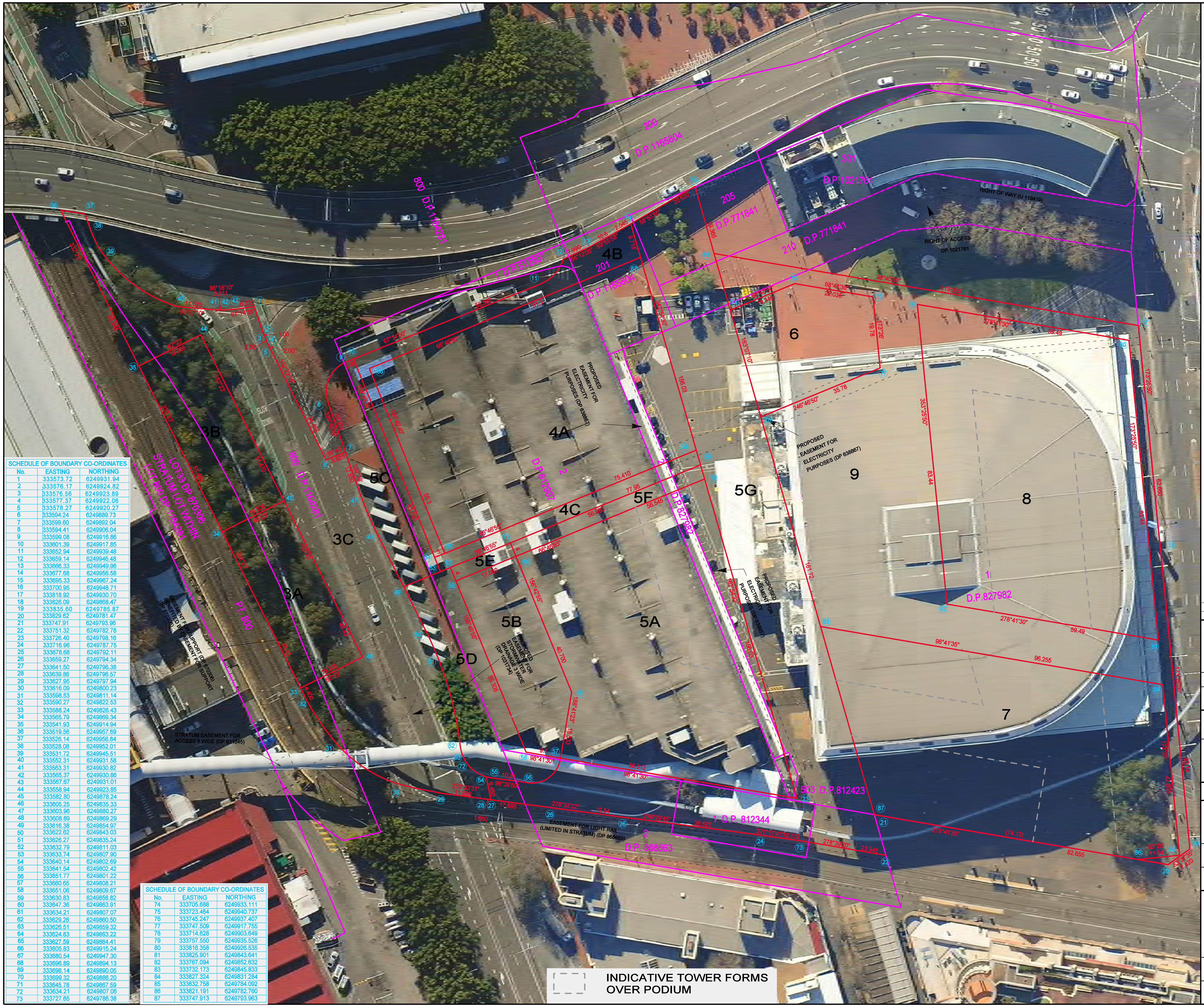


INDICATIVE TOWER FORMS OVER PODIUM

SCHEDULE OF BOUNDARY CO-ORDINATES

No.	EASTING	NORTHING
1	333573.72	6249931.94
2	333576.17	6249924.82
3	333576.56	6249923.89
4	333577.37	6249922.06
5	333578.27	6249920.27
6	333594.24	6249889.73
7	333599.60	6249892.04
8	333594.41	6249906.04
9	333599.08	6249916.86
10	333601.39	6249917.85
11	333652.94	6249939.48
12	333659.14	6249946.48
13	333666.33	6249949.96
14	333677.68	6249956.58
15	333695.33	6249967.24
16	333700.95	6249948.71
17	333818.92	6249930.70
18	333826.09	6249868.47
19	333835.60	6249785.87
20	333829.62	6249781.47
21	333747.91	6249793.96
22	333751.32	6249782.78
23	333726.40	6249798.16
24	333716.96	6249787.75
25	333678.68	6249792.11
26	333659.27	6249794.34
27	333641.50	6249796.38
28	333639.86	6249796.57
29	333627.95	6249797.94
30	333616.09	6249800.23
31	333598.53	6249811.14
32	333590.27	6249822.53
33	333588.24	6249826.43
34	333565.79	6249869.34
35	333541.93	6249914.94
36	333519.56	6249957.69
37	333526.14	6249956.84
38	333528.08	6249952.01
39	333531.72	6249945.51
40	333552.31	6249931.58
41	333563.31	6249930.82
42	333565.37	6249930.86
43	333567.67	6249931.01
44	333558.94	6249923.85
45	333582.80	6249878.24
46	333605.25	6249835.33
47	333603.96	6249880.27
48	333608.89	6249869.29
49	333616.38	6249854.97
50	333622.62	6249843.03
51	333626.27	6249835.24
52	333632.79	6249811.03
53	333633.74	6249807.90
54	333640.14	6249802.69
55	333641.54	6249802.42
56	333651.77	6249801.22
57	333660.65	6249808.21
58	333651.06	6249809.67
59	333630.83	6249856.82
60	333647.36	6249863.91
61	333634.21	6249807.07
62	333629.26	6249860.50
63	333626.51	6249859.32
64	333624.83	6249863.22
65	333627.59	6249864.41
66	333605.83	6249915.24
67	333680.54	6249947.30
68	333696.89	6249894.13
69	333698.14	6249890.05
70	333699.32	6249886.20
71	333645.78	6249867.59
72	333634.21	6249807.06
73	333727.65	6249786.38

SCHEDULE OF BOUNDARY CO-ORDINATES

No.	EASTING	NORTHING
74	333705.688	6249933.111
75	333723.464	6249940.737
76	333745.247	6249937.407
77	333747.509	6249917.755
78	333714.628	6249903.649
79	333757.550	6249935.526
80	333816.358	6249926.535
81	333825.901	6249843.641
82	333767.094	6249852.632
83	333732.173	6249845.833
84	333827.324	6249831.284
85	333832.758	6249784.092
86	333821.191	6249782.760
87	333747.913	6249793.963

NOTES:

LIMITED BOUNDARY SURVEY MADE. IF ANY CONSTRUCTION IS INTENDED IN THE PROXIMITY OF THE BOUNDARIES IT IS RECOMMENDED THAT A FURTHER SURVEY BE REQUESTED FOR THE MARKING OF THE RELEVANT BOUNDARIES.

ORIGIN OF CO-ORDINATES:
SSM 168145
E 333 679.368
N 6249942.260

ORIGIN OF AZIMUTH:
SSM 54327 TO SSM 168146

ORIGIN OF LEVELS:
PM 55082 RL 3.288 AHD

THIS PLAN HAS BEEN CREATED AT A SCALE OF 1:500 AND MAY NOT BE SATISFACTORY FOR OTHER PURPOSES. THE ACCURACY OF ANY ENLARGEMENT OR OTHER REPRODUCTION MAY BE LESS THAN THAT OF THE ORIGINAL.

BOUNDARY LOCATION ADOPTED FROM CAD FILE PROVIDED BY LEND LEASE 23/7/13 DCM - 7428a-COMBINED SITE BOUNDARY

FINAL BOUNDARIES, DIMENSIONS AND CO-ORDINATES MAY VARY SUBJECT TO APPROVAL AND REGISTRATION PROVIDED AT TITLES OFFICE.

APPROXIMATE LOCATION OF AERIAL PHOTOGRAPH ADDED

REV.	DATE	AMENDMENTS
A	12/12/2013	TOWER FORMS ADDED

RYGATE SURVEYORS
SURVEYING SINCE 1893

Rygate & Company Pty Limited
P.W. Rygate & West
ABN 61 001 204 897

a Suite 904 Level 9, 89 York St
Sydney NSW 2000
p +61 2 9262 6800
f +61 2 9262 6843
e surveyors@rygate.com.au
w rygate.com.au

SUBDIVISION | STRATA PLANS | STRATUM SUBDIVISION | LEASE PLANS | TOPOGRAPHIC SURVEYS | GPS SURVEYS | 3D MODELLING | RACECOURSE DESIGN | PROJECT MANAGEMENT | SUN SHADOW DIAGRAMS

SURVEYOR	DRAWN	CHECKED	APPROVED
-	-		

0 50
REDUCTION RATIO 1: 500 @ A1

DATUM :
CONTOUR INTERVAL :
ORIGIN OF LEVELS :

THIS TITLE BLOCK AND NOTES FORM AN INTEGRAL PART OF THE PLAN AND MUST BE REPRODUCED IN ANY USE, DUPLICATION OR AMENDMENT.

CLIENT
LEND LEASE (HAYMARKET) PTY LTD

LOCALITY
DARLING HARBOUR

L.G.A.
SYDNEY

SHOWING PROPOSED LOT DIMENSIONS, PROPOSED SICEEP HAYMARKET BOUNDARY AND EXISTING TITLE LOCATIONS HAYMARKET REMEDIATION

CAD REFERENCE 76098_DCM7428A-haymarket boundary_121213.dgn

REFERENCE No.	PLAN No.	DATE	SHEET No. 4
76098	76098_4	12/12/2013	OF 4 SHEETS

Appendix C
Borehole Logs

Site Specific Remedial Action Plan
Haymarket, Sydney NSW

coffey environments

Engineering Log - Borehole

Borehole No.	**BH1**
Sheet	1 of 3
Office Job No.:	*GEOTLCOV24303AA*
Client:	*Sydney Harbour Foreshore Authority*
Principal:	
Project:	*Sydney International Convention & Entertainment Centre*
Borehole Location:	*Darling Drive, Haymarket, NSW*
Date started:	*7.6.2011*
Date completed:	*7.6.2011*
Logged by:	*LJG*
Checked by:	*SS*

drill model and mounting:	Hydrapower Scout Truck	Easting:		slope:	-90°	R.L. Surface:	3.75
hole diameter:	100 mm	Northing		bearing:	N/A	datum:	AHD

drilling information | **material substance**

method	penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro-meter kPa 100 200 300 400	structure and additional observations
ADT		C	C	E+0.5ppm				**FILL: BRICK PAVERS:** 0.08m. **FILL: SAND:** Medium grained, brown, with some roots, 0.02m. **FILL: CONCRETE:** Grey, 0.50m.	D			PAVEMENT
				E+0ppm SPT 7,11,10 N*=21 E+0ppm	3	1		**FILL: SAND:** Coarse grained, red, brown, grey, trace of clay and fine to medium sandstone and brick gravel.	D			FILL
ADV				SPT 1,1,2 N*=3	2 1	2 3		**FILL: Clayey SAND:** Coarse grained, brown, low plasticity clay, with some medium grained sand, trace of shells, fibers and fine grained rounded sandstone and brick gravel.				
			►	E+0ppm SPT 3,2,1 N*=3	0	4	CL	**Sandy CLAY:** Low to medium plasticity clay, dark brown, coarse grained sand, with some shells. 4.00m Band of red partially cemented sand and ironstone gravel.	M W	F		POSSIBLY FILL?
					-1	5	SC	**Clayey SAND:** Medium to coarse grained, brown, red, orange mottled, low to medium plasticity clay, with some shells.		L		ESTUARINE/ALLUVIUM
				SPT 1,2,4 N*=6	-2		SW	**SAND:** Medium to coarse grained, brown, grey, red, with some clay and shells.				
					-3	6 7	SP	**SAND:** Coarse grained, pale grey to grey, trace of clay and shells.		L-MD		RESIDUAL SOIL
				SPT 8/70mm N*=R	-4	8		**SANDSTONE:** Extremely weathered, coarse grained, grey, red, brown, estimated to be low strength, remoulds to a sand. Borehole BH1 continued as cored hole				WEATHERED BEDROCK

