification can be inferred from the cone and friction traces and from experience and information from nearby boreholes etc. Where shown, this information is presented for general guidance, but must be regarded as interpretive. The test method provides a continuous profile of engineering properties but, where precise information on soil classification is required, direct drilling and sampling may be preferable.

Portable Dynamic Cone Penetrometers: Portable Dynamic Cone Penetrometer (DCP) tests are carried out by driving a rod into the ground with a sliding hammer and counting the blows for successive 100mm increments of penetration.

Two relatively similar tests are used:

- Cone penetrometer (commonly known as the Scala Penetrometer) – a 16mm rod with a 20mm diameter cone end is driven with a 9kg hammer dropping 510mm (AS1289, Test F3.2). The test was developed initially for pavement subgrade investigations, and correlations of the test results with California Bearing Ratio have been published by various Road Authorities.
- Perth sand penetrometer – a 16mm diameter flat ended rod is driven with a 9kg hammer, dropping 600mm (AS1289, Test F3.3). This test was developed for testing the density of sands (originating in Perth) and is mainly used in granular soils and filling.

LOGS

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

The attached explanatory notes define the terms and symbols used in preparation of the logs.

Interpretation of the information shown on the logs, and its application to design and construction, should therefore take into account the spacing of boreholes or test pits, the method of drilling or excavation, the frequency of sampling and testing and the possibility of other than "straight line" variations between the boreholes or test pits. Subsurface conditions between boreholes or test pits may vary significantly from conditions encountered at the borehole or test pit locations.

GROUNDWATER

Where groundwater levels are measured in boreholes, there are several potential problems:

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

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

FILL

The presence of fill materials can often be determined only by the inclusion of foreign objects (eg bricks, steel etc) or by distinctly unusual colour, texture or fabric. Identification of the extent of fill materials will also depend on investigation methods and frequency. Where natural soils similar to those at the site are used for fill, it may be difficult with limited testing and sampling to reliably determine the extent of the fill.

The presence of fill materials is usually regarded with caution as the possible variation in density, strength and material type is much greater than with natural soil deposits. Consequently, there is an increased risk of adverse engineering characteristics or behaviour. If the volume and quality of fill is of importance to a project, then frequent test pit excavations are preferable to boreholes.

LABORATORY TESTING

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

ENGINEERING REPORTS

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

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

- Unexpected variations in ground conditions – the potential for this will be partially dependent on borehole spacing and sampling frequency as well as investigation technique.
- Changes in policy or interpretation of policy by statutory authorities.
- The actions of persons or contractors responding to commercial pressures.

If these occur, the company will be pleased to assist with investigation or advice to resolve any problems occurring.

SITE ANOMALIES

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

REPRODUCTION OF INFORMATION FOR CONTRACTUAL PURPOSES

Attention is drawn to the document *'Guidelines for the Provision of Geotechnical Information in Tender Documents'*, published by the Institution of Engineers, Australia. Where information obtained from this investigation is provided for tendering purposes, it is recommended that all information, including the written report and discussion, be made available. In circumstances where the discussion or comments section is not relevant to the contractual situation, it may be appropriate to prepare a specially edited document. The company would be pleased to assist in this regard and/or to make additional report copies available for contract purposes at a nominal charge.

Copyright in all documents (such as drawings, borehole or test pit logs, reports and specifications) provided by the Company shall remain the property of Jeffery and Katauskas Pty Ltd. Subject to the payment of all fees due, the Client alone shall have a licence to use the documents provided for the sole purpose of completing the project to which they relate. License to use the documents may be revoked without notice if the Client is in breach of any objection to make a payment to us.

REVIEW OF DESIGN

Where major civil or structural developments are proposed or where only a limited investigation has been completed or where the geotechnical conditions/ constraints are quite complex, it is prudent to have a joint design review which involves a senior geotechnical engineer.

SITE INSPECTION

The company will always be pleased to provide engineering inspection services for geotechnical aspects of work to which this report is related.

Requirements could range from:

i) a site visit to confirm that conditions exposed are no worse than those interpreted, to

ii) a visit to assist the contractor or other site personnel in identifying various soil/rock types such as appropriate footing or pier founding depths, or

iii) full time engineering presence on site.

JK Geotechnics
GEOTECHNICAL & ENVIRONMENTAL ENGINEERS

GRAPHIC LOG SYMBOLS FOR SOILS AND ROCKS

SOIL


FILL


TOPSOIL


CLAY (CL, CH)


SILT (ML, MH)


SAND (SP, SW)


GRAVEL (GP, GW)


SANDY CLAY (CL, CH)


SILTY CLAY (CL, CH)


CLAYEY SAND (SC)


SILTY SAND (SM)


GRAVELLY CLAY (CL, CH)


CLAYEY GRAVEL (GC)


SANDY SILT (ML)


PEAT AND ORGANIC SOILS

ROCK


CONGLOMERATE


SANDSTONE


SHALE


SILTSTONE, MUDSTONE, CLAYSTONE


LIMESTONE


PHYLLITE, SCHIST


TUFF


GRANITE, GABBRO


DOLERITE, DIORITE


BASALT, ANDESITE


QUARTZITE

DEFECTS AND INCLUSIONS


CLAY SEAM


SHEARED OR CRUSHED SEAM


BRECCIATED OR SHATTERED SEAM/ZONE


IRONSTONE GRAVEL


ORGANIC MATERIAL

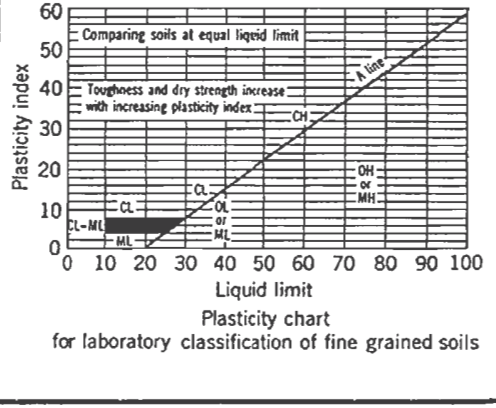
OTHER MATERIALS


CONCRETE


BITUMINOUS CONCRETE, COAL


COLLUVIUM

Field Identification Procedures (Excluding particles larger than 75 μm and basing fractions on estimated weights)				Group Symbols[a]	Typical Names	Information Required for Describing Soils	Laboratory Classification Criteria
Coarse-grained soils More than half of material is *larger* than 75 μm sieve size[b] (The 75 μm sieve size is about the smallest particle visible to naked eye)	Gravels More than half of coarse fraction is larger than 4 mm sieve size	Clean gravels (little or no fines)	Wide range in grain size and substantial amounts of all intermediate particle sizes	*GW*	Well graded gravels, gravel-sand mixtures, little or no fines	Give typical name; indicate approximate percentages of sand and gravel; maximum size; angularity, surface condition, and hardness of the coarse grains; local or geologic name and other pertinent descriptive information; and symbols in parentheses For undisturbed soils add information on stratification, degree of compactness, cementation, moisture conditions and drainage characteristics Example: *Silty sand*, gravelly; about 20% hard, angular gravel particles 12 mm maximum size; rounded and subangular sand grains coarse to fine, about 15% non-plastic fines with low dry strength; well compacted and moist in place; alluvial sand; (*SM*)	Use grain size curve in identifying the fractions as given under field identification Determine percentages of gravel and sand from grain size curve Depending on percentage of fines (fraction smaller than 75 μm sieve size) coarse grained soils are classified as follows: Less than 5% *GW, GP, SW, SP* More than 12% *GM, GC, SM, SC* 5% to 12% *Borderline* cases requiring use of dual symbols $C_U = \frac{D_{60}}{D_{10}}$ Greater than 4 $C_C = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ Between 1 and 3
			Predominantly one size or a range of sizes with some intermediate sizes missing	*GP*	Poorly graded gravels, gravel-sand mixtures, little or no fines		Not meeting all gradation requirements for *GW*
		Gravels with fines (appreciable amount of fines)	Nonplastic fines (for identification procedures see *ML* below)	*GM*	Silty gravels, poorly graded gravel-sand-silt mixtures		Atterberg limits below "A" line, or *PI* less than 4 — Above "A" line with *PI* between 4 and 7 are *borderline* cases requiring use of dual symbols Atterberg limits above "A" line, with *PI* greater than 7
			Plastic fines (for identification procedures, see *CL* below)	*GC*	Clayey gravels, poorly graded gravel-sand-clay mixtures		
	Sands More than half of coarse fraction is smaller than 4 mm sieve size	Clean sands (little or no fines)	Wide range in grain sizes and substantial amounts of all intermediate particle sizes	*SW*	Well graded sands, gravelly sands, little or no fines		$C_U = \frac{D_{60}}{D_{10}}$ Greater than 6 $C_C = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ Between 1 and 3
			Predominantly one size or a range of sizes with some intermediate sizes missing	*SP*	Poorly graded sands, gravelly sands, little or no fines		Not meeting all gradation requirements for *SW*
		Sands with fines (appreciable amount of fines)	Nonplastic fines (for identification procedures, see *ML* below)	*SM*	Silty sands, poorly graded sand-silt mixtures		Atterberg limits below "A" line or *PI* less than 5 — Above "A" line with *PI* between 4 and 7 are *borderline* cases requiring use of dual symbols Atterberg limits below "A" line with *PI* greater than 7
			Plastic fines (for identification procedures, see *CL* below)	*SC*	Clayey sands, poorly graded sand-clay mixtures		
Fine-grained soils More than half of material is *smaller* than 75 μm sieve size (The 75 μm sieve size is about the smallest particle visible to naked eye)	Identification Procedures on Fraction Smaller than 380 μm Sieve Size						
	Silts and clays liquid limit less than 50	Dry Strength (crushing characteristics)	Dilatancy (reaction to shaking)	Toughness (consistency near plastic limit)		Give typical name; indicate degree and character of plasticity, amount and maximum size of coarse grains; colour in wet condition, odour if any, local or geologic name, and other pertinent descriptive information, and symbol in parentheses For undisturbed soils add information on structure, stratification, consistency in undisturbed and remoulded states, moisture and drainage conditions Example: *Clayey silt*, brown; slightly plastic; small percentage of fine sand; numerous vertical root holes; firm and dry in place; loess; (*ML*)	
		None to slight	Quick to slow	None	*ML*	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands with slight plasticity	
		Medium to high	None to very slow	Medium	*CL*	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	
		Slight to medium	Slow	Slight	*OL*	Organic silts and organic silt-clays of low plasticity	
	Silts and clays liquid limit greater than 50	Slight to medium	Slow to none	Slight to medium	*MH*	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	
		High to very high	None	High	*CH*	Inorganic clays of high plasticity, fat clays	
		Medium to high	None to very slow	Slight to medium	*OH*	Organic clays of medium to high plasticity	
Highly Organic Soils		Readily identified by colour, odour, spongy feel and frequently by fibrous texture			*Pt*	Peat and other highly organic soils	



Plasticity chart
for laboratory classification of fine grained soils

Note: 1 Soils possessing characteristics of two groups are designated by combinations of group symbols (eg. GW-GC, well graded gravel-sand mixture with clay fines).
2 Soils with liquid limits of the order of 35 to 50 may be visually classified as being of medium plasticity.

JK Geotechnics
GEOTECHNICAL & ENVIRONMENTAL ENGINEERS

LOG SYMBOLS

LOG COLUMN	SYMBOL	DEFINITION
Groundwater Record	▼	Standing water level. Time delay following completion of drilling may be shown.
	C	Extent of borehole collapse shortly after drilling.
	▶	Groundwater seepage into borehole or excavation noted during drilling or excavation.
Samples	ES	Soil sample taken over depth indicated, for environmental analysis.
	U50	Undisturbed 50mm diameter tube sample taken over depth indicated.
	DB	Bulk disturbed sample taken over depth indicated.
	DS	Small disturbed bag sample taken over depth indicated.
	ASB	Soil sample taken over depth indicated, for asbestos screening.
	ASS	Soil sample taken over depth indicated, for acid sulfate soil analysis.
	SAL	Soil sample taken over depth indicated, for salinity analysis.
Field Tests	N = 17 4, 7, 10	Standard Penetration Test (SPT) performed between depths indicated by lines. Individual figures show blows per 150mm penetration. 'R' as noted below.
	N_c = 5 7 3R	Solid Cone Penetration Test (SCPT) performed between depths indicated by lines. Individual figures show blows per 150mm penetration for 60 degree solid cone driven by SPT hammer. 'R' refers to apparent hammer refusal within the corresponding 150mm depth increment.
	VNS = 25	Vane shear reading in kPa of Undrained Shear Strength.
	PID = 100	Photoionisation detector reading in ppm (Soil sample headspace test).
Moisture Condition (Cohesive Soils)	MC>PL	Moisture content estimated to be greater than plastic limit.
	MC≈PL	Moisture content estimated to be approximately equal to plastic limit.
	MC<PL	Moisture content estimated to be less than plastic limit.
(Cohesionless Soils)	D	DRY – Runs freely through fingers.
	M	MOIST – Does not run freely but no free water visible on soil surface.
	W	WET – Free water visible on soil surface.
Strength (Consistency) Cohesive Soils	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
	( )	Bracketed symbol indicates estimated consistency based on tactile examination or other tests.
Density Index/ Relative Density (Cohesionless Soils)		**Density Index (I_D) Range (%)** / **SPT 'N' Value Range (Blows/300mm)**
	VL	Very Loose <15 0-4
	L	Loose 15-35 4-10
	MD	Medium Dense 35-65 10-30
	D	Dense 65-85 30-50
	VD	Very Dense >85 >50
	( )	Bracketed symbol indicates estimated density based on ease of drilling or other tests.
Hand Penetrometer Readings	300 250	Numbers indicate individual test results in kPa on representative undisturbed material unless noted otherwise.
Remarks	'V' bit	Hardened steel 'V' shaped bit.
	'TC' bit	Tungsten carbide wing bit.
	T60	Penetration of auger string in mm under static load of rig applied by drill head hydraulics without rotation of augers.

LOG SYMBOLS continued

ROCK MATERIAL WEATHERING CLASSIFICATION

TERM	SYMBOL	DEFINITION
Residual Soil	RS	Soil developed on extremely weathered rock; the mass structure and substance fabric are no longer evident; there is a large change in volume but the soil has not been significantly transported.
Extremely weathered rock	XW	Rock is weathered to such an extent that it has "soil" properties, ie it either disintegrates or can be remoulded, in water.
Distinctly weathered rock	DW	Rock strength usually changed by weathering. The rock may be highly discoloured, usually by ironstaining. Porosity may be increased by leaching, or may be decreased due to deposition of weathering products in pores.
Slightly weathered rock	SW	Rock is slightly discoloured but shows little or no change of strength from fresh rock.
Fresh rock	FR	Rock shows no sign of decomposition or staining.

ROCK STRENGTH

Rock strength is defined by the Point Load Strength Index (Is 50) and refers to the strength of the rock substance in the direction normal to the bedding. The test procedure is described by the International Journal of Rock Mechanics, Mining, Science and Geomechanics. Abstract Volume 22, No 2, 1985.

TERM	SYMBOL	Is (50) MPa	FIELD GUIDE
Extremely Low:	EL		Easily remoulded by hand to a material with soil properties.
----------	----------	0.03	
Very Low:	VL		May be crumbled in the hand. Sandstone is "sugary" and friable.
----------	----------	0.1	
Low:	L		A piece of core 150mm long x 50mm dia. may be broken by hand and easily scored with a knife. Sharp edges of core may be friable and break during handling.
----------	----------	0.3	
Medium Strength:	M		A piece of core 150mm long x 50mm dia. can be broken by hand with difficulty. Readily scored with knife.
----------	----------	1	
High:	H		A piece of core 150mm long x 50mm dia. core cannot be broken by hand, can be slightly scratched or scored with knife; rock rings under hammer.
----------	----------	3	
Very High:	VH		A piece of core 150mm long x 50mm dia. may be broken with hand-held pick after more than one blow. Cannot be scratched with pen knife; rock rings under hammer.
----------	----------	10	
Extremely High:	EH		A piece of core 150mm long x 50mm dia. is very difficult to break with hand-held hammer. Rings when struck with a hammer.