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit
*bit shown by suffix	
e.g.	ADT

support

M	mud	N	nil
C	casing		

penetration

1 2 3 4 — no resistance ranging to refusal

water

▼	10/1/98 water level on date shown
►	water inflow
◄	water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description

based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey environments

Engineering Log - Borehole

Client:	*Sydney Harbour Foreshore Authority*	Borehole No.	***BH10***
		Sheet	1 of 4
		Office Job No.:	***GEOTLCOV24303AA***
		Date started:	***1.6.2011***
Principal:		Date completed:	***10.6.2011***
Project:	*Sydney International Convention & Entertainment Centre*	Logged by:	***LJG***
Borehole Location:	*Little Pier Street, Haymarket, NSW*	Checked by:	***SS***

drill model and mounting:	Ausroc 4000 Truck	Easting:		slope:	-90°	R.L. Surface:	3
hole diameter:	100 mm	Northing		bearing:	N/A	datum:	AHD

drilling information | **material substance**

method	penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetrometer kPa 100 200 300 400	structure and additional observations
ADT		C	C					**BRICK PAVERS:**				PAVEMENT
								FILL: Gravelly SAND: Medium to coarse, brown, fine to medium angular gravel.	D			
								CONCRETE: 0.20m				
								FILL: Clayey SAND: Coarse grained, brown	D			FILL
								FILL: Sandy CLAY: Medium plasticity, red-brown/pale grey.				
					2	1						
				SPT 8/90mm N*=R				1.09m - With some asphalt gravel.				1m - Slight odour, tar and asphalt. 1.09m - Strong odour
									M			
					1	2						
								FILL: Silty CLAY: Low to medium plasticity, grey, brown, trace of sand.	D			
								FILL: CLAY: Medium to high plasticity, red, brown, pale grey, orange mottled, with some fine gravel.				
				SPT 3,2,3 N*=5								
					0	3						
			►									
							SM	**Silty SAND:** Medium to coarse grained, black, with some shells, trace of fine gravel.	W	VL		ESTUARINE
							SC	**Clayey SAND:** Coarse grained, brown, medium to high plasticity clay.				
					-1	4						
				SPT 1,0,0 N*=0								
							SC	**Clayey SAND:** Coarse grained, black, low plasticity clay, with some shells, trace of silt.				ESTUARINE
					-2	5						
WB							CH	**CLAY:** High plasticity, red brown, grey with some sand.		St		ALLUVIUM / SLOPE WASH
					-3	6						
							SC	**Clayey SAND:** Fine grained, pale grey, low plasticity clay.		MD		
				SPT 4,5,7 N*=12								
					-4	7						
							CL-CH	**Sandy CLAY:** Medium to high plasticity clay, pale grey, yellow brown.		VSt		
							CH	**CLAY:** High plasticity, red brown, grey, with some coarse sand.				
					-5	8						

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit

*bit shown by suffix
e.g. ADT

support

M	mud	N	nil
C	casing		

penetration
1 2 3 4
no resistance ranging to refusal

water

▼	10/1/98 water level on date shown
►	water inflow
◄	water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description
based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey environments

Engineering Log - Borehole

Borehole No.	**BH10**
Sheet	2 of 4
Office Job No.:	**GEOTLCOV24303AA**
Date started:	**1.6.2011**
Date completed:	**10.6.2011**
Logged by:	**LJG**
Checked by:	**SS**

Client: *Sydney Harbour Foreshore Authority*

Principal:

Project: *Sydney International Convention & Entertainment Centre*

Borehole Location: *Little Pier Street, Haymarket, NSW*

drill model and mounting:	Ausroc 4000 Truck	Easting:		slope:	-90°	R.L. Surface:	3
hole diameter:	100 mm	Northing		bearing:	N/A	datum:	AHD

drilling information / material substance

method	penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro-meter kPa 100 200 300 400	structure and additional observations
WB				SPT 6,7,9 N*=16			▨	CH	**CLAY:** High plasticity, red brown, grey, with some coarse sand. *(continued)*	W	VSt	× × ×	
					-6	9	▨	CH	**CLAY:** High plasticity, red, brown, dark grey, orange mottled, trace of ironstone gravel and fine sand.		St/VSt	×	
				SPT 5,5,7 N*=12									
					-7	10	▨	SC	**Clayey SAND:** Coarse grained, grey, low to medium clay.		MD		RESIDUAL SOIL
					-8	11			Borehole BH10 continued as cored hole				
					-9	12							
					-10	13							
					-11	14							
					-12	15							
					-13	16							

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit

*bit shown by suffix
e.g. ADT

support

M	mud	N	nil
C	casing		

penetration

1 2 3 4

no resistance ranging to refusal

water

▼ 10/1/98 water level on date shown

► water inflow

◄ water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description

based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

Engineering Log - Borehole

Borehole No. **BH11**
Sheet 1 of 3
Office Job No.: **GEOTLCOV24303AA**

Client: *Sydney Harbour Foreshore Authority*
Principal:
Project: *Sydney International Convention & Entertainment Centre*
Borehole Location: *Sydney Entertainment Centre, Haymarket, NSW*

Date started: **1.6.2011**
Date completed: **1.6.2011**
Logged by: **RH**
Checked by: **SS**

drill model and mounting:	Ausroc 4000 Truck	Easting:		slope: -90°	R.L. Surface: 2.9
hole diameter:	100 mm	Northing		bearing: N/A	datum: AHD

drilling information | **material substance**

method	penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro-meter kPa 100 200 300 400	structure and additional observations
ADV		C	C	D E+0ppm			▩		**FILL: SAND:** Medium to coarse grained, pale brown, with some quartz and shell fragments.	M			FILL
				E+0ppm			▩		**FILL: SAND:** Fine to coarse grained, dark brown, black, with some fine to medium lithic gravels and sandstone.				
				D E+1.1ppm	2	1	▩		**FILL: SANDSTONE BOULDER:** Pale yellow and white				0.70m distinct bitumen odour 0.80m SPT1 moved from 1.0m to 1.50m due to sandstone boulder.
			►	SPT 13,5,3 N*=8 E+0.3ppm	1	2	▩		**FILL: SAND:** Fine to coarse grained, dark brown, black, with some fine to medium lithic gravels and sandstone. 1.40m colour becoming brown				
							▨	CL	**Silty CLAY:** Low plasticity, pale grey mottled red.	W	F		ALLUVIUM
				UU_{50} E+0.6ppm	0	3	░	SC	**Clayey SAND:** Fine to medium grained, dark grey, clay rich and sand rich layers throughout		MD		3.00m distinct organic odour
				SPT 3,4,10 N*=14	-1	4	▨	CH	**CLAY:** High plasticity, dark grey, brown.		S-F		
				SPT 7,8,9 N*=17	-2 -3 -4	5 6 7	▨	CL	**Silty CLAY:** Low plasticity, pale grey mottled red and orange iron stained, with some red clay pockets throughout. 5.70m increased iron staining		VSt	× × × × × × ×	RESIDUAL SOIL
				SPT 3,5,30/120mm N*=R	-5	8	░		**SANDSTONE:** Extremely weathered, medium grained, pale grey, white, estimated to be very low strength.				WEATHERED BEDROCK

method		support		notes, samples, tests		classification symbols and soil description	consistency/density index	
AS	auger screwing*	M mud	N nil	U_{50}	undisturbed sample 50mm diameter	based on unified classification system	VS	very soft
AD	auger drilling*	C casing		U_{63}	undisturbed sample 63mm diameter		S	soft
RR	roller/tricone	**penetration**		D	disturbed sample		F	firm
W	washbore	1 2 3 4		N	standard penetration test (SPT)		St	stiff
CT	cable tool	no resistance ranging to refusal		N*	SPT - sample recovered	**moisture**	VSt	very stiff
HA	hand auger			Nc	SPT with solid cone	D dry	H	hard
DT	diatube	**water**		V	vane shear (kPa)	M moist	Fb	friable
B	blank bit	▼ 10/1/98 water level on date shown		P	pressuremeter	W wet	VL	very loose
V	V bit			Bs	bulk sample	Wp plastic limit	L	loose
T	TC bit			E	environmental sample	W_L liquid limit	MD	medium dense
*bit shown by suffix		► water inflow		R	refusal		D	dense
e.g.	ADT	◄ water outflow					VD	very dense

coffey environments

Engineering Log - Borehole

Borehole No.	***BH11***
Sheet	2 of 3
Office Job No.:	***GEOTLCOV24303AA***
Client:	***Sydney Harbour Foreshore Authority***
Principal:	
Project:	***Sydney International Convention & Entertainment Centre***
Borehole Location:	***Sydney Entertainment Centre, Haymarket, NSW***
Date started:	***1.6.2011***
Date completed:	***1.6.2011***
Logged by:	***RH***
Checked by:	***SS***

drill model and mounting:	Ausroc 4000 Truck	Easting:		slope:	-90°	R.L. Surface:	2.9
hole diameter:	100 mm	Northing		bearing:	N/A	datum:	AHD

drilling information							material substance						
method	penetration 1 2 3	support	water	**notes** samples, tests, etc	RL	depth metres	graphic log	classification symbol	**material** soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro-meter kPa 100 200 300 400	**structure and additional observations**
									Borehole BH11 continued as cored hole				
					-6	9							
					-7	10							
					-8	11							
					-9	12							
					-10	13							
					-11	14							
					-12	15							
					-13	16							

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit

*bit shown by suffix
e.g. ADT

support

M mud N nil
C casing

penetration

1 2 3 4
no resistance ranging to refusal

water

▼ 10/1/98 water level on date shown
► water inflow
◄ water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description

based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey environments

Engineering Log - Borehole

Borehole No. **BH12**

Sheet 1 of 3

Office Job No.: **GEOTLCOV24303AA**

Client: ***Sydney Harbour Foreshore Authority***

Principal:

Project: ***Sydney International Convention & Entertainment Centre***

Borehole Location: ***Sydney Entertainment Centre, Haymarket, NSW***

Date started: **10.6.2011**

Date completed: **10.6.2011**

Logged by: **RC**

Checked by: **SS**

drill model and mounting:	Hydrapower Scout Truck	Easting:	slope: -90°	R.L. Surface:	2.8
hole diameter:	100 mm	Northing	bearing: N/A	datum:	AHD

drilling information / material substance

method	penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	structure and additional observations
ADT		C	C	E+0ppm E+0ppm				**FILL: Clayey SAND:** Fine to medium grained, brown, trace of gravel and rootlets.	D		TOPSOIL/FILL
								FILL: CONCRETE: Pale grey (100mm)			FILL (Pavement?)
				E+0.7ppm	2	1		**FILL: Sandy GRAVEL:** Medium to coarse, grey to dark grey.			
								FILL: Silty SAND: Fine to medium grained, dark grey to black, with some clay and fine rounded gravel.	M		FILL slight odour
				SPT 4,4,3 N*=7	1			**FILL:** Very low strength shale remoulding as brown silty clay.	<Wp		
			►—	E+0.8ppm	0	2 3		**FILL: Silty CLAY:** High plasticity, red-brown mottled orange-brown, with some sand. 2.7m - With some fine to medium subangular ironstone gravel. 3.4m - Band with some sand and shells (50mm).	>Wp		
ADV			5.5m at 11am on 10/6/2011	SPT 0,0,1 N*=1 U$_{50}$ SPT 2,2,4 N*=6	-1 -2	4	CH	**Silty CLAY:** High plasticity, dark grey, with some bands of medium grained sand and some shells. 3.4m - Band with some sand and shells. 3.95m - With some fibres. 4.2m - Becoming grey. 4.7m - Becoming mottled red.		S/F	3.0m - SPT rods sunk 400mm under hammer weight ESTUARINE
			▼	SPT 2,4,8 N*=12	-3 -4	5 6	CH	**Sandy CLAY:** High plasticity, pale grey mottled red and orange-brown, medium grained sand, trace of silt.		St-VSt	COLLUVIUM / SLOPE WASH
				SPT 3,11,30/60mm N*=R	-5	7	SP	**SAND:** Medium grained, pale grey mottled brown, trace of clay.	W	MD	RESIDUAL SOIL
						8		7.75m - Becoming yellow and red.		D	WEATHERED BEDROCK

Borehole BH12 continued as cored hole

method	
AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit
*bit shown by suffix	
e.g.	ADT

support

M mud N nil

C casing

penetration

1 2 3 4 no resistance ranging to refusal

water

▼ 10/1/98 water level on date shown

► water inflow

◄ water outflow

notes, samples, tests	
U$_{50}$	undisturbed sample 50mm diameter
U$_{63}$	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description

based on unified classification system

moisture	
D	dry
M	moist
W	wet
Wp	plastic limit
W$_L$	liquid limit

consistency/density index	
VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey environments

Engineering Log - Borehole

Borehole No.	***BH13***
Sheet	1 of 3
Office Job No.:	***GEOTLCOV24303AA***
Client:	***Sydney Harbour Foreshore Authority***
Principal:	
Project:	***Sydney International Convention & Entertainment Centre***
Borehole Location:	***Sydney Entertainment Centre, Haymarket, NSW***
Date started:	***9.6.2011***
Date completed:	***9.6.2011***
Logged by:	***RC***
Checked by:	***SS***

drill model and mounting:	Hydrapower Scout Truck	Easting:		slope:	-90°
R.L. Surface:	3.15				
hole diameter:	100 mm	Northing		bearing:	N/A
datum:	AHD				

drilling information / material substance

method	penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	classification symbol	material: soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/density index	pocket penetrometer kPa (100 200 300 400)	structure and additional observations
ADT					3	0		**FILL:** Rectangular, red-brown concrete pavers (50mm) overlying medium grained pale brown sand (50mm)	D			PAVEMENT
								FILL: Sandy GRAVEL: Medium to coarse, grey, fine to medium grained sand.				FILL
								FILL: Gravelly SAND: Fine to medium grained, brown, fine to coarse angular to subrounded gravel.				
ADV												
						1						
				SPT 10,8,2 N*=10	2				M			
								FILL: SAND: Medium grained, pale brown.	W			
								1.8m - With some brown gravel.				
			►─			2	CH	**Silty CLAY:** High plasticity, dark grey.	>Wp	S		ESTUARINE
					1							
				SPT 1,1,1 N*=2							×	
						3						
				U$_{50}$	0							3m - With sulfuric odour
											×	
			4m at 12pm on 9/6/2011 ▼			4						
				SPT 3,6,6 N*=12	-1					F/St		
						5	CL	**Sandy CLAY:** Low plasticity, pale grey mottled, orange-brown, fine to medium grained sand with some fine to medium subangular ironstone gravel.		St-VSt		COLLUVIUM/SLOPE WASH
					-2							
				SPT 5,4,4 N*=8							× × ×	
						6						
					-3							
								6.5m - Becoming red.				
								6.8m - One rootlet.				
						7						
				SPT 6,6,7 N*=13	-4							
						8						

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit

*bit shown by suffix
e.g. ADT

support

M mud N nil
C casing

penetration
1 2 3 4
no resistance ranging to refusal

water

▼ 10/1/98 water level on date shown
► water inflow
◄ water outflow

notes, samples, tests

U$_{50}$	undisturbed sample 50mm diameter
U$_{63}$	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description
based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W$_L$	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

Engineering Log - Borehole

Borehole No.	**BH13**
Sheet	2 of 3
Office Job No.:	**GEOTLCOV24303AA**
Client:	**Sydney Harbour Foreshore Authority**
Principal:	
Project:	**Sydney International Convention & Entertainment Centre**
Borehole Location:	**Sydney Entertainment Centre, Haymarket, NSW**
Date started:	**9.6.2011**
Date completed:	**9.6.2011**
Logged by:	**RC**
Checked by:	**SS**

drill model and mounting:	Hydrapower Scout Truck	Easting:		slope:	-90°	R.L. Surface:	3.15
hole diameter:	100 mm	Northing		bearing:	N/A	datum:	AHD

drilling information							material substance						
method	penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro-meter kPa 100 200 300 400	structure and additional observations
ADV					-5			CL	**Sandy CLAY:** Low plasticity, pale grey mottled, orange-brown, fine to medium grained sand with some fine to medium subangular ironstone gravel. *(continued)*	>Wp	St-VSt	✕	
				SPT 4,5,3 N*=8		9		SP	**SAND:** Medium to coarse grained, dark grey to grey, with some high plasticity clay.	W	L-MD		RESIDUAL SOIL?
					-6								WEATHERED ROCK
NMLC			◁	SPT R,30/140,R N*=R	-7	10			Borehole BH13 continued as cored hole				SPT hammer bouncing
					-8	11							
					-9	12							
					-10	13							
					-11	14							
					-12	15							
						16							

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit

*bit shown by suffix
e.g. ADT

support

M mud N nil
C casing

penetration

1 2 3 4 no resistance ranging to refusal

water

▼ 10/1/98 water level on date shown
► water inflow
◄ water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description

based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

Engineering Log - Borehole

Borehole No.	***BH14***
Sheet	1 of 2
Office Job No.:	***GEOTLCOV24303AA***
Client:	***Sydney Harbour Foreshore Authority***
Date started:	***17.6.2011***
Principal:	
Date completed:	***17.6.2011***
Project:	***Sydney International Convention & Entertainment Centre***
Logged by:	***RC***
Borehole Location:	***Harbour Street, Haymarket, NSW***
Checked by:	***SS***

drill model and mounting:	Hydrapower Scout Truck	Easting:		slope:	-90°	R.L. Surface:	3.3
hole diameter:	100 mm	Northing		bearing:	N/A	datum:	AHD

drilling information							material substance						
method	penetration 1 2 3	support	water	**notes** samples, tests, etc	RL	depth metres	graphic log	classification symbol	**material** soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro-meter kPa 100 200 300 400	**structure and additional observations**
ADT		C	C						**FILL: ASPHALT:** Dark grey, medium to coarse gravel, overlying medium to coase, pale brown. Sandy GRAVEL.	D			PAVEMENT
				E+0.0ppm	3								FILL
									Gravelly SAND: Fine to medium grained, brown, dark brown, fine to coarse gravel, with some basalt cobbles (70mm), trace of silt.				
				E+0.0ppm									
						1							
				SPT 3,2,2 N*=4	2								
									FILL: CONCRETE: Pale grey				
						2			**FILL: Gravelly SAND:**	M			
					1								
			▶	SPT 1,0,0 N*=0				CH	**Silty CLAY:** High plasticity, dark grey, grey, trace of medium grained sand.	>Wp	VS	×	ESTUARINE
						3							
					0								
									3.5m - With some bands of sand.				
						4							
				SPT 2,3,2 N*=5	-1			CH	**Silty CLAY:** High plasticity, red mottled pale grey.		S/F	×× × × × ×	COLLUVIUM / SLOPE WASH
						5							
					-2								
				SPT 3,3,5 N*=8				CH/SC	**BANDS OF Silty CLAY/Clayey SAND:** Clay is dark grey and highly plastic. Sand is medium to coarse grained and dark grey.	>Wp/W	S/L		ESTUARINE / ALLUVIUM
						6							
					-3								
						7							
				SPT R,20/90 N*=R	-4				**SANDSTONE:** Medium to coarse grained, pale grey to white, remoulds to a sand.				WEATHERED BEDROCK
									Borehole BH14 continued as cored hole				
						8							

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit

*bit shown by suffix
e.g. ADT

support

M	mud	N	nil
C	casing		

penetration
1 2 3 4
no resistance ranging to refusal

water

▼	10/1/98 water level on date shown
▶	water inflow
◀	water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description
based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey environments

Engineering Log - Borehole

Borehole No.	***BH15***
Sheet	1 of 3
Office Job No.:	***GEOTLCOV24303AA***
Date started:	***21.6.2011***
Date completed:	***21.6.2011***
Logged by:	***LJG***
Checked by:	***SS***

Client: ***Sydney Harbour Foreshore Authority***

Principal:

Project: ***Sydney International Convention & Entertainment Centre***

Borehole Location: ***Harbour Street, Haymarket, NSW***

drill model and mounting:	Ausroc 4000 Truck	Easting:		slope:	-90°	R.L. Surface:	3.2
hole diameter:	100 mm	Northing		bearing:	N/A	datum:	AHD

drilling information							material substance						
method	penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro-meter kPa 100 200 300 400	structure and additional observations
ADT		C	C		3				**FILL: BITUMEN:** 0.30m				FILL
									FILL: CONCRETE: 0.10m				
				E+0.3ppm					**FILL: Gravelly SAND:** Medium to coarse grained, dark grey, brown, fine grained gravel of brick, sandstone, aggregate, trace of clay. 0.5m - Fine to medium grained gravel, with some clay.	D M			No odour/ staining.
				SPT 8/160mm N*=R	2	1			1.0m - Crushed orange brick.				1m - SPT refused on gravel
									1.50m - With some clay and coarse sandstone gravel, trace of cobbles.				
					1	2							
								SC	**Clayey SAND:** Medium to coarse grained, black, dark grey, high plasticity clay, trace of organics.	W	MD		ESTUARINE
			►	SPT 3,1,2 N*=3				CL	**Silty CLAY:** Low plasticity, dark brown, dark grey, with some organic material and some shells.	M-W	F		
					0	3		SC	**Clayey SAND:** Coarse grained, dark grey, brown, trace of shells.	W	L-MD		ALLUVIUM
								CH	**CLAY:** High plasticity, pale grey mottled red brown, trace of sand. 3.5m - With some interbedded sand layers.		St-VSt		
						4		SC	**Clayey SAND:** Coarse grained, dark grey, dark brown, low plasticity clay, trace of shells.		MD		
				SPT 3,4,5 N*=9	-1			CH	**CLAY:** High plasticity, pale grey, trace of fine sand.		St		SLOPE WASH
					-2	5			5.20m - Pale grey, pale brown mottled.	M			ALLUVIUM
				SPT 2,4,6 N*=10	-3	6			5.80m - Pale grey, red, brown mottled, trace of fine to coarse sand and fine ironstone.				SLOPE WASH
					-4	7		CL	**Sandy CLAY:** Low to medium plasticity, pale brown mottled red, coarse sand.		St		ALLUVIUM
				SPT 7,5,6 N*=11		8		SC	**Clayey SAND:** Coarse grained, red, trace of fine ironstone gravel and burrows. 7.8m - Pale brown, mottled black and red, trace of	M	MD		RESIDUAL SOIL

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit

*bit shown by suffix
e.g. ADT

support

M	mud	N	nil
C	casing		

penetration
1 2 3 4
no resistance ranging to refusal

water

▼ 10/1/98 water level on date shown

► water inflow

◄ water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description
based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

Engineering Log - Borehole

Borehole No.	**BH15**
Sheet	2 of 3
Office Job No.:	***GEOTLCOV24303AA***
Client:	***Sydney Harbour Foreshore Authority***
Date started:	***21.6.2011***
Principal:	
Date completed:	***21.6.2011***
Project:	***Sydney International Convention & Entertainment Centre***
Logged by:	***LJG***
Borehole Location:	***Harbour Street, Haymarket, NSW***
Checked by:	***SS***

drill model and mounting:	Ausroc 4000 Truck	Easting:		slope:	-90°	R.L. Surface:	3.2
hole diameter:	100 mm	Northing		bearing:	N/A	datum:	AHD

drilling information							material substance						
method	penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro-meter kPa 100 200 300 400	structure and additional observations
ADT		C	C		-5				burrows. **SANDSTONE:** Extremely weathered, coarse grained, pale brown, pale grey, estimated to be very low strength, remoulds to a sand.				WEATHERED BEDROCK
									Borehole BH15 continued as cored hole				TC Bit refusal at 8.50m
						9							
					-6								
						10							
					-7								
						11							
					-8								
						12							
					-9								
						13							
					-10								
						14							
					-11								
						15							
					-12								
						16							

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit
*bit shown by suffix	
e.g.	ADT

support

M	mud	N	nil
C	casing		

penetration

1 2 3 4

no resistance ranging to refusal

water

▼ 10/1/98 water level on date shown

► water inflow

◄ water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description

based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey environments

Engineering Log - Borehole

Borehole No.	*BH16*
Sheet	1 of 6
Office Job No.:	*GEOTLCOV24303AA*
Client:	*Sydney Harbour Foreshore Authority*
Principal:	
Project:	*Sydney International Convention & Entertainment Centre*
Borehole Location:	*Harbour Street, Haymarket, NSW*
Date started:	*20.6.2011*
Date completed:	*21.6.2011*
Logged by:	*LJG*
Checked by:	*SS*

drill model and mounting:	Hydrapower Scout Truck	Easting:		slope:	-75°	R.L. Surface:	3.30
hole diameter:	100 mm	Northing		bearing:	177.5°	datum:	AHD

drilling information / **material substance**

method	penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro-meter kPa 100 200 300 400	structure and additional observations
PH		C	C			0.00		**BRICK PAVERS:** 0.06m	D			FILL
					3			**FILL: Gravelly SAND:** Fine to coarse, brown, dark brown, fine to rounded gravel with some clay and trace of medium to coarse gravel, roots, glass, metal piping, concrete, bricks.				
						1						
					2							
AD								**FILL: SAND:** Medium to coarse grained, brown, with some clay and fine gravel.	M			
						2						
WB			►		1				W			
						3	CL/SC	**Sandy CLAY/Clayey SAND:** Low plasticity clay, medium to coarse grained sand, grey, brown, with some organic material.				ESTUARINE
					0							
						4						
					-1		CH	**CLAY:** High plasticity, red, brown, grey, trace of sand.				SLOPE WASH
						5						
				U_{50}	-2							
						6						ALLUVIUM
					-3		CH	**Sandy CLAY:** High plasticity, grey, coarse sand.				
						7	SP	**SAND:** Coarse grained, grey, brown, trace of clay.				
					-4							
						8						

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit

*bit shown by suffix
e.g. ADT

support

M	mud	N	nil
C	casing		

penetration
1 2 3 4
no resistance ranging to refusal

water

▼	10/1/98 water level on date shown
►	water inflow
◄	water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description
based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey environments

Engineering Log - Borehole

		Borehole No.	**BH16**
		Sheet	2 of 6
		Office Job No.:	**GEOTLCOV24303AA**
Client:	**Sydney Harbour Foreshore Authority**	Date started:	**20.6.2011**
Principal:		Date completed:	**21.6.2011**
Project:	**Sydney International Convention & Entertainment Centre**	Logged by:	**LJG**
Borehole Location:	**Harbour Street, Haymarket, NSW**	Checked by:	**SS**

drill model and mounting:	Hydrapower Scout Truck	Easting:		slope:	-75°	R.L. Surface:	3.30
hole diameter:	100 mm	Northing		bearing:	177.5°	datum:	AHD

drilling information							material substance						
method	penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro-meter kPa 100 200 300 400	structure and additional observations
WB		C	C					SP	**SAND:** Coarse grained, grey, brown, trace of clay. *(continued)*	W			
					-5 -6 -7	9 10		SC	**Clayey SAND:** Medium to coarse sand, pale grey, red, brown, high plasticity clay.				
					-8 -9	11 12 13		SP	**SAND:** Coarse grained, grey, pale grey, trace of clay.				RESIDUAL SOIL
					-10				**SANDSTONE:** Extremely weathered, coarse grained, pale grey to red brown, estimated to be low strength. Remoulds to a sand. 13.45m - Highly weathered.				WEATHERED BEDROCK
					-11 -12	14 15 16			Borehole BH16 continued as cored hole				

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit
*bit shown by suffix	
e.g.	ADT

support

M	mud	N	nil
C	casing		

penetration

1 2 3 4 no resistance ranging to refusal

water

10/1/98 water level on date shown

water inflow

water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description

based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey environments

Engineering Log - Borehole

Borehole No.	**BH17**
Sheet	1 of 4
Office Job No.:	**GEOTLCOV24303AA**
Client:	**Sydney Harbour Foreshore Authority**
Date started:	**16.6.2011**
Principal:	
Date completed:	**16.6.2011**
Project:	**Sydney International Convention & Entertainment Centre**
Logged by:	**LJG**
Borehole Location:	**Harbour Street, Haymarket, NSW**
Checked by:	**SS**

drill model and mounting:	Edson 3000 Truck	Easting:		slope:	-90°	R.L. Surface:	3.2
hole diameter:	100 mm	Northing		bearing:	N/A	datum:	AHD

drilling information

method: ADT; support: C; water: C

Water inflow (►) shown at about 2.1 m depth.

notes, samples, tests	RL	depth metres
	3	
SPT 6,7,4 N*=11	2	1
	1	2
SPT 2,0,0 N*=0	0	3
SPT 2,3,5 N*=8	-1	4
	-2	5
SPT 2,5,6 N*=11	-3	6
SPT 4,7,8 N*=15	-4	7
		8

material substance

classification symbol	material (soil type: plasticity or particle characteristics, colour, secondary and minor components.)	moisture condition	consistency/ density index	structure and additional observations
	FILL: BRICK PAVERS: Brown, 0.08m			FILL
	FILL: Clayey Gravelly SAND: Medium to coarse grained, brown, grey, fine gravel, medium plasticity clay.	D		
	FILL: SAND: Coarse grained, grey, brown, yellow, red mottled, with some fine sandstone gravel, trace of clay.			
	FILL: Silty CLAY: Low plasticity, black, with some organic material, trace of sand and fine gravel. 3.10m - With some sand.	W		
CH	**CLAY:** High plasticity, red, brown, grey, trace of fine ironstone gravel.	M	St-VSt	ALLUVIUM
CH	**CLAY:** High plasticity, grey, red, brown, yellow, with some coarse sand, trace of fine to medium sandstone and ironstone gravel.		St-VSt	SLOPE WASH
CL	**Gravelly CLAY:** Low plasticity, brown, grey, red, fine angular sandstone and ironstone gravel.	W		ALLUVIUM
CH	**CLAY:** High plasticity, pale grey, red brown mottled, trace of sand.			

pocket penetrometer kPa: 100 200 300 400

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit
*bit shown by suffix	
e.g.	ADT

support

M mud N nil
C casing

penetration

1 2 3 4
no resistance ranging to refusal

water

10/1/98 water level on date shown
water inflow
water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description

based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey environments

Engineering Log - Borehole

Borehole No.	**BH17**
Sheet	2 of 4
Office Job No.:	**GEOTLCOV24303AA**
Client:	***Sydney Harbour Foreshore Authority***
Principal:	
Project:	***Sydney International Convention & Entertainment Centre***
Borehole Location:	***Harbour Street, Haymarket, NSW***
Date started:	***16.6.2011***
Date completed:	***16.6.2011***
Logged by:	***LJG***
Checked by:	***SS***

drill model and mounting:	Edson 3000 Truck	Easting:		slope:	-90°	R.L. Surface:	3.2
hole diameter:	100 mm	Northing		bearing:	N/A	datum:	AHD

drilling information							material substance						
method	penetration 1 2 3	support	water	**notes** samples, tests, etc	RL	depth metres	graphic log	classification symbol	**material** soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro-meter kPa 100 200 300 400	**structure and additional observations**
ADT		C	C		-5		▨	CH	**CLAY:** High plasticity, pale grey, red brown mottled, trace of sand. *(continued)* 8.10m - With some coarse sand.	W	St-VSt		
				SPT 4,12,10 N*=22		9		SC	**Clayey SAND:** Coarse grained, pale grey, grey.		MD	×	RESIDUAL SOIL
					-6		▨	CH	**Sandy CLAY:** High plasticity clay, grey, pale grey, coarse sand.		St-VSt		
				SPT 4,16 N*=R	-7	10						×	
									SANDSTONE: Extremely weathered, coarse grained, pale grey, remoulds to a sandy clay. 10.30m - Highly weathered.				WEATHERED BEDROCK
									Borehole BH17 continued as cored hole				
						11							
					-8								
						12							
					-9								
						13							
					-10								
						14							
					-11								
						15							
					-12								
						16							

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit

*bit shown by suffix
e.g. ADT

support

M	mud	N	nil
C	casing		

penetration
1 2 3 4
no resistance ranging to refusal

water

▼	10/1/98 water level on date shown
►	water inflow
◄	water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description
based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey environments