ABBREVIATIONS USED IN DEFECT DESCRIPTION

ABBREVIATION	DESCRIPTION	NOTES
Be	Bedding Plane Parting	Defect orientations measured relative to the normal to the long core axis (ie relative to horizontal for vertical holes)
CS	Clay Seam	
J	Joint	
P	Planar	
Un	Undulating	
S	Smooth	
R	Rough	
IS	Ironstained	
XWS	Extremely Weathered Seam	
Cr	Crushed Seam	
60t	Thickness of defect in millimetres	

APPENDIX B

Laboratory Reports and Chain of Custody Documents

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

CERTIFICATE OF ANALYSIS 79191

Client:
Environmental Investigation Services
PO Box 976
North Ryde BC
NSW 1670

Attention: Brendan Page

Sample log in details:

Your Reference:	**E26029KP, Gladesville**
No. of samples:	17 Soil
Date samples received / completed instructions received	21/09/2012 / 21/09/2012

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:	28/09/12 / 28/09/12
Date of Preliminary Report:	Not issued

NATA accreditation number 2901. This document shall not be reproduced except in full.
Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with *.**

Results Approved By:

Nancy Zhang
Chemist

Rhian Morgan
Reporting Supervisor

Paul Ching
Approved Signatory

Jeremy Faircloth
Chemist

NATA
ACCREDITED FOR TECHNICAL COMPETENCE

Client Reference: E26029KP, Gladesville

vTRH & BTEX in Soil						
Our Reference:	UNITS	79191-1	79191-2	79191-3	79191-5	79191-7
Your Reference	----------	BH1	BH1	BH2	BH3	BH4
Depth	----------	0.1-0.3	0.6-0.8	0.1-0.3	0-0.2	0.1-0.2
Date Sampled		19/09/2012	19/09/2012	19/09/2012	19/09/2012	19/09/2012
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	24/09/2012	24/09/2012	24/09/2012	24/09/2012	24/09/2012
Date analysed	-	25/09/2012	25/09/2012	25/09/2012	25/09/2012	25/09/2012
vTRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	0.4	<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
Surrogate aaa-Trifluorotoluene	%	91	95	96	97	101

vTRH & BTEX in Soil						
Our Reference:	UNITS	79191-8	79191-10	79191-12	79191-13	79191-15
Your Reference	----------	BH4	BH5	BH6	BH6	Dup 1
Depth	----------	0.5-0.9	0.1-0.2	0.1-0.2	0.5-0.85	-
Date Sampled		19/09/2012	19/09/2012	19/09/2012	19/09/2012	19/09/2012
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	24/09/2012	24/09/2012	24/09/2012	24/09/2012	24/09/2012
Date analysed	-	25/09/2012	25/09/2012	25/09/2012	25/09/2012	25/09/2012
vTRH C_6 - C_9	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
Surrogate aaa-Trifluorotoluene	%	88	89	91	96	93

vTRH & BTEX in Soil		
Our Reference:	UNITS	79191-17
Your Reference	----------	TB
Depth	----------	-
Date Sampled		19/09/2012
Type of sample		Soil
Date extracted	-	24/09/2012
Date analysed	-	25/09/2012
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
Surrogate aaa-Trifluorotoluene	%	90

Client Reference: E26029KP, Gladesville

sTRH in Soil (C10-C36)						
Our Reference:	UNITS	79191-1	79191-2	79191-3	79191-5	79191-7
Your Reference	----------	BH1	BH1	BH2	BH3	BH4
Depth	----------	0.1-0.3	0.6-0.8	0.1-0.3	0-0.2	0.1-0.2
Date Sampled		19/09/2012	19/09/2012	19/09/2012	19/09/2012	19/09/2012
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	24/09/2012	24/09/2012	24/09/2012	24/09/2012	24/09/2012
Date analysed	-	25/09/2012	25/09/2012	25/09/2012	25/09/2012	25/09/2012
$TRHC_{10}$ - 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
Surrogate o-Terphenyl	%	85	89	82	82	86

sTRH in Soil (C10-C36)						
Our Reference:	UNITS	79191-8	79191-10	79191-12	79191-13	79191-15
Your Reference	----------	BH4	BH5	BH6	BH6	Dup 1
Depth	----------	0.5-0.9	0.1-0.2	0.1-0.2	0.5-0.85	-
Date Sampled		19/09/2012	19/09/2012	19/09/2012	19/09/2012	19/09/2012
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	24/09/2012	24/09/2012	24/09/2012	24/09/2012	24/09/2012
Date analysed	-	25/09/2012	25/09/2012	25/09/2012	25/09/2012	25/09/2012
$TRHC_{10}$ - 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	110	<100	<100
Surrogate o-Terphenyl	%	79	79	85	80	79

Client Reference: E26029KP, Gladesville

PAHs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- ----------	79191-1 BH1 0.1-0.3 19/09/2012 Soil	79191-2 BH1 0.6-0.8 19/09/2012 Soil	79191-3 BH2 0.1-0.3 19/09/2012 Soil	79191-5 BH3 0-0.2 19/09/2012 Soil	79191-7 BH4 0.1-0.2 19/09/2012 Soil
Date extracted	-	24/09/2012	24/09/2012	24/09/2012	24/09/2012	24/09/2012
Date analysed	-	25/09/2012	25/09/2012	25/09/2012	25/09/2012	25/09/2012
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	0.2
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	0.1	<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+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	0.06	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate p-Terphenyl-d14	%	107	103	106	107	107

PAHs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- ----------	79191-8 BH4 0.5-0.9 19/09/2012 Soil	79191-10 BH5 0.1-0.2 19/09/2012 Soil	79191-12 BH6 0.1-0.2 19/09/2012 Soil	79191-13 BH6 0.5-0.85 19/09/2012 Soil	79191-15 Dup 1 - 19/09/2012 Soil
Date extracted	-	24/09/2012	24/09/2012	24/09/2012	24/09/2012	24/09/2012
Date analysed	-	25/09/2012	25/09/2012	25/09/2012	25/09/2012	25/09/2012
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	0.1	<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+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
Surrogate p-Terphenyl-d14	%	109	107	109	111	107

Client Reference: E26029KP, Gladesville

Organochlorine Pesticides in soil						
Our Reference:	UNITS	79191-1	79191-2	79191-3	79191-5	79191-7
Your Reference	----------	BH1	BH1	BH2	BH3	BH4
Depth	----------	0.1-0.3	0.6-0.8	0.1-0.3	0-0.2	0.1-0.2
Date Sampled		19/09/2012	19/09/2012	19/09/2012	19/09/2012	19/09/2012
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	24/09/2012	24/09/2012	24/09/2012	24/09/2012	24/09/2012
Date analysed	-	24/09/2012	24/09/2012	24/09/2012	24/09/2012	24/09/2012
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	%	87	87	106	91	97

Client Reference: E26029KP, Gladesville

Organochlorine Pesticides in soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- ----------	79191-8 BH4 0.5-0.9 19/09/2012 Soil	79191-10 BH5 0.1-0.2 19/09/2012 Soil	79191-12 BH6 0.1-0.2 19/09/2012 Soil	79191-13 BH6 0.5-0.85 19/09/2012 Soil	79191-15 Dup 1 - 19/09/2012 Soil
Date extracted	-	24/09/2012	24/09/2012	24/09/2012	24/09/2012	24/09/2012
Date analysed	-	24/09/2012	24/09/2012	24/09/2012	24/09/2012	24/09/2012
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	104	98	95	102

Client Reference: E26029KP, Gladesville

Organophosphorus Pesticides Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS --- ---	79191-1 BH1 0.1-0.3 19/09/2012 Soil	79191-2 BH1 0.6-0.8 19/09/2012 Soil	79191-3 BH2 0.1-0.3 19/09/2012 Soil	79191-5 BH3 0-0.2 19/09/2012 Soil	79191-7 BH4 0.1-0.2 19/09/2012 Soil
Date extracted	-	24/09/2012	24/09/2012	24/09/2012	24/09/2012	24/09/2012
Date analysed	-	24/09/2012	24/09/2012	24/09/2012	24/09/2012	24/09/2012
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	87	87	106	91	97

Organophosphorus Pesticides Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS --- ---	79191-8 BH4 0.5-0.9 19/09/2012 Soil	79191-10 BH5 0.1-0.2 19/09/2012 Soil	79191-12 BH6 0.1-0.2 19/09/2012 Soil	79191-13 BH6 0.5-0.85 19/09/2012 Soil	79191-15 Dup 1 - 19/09/2012 Soil
Date extracted	-	24/09/2012	24/09/2012	24/09/2012	24/09/2012	24/09/2012
Date analysed	-	24/09/2012	24/09/2012	24/09/2012	24/09/2012	24/09/2012
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	105	104	98	95	102

Client Reference: E26029KP, Gladesville

PCBs in Soil						
Our Reference:	UNITS	79191-1	79191-2	79191-3	79191-5	79191-7
Your Reference	----------	BH1	BH1	BH2	BH3	BH4
Depth	----------	0.1-0.3	0.6-0.8	0.1-0.3	0-0.2	0.1-0.2
Date Sampled		19/09/2012	19/09/2012	19/09/2012	19/09/2012	19/09/2012
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	24/09/2012	24/09/2012	24/09/2012	24/09/2012	24/09/2012
Date analysed	-	24/09/2012	24/09/2012	24/09/2012	24/09/2012	24/09/2012
Arochlor 1016	mg/kg	<0.1	<0.1	<0.1	<0.6	<0.1
Arochlor 1221	mg/kg	<0.1	<0.1	<0.1	<0.6	<0.1
Arochlor 1232	mg/kg	<0.1	<0.1	<0.1	<0.6	<0.1
Arochlor 1242	mg/kg	<0.1	<0.1	<0.1	<0.6	<0.1
Arochlor 1248	mg/kg	<0.1	<0.1	<0.1	<0.6	<0.1
Arochlor 1254	mg/kg	<0.1	<0.1	<0.1	<0.6	<0.1
Arochlor 1260	mg/kg	<0.1	<0.1	<0.1	<0.6	<0.1
Surrogate TCLMX	%	87	87	106	91	97

PCBs in Soil						
Our Reference:	UNITS	79191-8	79191-10	79191-12	79191-13	79191-15
Your Reference	----------	BH4	BH5	BH6	BH6	Dup 1
Depth	----------	0.5-0.9	0.1-0.2	0.1-0.2	0.5-0.85	-
Date Sampled		19/09/2012	19/09/2012	19/09/2012	19/09/2012	19/09/2012
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	24/09/2012	24/09/2012	24/09/2012	24/09/2012	24/09/2012
Date analysed	-	24/09/2012	24/09/2012	24/09/2012	24/09/2012	24/09/2012
Arochlor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	105	104	98	95	102

Client Reference: E26029KP, Gladesville

Acid Extractable metals in soil						
Our Reference:	UNITS	79191-1	79191-2	79191-3	79191-5	79191-7
Your Reference	----------	BH1	BH1	BH2	BH3	BH4
Depth	----------	0.1-0.3	0.6-0.8	0.1-0.3	0-0.2	0.1-0.2
Date Sampled		19/09/2012	19/09/2012	19/09/2012	19/09/2012	19/09/2012
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	24/09/2012	24/09/2012	24/09/2012	24/09/2012	24/09/2012
Date analysed	-	25/09/2012	25/09/2012	25/09/2012	25/09/2012	25/09/2012
Arsenic	mg/kg	5	6	5	7	<4
Cadmium	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	mg/kg	6	6	34	12	61
Copper	mg/kg	25	34	48	38	33
Lead	mg/kg	37	23	14	22	7
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	15	38	39	16	59
Zinc	mg/kg	74	58	63	100	46

Acid Extractable metals in soil						
Our Reference:	UNITS	79191-8	79191-10	79191-12	79191-13	79191-15
Your Reference	----------	BH4	BH5	BH6	BH6	Dup 1
Depth	----------	0.5-0.9	0.1-0.2	0.1-0.2	0.5-0.85	-
Date Sampled		19/09/2012	19/09/2012	19/09/2012	19/09/2012	19/09/2012
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	24/09/2012	24/09/2012	24/09/2012	24/09/2012	24/09/2012
Date analysed	-	25/09/2012	25/09/2012	25/09/2012	25/09/2012	25/09/2012
Arsenic	mg/kg	7	4	<4	5	7
Cadmium	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	mg/kg	11	41	84	12	7
Copper	mg/kg	30	31	31	23	28
Lead	mg/kg	29	11	5	15	40
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	12	38	83	8	16
Zinc	mg/kg	110	47	46	38	67

Client Reference: E26029KP, Gladesville

Moisture						
Our Reference:	UNITS	79191-1	79191-2	79191-3	79191-5	79191-7
Your Reference	----------	BH1	BH1	BH2	BH3	BH4
Depth	----------	0.1-0.3	0.6-0.8	0.1-0.3	0-0.2	0.1-0.2
Date Sampled		19/09/2012	19/09/2012	19/09/2012	19/09/2012	19/09/2012
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	24/09/12	24/09/12	24/09/12	24/09/12	24/09/12
Date analysed	-	25/09/12	25/09/12	25/09/12	25/09/12	25/09/12
Moisture	%	20	7.0	10	14	8.5

Moisture						
Our Reference:	UNITS	79191-8	79191-10	79191-12	79191-13	79191-15
Your Reference	----------	BH4	BH5	BH6	BH6	Dup 1
Depth	----------	0.5-0.9	0.1-0.2	0.1-0.2	0.5-0.85	-
Date Sampled		19/09/2012	19/09/2012	19/09/2012	19/09/2012	19/09/2012
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	24/09/12	24/09/12	24/09/12	24/09/12	24/09/12
Date analysed	-	25/09/12	25/09/12	25/09/12	25/09/12	25/09/12
Moisture	%	18	11	7.2	16	10

Moisture		
Our Reference:	UNITS	79191-17
Your Reference	----------	TB
Depth	----------	-
Date Sampled		19/09/2012
Type of sample		Soil
Date prepared	-	24/09/12
Date analysed	-	25/09/12
Moisture	%	7.3

Client Reference: E26029KP, Gladesville

Asbestos ID - soils						
Our Reference:	UNITS	79191-1	79191-3	79191-5	79191-7	79191-8
Your Reference	----------	BH1	BH2	BH3	BH4	BH4
Depth	----------	0.1-0.3	0.1-0.3	0-0.2	0.1-0.2	0.5-0.9
Date Sampled		19/09/2012	19/09/2012	19/09/2012	19/09/2012	19/09/2012
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	28/09/2012	28/09/2012	28/09/2012	28/09/2012	28/09/2012
Sample mass tested	g	Approx 60g	Approx 60g	Approx 60g	Approx 40g	Approx 40g
Sample Description	-	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks	Grey coarse-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg
Trace Analysis	-	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected

Asbestos ID - soils				
Our Reference:	UNITS	79191-10	79191-12	79191-13
Your Reference	----------	BH5	BH6	BH6
Depth	----------	0.1-0.2	0.1-0.2	0.5-0.85
Date Sampled		19/09/2012	19/09/2012	19/09/2012
Type of sample		Soil	Soil	Soil
Date analysed	-	28/09/2012	28/09/2012	28/09/2012
Sample mass tested	g	Approx 70g	Approx 80g	Approx 40g
Sample Description	-	Grey fine-grained soil & rocks	Grey coarse-grained soil & rocks	Pink fine-grained clayey soil
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg
Trace Analysis	-	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected

Client Reference: E26029KP, Gladesville

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.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID.
Org-012 subset	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS.
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-008	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Inorg-008	Moisture content determined by heating at 105 deg C for a minimum of 4 hours.
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.