Engineering Log - Borehole

Borehole No. **BH2**
Sheet 1 of 3
Office Job No.: **GEOTLCOV24303AA**

Client: ***Sydney Harbour Foreshore Authority***
Principal:
Project: ***Sydney International Convention & Entertainment Centre***
Borehole Location: ***Darling Drive, Haymarket, NSW***

Date started: ***3.6.2011***
Date completed: ***3.6.2011***
Logged by: ***RH***
Checked by: ***SS***

drill model and mounting:	Ausroc 4000 Truck	Easting:		slope:	-90°	R.L. Surface:	3.5
hole diameter:	100 mm	Northing		bearing:	N/A	datum:	AHD

drilling information | **material substance**

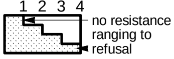
method	penetration 1 2 3	support	water	**notes** samples, tests, etc	RL	depth metres	graphic log	classification symbol	**material** soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro-meter kPa 100 200 300 400	**structure and additional observations**
DT		C	C						**ASPHALT**	D			PAVEMENT
									CONCRETE				
ADT					3				**FILL: Sandy SILT:** Low plasticity, pale brown, fine to medium grained sand with some clay.	M			FILL
				E+0ppm									
									FILL: Clayey SAND: Fine to coarse grained, dark brown and black with red brown mottles, some pale brown sand pockets, fine to coarse grained sandstone and fine grained ironstone gravels throughout, trace of glass and wire refuse.				
						1							
				SPT 8,5,4 N*=9									
					2								
				E+1.0ppm									
						2							
				E+0ppm									
					1								
				SPT 4,3,3 N*=6					2.5m - Increasing clay content.				
						3							
					0								
								SW	**SAND:** Fine to coarse grained, grey, trace of silt.		VL		ALLUVIUM Slight organic odour.
						4							
				SPT 1,1,0 N*=1									
					-1								
								SC	**Clayey SAND:** Fine to medium to coarse grained, dark brown, low to medium plasticity clay.		L-MD		
						5							
								SC	**Clayey SAND:** Fine to coarse grained, pale grey, clay with some pockets of shells throughout.	W			
			►										
					-2								
				SPT 1,2,3 N*=5									5.7m - Distinct organic odour
						6							
					-3								
NMLC									**SANDSTONE:** Extremely weathered, medium to coarse grained, pale yellow and brown, estimated to be very low strength, remoulds to a sand.				WEATHERED BEDROCK
						7							
					-4								
						8							

Borehole BH2 continued as cored hole

method	
AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit
*bit shown by suffix	
e.g.	ADT

support
M mud N nil
C casing

penetration



water
▼ 10/1/98 water level on date shown
► water inflow
◄ water outflow

notes, samples, tests	
U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description
based on unified classification system

moisture	
D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index	
VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey environments

Engineering Log - Borehole

Borehole No.	***BH3***
Sheet	1 of 4
Office Job No.:	***GEOTLCOV24303AA***
Date started:	***2.6.2011***
Date completed:	***2.6.2011***
Logged by:	***RH***
Checked by:	***SS***

Client: ***Sydney Harbour Foreshore Authority***

Principal:

Project: ***Sydney International Convention & Entertainment Centre***

Borehole Location: ***Darling Drive, Haymarket, NSW***

drill model and mounting:	Ausroc 4000 Truck	Easting:		slope:	-90°	R.L. Surface:	3.5
hole diameter:	100 mm	Northing		bearing:	N/A	datum:	AHD

drilling information | **material substance**

method	penetration 1 2 3	support	water	**notes** samples, tests, etc	RL	depth metres	graphic log	classification symbol	**material** soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro-meter kPa 100 200 300 400	**structure and additional observations**
DT		C	C						**ASPHALT:** 0.05m **CONCRETE:** 0.45m				PAVEMENT
ADV				D	3				**FILL: Sandy SILT:** Low plasticity, pale brown, fine grained sand, with some clay.	M			
									FILL: Clayey SAND: Fine to medium grained, dark brown, trace of pale brown sand pockets, fine to coarse grained sandstone and fine grained ironstone gravel.				FILL
				SPT 9,6,8 N*=14		1							
				E+1.4ppm	2								
				E+0.4ppm		2							
				SPT 4,5,10 N*=15	1								
					0	3							
								SW	**SAND:** Fine to coarse grained, with some low plasticity fines.		L		ALLUVIUM
				SPT 4,3,2 N*=5	-1	4							
								SC	**Clayey SAND:** Fine grained, dark brown, clay.	W			
		►				5		SW	**SAND:** Medium to coarse grained, pale grey, trace of fines.		L-MD		
				SPT 5,4,3 N*=7	-2								
					-3	6							
								SC	**Clayey SAND:** Fine to coarse grained, pale grey, pale orange brown, with some silt.	M			RESIDUAL SOIL
				SPT 3,2,5 N*=7	-4	7							
						8							

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit
*bit shown by suffix	
e.g.	ADT

support

M mud N nil

C casing

penetration

1 2 3 4 no resistance ranging to refusal

water

▼ 10/1/98 water level on date shown

► water inflow

◄ water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description

based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey environments

Engineering Log - Borehole

Borehole No.	*BH3*
Sheet	2 of 4
Office Job No.:	*GEOTLCOV24303AA*
Client:	*Sydney Harbour Foreshore Authority*
Principal:	
Project:	*Sydney International Convention & Entertainment Centre*
Borehole Location:	*Darling Drive, Haymarket, NSW*
Date started:	*2.6.2011*
Date completed:	*2.6.2011*
Logged by:	*RH*
Checked by:	*SS*

drill model and mounting:	Ausroc 4000 Truck	Easting:		slope:	-90°	R.L. Surface:	3.5
hole diameter:	100 mm	Northing		bearing:	N/A	datum:	AHD

drilling information							material substance							
method	penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro-meter kPa 100 200 300 400	structure and additional observations
ADV		C	C					SC		M	L-MD		
					-5				**SANDSTONE:** Extremely to highly weathered, fine to coarse grained, pale orange brown, estimated to be very low to low strength.				WEATHERED BEDROCK
									Borehole BH3 continued as cored hole				
						9							
					-6								
						10							
					-7								
						11							
					-8								
						12							
					-9								
						13							
					-10								
						14							
					-11								
						15							
					-12								
						16							

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit

*bit shown by suffix
e.g. ADT

support

M	mud	N	nil
C	casing		

penetration
1 2 3 4
no resistance ranging to refusal

water

10/1/98 water level on date shown

water inflow

water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description
based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey environments

Engineering Log - Borehole

Borehole No.	***BH4***
Sheet	1 of 4
Office Job No.:	***GEOTLCOV24303AA***
Client:	***Sydney Harbour Foreshore Authority***
Principal:	
Project:	***Sydney International Convention & Entertainment Centre***
Borehole Location:	***Darling Drive, Haymarket, NSW***
Date started:	***6.6.2011***
Date completed:	***6.6.2011***
Logged by:	***RH***
Checked by:	***SS***

drill model and mounting:	Ausroc 4000 Truck	Easting:	slope: -90°	R.L. Surface:	3.3
hole diameter:	100 mm	Northing	bearing: N/A	datum:	AHD

drilling information | **material substance**

method	penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro-meter kPa 100 200 300 400	structure and additional observations
DT		C	C		3				**ASPHALT:** **CONCRETE:**	D			PAVEMENT
ADV				E+0.4ppm					**FILL: SAND:** Fine to medium grained, pale brown with some low plasticity fines, ironstone inclusions. **FILL: Clayey SAND:** Fine to medium grained, dark grey/dark brown, low plasticity, fines with a trace of light brown sand pockets and fine to medium grained sandstone and ironstone gravels.	M			FILL
						1							
				SPT 4,5,6 N*=11	2								
				E+0ppm									
				E+0.7ppm		2			2m - Band of partically cemented sand.				
					1								2.3m - Slight hydrocarbon odour.
				SPT 2,2,4 N*=6									
				E+0ppm		3							
					0								
			►							W			
				SPT 8,8,5 N*=13	-1	4			4m - Band of red, partially cemented sand.				
								SC	**Clayey SAND:** Fine to medium grained, grey.		L		ALLUVIUM
					-2	5							
				SPT 5,3,2 N*=5					**Clayey SAND:** Fine to coarse grained, pale grey, with some silt. Trace of bivalves and shell fragments in bands throughout layer.				5.7m - organic odour
					-3	6							
									Clayey SAND: Fine to coarse grained, pale grey with red/orange brown mottles, with some silt and fine to medium grained sandstone gravels.		D		RESIDUAL SOIL
				SPT 8,14,11 N*=25	-4	7							
						8							

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit

*bit shown by suffix
e.g. ADT

support
M mud N nil
C casing

penetration
1 2 3 4
no resistance ranging to refusal

water
▼ 10/1/98 water level on date shown
► water inflow
◄ water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description
based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

BOREHOLE GEOTLCOV24303AA.GPJ COFFEY.GDT 19.8.11

Form GEO 5.3 Issue 3 Rev.2

coffey environments

Engineering Log - Borehole

Borehole No.	***BH4***
Sheet	2 of 4
Office Job No.:	***GEOTLCOV24303AA***
Client:	***Sydney Harbour Foreshore Authority***
Principal:	
Project:	***Sydney International Convention & Entertainment Centre***
Borehole Location:	***Darling Drive, Haymarket, NSW***
Date started:	***6.6.2011***
Date completed:	***6.6.2011***
Logged by:	***RH***
Checked by:	***SS***

drill model and mounting:	Ausroc 4000 Truck	Easting:		slope:	-90°	R.L. Surface:	3.3
hole diameter:	100 mm	Northing		bearing:	N/A	datum:	AHD

drilling information | **material substance**

method	penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetrometer kPa 100 200 300 400	structure and additional observations
ADV		C	C		-5				**Clayey SAND:** Fine to coarse grained, pale grey with red/orange brown mottles, with some silt and fine to medium grained sandstone gravels.	W	D		RESIDUAL SOIL
								SM	**Silty SAND:** Medium to coarse grained, pale grey with orange brown mottles.	M			WEATHERED BEDROCK
NMLC									Borehole BH4 continued as cored hole				
						9							
					-6								
						10							
					-7								
						11							
					-8								
						12							
					-9								
						13							
					-10								
						14							
					-11								
						15							
					-12								
						16							