Client Reference: E26029KP, Gladesville

QUALITY CONTROL vTRH & BTEX in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			24/09/2012	79191-1	24/09/2012 II 24/09/2012	LCS-3	24/09/2012
Date analysed	-			25/09/2012	79191-1	25/09/2012 II 25/09/2012	LCS-3	25/09/2012
vTRH C_6 - C_9	mg/kg	25	Org-016	<25	79191-1	<25 II <25	LCS-3	120%
Benzene	mg/kg	0.2	Org-016	<0.2	79191-1	<0.2 II <0.2	LCS-3	121%
Toluene	mg/kg	0.5	Org-016	<0.5	79191-1	<0.5 II <0.5	LCS-3	121%
Ethylbenzene	mg/kg	1	Org-016	<1	79191-1	<1 II <1	LCS-3	112%
m+p-xylene	mg/kg	2	Org-016	<2	79191-1	<2 II <2	LCS-3	122%
o-Xylene	mg/kg	1	Org-016	<1	79191-1	<1 II <1	LCS-3	111%
Surrogate aaa-Trifluorotoluene	%		Org-016	104	79191-1	91 II 90 II RPD: 1	LCS-3	88%
QUALITY CONTROL sTRH in Soil (C10-C36)	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			24/09/2012	79191-1	24/09/2012 II 24/09/2012	LCS-3	24/09/2012
Date analysed	-			25/09/2012	79191-1	25/09/2012 II 25/09/2012	LCS-3	25/09/2012
TRHC $_{10}$ - C $_{14}$	mg/kg	50	Org-003	<50	79191-1	<50 II <50	LCS-3	103%
TRHC $_{15}$ - C $_{28}$	mg/kg	100	Org-003	<100	79191-1	<100 II <100	LCS-3	103%
TRHC $_{29}$ - C $_{36}$	mg/kg	100	Org-003	<100	79191-1	<100 II <100	LCS-3	78%
Surrogate o-Terphenyl	%		Org-003	78	79191-1	85 II 87 II RPD: 2	LCS-3	102%
QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			24/09/2012	79191-1	24/09/2012 II 24/09/2012	LCS-3	24/09/2012
Date analysed	-			25/09/2012	79191-1	25/09/2012 II 25/09/2012	LCS-3	25/09/2012
Naphthalene	mg/kg	0.1	Org-012 subset	<0.1	79191-1	<0.1 II <0.1	LCS-3	101%
Acenaphthylene	mg/kg	0.1	Org-012 subset	<0.1	79191-1	<0.1 II <0.1	[NR]	[NR]
Acenaphthene	mg/kg	0.1	Org-012 subset	<0.1	79191-1	<0.1 II <0.1	[NR]	[NR]
Fluorene	mg/kg	0.1	Org-012 subset	<0.1	79191-1	<0.1 II <0.1	LCS-3	106%
Phenanthrene	mg/kg	0.1	Org-012 subset	<0.1	79191-1	<0.1 II <0.1	LCS-3	110%
Anthracene	mg/kg	0.1	Org-012 subset	<0.1	79191-1	<0.1 II <0.1	[NR]	[NR]
Fluoranthene	mg/kg	0.1	Org-012 subset	<0.1	79191-1	<0.1 II <0.1	LCS-3	115%
Pyrene	mg/kg	0.1	Org-012 subset	<0.1	79191-1	<0.1 II <0.1	LCS-3	115%
Benzo(a)anthracene	mg/kg	0.1	Org-012 subset	<0.1	79191-1	<0.1 II <0.1	[NR]	[NR]
Chrysene	mg/kg	0.1	Org-012 subset	<0.1	79191-1	<0.1 II <0.1	LCS-3	92%

Client Reference: E26029KP, Gladesville

QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Benzo(b+k)fluoranthene	mg/kg	0.2	Org-012 subset	<0.2	79191-1	<0.2 || <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	0.05	Org-012 subset	<0.05	79191-1	<0.05 || <0.05	LCS-3	104%
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012 subset	<0.1	79191-1	<0.1 || <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012 subset	<0.1	79191-1	<0.1 || <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012 subset	<0.1	79191-1	<0.1 || <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d_{14}	%		Org-012 subset	101	79191-1	107 || 110 || RPD: 3	LCS-3	93%
QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			24/09/2012	79191-1	24/09/2012 || 24/09/2012	LCS-3	24/09/2012
Date analysed	-			24/09/2012	79191-1	24/09/2012 || 24/09/2012	LCS-3	24/09/2012
HCB	mg/kg	0.1	Org-005	<0.1	79191-1	<0.1 || <0.1	[NR]	[NR]
alpha-BHC	mg/kg	0.1	Org-005	<0.1	79191-1	<0.1 || <0.1	LCS-3	98%
gamma-BHC	mg/kg	0.1	Org-005	<0.1	79191-1	<0.1 || <0.1	[NR]	[NR]
beta-BHC	mg/kg	0.1	Org-005	<0.1	79191-1	<0.1 || <0.1	LCS-3	96%
Heptachlor	mg/kg	0.1	Org-005	<0.1	79191-1	<0.1 || <0.1	LCS-3	102%
delta-BHC	mg/kg	0.1	Org-005	<0.1	79191-1	<0.1 || <0.1	[NR]	[NR]
Aldrin	mg/kg	0.1	Org-005	<0.1	79191-1	<0.1 || <0.1	LCS-3	105%
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	79191-1	<0.1 || <0.1	LCS-3	106%
gamma-Chlordane	mg/kg	0.1	Org-005	<0.1	79191-1	<0.1 || <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	0.1	Org-005	<0.1	79191-1	<0.1 || <0.1	[NR]	[NR]
Endosulfan I	mg/kg	0.1	Org-005	<0.1	79191-1	<0.1 || <0.1	[NR]	[NR]
pp-DDE	mg/kg	0.1	Org-005	<0.1	79191-1	<0.1 || <0.1	LCS-3	86%
Dieldrin	mg/kg	0.1	Org-005	<0.1	79191-1	<0.1 || <0.1	LCS-3	112%
Endrin	mg/kg	0.1	Org-005	<0.1	79191-1	<0.1 || <0.1	LCS-3	108%
pp-DDD	mg/kg	0.1	Org-005	<0.1	79191-1	<0.1 || <0.1	LCS-3	97%
Endosulfan II	mg/kg	0.1	Org-005	<0.1	79191-1	<0.1 || <0.1	[NR]	[NR]
pp-DDT	mg/kg	0.1	Org-005	<0.1	79191-1	<0.1 || <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	0.1	Org-005	<0.1	79191-1	<0.1 || <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	0.1	Org-005	<0.1	79191-1	<0.1 || <0.1	LCS-3	96%
Methoxychlor	mg/kg	0.1	Org-005	<0.1	79191-1	<0.1 || <0.1	[NR]	[NR]
Surrogate TCMX	%		Org-005	87	79191-1	87 || 93 || RPD: 7	LCS-3	95%

Client Reference: E26029KP, Gladesville

QUALITY CONTROL Organophosphorus Pesticides	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			24/09/2012	79191-1	24/09/2012 || 24/09/2012	LCS-3	24/09/2012
Date analysed	-			24/09/2012	79191-1	24/09/2012 || 24/09/2012	LCS-3	24/09/2012
Diazinon	mg/kg	0.1	Org-008	<0.1	79191-1	<0.1 || <0.1	[NR]	[NR]
Dimethoate	mg/kg	0.1	Org-008	<0.1	79191-1	<0.1 || <0.1	[NR]	[NR]
Chlorpyriphos-methyl	mg/kg	0.1	Org-008	<0.1	79191-1	<0.1 || <0.1	[NR]	[NR]
Ronnel	mg/kg	0.1	Org-008	<0.1	79191-1	<0.1 || <0.1	[NR]	[NR]
Chlorpyriphos	mg/kg	0.1	Org-008	<0.1	79191-1	<0.1 || <0.1	LCS-3	105%
Fenitrothion	mg/kg	0.1	Org-008	<0.1	79191-1	<0.1 || <0.1	LCS-3	98%
Bromophos-ethyl	mg/kg	0.1	Org-008	<0.1	79191-1	<0.1 || <0.1	[NR]	[NR]
Ethion	mg/kg	0.1	Org-008	<0.1	79191-1	<0.1 || <0.1	LCS-3	113%
Surrogate TCMX	%		Org-008	87	79191-1	87 || 93 || RPD: 7	LCS-3	92%
QUALITY CONTROL PCBs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			24/09/2012	79191-1	24/09/2012 || 24/09/2012	LCS-3	24/09/2012
Date analysed	-			24/09/2012	79191-1	24/09/2012 || 24/09/2012	LCS-3	24/09/2012
Arochlor 1016	mg/kg	0.1	Org-006	<0.1	79191-1	<0.1 || <0.1	[NR]	[NR]
Arochlor 1221	mg/kg	0.1	Org-006	<0.1	79191-1	<0.1 || <0.1	[NR]	[NR]
Arochlor 1232	mg/kg	0.1	Org-006	<0.1	79191-1	<0.1 || <0.1	[NR]	[NR]
Arochlor 1242	mg/kg	0.1	Org-006	<0.1	79191-1	<0.1 || <0.1	[NR]	[NR]
Arochlor 1248	mg/kg	0.1	Org-006	<0.1	79191-1	<0.1 || <0.1	[NR]	[NR]
Arochlor 1254	mg/kg	0.1	Org-006	<0.1	79191-1	<0.1 || <0.1	LCS-3	106%
Arochlor 1260	mg/kg	0.1	Org-006	<0.1	79191-1	<0.1 || <0.1	[NR]	[NR]
Surrogate TCLMX	%		Org-006	87	79191-1	87 || 93 || RPD: 7	LCS-3	94%
QUALITY CONTROL Acid Extractable metals in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date digested	-			24/09/2012	79191-1	24/09/2012 || 24/09/2012	LCS-1	24/09/2012
Date analysed	-			25/09/2012	79191-1	25/09/2012 || 25/09/2012	LCS-1	25/09/2012
Arsenic	mg/kg	4	Metals-020 ICP-AES	<4	79191-1	5 || 5 || RPD: 0	LCS-1	88%
Cadmium	mg/kg	0.5	Metals-020 ICP-AES	<0.5	79191-1	<0.5 || <0.5	LCS-1	95%
Chromium	mg/kg	1	Metals-020 ICP-AES	<1	79191-1	6 || 7 || RPD: 15	LCS-1	92%
Copper	mg/kg	1	Metals-020 ICP-AES	<1	79191-1	25 || 37 || RPD: 39	LCS-1	87%
Lead	mg/kg	1	Metals-020 ICP-AES	<1	79191-1	37 || 35 || RPD: 6	LCS-1	89%
Mercury	mg/kg	0.1	Metals-021 CV-AAS	<0.1	79191-1	<0.1 || <0.1	LCS-1	92%

Client Reference: E26029KP, Gladesville

QUALITY CONTROL Acid Extractable metals in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Nickel	mg/kg	1	Metals-020 ICP-AES	<1	79191-1	15 || 14 || RPD: 7	LCS-1	92%
Zinc	mg/kg	1	Metals-020 ICP-AES	<1	79191-1	74 || 73 || RPD: 1	LCS-1	94%

QUALITY CONTROL Moisture	UNITS	PQL	METHOD	Blank
Date prepared	-			[NT]
Date analysed	-			[NT]
Moisture	%	0.1	Inorg-008	[NT]

QUALITY CONTROL Asbestos ID - soils	UNITS	PQL	METHOD	Blank
Date analysed	-			[NT]

QUALITY CONTROL vTRH & BTEX in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	79191-2	24/09/2012
Date analysed	-	[NT]	[NT]	79191-2	25/09/2012
vTRH C_6 - C_9	mg/kg	[NT]	[NT]	79191-2	115%
Benzene	mg/kg	[NT]	[NT]	79191-2	125%
Toluene	mg/kg	[NT]	[NT]	79191-2	117%
Ethylbenzene	mg/kg	[NT]	[NT]	79191-2	106%
m+p-xylene	mg/kg	[NT]	[NT]	79191-2	114%
o-Xylene	mg/kg	[NT]	[NT]	79191-2	106%
Surrogate aaa-Trifluorotoluene	%	[NT]	[NT]	79191-2	97%

QUALITY CONTROL sTRH in Soil (C10-C36)	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	79191-2	24/09/2012
Date analysed	-	[NT]	[NT]	79191-2	25/09/2012
TRH C_{10} - C_{14}	mg/kg	[NT]	[NT]	79191-2	112%
TRH C_{15} - C_{28}	mg/kg	[NT]	[NT]	79191-2	107%
TRH C_{29} - C_{36}	mg/kg	[NT]	[NT]	79191-2	78%
Surrogate o-Terphenyl	%	[NT]	[NT]	79191-2	108%

QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	79191-2	24/09/2012
Date analysed	-	[NT]	[NT]	79191-2	25/09/2012
Naphthalene	mg/kg	[NT]	[NT]	79191-2	101%
Acenaphthylene	mg/kg	[NT]	[NT]	[NR]	[NR]
Acenaphthene	mg/kg	[NT]	[NT]	[NR]	[NR]
Fluorene	mg/kg	[NT]	[NT]	79191-2	108%
Phenanthrene	mg/kg	[NT]	[NT]	79191-2	114%
Anthracene	mg/kg	[NT]	[NT]	[NR]	[NR]

Client Reference: E26029KP, Gladesville

QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Fluoranthene	mg/kg	[NT]	[NT]	79191-2	117%
Pyrene	mg/kg	[NT]	[NT]	79191-2	117%
Benzo(a)anthracene	mg/kg	[NT]	[NT]	[NR]	[NR]
Chrysene	mg/kg	[NT]	[NT]	79191-2	95%
Benzo(b+k)fluoranthene	mg/kg	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	mg/kg	[NT]	[NT]	79191-2	105%
Indeno(1,2,3-c,d)pyrene	mg/kg	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d_{14}	%	[NT]	[NT]	79191-2	97%
QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	79191-2	24/09/2012
Date analysed	-	[NT]	[NT]	79191-2	24/09/2012
HCB	mg/kg	[NT]	[NT]	[NR]	[NR]
alpha-BHC	mg/kg	[NT]	[NT]	79191-2	94%
gamma-BHC	mg/kg	[NT]	[NT]	[NR]	[NR]
beta-BHC	mg/kg	[NT]	[NT]	79191-2	92%
Heptachlor	mg/kg	[NT]	[NT]	79191-2	98%
delta-BHC	mg/kg	[NT]	[NT]	[NR]	[NR]
Aldrin	mg/kg	[NT]	[NT]	79191-2	101%
Heptachlor Epoxide	mg/kg	[NT]	[NT]	79191-2	101%
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]	79191-2	82%
Dieldrin	mg/kg	[NT]	[NT]	79191-2	94%
Endrin	mg/kg	[NT]	[NT]	79191-2	86%
pp-DDD	mg/kg	[NT]	[NT]	79191-2	93%
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]	79191-2	92%
Methoxychlor	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate TCMX	%	[NT]	[NT]	79191-2	95%

Client Reference: E26029KP, Gladesville

QUALITY CONTROL Organophosphorus Pesticides	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	79191-2	24/09/2012
Date analysed	-	[NT]	[NT]	79191-2	24/09/2012
Diazinon	mg/kg	[NT]	[NT]	[NR]	[NR]
Dimethoate	mg/kg	[NT]	[NT]	[NR]	[NR]
Chlorpyriphos-methyl	mg/kg	[NT]	[NT]	[NR]	[NR]
Ronnel	mg/kg	[NT]	[NT]	[NR]	[NR]
Chlorpyriphos	mg/kg	[NT]	[NT]	79191-2	95%
Fenitrothion	mg/kg	[NT]	[NT]	79191-2	89%
Bromophos-ethyl	mg/kg	[NT]	[NT]	[NR]	[NR]
Ethion	mg/kg	[NT]	[NT]	79191-2	102%
Surrogate TCMX	%	[NT]	[NT]	79191-2	89%
QUALITY CONTROL PCBs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	79191-2	24/09/2012
Date analysed	-	[NT]	[NT]	79191-2	24/09/2012
Arochlor 1016	mg/kg	[NT]	[NT]	[NR]	[NR]
Arochlor 1221	mg/kg	[NT]	[NT]	[NR]	[NR]
Arochlor 1232	mg/kg	[NT]	[NT]	[NR]	[NR]
Arochlor 1242	mg/kg	[NT]	[NT]	[NR]	[NR]
Arochlor 1248	mg/kg	[NT]	[NT]	[NR]	[NR]
Arochlor 1254	mg/kg	[NT]	[NT]	79191-2	104%
Arochlor 1260	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate TCLMX	%	[NT]	[NT]	79191-2	91%
QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	[NT]	[NT]	79191-2	24/09/2012
Date analysed	-	[NT]	[NT]	79191-2	25/09/2012
Arsenic	mg/kg	[NT]	[NT]	79191-2	90%
Cadmium	mg/kg	[NT]	[NT]	79191-2	92%
Chromium	mg/kg	[NT]	[NT]	79191-2	96%
Copper	mg/kg	[NT]	[NT]	79191-2	94%
Lead	mg/kg	[NT]	[NT]	79191-2	90%
Mercury	mg/kg	[NT]	[NT]	79191-2	87%
Nickel	mg/kg	[NT]	[NT]	79191-2	84%
Zinc	mg/kg	[NT]	[NT]	79191-2	79%

Client Reference: **E26029KP, Gladesville**

Report Comments:

PCB's in Soil: Sample #5 PQL has been raised due to interference from analytes(other than those being tested) in the sample/s.

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

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

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

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

Quality Control Definitions

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

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

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

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

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

Laboratory Acceptance Criteria

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

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.
Matrix Spikes and LCS: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable.

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

SAMPLE RECEIPT ADVICE

Client:

Environmental Investigation Services
PO Box 976
North Ryde BC NSW 1670

ph: 02 9888 5000
Fax: 02 9888 5001

Attention: Brendan Page

Sample log in details:

Your reference:	**E26029KP, Gladesville**
Envirolab Reference:	**79191**
Date received:	21/09/2012
Date results expected to be reported:	**28/09/12**

Samples received in appropriate condition for analysis:	YES
No. of samples provided	17 Soil
Turnaround time requested:	Standard
Temperature on receipt	Cool
Cooling Method:	Ice
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.

Contact details:

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

SAMPLE AND CHAIN OF CUSTODY FORM

TO:
Envirolab Services Pty Ltd
12 Ashley Street
Chatswood NSW 2067
Phone: (02) 99106200
Fax: (02) 99106201

Attention: Aileen

EIS Job Number: E 26029KP

Date Results Required: Standard

Sheet 1 / 1

FROM:
Environmental Investigation Services
Rear 115 Wicks Road
Macquarie Park NSW 2113
Phone: (02) 9888 5000
Fax: (02) 9888 5004

Contact: Brendan Page

Project: Proposed Development
Location: Gladesville
Sampler: RUC

Sample Preservation: In esky on ice

Tests Required

Date Sampled	Lab Ref:	Borehole/ Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 6	Combo 6a	Combo 13	8 Metals	TPH	BTEX	PAHs	OCP/OPP/ PCBs	Asbestos	TCLP 6 Metals	TCLP PAHs
19+20/9/2012	1	BH1	0.1/0.3	Glass jar + Asb Bag	0.3	Fill soil/ shale		X									
	2	BH1	0.6/0.8	Glass jar + Asb Bag	7.2		X										
	3	BH2	0.1/0.3	Glass jar + Asb Bag	0.4			X									
	4	BH2	0.6/0.73	Glass jar + Asb Bag	0.5												
	5	BH3	0/0.2	Glass jar + Asb Bag	2.3			X									
	6	BH3	0.65/0.80	Glass jar + Asb Bag	4.2												
	7	BH4	0.1/0.2	Glass jar + Asb Bag	1.2			X									
	8	BH4	0.5/0.9	Glass jar + Asb Bag	0.7			X									
	9	BH4	0.9/0.95	Glass jar + Asb Bag	2.3												
	10	BH5	0.1/0.2	Glass jar + Asb Bag	3.1			X									
	11	BH5	0.4/0.6	Glass jar + Asb Bag	2.2												
	12	BH6	0.1/0.2	Glass jar + Asb Bag	1			X									
	13	BH6	0.5/0.55	Glass jar + Asb Bag	0.2			X									
	14	BH6	1.5/1.55	Glass jar + Asb Bag	5.4	↓											
	15	Dup 1	-	Glass jar + Asb Bag	-	-	X										
	16	Dup 2	-	Glass jar + Asb Bag	-	-											
↓	17	TB	-	Glass jar + Asb Bag	-	Sand						X					
				Glass jar + Asb Bag													
				Glass jar + Asb Bag													
				Glass jar + Asb Bag													
				Glass jar + Asb Bag													
				Glass jar + Asb Bag													
				Glass jar + Asb Bag													
				Glass jar + Asb Bag													
				Glass jar + Asb Bag													

ENVIROLAB

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

Job No: 79191
Date Received: 21/9/12
Time Received: 1140
Received by: WP
Temp: (Cool) Ambient
Cooling: (Ice) Icepack
Security: (Intact) Broken/None

Remarks (comments/detection limits required):

Relinquished By:	Date:	Time:	Received By:	
B. Page	21/9/12	10:30am	Morgan Philp	21/9/12 @ 1140

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

CERTIFICATE OF ANALYSIS 79191-B

Client:
Environmental Investigation Services
PO Box 976
North Ryde BC
NSW 1670

Attention: Brendan Page

Sample log in details:

Your Reference:	**E26029KP, Gladesville**
No. of samples:	Additional Testing on 2 Soils
Date samples received / completed instructions received	21/09/2012 / 02/10/12

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:	9/10/12 / 8/10/12
Date of Preliminary Report:	Not issued

NATA accreditation number 2901. This document shall not be reproduced except in full.
Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with *.**

Results Approved By:

Alex MacLean
Chemist

Client Reference: E26029KP, Gladesville

Metals in TCLP USEPA1311 Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- ---------- 	79191-B-7 BH4 0.1-0.2 19/09/2012 Soil	79191-B-12 BH6 0.1-0.2 19/09/2012 Soil
Date extracted	-	03/10/2012	03/10/2012
Date analysed	-	03/10/2012	03/10/2012
pH of soil for fluid# determ.	pH units	9.8	10.2
pH of soil for fluid # determ. (acid)	pH units	1.7	1.6
Extraction fluid used	-	1	1
pH of final Leachate	pH units	5.1	5.3
Nickel in TCLP	mg/L	0.05	0.07

Client Reference: E26029KP, Gladesville

Method ID	Methodology Summary
Inorg-004	Toxicity Characteristic Leaching Procedure (TCLP) using AS 4439 and USEPA 1311.
EXTRACT.7	Toxicity Characteristic Leaching Procedure (TCLP).
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA 22nd ED, 4500-H+.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.

Client Reference: E26029KP, Gladesville

QUALITY CONTROL Metals in TCLP USEPA1311	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			04/10/2012	[NT]	[NT]	LCS-W1	04/10/2012
Date analysed	-			04/10/2012	[NT]	[NT]	LCS-W1	04/10/2012
Nickel in TCLP	mg/L	0.02	Metals-020 ICP-AES	<0.02	[NT]	[NT]	LCS-W1	96%

Client Reference: **E26029KP, Gladesville**

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
NA: 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 batched of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.
Matrix Spikes and LCS: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable.

Aileen Hie

From: Brendan Page [bpage@jkgroup.net.au]
Sent: Tuesday, 2 October 2012 7:24 AM
To: Aileen Hie
Subject: Additional Analysis 79191 (E26029KP, Gladesville)

Hi Aileen,

Could you please arrange for the following additional analysis to be undertaken on the soil samples in Envirolabs custody:

79191-7 (BH4 0.1-0.2), TCLP (acid prep) nickel

79191-12 (BH6 0.1-0.2), TCLP (acid prep) nickel

Standard TAT. Cheers ☺

Regards,

Brendan Page
Senior Environmental Scientist

EIS Environmental Investigation Services
CONSULTING ENVIRONMENTAL ENGINEERS AND SCIENTISTS
Tel: 02 9888 5000 PO Box 976 115 Wicks Road
Fax: 02 9888 5001 North Ryde BC NSW 1670 Macquarie Park NSW 2113
bpage@jkgroup.net.au
www.jkgeotechnics.com.au

Envirolab Ref 79191B
Due: 9/10/12
Std TAT.

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

CERTIFICATE OF ANALYSIS 79306

Client:
Environmental Investigation Services
PO Box 976
North Ryde BC
NSW 1670

Attention: Brendan Page

Sample log in details:

Your Reference:	**E26029KP, Gladesville**
No. of samples:	5 Soils
Date samples received / completed instructions received	24/09/2012 / 24/09/2012

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:	2/10/12 / 28/09/12
Date of Preliminary Report:	Not issued

NATA accreditation number 2901. This document shall not be reproduced except in full.
Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with *.**

Results Approved By:

Nancy Zhang
Chemist

Rhian Morgan
Reporting Supervisor

Paul Ching
Approved Signatory

Jeremy Faircloth
Chemist

NATA
ACCREDITED FOR TECHNICAL COMPETENCE

Client Reference: E26029KP, Gladesville

vTRH & BTEX in Soil			
Our Reference:	UNITS	79306-1	79306-2
Your Reference	----------	BH7	BH7
Depth	----------	0.1-0.3	0.5-0.7
Date Sampled		24/09/2012	24/09/2012
Type of sample		Soil	Soil
Date extracted	-	25/9/12	25/9/12
Date analysed	-	26/9/12	26/9/12
vTRH C_6 - C_9	mg/kg	<25	<25
Benzene	mg/kg	<0.2	<0.2
Toluene	mg/kg	3	<0.5
Ethylbenzene	mg/kg	<1	<1
m+p-xylene	mg/kg	<2	<2
o-Xylene	mg/kg	<1	<1
Surrogate aaa-Trifluorotoluene	%	100	98

Client Reference: E26029KP, Gladesville

sTRH in Soil (C10-C36)			
Our Reference:	UNITS	79306-1	79306-2
Your Reference	----------	BH7	BH7
Depth	----------	0.1-0.3	0.5-0.7
Date Sampled		24/09/2012	24/09/2012
Type of sample		Soil	Soil
Date extracted	-	25/09/2012	25/09/2012
Date analysed	-	25/09/2012	25/09/2012
$TRHC_{10}$ - C_{14}	mg/kg	<50	<50
$TRHC_{15}$ - C_{28}	mg/kg	<100	<100
$TRHC_{29}$ - C_{36}	mg/kg	<100	<100
Surrogate o-Terphenyl	%	93	86

Client Reference: E26029KP, Gladesville

PAHs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- ---------- 	79306-1 BH7 0.1-0.3 24/09/2012 Soil	79306-2 BH7 0.5-0.7 24/09/2012 Soil
Date extracted	-	25/09/2012	25/09/2012
Date analysed	-	26/09/2012	26/09/2012
Naphthalene	mg/kg	0.2	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1
Phenanthrene	mg/kg	0.3	<0.1
Anthracene	mg/kg	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1
Surrogate p-Terphenyl-d_{14}	%	101	103

Client Reference: E26029KP, Gladesville

Organochlorine Pesticides in soil			
Our Reference:	UNITS	79306-1	79306-2
Your Reference	----------	BH7	BH7
Depth	----------	0.1-0.3	0.5-0.7
Date Sampled		24/09/2012	24/09/2012
Type of sample		Soil	Soil
Date extracted	-	25/09/2012	25/09/2012
Date analysed	-	27/09/2012	27/09/2012
HCB	mg/kg	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1
Surrogate TCMX	%	113	110

Client Reference: E26029KP, Gladesville

Organophosphorus Pesticides Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- ----------	79306-1 BH7 0.1-0.3 24/09/2012 Soil	79306-2 BH7 0.5-0.7 24/09/2012 Soil
Date extracted	-	25/09/2012	25/09/2012
Date analysed	-	27/09/2012	27/09/2012
Diazinon	mg/kg	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1
Surrogate TCMX	%	113	110

Client Reference: E26029KP, Gladesville

PCBs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- ---------- 	79306-1 BH7 0.1-0.3 24/09/2012 Soil	79306-2 BH7 0.5-0.7 24/09/2012 Soil
Date extracted	-	25/09/2012	25/09/2012
Date analysed	-	27/09/2012	27/09/2012
Arochlor 1016	mg/kg	<0.1	<0.1
Arochlor 1221	mg/kg	<0.1	<0.1
Arochlor 1232	mg/kg	<0.1	<0.1
Arochlor 1242	mg/kg	<0.1	<0.1
Arochlor 1248	mg/kg	<0.1	<0.1
Arochlor 1254	mg/kg	<0.1	<0.1
Arochlor 1260	mg/kg	<0.1	<0.1
Surrogate TCLMX	%	113	110

Client Reference: E26029KP, Gladesville

Acid Extractable metals in soil			
Our Reference:	UNITS	79306-1	79306-2
Your Reference	----------	BH7	BH7
Depth	----------	0.1-0.3	0.5-0.7
Date Sampled		24/09/2012	24/09/2012
Type of sample		Soil	Soil
Date digested	-	25/09/2012	25/09/2012
Date analysed	-	25/09/2012	25/09/2012
Arsenic	mg/kg	<4	<4
Cadmium	mg/kg	<0.5	<0.5
Chromium	mg/kg	68	10
Copper	mg/kg	26	39
Lead	mg/kg	7	11
Mercury	mg/kg	<0.1	<0.1
Nickel	mg/kg	67	10
Zinc	mg/kg	47	64

Client Reference: E26029KP, Gladesville

Moisture			
Our Reference:	UNITS	79306-1	79306-2
Your Reference	----------	BH7	BH7
Depth	----------	0.1-0.3	0.5-0.7
Date Sampled		24/09/2012	24/09/2012
Type of sample		Soil	Soil
Date prepared	-	25/09/2012	25/09/2012
Date analysed	-	26/09/2012	26/09/2012
Moisture	%	6.7	16

Client Reference: E26029KP, Gladesville

Asbestos ID - soils Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- ----------	79306-1 BH7 0.1-0.3 24/09/2012 Soil	79306-2 BH7 0.5-0.7 24/09/2012 Soil
Date analysed	-	28/09/2012	28/09/2012
Sample mass tested	g	Approx 60g	Approx 25g
Sample Description	-	Grey fine-grained soil & rocks	Brown fine-grained clayey soil
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg
Trace Analysis	-	No respirable fibres detected	No respirable fibres detected

Client Reference: E26029KP, Gladesville

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.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID.
Org-012 subset	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS.
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-008	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Inorg-008	Moisture content determined by heating at 105 deg C for a minimum of 4 hours.
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.

Client Reference: E26029KP, Gladesville

QUALITY CONTROL vTRH & BTEX in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			25/9/12	[NT]	[NT]	LCS-4	25/9/12
Date analysed	-			26/9/12	[NT]	[NT]	LCS-4	26/9/12
vTRH C_6 - C_9	mg/kg	25	Org-016	<25	[NT]	[NT]	LCS-4	117%
Benzene	mg/kg	0.2	Org-016	<0.2	[NT]	[NT]	LCS-4	120%
Toluene	mg/kg	0.5	Org-016	<0.5	[NT]	[NT]	LCS-4	119%
Ethylbenzene	mg/kg	1	Org-016	<1	[NT]	[NT]	LCS-4	114%
m+p-xylene	mg/kg	2	Org-016	<2	[NT]	[NT]	LCS-4	119%
o-Xylene	mg/kg	1	Org-016	<1	[NT]	[NT]	LCS-4	110%
Surrogate aaa-Trifluorotoluene	%		Org-016	106	[NT]	[NT]	LCS-4	107%
QUALITY CONTROL sTRH in Soil (C10-C36)	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			25/09/2012	[NT]	[NT]	LCS-4	25/09/2012
Date analysed	-			25/09/2012	[NT]	[NT]	LCS-4	25/09/2012
TRH C_{10} - C_{14}	mg/kg	50	Org-003	<50	[NT]	[NT]	LCS-4	86%
TRH C_{15} - C_{28}	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-4	99%
TRH C_{29} - C_{36}	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-4	93%
Surrogate o-Terphenyl	%		Org-003	93	[NT]	[NT]	LCS-4	99%
QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			25/09/2012	[NT]	[NT]	LCS-4	25/09/2012
Date analysed	-			26/09/2012	[NT]	[NT]	LCS-4	26/09/2012
Naphthalene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-4	95%
Acenaphthylene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Acenaphthene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Fluorene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-4	99%
Phenanthrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-4	107%
Anthracene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Fluoranthene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-4	109%
Pyrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-4	110%
Benzo(a)anthracene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Chrysene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-4	89%
Benzo(b+k)fluoranthene	mg/kg	0.2	Org-012 subset	<0.2	[NT]	[NT]	[NR]	[NR]

Client Reference: E26029KP, Gladesville

QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Benzo(a)pyrene	mg/kg	0.05	Org-012 subset	<0.05	[NT]	[NT]	LCS-4	89%
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d_{14}	%		Org-012 subset	104	[NT]	[NT]	LCS-4	90%
QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			25/09/2012	[NT]	[NT]	LCS-4	25/09/2012
Date analysed	-			27/09/2012	[NT]	[NT]	LCS-4	27/09/2012
HCB	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
alpha-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-4	113%
gamma-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
beta-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-4	116%
Heptachlor	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-4	114%
delta-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
Aldrin	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-4	116%
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-4	118%
gamma-Chlordane	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
alpha-chlordane	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
Endosulfan I	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
pp-DDE	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-4	127%
Dieldrin	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-4	121%
Endrin	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-4	117%
pp-DDD	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-4	134%
Endosulfan II	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
pp-DDT	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
Endrin Aldehyde	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
Endosulfan Sulphate	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-4	107%
Methoxychlor	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
Surrogate TCMX	%		Org-005	106	[NT]	[NT]	LCS-4	117%