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit

*bit shown by suffix
e.g. ADT

support

M mud
N nil
C casing

penetration

1 2 3 4
no resistance ranging to refusal

water

10/1/98 water level on date shown
water inflow
water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description

based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

Engineering Log - Borehole

Borehole No.	**BH5**
Sheet	1 of 4
Office Job No.:	*GEOTLCOV24303AA*
Client:	*Sydney Harbour Foreshore Authority*
Principal:	
Project:	*Sydney International Convention & Entertainment Centre*
Borehole Location:	*Lackey Street, Haymarket, NSW*
Date started:	*14.6.2011*
Date completed:	*15.6.2011*
Logged by:	*LJG*
Checked by:	*SS*

drill model and mounting:	Ausroc 4000 Truck	Easting:		slope:	-90°	R.L. Surface:	2.4
hole diameter:	100 mm	Northing		bearing:	N/A	datum:	AHD

drilling information / **material substance**

method	penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro-meter kPa 100 200 300 400	structure and additional observations
ADT		C	C						**FILL: BRICK PAVERS:**	D			FILL
					2				**FILL: SAND:** Coarse sand, brown, trace of roots. 0.3m - Medium to coarse sand with some clay, trace of gravel. 0.5m - Brown, yellow.				
				SPT 8,4,4 N*=8		1							
					1				**FILL: Clayey SAND:** Medium to coarse, brown mottled yellow, medium to high plasticity clay, with some fine gravel.				
						2			**FILL: CLAY:** Medium to high plasticity, pale grey, red brown, trace of fine rounded ironstone gravel and sand. (shale fill) 2.0m - Red brown mottled pale grey, grey.				
				SPT 1,2,5 N*=7	0				2.50m - With some fine shale gravels.				
						3			**FILL: Sandy CLAY:** Low to medium plasticity, pale grey, brown, corase sand, trace of gravel.	M			
			►—					SM	**Silty SAND:** Coarse grained, black with some shells.	W	L		ESTUARINE/ALLUVIUM
					-1	4		SC	**Clayey SAND:** Coarse grained, brown, medium plasticity clay, trace of shells and fine gravel.				
WB				SPT 2,1,2 N*=3	-2	5		CL-CH	**Sandy CLAY:** Low to medium plasticity, dark brown to dark grey, fine to medium sand, with some organic fiberous materials.	>Wp	S-F		
				SPT 2,1,2 N*=3	-3	6							5.6m - Organic material in SPT sulphur odour
					-4			SC	**Clayey SAND:** Coarse grained, dark brown to black, low plasticity clay, trace of fine gravel.		L		
				SPT 7,8,12 N*=20	-5	7 8		CH	**CLAY:** High plasticity, red brown, pale grey, trace of ironstone and sand. 7.20m - Yellow, brown mottled. 7.40m - Pale grey with some fine sand.	>Wp	VSt-H	× × ×	SLOPE WASH

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit

*bit shown by suffix
e.g. ADT

support

M mud N nil
C casing

penetration
1 2 3 4
no resistance ranging to refusal

water

▼ 10/1/98 water level on date shown

►— water inflow

◄— water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description
based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey environments

Borehole No.	***BH5***
Sheet	2 of 4
Office Job No.:	***GEOTLCOV24303AA***

Engineering Log - Borehole

Client:	***Sydney Harbour Foreshore Authority***	Date started:	***14.6.2011***
Principal:		Date completed:	***15.6.2011***
Project:	***Sydney International Convention & Entertainment Centre***	Logged by:	***LJG***
Borehole Location:	***Lackey Street, Haymarket, NSW***	Checked by:	***SS***

drill model and mounting:	Ausroc 4000 Truck	Easting:		slope:	-90°	R.L. Surface:	2.4
hole diameter:	100 mm	Northing		bearing:	N/A	datum:	AHD

drilling information							**material substance**						
method	penetration 1 2 3	support	water	**notes** samples, tests, etc	RL	depth metres	graphic log	classification symbol	**material** soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetrometer kPa 100 200 300 400	**structure and additional observations**
WB		C	C					CH		>Wp	VSt-H		
				SPT 4,6,6 N*=12	-6 -7	9		CS	**Sandy CLAY:** Low to medium plasticity, pale grey, medium sand, with some silt.		St	× ×	ALLUVIUM
				SPT 7,9,13 N*=22	-8 -9	10 11		CH	**CLAY:** High plasticity, dark grey, trace of silt.		VSt-H	× × × × ×	
				SPT 4,3,2 N*=5 SPT 4,7,14 N*=21	-10 -11	12 13		SC	**Clayey SAND:** Medium to coarse, brown, grey, trace of gravel. 13.0m - Fine to coarse, dark grey, grey, trace of organics.	W	L-MD		ESTUARINE 11.50m - No sample recovered
					-12	14		CL	**Silty CLAY:** Low plasticity, dark brown, black, with some organic material (wood) very light.	>Wp	St		
				SPT 3,5,9 N*=14	-13	15		SC	**Clayey SAND:** Coarse grained, pale grey, dark grey, low plasticity clay, trace of silt.	W	L-MD		
						16							WEATHERED BEDROCK

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit

*bit shown by suffix
e.g. ADT

support

M mud N nil
C casing

penetration

1 2 3 4 no resistance ranging to refusal

water

▼ 10/1/98 water level on date shown
► water inflow
◄ water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description

based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey environments

Engineering Log - Borehole

Borehole No.	*BH5*
Sheet	3 of 4
Office Job No.:	*GEOTLCOV24303AA*
Client:	*Sydney Harbour Foreshore Authority*
Principal:	
Project:	*Sydney International Convention & Entertainment Centre*
Borehole Location:	*Lackey Street, Haymarket, NSW*
Date started:	*14.6.2011*
Date completed:	*15.6.2011*
Logged by:	*LJG*
Checked by:	*SS*

drill model and mounting:	Ausroc 4000 Truck	Easting:		slope:	-90°	R.L. Surface:	2.4
hole diameter:	100 mm	Northing		bearing:	N/A	datum:	AHD

drilling information | **material substance**

method	penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro-meter kPa 100 200 300 400	structure and additional observations
WB									**SANDSTONE:** Extremely weathered, pale grey, brown, coarse grained, estimated to be very low strength, remoulds to SAND. *(continued)*				
					-14				Borehole BH5 continued as cored hole				
						17							
					-15								
						18							
					-16								
						19							
					-17								
						20							
					-18								
						21							
					-19								
						22							
					-20								
						23							
					-21								
						24							

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit

*bit shown by suffix
e.g. ADT

support

M	mud	N	nil
C	casing		

penetration
1 2 3 4
no resistance ranging to refusal

water

▼ 10/1/98 water level on date shown
► water inflow
◄ water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description
based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey environments

Engineering Log - Borehole

Borehole No.	**BH6**
Sheet	1 of 4
Office Job No.:	**GEOTLCOV24303AA**
Client:	***Sydney Harbour Foreshore Authority***
Principal:	
Project:	***Sydney International Convention & Entertainment Centre***
Borehole Location:	***Back of House of Sydney Entertainment Centre***
Date started:	**9.6.2011**
Date completed:	**9.6.2011**
Logged by:	**LJG**
Checked by:	**SS**

drill model and mounting:	Ausroc 4000 Truck	Easting:		slope:	-90°	R.L. Surface:	2.6
hole diameter:	100 mm	Northing		bearing:	N/A	datum:	AHD

drilling information

method	penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres
ADT		C	C	E+0ppm		
DT				E, QC06,QC07+0ppm	2	
ADT				SPT 2,3,3 N*=6	1	1
				E+0.4ppm		2
			▼	E+0ppm	0	
				SPT 5,2,2 N*=4	-1	3
W				E+0ppm		4
				SPT 0,2,3 N*=5	-2	
					-3	5
				E+0ppm		6
				SPT 5,3,5 N*=8	-4	
					-5	7
						8

material substance

classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro-meter kPa 100 200 300 400	structure and additional observations
	FILL: ASPHALT: 0.02m thick	D			PAVEMENT
	FILL: GRAVEL: Medium to coarse, subangular to subrounded, black, grey, trace of sand and clay.				
	FILL: CONCRETE: 0.08m	D			
	FILL: GRAVEL: Medium to coarse angular to subangular, grey/brown, trace of fine gravel and sand.				FILL
	FILL: CONCRETE: 0.16m	D			
	FILL: GRAVEL: Medium to coarse, angular to subrounded, trace of fine gravel and cobbles.				
	FILL: SANDSTONE BOULDER: Coarse grained, yellow/orange, rounded.	<Wp			
	FILL: CLAY: High plasticity, red brown, pale grey, grey mottled, trace of fine gravel, ironstone and shale. (shale fill) 1.80m - Grey, with some fine shale angular gravel.	M			
	FILL: SAND: Coarse grained, grey/brown, trace of silt and rubber.	W			
SC	**Clayey SAND:** Coarse grained, brown, grey, low plasticity clay.				ESTUARINE
CL	**Sandy CLAY:** Low plasticity, brown, black, coarse sand, trace of silt.		F		
CL	**CLAY:** Low to medium red, brown, with some fine sand.				
CH	**Sandy CLAY:** High plasticity, red, brown, pale grey, medium to coarse sand.		St		ALLUVIUM
SC	**Clayey SAND:** Coarse grained, pale grey, red-brown, medium plasticity clay.		L-MD		
CL	**Sandy CLAY:** Low to medium plasticity, pale grey.		St	×	
CH	**CLAY:** High plasticity, red-brown, pale grey, micaceous.		VSt	× ×	SLOPE WASH
CL-CH	**Sandy CLAY:** Medium to high plasticity, grey, pale grey, coarse sand.				ALLUVIUM

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit

*bit shown by suffix
e.g. ADT

support

M mud N nil
C casing

penetration
1 2 3 4
no resistance ranging to refusal

water

▼ 10/1/98 water level on date shown
► water inflow
◄ water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description
based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey environments

Engineering Log - Borehole

Borehole No.	***BH6***
Sheet	2 of 4
Office Job No.:	***GEOTLCOV24303AA***
Date started:	***9.6.2011***
Date completed:	***9.6.2011***
Logged by:	***LJG***
Checked by:	***SS***

Client: ***Sydney Harbour Foreshore Authority***

Principal:

Project: ***Sydney International Convention & Entertainment Centre***

Borehole Location: ***Back of House of Sydney Entertainment Centre***

drill model and mounting:	Ausroc 4000 Truck	Easting:	slope: -90°	R.L. Surface:	2.6
hole diameter:	100 mm	Northing	bearing: N/A	datum:	AHD

drilling information							**material substance**						
method	penetration 1 2 3	support	water	**notes** samples, tests, etc	RL	depth metres	graphic log	classification symbol	**material** soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro-meter kPa 100 200 300 400	**structure and additional observations**
W		C	C	U_{50}				CL-CH	**Sandy CLAY:** Medium to high plasticity, grey, pale grey, coarse sand. *(continued)*	W	VSt		
				SPT 0,4,5 N*=9	-6	9		SC	**Clayey SAND:** Medium to coarse grained, grey, pale grey.		MD		
				SPT 5,6,9 N*=15	-7	10		CH	**CLAY:** High plasticity, red-brown, pale grey, grey, trace of coarse sand and fine grained.		VSt-H		SLOPE WASH
				SPT 5,6,7 N*=13	-8 -9	11		CH	**Silty CLAY:** High plasticity, dark grey, brown, black, micaeous.		VSt-H		ALLUVIUM
				SPT 5,8,10 N*=18 SPT 0,5,7 N*=12	-10 -11 -12	12 13 14 15		SP	**SAND:** Coarse grained, grey, dark grey, with some clay. 14m - Dark grey, black, trace of organics. At 15m - Wtih some silt and organic material.		MD		RESIDUAL SOIL?
				SPT 9,R N*=R	-13	16			**SANDSTONE:** Extremely weathered, coarse grained, black, dark grey, estimated low strength, with some organic matter.				WEATHERED BEDROCK

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit

*bit shown by suffix
e.g. ADT

support
M mud N nil
C casing

penetration
1 2 3 4
no resistance ranging to refusal

water
▼ 10/1/98 water level on date shown
► water inflow
◄ water outflow

notes, samples, tests

Borehole BH6 continued as cored hole

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description
based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey environments