Client Reference: E26029KP, Gladesville

QUALITY CONTROL Organophosphorus Pesticides	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			25/09/2012	[NT]	[NT]	LCS-4	25/09/2012
Date analysed	-			27/09/2012	[NT]	[NT]	LCS-4	27/09/2012
Diazinon	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NR]	[NR]
Dimethoate	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NR]	[NR]
Chlorpyriphos-methyl	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NR]	[NR]
Ronnel	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NR]	[NR]
Chlorpyriphos	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	LCS-4	113%
Fenitrothion	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	LCS-4	107%
Bromophos-ethyl	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NR]	[NR]
Ethion	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	LCS-4	119%
Surrogate TCMX	%		Org-008	106	[NT]	[NT]	LCS-4	117%
QUALITY CONTROL PCBs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			25/09/2012	[NT]	[NT]	LCS-4	25/09/2012
Date analysed	-			27/09/2012	[NT]	[NT]	LCS-4	27/09/2012
Arochlor 1016	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Arochlor 1221	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Arochlor 1232	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Arochlor 1242	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Arochlor 1248	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Arochlor 1254	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	LCS-4	114%
Arochlor 1260	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NR]	[NR]
Surrogate TCLMX	%		Org-006	106	[NT]	[NT]	LCS-4	114%
QUALITY CONTROL Acid Extractable metals in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date digested	-			25/09/2012	[NT]	[NT]	LCS-1	25/09/2012
Date analysed	-			25/09/2012	[NT]	[NT]	LCS-1	25/09/2012
Arsenic	mg/kg	4	Metals-020 ICP-AES	<4	[NT]	[NT]	LCS-1	85%
Cadmium	mg/kg	0.5	Metals-020 ICP-AES	<0.5	[NT]	[NT]	LCS-1	85%
Chromium	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-1	88%
Copper	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-1	86%
Lead	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-1	86%
Mercury	mg/kg	0.1	Metals-021 CV-AAS	<0.1	[NT]	[NT]	LCS-1	101%

Client Reference: E26029KP, Gladesville

QUALITY CONTROL Acid Extractable metals in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Nickel	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-1	86%
Zinc	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-1	88%

QUALITY CONTROL Moisture	UNITS	PQL	METHOD	Blank
Date prepared	-			[NT]
Date analysed	-			[NT]
Moisture	%	0.1	Inorg-008	[NT]

QUALITY CONTROL Asbestos ID - soils	UNITS	PQL	METHOD	Blank
Date analysed	-			[NT]

Client Reference: **E26029KP, Gladesville**

Report Comments:

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

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

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

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

Quality Control Definitions

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

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

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

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

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

Laboratory Acceptance Criteria

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

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.
Matrix Spikes and LCS: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable.

ENVIROLAB SERVICES

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

SAMPLE RECEIPT ADVICE

Client:

Environmental Investigation Services
PO Box 976
North Ryde BC NSW 1670

ph: 02 9888 5000
Fax: 02 9888 5001

Attention: Brendan Page

Sample log in details:

Your reference:	**E26029KP, Gladesville**
Envirolab Reference:	**79306**
Date received:	24/09/2012
Date results expected to be reported:	**2/10/12**

Samples received in appropriate condition for analysis:	YES
No. of samples provided	5 Soils
Turnaround time requested:	Standard
Temperature on receipt	Cool
Cooling Method:	Ice Pack
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.

Contact details:

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

SAMPLE AND CHAIN OF CUSTODY FORM

TO:		FROM:
Envirolab Services Pty Ltd 12 Ashley Street Chatswood NSW 2067 Phone: (02) 99106200 Fax: (02) 99106201 Attention: Aileen	EIS Job Number: E26029KP Date Results Required: Standard Sheet 1 / 1	Environmental Investigation Services Rear 115 Wicks Road Macquarie Park NSW 2113 Phone: (02) 9888 5000 Fax: (02) 9888 5004 Contact: Brendan Page

Project: Proposed Development
Location: Gladesville
Sampler: RVC

Sample Preservation: In esky on ice

Tests Required

Date Sampled	Lab Ref:	Borehole/ Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 6	Combo 6a	Combo 13	8 Metals	TPH	BTEX	PAHs	OCP/OPP/ PCBs	Asbestos	TCLP 6 Metals	TCLP PAHs	
24/9/12	1	BH7	0.1/0.3	Glass jar + Asb Bag	6.6	Soil/Shale		X										
↓	2	↓	0.5/0.7	Glass jar + Asb Bag	0	↓		X										
↓	3	↓	1.5/1.7	Glass jar + Asb Bag	0	↓												
↓	4	↓	2.8/3.0	Glass jar + Asb Bag	0	↓												
↓	5	↓	4/4.25	Glass jar + Asb Bag	0	↓												
				Glass jar + Asb Bag														
				Glass jar + Asb Bag														
				Glass jar + Asb Bag														
				Glass jar + Asb Bag														
				Glass jar + Asb Bag														
				Glass jar + Asb Bag														
				Glass jar + Asb Bag														
				Glass jar + Asb Bag														
				Glass jar + Asb Bag														
				Glass jar + Asb Bag														
				Glass jar + Asb Bag														
				Glass jar + Asb Bag														
				Glass jar + Asb Bag														
				Glass jar + Asb Bag														
				Glass jar + Asb Bag														
				Glass jar + Asb Bag														
				Glass jar + Asb Bag														
				Glass jar + Asb Bag														
				Glass jar + Asb Bag														
				Glass jar + Asb Bag														

ENVIROLAB
Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200
Job No: 78306
Date Received: 24-9-12
Time Received: 16.30
Received by: Dia Liu
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

Remarks (comments/detection limits required):

Relinquished By:	Date:	Time:	Received By:
B.P. (signature)	24/9/12	1:30pm	Dia Liu.

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

CERTIFICATE OF ANALYSIS 79306-B

Client:
Environmental Investigation Services
PO Box 976
North Ryde BC
NSW 1670

Attention: Brendan Page

Sample log in details:

Your Reference:	**E26029KP, Gladesville**
No. of samples:	Additional Testing on 1 Soil
Date samples received / completed instructions received	24/09/2012 / 02/10/12

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:	9/10/12 / 8/10/12
Date of Preliminary Report:	Not issued

NATA accreditation number 2901. This document shall not be reproduced except in full.
Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with *.**

Results Approved By:

Alex MacLean
Chemist

NATA
ACCREDITED FOR TECHNICAL COMPETENCE

Client Reference: E26029KP, Gladesville

Metals in TCLP USEPA1311 Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- ---------- 	79306-B-1 BH7 0.1-0.3 24/09/2012 Soil
Date extracted	-	03/10/2012
Date analysed	-	03/10/2012
pH of soil for fluid# determ.	pH units	10.0
pH of soil for fluid # determ. (acid)	pH units	1.6
Extraction fluid used	-	1
pH of final Leachate	pH units	5.1
Nickel in TCLP	mg/L	0.09

Client Reference: E26029KP, Gladesville

Method ID	Methodology Summary
Inorg-004	Toxicity Characteristic Leaching Procedure (TCLP) using AS 4439 and USEPA 1311.
EXTRACT.7	Toxicity Characteristic Leaching Procedure (TCLP).
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA 22nd ED, 4500-H+.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.

Client Reference: E26029KP, Gladesville

QUALITY CONTROL Metals in TCLP USEPA1311	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base || Duplicate || %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			04/10/2012	79306-B-1	03/10/2012 || 03/10/2012	LCS-W1	04/10/2012
Date analysed	-			04/10/2012	79306-B-1	03/10/2012 || 03/10/2012	LCS-W1	04/10/2012
Nickel in TCLP	mg/L	0.02	Metals-020 ICP-AES	<0.02	79306-B-1	0.09 || 0.09 || RPD: 0	LCS-W1	96%

Client Reference: **E26029KP, Gladesville**

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
NA: 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 batched of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.
Matrix Spikes and LCS: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable.

Aileen Hie

From: Brendan Page [bpage@jkgroup.net.au]
Sent: Tuesday, 2 October 2012 7:26 AM
To: Aileen Hie
Subject: Additional Analysis 79306 (E26029KP, Gladesville)

Hi Aileen,

Could you please arrange for the following additional analysis to be undertaken on the soil sample in Envirolabs custody:

79306-1 (BH7 0.1-0.3), TCLP (acid prep) nickel

Standard TAT. Cheers ☺

Regards,

Brendan Page
Senior Environmental Scientist

EIS Environmental Investigation Services
CONSULTING ENVIRONMENTAL ENGINEERS AND SCIENTISTS
Tel: 02 9888 5000 PO Box 976 115 Wicks Road
Fax: 02 9888 5001 North Ryde BC NSW 1670 Macquarie Park NSW 2113
bpage@jkgroup.net.au
www.jkgeotechnics.com.au

Envirolab Ref: 79306 B
Due: 9/10/12
std TAT.

APPENDIX C1

Site History Documents – Groundwater Bore Records

17/09/2012 Print Map

E26029KP, Gladesville

Map created with NSW Natural Resource Atlas - http://www.nratlas.nsw.gov.au
Monday, September 17, 2012

0 2 Km

Legend

Symbol	Layer	Custodian
	Groundwater Bores	
	Cities and large towns renderImage: Cannot build image from features	
	Primary/arterial road Motorway/freeway Railway Runway Contour Background	Topographic base map
	Towns	
	Major rivers	

Groundwater Works Summary

For information on the meaning of fields please see Glossary
Document Generated on Monday, September 17, 2012

Print Report

Works Details Site Details Form A Licensed Construction Water Bearing Zones Drillers Log

Work Requested -- GW108366

Works Details (top)

GROUNDWATER NUMBER	GW108366
LIC-NUM	10BL164948
AUTHORISED-PURPOSES	MONITORING BORE
INTENDED-PURPOSES	
WORK-TYPE	Bore
WORK-STATUS	
CONSTRUCTION-METHOD	
OWNER-TYPE	
COMMENCE-DATE	
COMPLETION-DATE	2007-09-10
FINAL-DEPTH (metres)	
DRILLED-DEPTH (metres)	
CONTRACTOR-NAME	
DRILLER-NAME	
PROPERTY	MOBIL
GWMA	-
GW-ZONE	-
STANDING-WATER-LEVEL	
SALINITY	
YIELD	

Site Details (top)

REGION	10 - SYDNEY SOUTH COAST
RIVER-BASIN	
AREA-DISTRICT	
CMA-MAP	
GRID-ZONE	
SCALE	
ELEVATION	
ELEVATION-SOURCE	
NORTHING	6255726.00
EASTING	326481.00
LATITUDE	33 49' 28"

LONGITUDE	151 7' 30"
GS-MAP	
AMG-ZONE	56
COORD-SOURCE	
REMARK	

Form-A (top)

COUNTY	CUMBERLAND
PARISH	HUNTERS HILL
PORTION-LOT-DP	100 771721

Licensed (top)

COUNTY	CUMBERLAND
PARISH	HUNTERS HILL
PORTION-LOT-DP	100 771721

Water Bearing Zones (top)

no details

Drillers Log (top)

no details

Groundwater Works Summary

For information on the meaning of fields please see Glossary
Document Generated on Monday, September 17, 2012

Print Report

Works Details Site Details Form A Licensed Construction Water Bearing Zones Drillers Log

Work Requested -- GW109573

Works Details (top)

GROUNDWATER NUMBER	GW109573
LIC-NUM	10BL163662
AUTHORISED-PURPOSES	MONITORING BORE
INTENDED-PURPOSES	MONITORING BORE
WORK-TYPE	Bore
WORK-STATUS	
CONSTRUCTION-METHOD	Hand Auger
OWNER-TYPE	Private
COMMENCE-DATE	
COMPLETION-DATE	2002-11-04
FINAL-DEPTH (metres)	8.10
DRILLED-DEPTH (metres)	8.10
CONTRACTOR-NAME	
DRILLER-NAME	
PROPERTY	MOBIL OIL
GWMA	-
GW-ZONE	-
STANDING-WATER-LEVEL	4.47
SALINITY	
YIELD	

Site Details (top)

REGION	10 - SYDNEY SOUTH COAST
RIVER-BASIN	
AREA-DISTRICT	
CMA-MAP	
GRID-ZONE	
SCALE	
ELEVATION	
ELEVATION-SOURCE	
NORTHING	6255461.00
EASTING	326573.00
LATITUDE	33 49' 37"

LONGITUDE	151 7' 33"
GS-MAP	
AMG-ZONE	56
COORD-SOURCE	
REMARK	

Form-A (top)

COUNTY	CUMBERLAND
PARISH	HUNTERS HILL
PORTION-LOT-DP	100//771721

Licensed (top)

COUNTY	CUMBERLAND
PARISH	HUNTERS HILL
PORTION-LOT-DP	100 771721

Construction (top)

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;
ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

HOLE-NO	PIPE-NO	COMPONENT-CODE	COMPONENT-TYPE	DEPTH-FROM (metres)	DEPTH-TO (metres)	OD (mm)	ID (mm)	INTERVAL	DETAIL
1		Hole	Hole	0.00	8.10	120			Hand Auger
1	1	Casing	P.V.C.	0.00	0.00	50			

Water Bearing Zones (top)

no details

Drillers Log (top)

FROM	TO	THICKNESS	DESC	GEO-MATERIAL	COMMENT
0.00	2.20	2.20	FILL		
2.20	4.00	1.80	CLAY		
4.00	5.00	1.00	SHALE		
5.00	8.10	3.10	SHALE VERY HARD		

Groundwater Works Summary

For information on the meaning of fields please see Glossary
Document Generated on Monday, September 17, 2012

Print Report

Works Details Site Details Form A Licensed Construction Water Bearing Zones Drillers Log

Work Requested -- GW109574

Works Details (top)

GROUNDWATER NUMBER	GW109574
LIC-NUM	10BL163662
AUTHORISED-PURPOSES	MONITORING BORE
INTENDED-PURPOSES	MONITORING BORE
WORK-TYPE	Bore
WORK-STATUS	
CONSTRUCTION-METHOD	Hand Auger
OWNER-TYPE	Private
COMMENCE-DATE	
COMPLETION-DATE	2002-11-04
FINAL-DEPTH (metres)	9.00
DRILLED-DEPTH (metres)	9.00
CONTRACTOR-NAME	
DRILLER-NAME	
PROPERTY	MOBIL OIL
GWMA	-
GW-ZONE	-
STANDING-WATER-LEVEL	4.28
SALINITY	
YIELD	

Site Details (top)

REGION	10 - SYDNEY SOUTH COAST
RIVER-BASIN	
AREA-DISTRICT	
CMA-MAP	
GRID-ZONE	
SCALE	
ELEVATION	
ELEVATION-SOURCE	
NORTHING	6255464.00
EASTING	326565.00
LATITUDE	33 49' 37"

LONGITUDE	151 7' 33"
GS-MAP	
AMG-ZONE	56
COORD-SOURCE	
REMARK	

Form-A (top)

COUNTY	CUMBERLAND
PARISH	HUNTERS HILL
PORTION-LOT-DP	100//771721

Licensed (top)

COUNTY	CUMBERLAND
PARISH	HUNTERS HILL
PORTION-LOT-DP	100 771721

Construction (top)

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;
ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

HOLE-NO	PIPE-NO	COMPONENT-CODE	COMPONENT-TYPE	DEPTH-FROM (metres)	DEPTH-TO (metres)	OD (mm)	ID (mm)	INTERVAL	DETAIL
1		Hole	Hole	0.00	9.00	120			Hand Auger
1	1	Casing	P.V.C.	0.00	0.00	50			

Water Bearing Zones (top)

no details

Drillers Log (top)

FROM	TO	THICKNESS	DESC	GEO-MATERIAL	COMMENT
0.00	0.60	0.60	FILL		
0.60	1.10	0.50	FILL,CLAY		
1.10	1.40	0.30	FILL,SAND		
1.40	2.00	0.60	CLAY		
2.00	2.90	0.90	CLAY L/BROWN		
2.90	7.00	4.10	SHALE		
7.00	9.00	2.00	SHALE DARK GREY		

(DIPNR) by drillers, licensees and other sources. The DIPNR does not verify the accuracy of this data. The data is presented for use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.