Engineering Log - Borehole

Borehole No.	***BH7***
Sheet	1 of 6
Office Job No.:	***GEOTLCOV24303AA***
Client:	***Sydney Harbour Foreshore Authority***
Principal:	
Project:	***Sydney International Convention & Entertainment Centre***
Borehole Location:	***Back of House of Sydney Entertainment Centre***
Date started:	***15.6.2011***
Date completed:	***17.6.2011***
Logged by:	***RC***
Checked by:	***SS***

drill model and mounting:	Hydrapower Scout Truck	Easting:		slope:	-60°	R.L. Surface:	2.6
hole diameter:	100 mm	Northing		bearing:	213.5°	datum:	AHD

drilling information | **material substance**

method	penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetrometer kPa 100 200 300 400	structure and additional observations
ADT		C	C				▨		**FILL: ASPHALT:** (70mm thickness) overlying sandy gravel; medium to coarse grained, brown, dark grey.	D			PAVEMENT
							▨		**FILL: Gravelly SAND:** Fine to medium grained, brown, fine to coarse gravel, trace of clay.				FILL
					2								
						1							
				D									
							▨		**FILL: Gravelly CLAY:** Low plasticity, brown, orange brown.	<Wp			
					1								
						2							
										>Wp			
				D									
					0								
						3							
			►										
							▨	CL	**Silty CLAY:** Low plasticity, dark grey, grey, trace of white shells.		S		ESTUARINE
				D									
WRR								SP	**SAND:** Medium grained, grey, with some clay.	W	L		
						4							
		C	C		-1								
							▨	CH	**SILTY CLAY:** High plasticity, grey, trace of shells and plant fibres with some sandy bands.	>Wp	F		
				U_{50}								×	
						5							
					-2								
						6							
					-3								
									6.5m - Becoming brown mottled pale grey.				
						7							
		C	C										
					-4								
						8							

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit
*bit shown by suffix	
e.g.	ADT

support

M	mud	N	nil
C	casing		

penetration

1 2 3 4

no resistance ranging to refusal

water

▼	10/1/98 water level on date shown
►	water inflow
◄	water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description

based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey environments

Engineering Log - Borehole

Borehole No.	***BH7***
Sheet	2 of 6
Office Job No.:	***GEOTLCOV24303AA***
Client:	***Sydney Harbour Foreshore Authority***
Principal:	
Project:	***Sydney International Convention & Entertainment Centre***
Borehole Location:	***Back of House of Sydney Entertainment Centre***
Date started:	***15.6.2011***
Date completed:	***17.6.2011***
Logged by:	***RC***
Checked by:	***SS***

drill model and mounting:	Hydrapower Scout Truck	Easting:		slope:	-60°	R.L. Surface:	2.6
hole diameter:	100 mm	Northing		bearing:	213.5°	datum:	AHD

drilling information | **material substance**

method	penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro-meter kPa 100 200 300 400	structure and additional observations
WRR		C	C					CH		>Wp	F		
								CH	**CLAY:** High plasticity, red brown, orange brown, pale grey, with some fine grained sand.				SLOPE WASH
					-5								
						9							
			◁					SC	**Clayey SAND:** Medium to coarse grained, grey, with bands of clay.				ALLUVIUM
					-6								
						10							
					-7								
						11							
						12							
					-8								
						13							
					-9								
				D									
						14							
					-10								
						15							
									SANDSTONE: Medium to coarse grained, pale grey to white, extremely weathered to highly weathered.				WEATHERED BEDROCK
					-11								
						16							

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit

*bit shown by suffix
e.g. ADT

support

M mud
N nil
C casing

penetration

1 2 3 4
no resistance ranging to refusal

water

▼ 10/1/98 water level on date shown
► water inflow
◄ water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description

based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey environments

Engineering Log - Borehole

Client:	*Sydney Harbour Foreshore Authority*	Borehole No.	***BH7***
Principal:		Sheet	3 of 6
Project:	***Sydney International Convention & Entertainment Centre***	Office Job No.:	***GEOTLCOV24303AA***
Borehole Location:	***Back of House of Sydney Entertainment Centre***	Date started:	***15.6.2011***
		Date completed:	***17.6.2011***
		Logged by:	***RC***
		Checked by:	***SS***

drill model and mounting:	Hydrapower Scout Truck	Easting:		slope:	-60°	R.L. Surface:	2.6
hole diameter:	100 mm	Northing		bearing:	213.5°	datum:	AHD

drilling information							material substance						
method	penetration 1 2 3	support	water	**notes** samples, tests, etc	RL	depth metres	graphic log	classification symbol	**material** soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro-meter kPa 100 200 300 400	**structure and additional observations**
WRR		C	C						**SANDSTONE:** Medium to coarse grained, pale grey to white, extremely weathered to highly weathered. *(continued)*				
									Borehole BH7 continued as cored hole				
					-12								
						17							
					-13								
						18							
						19							
					-14								
						20							
					-15								
						21							
					-16								
						22							
					-17								
						23							
					-18								
						24							

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit

*bit shown by suffix
e.g. ADT

support

M	mud	N	nil
C	casing		

penetration
1 2 3 4
no resistance ranging to refusal

water

▼	10/1/98 water level on date shown
►	water inflow
◄	water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description
based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey environments

Engineering Log - Borehole

Borehole No.	***BH8***
Sheet	1 of 1
Office Job No.:	***GEOTLCOV24303AA***
Client:	***Sydney Harbour Foreshore Authority***
Principal:	
Project:	***Sydney International Convention & Entertainment Centre***
Borehole Location:	***Back of House of Sydney Entertainment Centre***
Date started:	***14.6.2011***
Date completed:	***14.6.2011***
Logged by:	***RC***
Checked by:	***SS***

drill model and mounting:	Hydrapower Scout Truck	Easting:		slope:	-90°	R.L. Surface:	2.5
hole diameter:	100 mm	Northing		bearing:	N/A	datum:	AHD

drilling information | **material substance**

method	penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetrometer kPa 100 200 300 400	structure and additional observations
ADT	▨	C	C				▨		**FILL: ASPHALT:** Dark grey, 70mm thickness overlying sands gravel: medium grained, grey, fine grained.	D			PAVEMENT
	▨				2		▨		**FILL: SAND:** Fine to medium grained, dark brown, with some clay and fine gravel.	M			
	▨						▨		**FILL: ASPHALT:** Dark grey.				
NMLC	▨					1	▨		**FILL: CONCRETE:** Pale grey to grey. 1m - With some dark grey gravel aggregate and steel.	D			1m - TC Bit Refusal
			◄						**VOID:**				
					1								
						2							
			►		0								
						3			Borehole BH8 terminated at 3m				BH8 was terminated at 3m, due to obstructions.
					-1								
						4							
					-2								
						5							
					-3								
						6							
					-4								
						7							
					-5								
						8							

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit

*bit shown by suffix
e.g. ADT

support

M mud N nil
C casing

penetration

1 2 3 4
no resistance ranging to refusal

water

▼ 10/1/98 water level on date shown

► water inflow

◄ water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description

based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey environments

Engineering Log - Borehole

Borehole No.	***BH9***
Sheet	1 of 1
Office Job No.:	***GEOTLCOV24303AA***
Client:	***Sydney Harbour Foreshore Authority***
Principal:	
Project:	***Sydney International Convention & Entertainment Centre***
Borehole Location:	***Back of House of Sydney Entertainment Centre***
Date started:	***15.6.2011***
Date completed:	***15.6.2011***
Logged by:	***RC***
Checked by:	***SS***

drill model and mounting:	Hydrapower Scout Truck	Easting:		slope:	-90°	R.L. Surface:	2.75
hole diameter:	100 mm	Northing		bearing:	N/A	datum:	AHD

drilling information							material substance						
method	penetration 1 2 3	support	water	**notes** samples, tests, etc	RL	depth metres	graphic log	classification symbol	**material** soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro-meter kPa 100 200 300 400	**structure and additional observations**
ADT			Not Observed	E+0.0ppm					**FILL: ASPHALT:** Dark grey, grey, (70mm) overlying sandy gravel, medium, brown, dark grey.	D			PAVEMENT
									FILL: SAND: Medium to coarse grained, yellow, with some fine to coarse sandstone gravel.				SUB BASE
				E+0.0ppm	2				0.60m - Becoming brown, with some coarse dolerite gravel.				FILL
									FILL: ASPHALT: Grey.				PREVIOUS PAVEMENT
						1			**FILL: CONCRETE:** Pale grey.				BH9 was terminated at shallow depth due to obstructions after many attempts.
									Borehole BH9 terminated at 0.85m				
					1	2							
					0	3							
					-1	4							
					-2	5							
					-3	6							
					-4	7							
					-5	8							

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit

*bit shown by suffix
e.g. ADT

support

M mud N nil
C casing

penetration

1 2 3 4
no resistance ranging to refusal

water

▼ 10/1/98 water level on date shown

► water inflow

◄ water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description
based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey environments

Engineering Log - Borehole

Borehole No. **EB1**
Sheet 1 of 1
Office Job No.: **GEOTLCOV24303AA**

Client: *Sydney Harbour Foreshore Authority*
Principal:
Project: *Sydney International Convention & Entertainment Centre*
Borehole Location: *Sydney Entertainment Centre, Haymarket, NSW*

Date started: **10.6.2011**
Date completed: **10.6.2011**
Logged by: **AN**
Checked by:

drill model and mounting: Truck
Easting:
slope: -90°
R.L. Surface:
hole diameter: mm
Northing
bearing:
datum: AHD

drilling information | **material substance**

method	penetration 1 2 3	support	water	**notes** samples, tests, etc	RL	depth metres	graphic log	classification symbol	**material** soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro-meter kPa 100 200 300 400	**structure and additional observations**
				E+0.0ppm					**ASPHALT**				50mm Asphalt.
									Gravelly SAND: Medium to coarse grained, grey to brown, fine to medium grained gravel.	D/M			FILL.
						0.5							
				E+0.0ppm									
									Sandy CLAY: Low plasticity, red to brown, fine to medium grained.	D/M			Sandstone flecks.
						1.0							
				E+0.0ppm									
				E+2.7ppm		1.5			**Sandy CLAY:** Low plasticity, dark brown to brown, fine to medium grained.	M			Mild organic odour.
						2.0			**Sandy CLAY:** Medium plasticity, grey to brown, fine grained.	M			Residual clays.
				E+0.6ppm									
						2.5							
						3.0							
				E+0.0ppm									
									Borehole EB1 terminated at 3.1m				
						3.5							
						4.0							

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit

*bit shown by suffix
e.g. ADT

support
M mud N nil
C casing

penetration
1 2 3 4
no resistance ranging to refusal

water
▼ 10/1/98 water level on date shown
► water inflow
◄ water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description
based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