Groundwater Works Summary

For information on the meaning of fields please see Glossary
Document Generated on Monday, September 17, 2012

Print Report

Works Details Site Details Form A Licensed Construction Water Bearing Zones Drillers Log

Work Requested -- GW109575

Works Details (top)

GROUNDWATER NUMBER	GW109575
LIC-NUM	10BL163662
AUTHORISED-PURPOSES	MONITORING BORE
INTENDED-PURPOSES	MONITORING BORE
WORK-TYPE	Bore
WORK-STATUS	
CONSTRUCTION-METHOD	Hand Auger
OWNER-TYPE	Private
COMMENCE-DATE	
COMPLETION-DATE	2002-11-05
FINAL-DEPTH (metres)	7.50
DRILLED-DEPTH (metres)	7.50
CONTRACTOR-NAME	
DRILLER-NAME	
PROPERTY	MOBIL OIL
GWMA	-
GW-ZONE	-
STANDING-WATER-LEVEL	3.23
SALINITY	
YIELD	

Site Details (top)

REGION	10 - SYDNEY SOUTH COAST
RIVER-BASIN	
AREA-DISTRICT	
CMA-MAP	
GRID-ZONE	
SCALE	
ELEVATION	
ELEVATION-SOURCE	
NORTHING	6255449.00
EASTING	326581.00
LATITUDE	33 49' 37"

LONGITUDE	151 7' 34"
GS-MAP	
AMG-ZONE	56
COORD-SOURCE	
REMARK	

Form-A (top)

COUNTY	CUMBERLAND
PARISH	HUNTERS HILL
PORTION-LOT-DP	100//771721

Licensed (top)

COUNTY	CUMBERLAND
PARISH	HUNTERS HILL
PORTION-LOT-DP	100 771721

Construction (top)

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;
ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

HOLE-NO	PIPE-NO	COMPONENT-CODE	COMPONENT-TYPE	DEPTH-FROM (metres)	DEPTH-TO (metres)	OD (mm)	ID (mm)	INTERVAL	DETAIL
1		Hole	Hole	0.00	7.50	120			Hand Auger
1	1	Casing	P.V.C.	0.00	0.00	120			

Water Bearing Zones (top)

no details

Drillers Log (top)

FROM	TO	THICKNESS	DESC	GEO-MATERIAL	COMMENT
0.00	0.90	0.90	FILL		
0.90	1.10	0.20	CLAY,SILTY,BROWN		
1.10	2.00	0.90	CLAY SANDY ORANGE		
2.00	5.50	3.50	SHALE,BROWN		
5.50	7.50	2.00	SHALE,WEATHERED, GREY,HARD		

Groundwater Works Summary

For information on the meaning of fields please see Glossary
Document Generated on Monday, September 17, 2012

Print Report

Works Details Site Details Form A Licensed Construction Water Bearing Zones Drillers Log

Work Requested -- GW109576

Works Details (top)

GROUNDWATER NUMBER	GW109576
LIC-NUM	10BL163662
AUTHORISED-PURPOSES	MONITORING BORE
INTENDED-PURPOSES	MONITORING BORE
WORK-TYPE	Bore
WORK-STATUS	
CONSTRUCTION-METHOD	Hand Auger
OWNER-TYPE	Private
COMMENCE-DATE	
COMPLETION-DATE	2002-11-05
FINAL-DEPTH (metres)	8.10
DRILLED-DEPTH (metres)	8.10
CONTRACTOR-NAME	
DRILLER-NAME	
PROPERTY	MOBIL OIL
GWMA	-
GW-ZONE	-
STANDING-WATER-LEVEL	3.51
SALINITY	
YIELD	

Site Details (top)

REGION	10 - SYDNEY SOUTH COAST
RIVER-BASIN	
AREA-DISTRICT	
CMA-MAP	
GRID-ZONE	
SCALE	
ELEVATION	
ELEVATION-SOURCE	
NORTHING	6255472.00
EASTING	326573.00
LATITUDE	33 49' 36"

LONGITUDE	151 7' 33"
GS-MAP	
AMG-ZONE	56
COORD-SOURCE	
REMARK	

Form-A (top)

COUNTY	CUMBERLAND
PARISH	HUNTERS HILL
PORTION-LOT-DP	100//771721

Licensed (top)

COUNTY	CUMBERLAND
PARISH	HUNTERS HILL
PORTION-LOT-DP	100 771721

Construction (top)

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;
ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

HOLE-NO	PIPE-NO	COMPONENT-CODE	COMPONENT-TYPE	DEPTH-FROM (metres)	DEPTH-TO (metres)	OD (mm)	ID (mm)	INTERVAL	DETAIL
1		Hole	Hole	0.00	8.10	120			Hand Auger
1	1	Casing	P.V.C.	0.00	0.00	50			

Water Bearing Zones (top)

no details

Drillers Log (top)

FROM	TO	THICKNESS	DESC	GEO-MATERIAL	COMMENT
0.00	0.50	0.50	FILL		
0.50	1.20	0.70	CLAY		
1.20	3.00	1.80	CLAY,SANDY,WEATHERED,GREY BROWN		
3.00	6.00	3.00	SHALE,BROWN,DRY,SOFT		
6.00	8.10	2.10	SHALE DARK GREY,SOFT		

Groundwater Works Summary

For information on the meaning of fields please see Glossary
Document Generated on Monday, September 17, 2012

Print Report

Works Details Site Details Form A Licensed Construction Water Bearing Zones Drillers Log

Work Requested -- GW108361

Works Details (top)

GROUNDWATER NUMBER	GW108361
LIC-NUM	10BL164948
AUTHORISED-PURPOSES	MONITORING BORE
INTENDED-PURPOSES	MONITORING BORE
WORK-TYPE	Bore
WORK-STATUS	
CONSTRUCTION-METHOD	
OWNER-TYPE	
COMMENCE-DATE	
COMPLETION-DATE	2005-03-01
FINAL-DEPTH (metres)	6.00
DRILLED-DEPTH (metres)	
CONTRACTOR-NAME	
DRILLER-NAME	
PROPERTY	MOBIL
GWMA	-
GW-ZONE	-
STANDING-WATER-LEVEL	
SALINITY	
YIELD	

Site Details (top)

REGION	10 - SYDNEY SOUTH COAST
RIVER-BASIN	
AREA-DISTRICT	
CMA-MAP	
GRID-ZONE	
SCALE	
ELEVATION	
ELEVATION-SOURCE	
NORTHING	6255255.00
EASTING	326467.00
LATITUDE	33 49' 43"

LONGITUDE	151 7' 29"
GS-MAP	
AMG-ZONE	56
COORD-SOURCE	
REMARK	

Form-A (top)

COUNTY	CUMBERLAND
PARISH	HUNTERS HILL
PORTION-LOT-DP	100 771721

Licensed (top)

COUNTY	CUMBERLAND
PARISH	HUNTERS HILL
PORTION-LOT-DP	100 771721

Construction (top)

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;
ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

HOLE-NO	PIPE-NO	COMPONENT-CODE	COMPONENT-TYPE	DEPTH-FROM (metres)	DEPTH-TO (metres)	OD (mm)	ID (mm)	INTERVAL	DETAIL
1		Hole	Hole	0.00	6.00	150			Hand Auger

Water Bearing Zones (top)

no details

Drillers Log (top)

no details

Warning To Clients: This raw data has been supplied to the Department of Infrastructure, Planning and Natural Resources (DIPNR) by drillers, licensees and other sources. The DIPNR does not verify the accuracy of this data. The data is presented for use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.

Groundwater Works Summary

For information on the meaning of fields please see Glossary
Document Generated on Monday, September 17, 2012

Print Report

Works Details Site Details Form A Licensed Construction Water Bearing Zones Drillers Log

Work Requested -- GW108362

Works Details (top)

GROUNDWATER NUMBER	GW108362
LIC-NUM	10BL164948
AUTHORISED-PURPOSES	MONITORING BORE
INTENDED-PURPOSES	
WORK-TYPE	Bore
WORK-STATUS	
CONSTRUCTION-METHOD	
OWNER-TYPE	
COMMENCE-DATE	
COMPLETION-DATE	2007-09-10
FINAL-DEPTH (metres)	
DRILLED-DEPTH (metres)	
CONTRACTOR-NAME	
DRILLER-NAME	
PROPERTY	MOBIL
GWMA	-
GW-ZONE	-
STANDING-WATER-LEVEL	
SALINITY	
YIELD	

Site Details (top)

REGION	10 - SYDNEY SOUTH COAST
RIVER-BASIN	
AREA-DISTRICT	
CMA-MAP	
GRID-ZONE	
SCALE	
ELEVATION	
ELEVATION-SOURCE	
NORTHING	6255267.00
EASTING	326464.00
LATITUDE	33 49' 43"

LONGITUDE	151 7' 29"
GS-MAP	
AMG-ZONE	56
COORD-SOURCE	
REMARK	

Form-A (top)

COUNTY	CUMBERLAND
PARISH	HUNTERS HILL
PORTION-LOT-DP	100 771721

Licensed (top)

COUNTY	CUMBERLAND
PARISH	HUNTERS HILL
PORTION-LOT-DP	100 771721

Water Bearing Zones (top)

no details

Drillers Log (top)

no details

Groundwater Works Summary

For information on the meaning of fields please see Glossary
Document Generated on Monday, September 17, 2012

Print Report

Works Details Site Details Form A Licensed Construction Water Bearing Zones Drillers Log

Work Requested -- GW108363

Works Details (top)

GROUNDWATER NUMBER	GW108363
LIC-NUM	10BL164948
AUTHORISED-PURPOSES	MONITORING BORE
INTENDED-PURPOSES	
WORK-TYPE	Bore
WORK-STATUS	
CONSTRUCTION-METHOD	
OWNER-TYPE	
COMMENCE-DATE	
COMPLETION-DATE	2007-09-10
FINAL-DEPTH (metres)	
DRILLED-DEPTH (metres)	
CONTRACTOR-NAME	
DRILLER-NAME	
PROPERTY	MOBIL
GWMA	-
GW-ZONE	-
STANDING-WATER-LEVEL	
SALINITY	
YIELD	

Site Details (top)

REGION	10 - SYDNEY SOUTH COAST
RIVER-BASIN	
AREA-DISTRICT	
CMA-MAP	
GRID-ZONE	
SCALE	
ELEVATION	
ELEVATION-SOURCE	
NORTHING	6255282.00
EASTING	326462.00
LATITUDE	33 49' 42"

LONGITUDE	151 7' 29"
GS-MAP	
AMG-ZONE	56
COORD-SOURCE	
REMARK	

Form-A (top)

COUNTY	CUMBERLAND
PARISH	HUNTERS HILL
PORTION-LOT-DP	100 771721

Licensed (top)

COUNTY	CUMBERLAND
PARISH	HUNTERS HILL
PORTION-LOT-DP	100 771721

Water Bearing Zones (top)

no details

Drillers Log (top)

no details

Groundwater Works Summary

For information on the meaning of fields please see Glossary
Document Generated on Monday, September 17, 2012

Print Report

Works Details Site Details Form A Licensed Construction Water Bearing Zones Drillers Log

Work Requested -- GW108364

Works Details (top)

GROUNDWATER NUMBER	GW108364
LIC-NUM	10BL164948
AUTHORISED-PURPOSES	MONITORING BORE
INTENDED-PURPOSES	
WORK-TYPE	Bore
WORK-STATUS	
CONSTRUCTION-METHOD	
OWNER-TYPE	
COMMENCE-DATE	
COMPLETION-DATE	2007-09-10
FINAL-DEPTH (metres)	
DRILLED-DEPTH (metres)	
CONTRACTOR-NAME	
DRILLER-NAME	
PROPERTY	MOBIL
GWMA	-
GW-ZONE	-
STANDING-WATER-LEVEL	
SALINITY	
YIELD	

Site Details (top)

REGION	10 - SYDNEY SOUTH COAST
RIVER-BASIN	
AREA-DISTRICT	
CMA-MAP	
GRID-ZONE	
SCALE	
ELEVATION	
ELEVATION-SOURCE	
NORTHING	6255253.00
EASTING	326480.00
LATITUDE	33 49' 43"

LONGITUDE	151 7' 30"
GS-MAP	
AMG-ZONE	56
COORD-SOURCE	
REMARK	

Form-A (top)

COUNTY	CUMBERLAND
PARISH	HUNTERS HILL
PORTION-LOT-DP	100 771721

Licensed (top)

COUNTY	CUMBERLAND
PARISH	HUNTERS HILL
PORTION-LOT-DP	100 771721

Water Bearing Zones (top)

no details

Drillers Log (top)

no details

Groundwater Works Summary

For information on the meaning of fields please see Glossary
Document Generated on Monday, September 17, 2012

Print Report

Works Details Site Details Form A Licensed Construction Water Bearing Zones Drillers Log

Work Requested -- GW108365

Works Details (top)

GROUNDWATER NUMBER	GW108365
LIC-NUM	10BL164948
AUTHORISED-PURPOSES	MONITORING BORE
INTENDED-PURPOSES	
WORK-TYPE	Bore
WORK-STATUS	
CONSTRUCTION-METHOD	
OWNER-TYPE	
COMMENCE-DATE	
COMPLETION-DATE	2007-09-10
FINAL-DEPTH (metres)	
DRILLED-DEPTH (metres)	
CONTRACTOR-NAME	
DRILLER-NAME	
PROPERTY	MOBIL
GWMA	-
GW-ZONE	-
STANDING-WATER-LEVEL	
SALINITY	
YIELD	

Site Details (top)

REGION	10 - SYDNEY SOUTH COAST
RIVER-BASIN	
AREA-DISTRICT	
CMA-MAP	
GRID-ZONE	
SCALE	
ELEVATION	
ELEVATION-SOURCE	
NORTHING	6255264.00
EASTING	326483.00
LATITUDE	33 49' 43"

LONGITUDE	151 7' 30"
GS-MAP	
AMG-ZONE	56
COORD-SOURCE	
REMARK	

Form-A (top)

COUNTY	CUMBERLAND
PARISH	HUNTERS HILL
PORTION-LOT-DP	100 771721

Licensed (top)

COUNTY	CUMBERLAND
PARISH	HUNTERS HILL
PORTION-LOT-DP	100 771721

Water Bearing Zones (top)

no details

Drillers Log (top)

no details

Groundwater Works Summary

For information on the meaning of fields please see Glossary
Document Generated on Monday, September 17, 2012

Print Report

Works Details Site Details Form A Licensed Construction Water Bearing Zones Drillers Log

Work Requested -- GW108367

Works Details (top)

GROUNDWATER NUMBER	GW108367
LIC-NUM	10BL164948
AUTHORISED-PURPOSES	MONITORING BORE
INTENDED-PURPOSES	
WORK-TYPE	Bore
WORK-STATUS	
CONSTRUCTION-METHOD	
OWNER-TYPE	
COMMENCE-DATE	
COMPLETION-DATE	2007-09-10
FINAL-DEPTH (metres)	
DRILLED-DEPTH (metres)	
CONTRACTOR-NAME	
DRILLER-NAME	
PROPERTY	MOBIL
GWMA	-
GW-ZONE	-
STANDING-WATER-LEVEL	
SALINITY	
YIELD	

Site Details (top)

REGION	10 - SYDNEY SOUTH COAST
RIVER-BASIN	
AREA-DISTRICT	
CMA-MAP	
GRID-ZONE	
SCALE	
ELEVATION	
ELEVATION-SOURCE	
NORTHING	6255288.00
EASTING	326480.00
LATITUDE	33 49' 42"

LONGITUDE	151 7' 30"
GS-MAP	
AMG-ZONE	56
COORD-SOURCE	
REMARK	

Form-A (top)

COUNTY	CUMBERLAND
PARISH	HUNTERS HILL
PORTION-LOT-DP	100 771721

Licensed (top)

COUNTY	CUMBERLAND
PARISH	HUNTERS HILL
PORTION-LOT-DP	100 771721

Water Bearing Zones (top)

no details

Drillers Log (top)

no details

APPENDIX C2

Site History Documents – Historical Land Title Records

BP

20 SEP 2012

ADVANCE LEGAL SEARCHERS PTY LTD

(ACN 147 943 842)
ABN 82 147 943 842

P.O. Box 149
Yagoona NSW 2199

Telephone: +612 9754 1590
Mobile: 0412 169 809
Facsimile: +612 9754 1364
Email: alsearch@optusnet.com.au

18th September, 2012

ENVIRONMENTAL INVESTIGATION SERVICES
PO BOX 976,
NORTH RYDE BC NSW 1670

Attention: Brendan Page,

RE: **2 – 12 Tennyson Road,**
Gladesville
EIS Job Number E26029KP

Current Search

Folio Identifier 2/549570 (title attached)
DP 549570 (plans attached)
Dated 14th September, 2012
Registered Proprietor:
FICIXA PTY LIMITED

Title Tree
Lot 2 DP 549570

Folio Identifier 2/549570

Certificate of Title Volume 11700 Folio 43

Certificate of Title Volume 6977 Folio 139

Certificate of Title Volume 5967 Folio 156

Certificate of Title Volume 5867 Folio 157

Certificate of Title Volume 4609 Folio 119

Certificate of Title Volume 3160 Folio 152

Certificate of Title Volume 2638 Folio 76

Certificate of Title Volume 1648 Folio 164

****

Summary of proprietor(s)
Lot 2 DP 549570

Year	Proprietor
	(Lot 2 DP 549570)
1993 – todate	Ficixa Pty Limited
1988 – 1993	Home Yardage Pty Limited
(1988 – todate)	*(various commercial leases see Folio Identifier 2/549570)*
	(Lot 2 DP 549570 – CTVol 11700 Fol 43)
1984 – 1988	Home Yardage Pty Limited
(1973 – 1988)	*(lease to Sydney County Council of part)*
1971 – 1984	Australian Consolidated Press Limited
1971 – 1971	Rota Gota Pty Limited
(1971 – 1973)	*(lease to Sydney County Council of substation Premises No 2628)*
	(Lot B DP 391095 – Area 5 Acres 3 Roods 17 ½ Perches – CTVol 6977 Fol 139)
1967 – 1971	Rota Gota Pty Limited
(1968 – 1971)	*(lease to Sydney County Council of substation Premises No 2628)*
1958 – 1967	The British United Shoe Machinery Company of Australia Proprietary Limited
	(Part Portion 130 Parish Hunters Hill – Area 10 Acres 3 Roods 9 Perches – CTVol 5967 Fol 156)
1949 – 1958	The British United Shoe Machinery Company of Australia Proprietary Limited
	(Part Portion 130 Parish Hunters Hill – Area 10 Acres 3 Roods 12 Perches – CTVol 5867 Fol 157)
1948 – 1949	The British United Shoe Machinery Company of Australia Proprietary Limited
	(Part Portion 130 Parish Hunters Hill and other lands – Area 13 Acres 3 Roods 23 ¼ Perches – CTVol 4609 Fol 119)
1947 – 1948	The British United Shoe Machinery Company of Australia Proprietary Limited
1937 – 1947	Brickworks Limited *(formerly Brickworks Pty Limited)*
1934 – 1937	Moorview Brick Co Limited
	(Part Portion 130 Parish Hunters Hill and other lands – Area 14 Acres 0 Roods 32 Perches – CTVol 3160 Fol 152)
1921 – 1937	Moorview Brick Co Limited
1921 – 1921	John Symonds, engineer & contractor

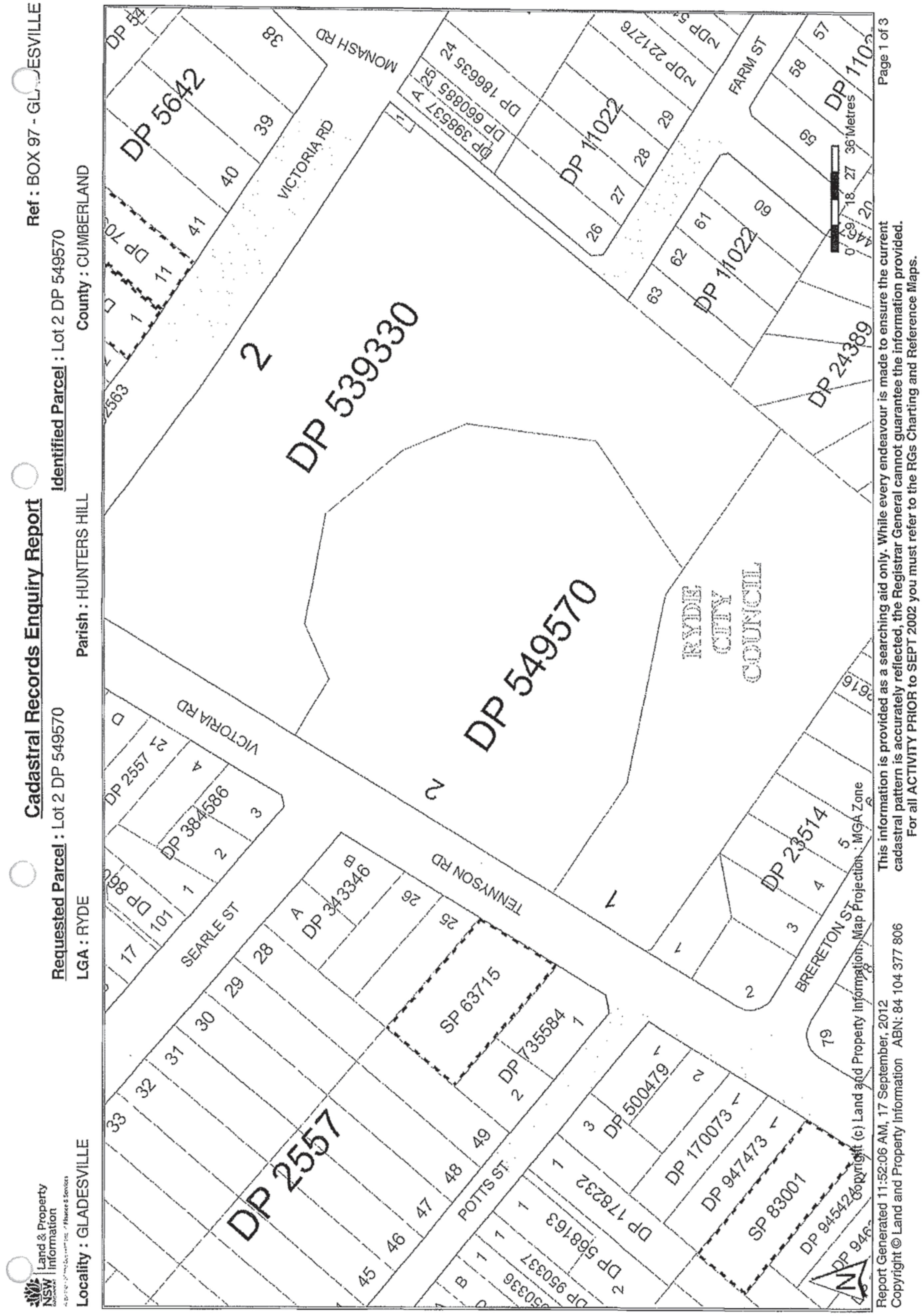
Cont:

-4-

Cont:

	(Part Portion 130 Parish Hunters Hill and other lands – Area 13 Acres 3 Roods 14 ¾ Perches – CTVol 2638 Fol 76)
1916 – 1921	John Symonds, engineer & contractor
	(Part Portion 130 Parish Hunters Hill – Area 15 Acres 2 Roods 27 ¼ Perches – CTVol 1648 Fol 164)
1905 – 1916	Walket Thomas Way, pastry cook

****


Cadastral Records Enquiry Report
Ref : BOX 97 - GLADESVILLE
Requested Parcel : Lot 2 DP 549570
Identified Parcel : Lot 2 DP 549570
Locality : GLADESVILLE
LGA : RYDE
Parish : HUNTERS HILL
County : CUMBERLAND
DP 539330
DP 549570
DP 5642
DP 2557
DP 384586
DP 343346
SP 63715
DP 735584
DP 500479
DP 170073
DP 947473
SP 83001
DP 178232
DP 568163
DP 23514
DP 24389
DP 11022
DP 398537
DP 660885
DP 186635
DP 22176
VICTORIA RD
TENNYSON RD
SEARLE ST
POTTS ST
BRERETON ST
MONASH RD
FARM ST
RYDE CITY COUNCIL
This information is provided as a searching aid only. While every endeavour is made to ensure the current cadastral pattern is accurately reflected, the Registrar General cannot guarantee the information provided.
For all ACTIVITY PRIOR to SEPT 2002 you must refer to the RGs Charting and Reference Maps.
Report Generated 11:52:06 AM, 17 September, 2012
Copyright © Land and Property Information ABN: 84 104 377 806
Copyright (c) Land and Property Information. Map Projection : MGA Zone
Page 1 of 3

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: 2/549570

SEARCH DATE	TIME	EDITION NO	DATE
14/9/2012	1:47 PM	6	29/6/2012

LAND

LOT 2 IN DEPOSITED PLAN 549570
AT GLADESVILLE
LOCAL GOVERNMENT AREA RYDE
PARISH OF HUNTERS HILL COUNTY OF CUMBERLAND
TITLE DIAGRAM DP549570

FIRST SCHEDULE

FICIXA PTY LIMITED (T I319473)

SECOND SCHEDULE (12 NOTIFICATIONS)

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
2 DP549570 EASEMENT TO DRAIN WATER APPURTENANT TO THE LAND ABOVE DESCRIBED
3 DP549570 EASEMENT TO DRAIN SEWAGE APPURTENANT TO THE LAND ABOVE DESCRIBED
4 M533134 COVENANT
5 N525570 LEASE TO THE SYDNEY COUNTY COUNCIL OF PART TOGETHER WITH RIGHTS. EXPIRES: 5/9/2023.
6 T314281 RIGHT OF FOOTWAY AFFECTING THE LAND SHOWN SO BURDENED IN THE PLAN WITH T314281
7 AE407138 LEASE TO GEL WORKS PTY LTD OF WAREHOUSE A, 2-12 TENNYSON ROAD, GLADESVILLE. EXPIRES: 30/11/2011. OPTION OF RENEWAL: 3 YEARS.
8 AE407139 LEASE TO AMARCO ENTERPRISES PTY LTD OF WAREHOUSE 2, 2-12 TENNYSON ROAD, GLADESVILLE. EXPIRES: 30/11/2013. OPTION OF RENEWAL: 5 YEARS.
9 AF782325 LEASE TO GH PACKAGING INTERNATIONAL PTY LTD OF WAREHOUSE 3, 2-12 TENNYSON ROAD, GLADESVILLE. EXPIRES: 14/8/2014. OPTION OF RENEWAL: 4 YEARS.
10 AG290124 LEASE TO YOUTHSAFE LIMITED OF PREMISES KNOWN AS GROUND FLOOR SUITE 1, STORAGE AREA 1 AND CAR PARKING SPACES NUMBERED 5 TO 8, 2-12 TENNYSON ROAD, GLADESVILLE. EXPIRES: 19/1/2015. OPTION OF RENEWAL: 1 YEAR.
11 AG290125 LEASE TO ASSETLINK SERVICES PTY LTD OF THE WHOLE OF LEVEL 1 AND PREMISES KNOWN AS GROUND FLOOR SUITE 2 AND STORAGE AREA 2 , 2-12 TENNYSON ROAD, GLADESVILLE. EXPIRES: 14/2/2016. OPTION OF RENEWAL: 2 YEARS WITH 1 FURTHER PERIOD OF 2 YEARS.

END OF PAGE 1 - CONTINUED OVER

EIS - Gladesville PRINTED ON 14/9/2012

*ANY ENTRIES PRECEDED BY AN ASTERISK DO NOT APPEAR ON THE CURRENT EDITION OF THE CERTIFICATE OF TITLE. WARNING: THE INFORMATION APPEARING UNDER NOTATIONS HAS NOT BEEN FORMALLY RECORDED IN THE REGISTER.

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: 2/549570 PAGE 2

SECOND SCHEDULE (12 NOTIFICATIONS) (CONTINUED)

12 AG547380 LEASE TO SPRINGFREE TRAMPOLINE AUST PTY LTD OF WAREHOUSE 4, 2-12 TENNYSON ROAD, GLADESVILLE TOGETHER WITH CAR SPACES NUMBERED 1 TO 4. EXPIRES: 31/8/2015. OPTION OF RENEWAL: 4 YEARS.

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE
14/9/2012 1:48PM

FOLIO: 2/549570

First Title(s): SEE PRIOR TITLE(S)
Prior Title(s): VOL 11700 FOL 43

Recorded	Number	Type of Instrument	C.T. Issue
28/3/1988		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
17/8/1988		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
11/5/1993	I319472	DISCHARGE OF MORTGAGE	
11/5/1993	I319473	TRANSFER	
11/5/1993	I319474	MORTGAGE	EDITION 1
2/10/2003	AA32567	DISCHARGE OF MORTGAGE	
2/10/2003	AA32568	MORTGAGE	EDITION 2
29/5/2008	AD987799	DISCHARGE OF MORTGAGE	EDITION 3
22/12/2008	AE407138	LEASE	
22/12/2008	AE407139	LEASE	EDITION 4
27/9/2010	AF782325	LEASE	EDITION 5
28/9/2010	AF784265	DEPARTMENTAL DEALING	
29/6/2012	AG290124	LEASE	
29/6/2012	AG290125	LEASE	
29/6/2012	AG547380	LEASE	EDITION 6

*** END OF SEARCH ***

EIS - Gladesville PRINTED ON 14/9/2012

CERTIFICATE OF TITLE

NEW SOUTH WALES — REAL PROPERTY ACT, 1900

Appln. No. 13891

Prior Title Vol. 6977 Fol. 139

11700 43
Vol. Fol.

Edition issued 3-11-1971

(Page 1) Vol. 11700 Fol. 43

I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown in the Second Schedule.

CANCELLED
Registrar General.

SEE AUTO FOLIO

S

ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 2 in Deposited Plan 549570 at Gladesville in the Municipality of Ryde Parish of Hunters Hill and County of Cumberland being part of Portion 130 granted to William Raven on 12-11-1799.

FIRST SCHEDULE

~~ROTA GOTA PTY. LIMITED.~~

Registrar General.

GRY

SECOND SCHEDULE

1. Reservations and conditions, if any, contained in the Crown Grant above referred to.
~~2. Mortgage No.K795810 to Bank of New South Wales. Entered 14-9-1967~~ *Discharged M533132*
~~3. Mortgage No.L771822 to Bank of New South Wales Nominees Pty. Limited. Entered 24-6-1970~~ *Discharged M533133*
~~4. Postponement of Mortgage No.L853287 whereby Mortgage No.L771822 is entitled in priority as if it had been registered before Mortgage No.K795810. Entered 24-6-1970.~~ Cancelled M533132.
~~5. Lease No.M432844 of substation premises No.2628 together with right of way and easement for electricity purposes 22 feet wide shown in the plan hereon to The Sydney County Council (with consent of Mortgagee). Entered 1-10-1971.~~ *Surrendered N525564*
~~6. Easement for underground electricity cables affecting the existing line of cables shown in the plan hereon with the land above described created by the registration of Deposited Plan 549570. See M461405.~~ *Released P14457*
~~7. Easement for electricity switchgear and cables affecting the part of the land above described shown in the plan hereon as "Easement for Electricity Switchgear and Cables" created by the registration of Deposited Plan 549570. See M461405.~~ *Released P14457*
~~8. Right of Carriageway affecting the part of the land above described 10 feet wide shown in plan hereon created by the registration of Deposited Plan 549570. See M461405.~~ *Released P14457*
~~9. Right of Carriageway affecting the part of the land above described 4 feet wide shown in plan hereon created by the registration of Deposited Plan 549570. See M461405.~~ *Released P14457*
10. Easement to Drain Water appurtenant to the land above described created by the registration of Deposited Plan 549570 See M461405.
11. Easement to Drain Sewage appurtenant to the land above described created by the registration of Deposited Plan 549570 See M461405.

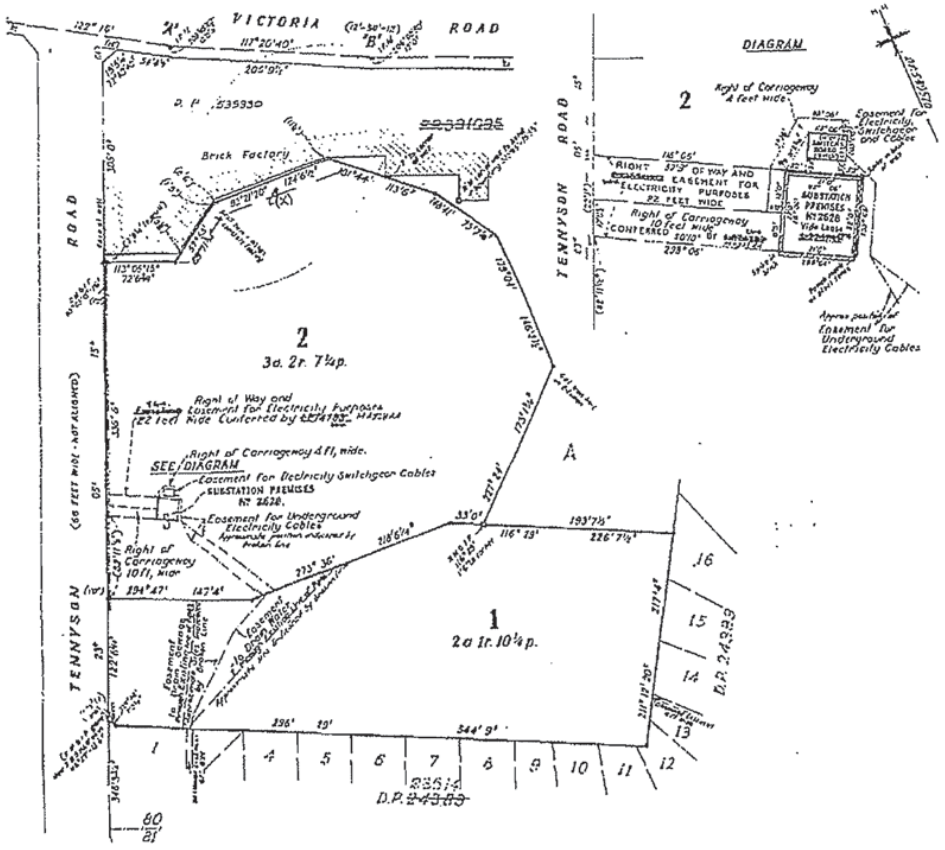
Registrar General.

PERSONS ARE CAUTIONED AGAINST ALTERING OR ADDING TO THIS CERTIFICATE OR ANY NOTIFICATION HEREON

WARNING: THIS DOCUMENT MUST NOT BE REMOVED FROM THE LAND TITLES OFFICE.

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED.

(Page 2 of 4 pages) Vol. 11700 Fol. 43



(X) RIGHT OF FOOTWAY 4 METRES WIDE - T814281

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	ENTERED	Signature of Registrar General
~~Australian Consolidated Press Limited~~	~~Transfer~~	~~M533134~~	~~26-11-1971~~	~~24-2-1972~~	[signature]
Home Yardage Pty. Limited by Transfer V367332 Registered 11-10-1984					[signature]

CANCELLED

SEE AUTO FOLIO

SECOND SCHEDULE (continued)

	INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	PARTICULARS	ENTERED	Signature of Registrar General	CANCELLATION		
CV	~~Covenant~~	M533134 P		~~Created by Transfer No M533134~~	24-2-1972	[signature]			
AA	Lease	N525570	5-9-1973	of part together with rights to the Sydney County Council	15-12-1973	[signature]			
EA	Transfer	P144578	10.9.1974	Easement for Underground Electricity Cables, Easement for Electricity [illegible] and Cables, Right of Carriageway 10 feet wide and Right of Carriageway 4 feet wide and created by registration of DP 595572 (see [illegible]) the hereby released					
RF		T314281 P		Transfer – Right of Footway affecting the land shown so burdened in the plan hereon. Registered 10.1.1983. with T314281	15-11-1982	[signature]			
				~~V96863 Caveat by Citicorp Australia Limited. Registered 26-4-1984~~		[signature]	Withdrawn	V367330	[signature]
				~~V156654 Caveat by Home Yardage Pty. Limited. Registered 29-5-1984.~~		[signature]	Withdrawn	V367331	[signature]
				~~V367333 Mortgage to Mercantile Mutual Finance Corporation Limited Registered 11-10-1984~~		[signature]	Discharged	X122710	[seal]
				~~W298181 Mortgage to Mercantile Mutual Insurance (Australia) Limited. Registered 18-6-1986.~~		[seal]	Discharged	22709	[seal]
MY		X14150 P		Mortgage to Australia and New Zealand Banking Group Limited Registered 11.8.1987					

Margin notes: M533132 – 33 – 34; CT 11-10-73; N525570 5/L; P144578 T&R; CT 27-10-82; T314281; V96863 P&X; V156654; V367330 W&X 331 W&X 332 T&R 333 M; W298181 M; X14150 M

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED

Vol. 11700 Fol. 43

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	ENTERED	Signature of Registrar General

SECOND SCHEDULE (continued)

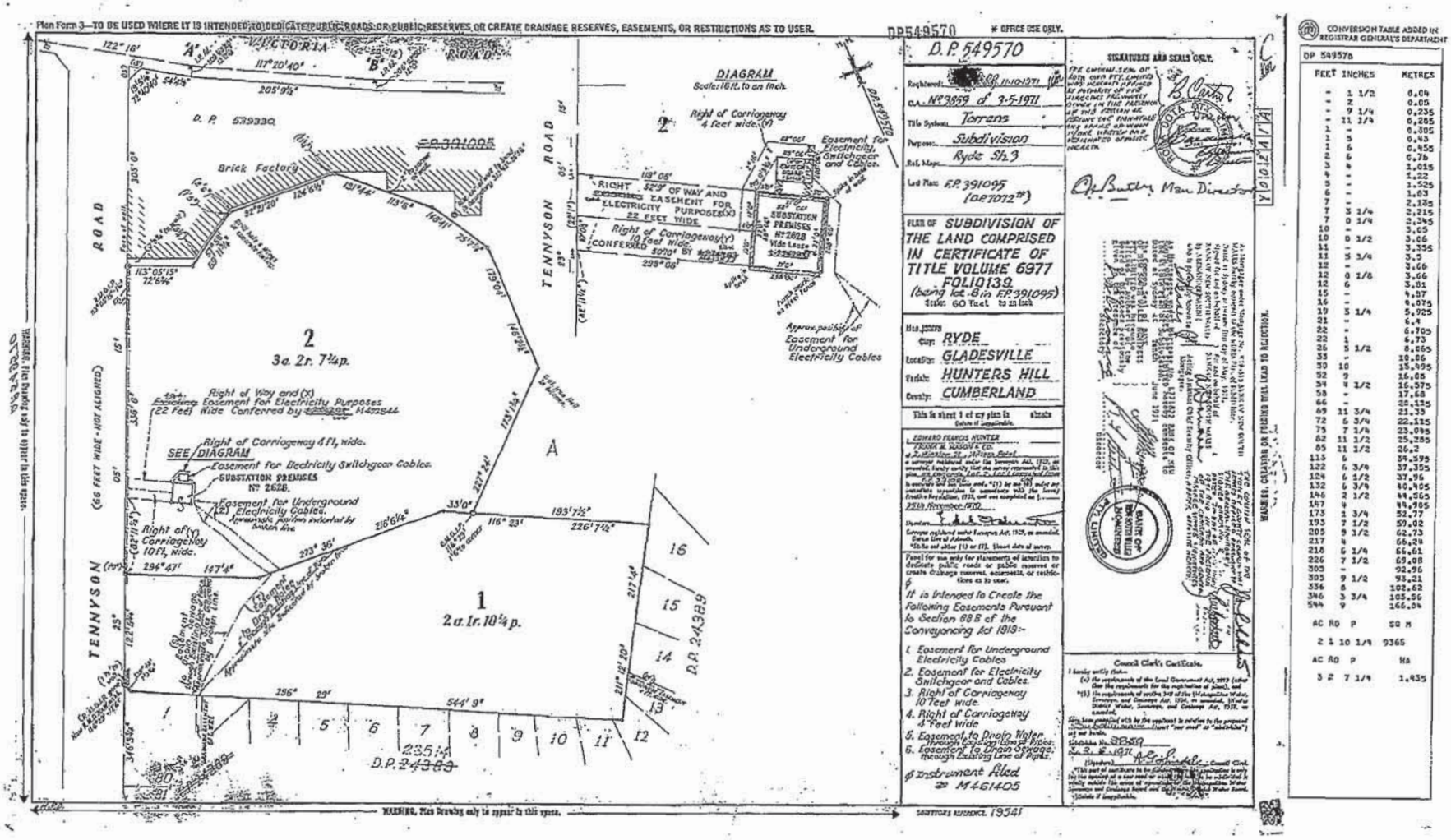
INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	PARTICULARS	ENTERED	Signature of Registrar General	CANCELLATION		

CANCELLED

SEE AUTO FOLIO

(Page 4 of 4 pages)

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED



I, Jack Hayward Watson, Registrar General for New South Wales, certify that this negative is a photograph made as a permanent record of a document in my custody this 16th day of September, 1976.

Jack Watson

APPENDIX C3

Site History Documents – Council BA/DA Records

Brendan Page

From: Tim Herridge [THerridge@ryde.nsw.gov.au]
Sent: Monday, 8 October 2012 10:41 AM
To: Brendan Page
Subject: Tennyson Road 2 to 12, response to informal request for information.

Dear Brendan

Please see the following development/building application information from our systems. I have indicated if, or in what form the information is held.

2-12 TENNYSON ROAD GLADESVILLE – APPLICATIONS LISTED AS AT 8 OCTOBER 2012:

Application number	Title (full titles as described on system)	Date Approved	Information Available
BA1981/204	Office Building A Additions	Not determined	No specific file, some information may be held in old property files.
BA1981/263	Warehouse Al Alterations	10/04/1981	No specific file, some information may be held in old property files.
BA1983/920	Office Building A Additions	01/09/1983	No specific file, some information may be held in old property files.
BA1993/41	Toys	31/03/1993	No specific file, some information may be held in old property files.
LDA2008/132	Division of warehouse into smaller tenancies	23/12/2008	Electronic records & paper files available
CDP2011/7	Fit out to an existing office	11/01/2011 (Private Certifier)	Electronic records available

Please feel free to contact me if you have any questions or require access to any of the above information held by council. We can retrieve the physical files within a few days if required and some records from the electronic files can be sent to you by email.

Regards
Tim
Tim Herridge | Information Access Officer
P: 9952 8079 | E: Therridge@ryde.nsw.gov.au | www.ryde.nsw.gov.au

From: Brendan Page [mailto:bpage@jkgroup.net.au]
Sent: Friday, 14 September 2012 10:19 AM
To: City of Ryde
Subject: TRIM: E26029KP Gladesville - Access to Council Records

Hi,

APPENDIX C4

Site History Documents – Section 149 Certificate

Locked Bag 2069, North Ryde NSW 1670
Facsimile 9952 8070
Telephone 9952 8222

City of Ryde

PLANNING CERTIFICATE UNDER SECTION 149 ENVIRONMENTAL PLANNING AND ASSESSMENT ACT, 1979

Cert No: PLN2012/2357
Date: Wednesday, 19 September 2012
Your Ref: E26029KP

Applicant: Mr Brendan Page (EIS)
PO Box 976
Macquarie Park BC NSW 1670

Property Address: 2 - 12 Tennyson Rd GLADESVILLE
Description: Lot 2 DP 549570

Property Reference: 527566
Land Reference: 30504

INFORMATION PROVIDED PURSUANT TO SECTION 149(2) OF THE ACT.

1. NAMES OF RELEVANT ENVIRONMENTAL PLANNING INSTRUMENTS AND DCPs THAT APPLY TO THE CARRYING OUT OF DEVELOPMENT ON THE LAND

a) LOCAL ENVIRONMENTAL PLAN AND DEEMED ENVIRONMENTAL PLANNING INSTRUMENTS
Ryde Local Environmental Plan No. 2010

b) DRAFT LOCAL ENVIRONMENTAL PLANS
Draft Ryde Local Environmental Plan (DLEP) 2011 is exhibited pursuant to Section 66 of the *Environmental Planning and Assessment Act 1979*, as amended. The DLEP 2011 can be viewed at www.ryde.nsw.gov.au. The zoning of the land under DLEP 2011 is:
Zone IN2 Light Industrial

1 Objectives of zone
- To provide a wide range of light industrial, warehouse and related land uses.
- To encourage employment opportunities and to support the viability of centres.
- To minimise any adverse effect of industry on other land uses.
- To enable other land uses that provide facilities or services to meet the day to day needs of workers in the area.
- To support and protect industrial land for industrial uses.

2 Permitted without consent
Home occupation

3 Permitted with consent
Animal boarding or training establishments; Business identification signs; Carparks; Depots; Funeral Homes; Hardware and building supplies; Industrial training facility; Landscaping material supplies; Light industries; Neighbourhood shops; Pubs; Respite day care centres; Roads; Warehouse or distribution centres; Any development not specified in item 2 or 4

4 Prohibited
Agriculture; Airstrip; Air transport facilities; Amusement centres; Biosolids treatment facilities; Boat building and repair facilities; Boat launching ramps; Boat sheds; Camping grounds; Caravan parks; Cemeteries; Charter and

tourism boating facilities; Commercial premises; Correctional centres; Crematoria; Eco tourist facility; Educational establishments; Electricity generating works; Emergency services facilities; Entertainment facilities; Environmental facilities; Exhibition homes; Exhibition villages; Extractive industries; Farm buildings; Forestry; Freight transport facilities; Function centres; Health services facilities; Heavy industrial storage establishment; Helipad; Highway service centres; Home based child care; Home businesses; Home occupations (sex services); Industries; Information and education facilities; Jetties; Marinas; Mooring; Mooring pens; Open cut mining; Port facilities; Recreation facilities (indoor); Recreation facilities (major); Recreation facilities (outdoor); Registered clubs; Residential accommodation; Restricted premises; Registered clubs; Rural industries; Sewage treatment plants; Signage; Timber yards, Tourist and visitor accommodation; Water recreation structures; Water supply systems; Wholesale supplies.

c) DEVELOPMENT CONTROL PLANS
City of Ryde Development Control Plan 2010
Draft City of Ryde Development Control Plan 2011

d) STATE ENVIRONMENTAL PLANNING POLICIES AND INSTRUMENTS (includes Draft Policies)
The Minister for Planning has notified Council that the following State Environmental Planning Policies and Deemed State Environmental Plans apply to the land and should be specified in this certificate:

State Environmental Planning Policies
State Environmental Planning Policy No. 4 - Development without Consent and Miscellaneous Exempt and Complying Development.
State Environmental Planning Policy No. 6 - Number of Storeys in a Building.
State Environmental Planning Policy No. 19 - Bushland in Urban Areas
State Environmental Planning Policy No. 21 - Caravan Parks.
State Environmental Planning Policy No. 32 - Urban Consolidation (Redevelopment of Urban Land).
State Environmental Planning Policy No. 33 - Hazardous and Offensive Development
State Environmental Planning Policy No. 50 - Canal Estate Development
State Environmental Planning Policy No. 55 - Remediation of Land.
State Environmental Planning Policy No.62 - Sustainable Aquaculture
State Environmental Planning Policy No. 64 - Advertising and Signage
State Environmental Planning Policy No. 65 - Design Quality of Residential Flat Development
State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004
State Environmental Planning Policy (Major Development) 2005
State Environmental Planning Policy (Temporary Structures) 2007
State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007
State Environmental Planning Policy (Infrastructure) 2007
State Environmental Planning Policy (Exempt and Complying Development Codes) 2008
State Environmental Planning Policy (Affordable Rental Housing) 2009
Draft State Environmental Planning Policy No. 66 - Integration of Land Use and Transport 2001
Draft State Environmental Planning Policy (Competition) 2010
Draft State Environmental Planning Policy (State and Regional Development) 2011
Draft State Environmental Planning Policy (Exempt and Complying Development Codes) Amendment (Miscellaneous) (No. 2) 2011

Deemed State Environmental Planning Policies
Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005.

2. ZONING AND LAND USE UNDER RELEVANT LOCAL ENVIRONMENTAL PLANS