BOREHOLE GEOTLCOV24303AA.GPJ COFFEY.GDT 19.8.11

Form GEO 5.3 Issue 3 Rev.2

coffey environments

Engineering Log - Borehole

Borehole No.	*EB2*
Sheet	1 of 1
Office Job No.:	*GEOTLCOV24303AA*
Client:	*Sydney Harbour Foreshore Authority*
Date started:	*10.6.2011*
Principal:	
Date completed:	*10.6.2011*
Project:	*Sydney International Convention & Entertainment Centre*
Logged by:	*AN*
Borehole Location:	*Sydney Entertainment Centre, Haymarket, NSW*
Checked by:	

drill model and mounting:	Truck	Easting:		slope:	-90°	R.L. Surface:	
hole diameter:	mm	Northing		bearing:		datum:	AHD

drilling information							**material substance**						
method	penetration 1 2 3	support	water	**notes** samples, tests, etc	RL	depth metres	graphic log	classification symbol	**material** soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro-meter kPa 100 200 300 400	**structure and additional observations**
				E+0.0ppm					**ASPHALT**	D	S		50mm Asphalt.
									GRAVEL: Road base, grey.	M	S		Porcelain flecks, broken bricks.
									Sandy CLAY: Low plasticity, dark brown to black, fine grained.				
				E+0.0ppm									
						1							
				E+0.3ppm									
									Sandy CLAY: Low to medium plasticity, grey, fine grained.	M	S		Residual.
						2							
									Sandy CLAY: Medium plasticity, red mottled brown, fine grained.	M	F		
				E+0.0ppm									
			►—										
									Sandy CLAY: Low plasticity, brown, red to orange, fine to medium grained.	W	F		
						3							
				E+0.0ppm									
									Silty SAND: Fine to medium grained, grey to brown.	W	F		Sediments, organic odour.
						4							
				E+0.0ppm									
						5							
									Sandy CLAY: Medium to high plasticity, yellow to brown, medium to coarse grained. Trace of coarse grained, angular gravel (siltstone flecks).	M	St		Residual clays.
				E									
						6							
				E									
									Borehole EB2 terminated at 6m				
						7							
						8							

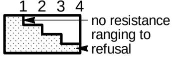
method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit
*bit shown by suffix	
e.g.	ADT

support

M	mud	N	nil
C	casing		

penetration



water

▼	10/1/98 water level on date shown
►—	water inflow
—◄	water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description
based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey environments

Engineering Log - Borehole

Borehole No.	***EB3***
Sheet	1 of 1
Office Job No.:	***GEOTLCOV24303AA***
Client:	***Sydney Harbour Foreshore Authority***
Principal:	
Project:	***Sydney International Convention & Entertainment Centre***
Borehole Location:	***Sydney Entertainment Centre, Haymarket, NSW***
Date started:	***10.6.2011***
Date completed:	***10.6.2011***
Logged by:	***AN***
Checked by:	

drill model and mounting:	Truck	Easting:		slope:	-90°	R.L. Surface:	
hole diameter:	mm	Northing		bearing:		datum:	AHD

drilling information | **material substance**

method	penetration 1 2 3	support	water	**notes** samples, tests, etc	RL	depth metres	graphic log	classification symbol	**material** soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro-meter kPa 100 200 300 400	**structure and additional observations**
				E+0.0ppm					**ASPHALT**	D	L		50mm Asphalt.
									Sandy GRAVEL: Medium to coarse grained, brown to red, fine grained sand. Trace of angular, coarse grained gravel.				FILL, 5% glass and brick fragments.
				E+0.1ppm									
				E+0.0ppm		1							
				E+3.7ppm					**Sandy CLAY:** Medium plasticity, grey, fine grained.	M	F		Residual. Mild hydrocarbon odour.
						2							
				E+2.6ppm					**SAND:** Fine grained, yellow to brown.	M	F		
						3			**SAND:** Fine grained, grey to brown.	M/W	F		
			►	E+7.6ppm									Mild hydrocarbon odour.
									Sandy CLAY: Medium plasticity, yellow to brown, fine grained.	W	St		Residual clays.
						4							
				E+1.1ppm									
				E+0.0ppm		5							
									Sandy CLAY: Medium to high plasticity, yellow mottled grey, fine grained.	M	St		
				E+0.0ppm		6							
									Borehole EB3 terminated at 6.1m				
						7							
						8							

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit
*bit shown by suffix	
e.g.	ADT

support

M	mud	N	nil
C	casing		

penetration

1 2 3 4

no resistance ranging to refusal

water

▼	10/1/98 water level on date shown
►	water inflow
◄	water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description

based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

BOREHOLE GEOTLCOV24303AA.GPJ COFFEY.GDT 19.8.11

coffey geotechnics

Engineering Log - Borehole

Borehole No.	**NBH23**
Sheet	1 of 1
Project No:	*GEOTLCOV24303AC*
Date started:	*17.4.2012*
Date completed:	*24.4.2012*
Logged by:	*JW*
Checked by:	*DS*

Client: *Infrastructure NSW*

Principal:

Project: *SICEEP*

Borehole Location: *See Figure 3*

drill model and mounting:	XP60 Ute	Easting:	333727	slope:	-90°	R.L. Surface:	2.7
hole diameter:	100 mm	Northing	6249937	bearing:	N/A	datum:	AHD

drilling information / **material substance**

method	penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetrometer kPa 100 200 300 400	structure and additional observations
DT		N							**FILL: Red Brick** (0.08m)	D			PAVEMENT
									FILL: SAND: Coarse grained, pale brown, mottled yellow-brown, with some shell fragments	M			FILL
HA				E					**FILL: Concrete:** (0.25m)	D			CONCRETE SLAB
					2	1			**FILL: Sandy GRAVEL:** Fine grained, subangular, dark grey, fine to medium grained sand	M			FILL No Odour, PID = 0.4ppm
									FILL: Clayey SAND: Fine grained, pale brown, mottled red-brown				
ADT				SPT 3,2,4 N*=6	1	2			**FILL: CLAY:** High plasticity, dark grey, mottled orange-brown, pale grey, trace fine grainedsand, and medium grained, subangular sandstone gravel	<Wp			No Odour, PID = 0.8ppm
			►	SPT 1,0,1 N*=1	0	3		CL	**Sandy CLAY:** Low plasticity, dark grey, mottled black, fine grained sand	>Wp	VS	× ×	ALLUVIUM No Odour, PID = 0.3ppm
					-1	4			Borehole NBH23 terminated at 3.45m				
					-2	5							
					-3	6							
					-4	7							
					-5	8							

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit

*bit shown by suffix
e.g. ADT

support

M mud N nil
C casing

penetration

1 2 3 4
no resistance ranging to refusal

water

▼ 10/1/98 water level on date shown
► water inflow
◄ water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description

based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

BOREHOLE GINTGEOTLCOV24303AC_COMBINED WITH AA GINT.GPJ COFFEY.GDT 24.5.12

Form GEO 5.3 Issue 3 Rev.2

coffey geotechnics

Engineering Log - Borehole

Borehole No.	**NBH24**
Sheet	1 of 1
Project No:	**GEOTLCOV24303AC**
Date started:	**24.4.2012**
Date completed:	**24.4.2012**
Logged by:	**JW**
Checked by:	**DS**

Client: *Infrastructure NSW*

Principal:

Project: *SICEEP*

Borehole Location: *See Figure 3*

drill model and mounting:	Ausrock 3000 Truck	Easting:	333604	slope:	-90°	R.L. Surface:	3.9
hole diameter:	100 mm	Northing	6249930	bearing:	N/A	datum:	AHD

drilling information							material substance						
method	penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro-meter kPa 100 200 300 400	structure and additional observations
HA		N		E			▨		**FILL: Red Brick** (0.08m)	D			PAVEMENT
				E			▨		**FILL: SAND:** Fine to medium grained, pale brown, trace fine to medium grained, subangular sandstone gravel	M <Wp			FILL
ADT			►		3	1	▨		**FILL: Gravelly Sandy CLAY:** Low plasticity, dark grey, mottled dark brown, fine to medium grained sand and fine to medium grained, subangular gravel				No Odour, PID = 1.9ppm
							▨		**FILL: CLAY:** High plasticity, pale grey, mottled orange-brown, dark grey, trace fine grained sand	>Wp			
				SPT 5/20,_,_ N*=R			▨		**FILL: Gravelly CLAY:** Low plasticity, dark grey, mottled red-brown, medium to coarse grained, subangular gravel				
					2	2	▨		**FILL: Clayey GRAVEL:** Fine to medium grained, subangular, dark grey, mottled black, low plasticity clay, with some medium to coarse grained sandstone gravel	W			No Odour, PID = 6.9ppm
					1	3	▧	CL	**CLAY:** Low plasticity, dark grey, mottled black, trace of organics	>Wp	VS		ALLUVIUM
				SPT 0,0,1 N*=1			▧	CL	**Sandy CLAY:** Low plasticity, dark grey, mottled black, fine grained sand, with some shell fragments			× × ×	Organic Odour, PID = 18.2ppm
									Borehole NBH24 terminated at 3.45m				
					0	4							
					-1	5							
					-2	6							
					-3	7							
					-4	8							

method

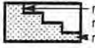
AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit

*bit shown by suffix
e.g. ADT

support

M	mud	N	nil
C	casing		

penetration



water

▼ 10/1/98 water level on date shown

► water inflow

◄ water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description

based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

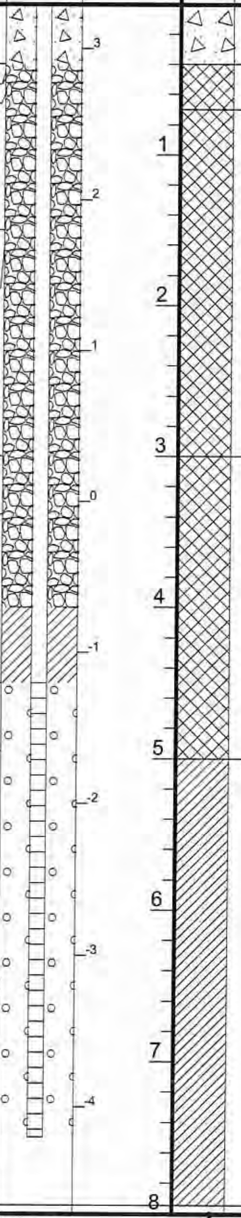
coffey geotechnics

Engineering Log - Piezometer

Borehole No.	**NBH25**
Sheet	1 of 1
Project No:	**GEOTLCOV24303AC**
Client:	**Infrastructure NSW**
Principal:	
Project:	**SICEEP**
Borehole Location:	**See Figure 3**
Date started:	**18.4.2012**
Date completed:	**18.4.2012**
Logged by:	**JW**
Checked by:	**DS**

drill model & mounting:	XP60 Ute	Easting:	323628	slope:	-90°	R.L. Surface:	3.3
hole diameter:	100	Northing:	6249852	bearing:	N/A	datum:	AHD

drilling information | **material substance**



method	penetration 1 2 3	support	water	notes samples, tests, etc	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	structure and additional observations
DT						**CONCRETE:** (0.4m) with 10mm reinforcement	D		CONCRETE SLAB
HA				E E		**FILL: Sandy CLAY:** Low plasticity, pale brown, fine grained sand, trace fine to medium grained, subangular gravel	<Wp		FILL No Odour, Dup 2 + Dup 2a, PID = 8.3ppm
ADT						**FILL: Clayey SAND:** Fine grained, dark grey, with some fine to medium grained, subangular sandstone gravel	M		
				SPT 12/120,_,_ N*=R					No Odour, PID = 5.9ppm
						2m - Becoming dark grey, mottled red-brown			
				SPT 4,2,10/80 N*=R		**FILL: Gravelly Sandy CLAY:** High plasticity, dark grey, fine to medium grained, angular gravel, fine to medium grained sand	<Wp		No Odour, PID = 1.2ppm
				SPT 11,13,7 N*=20					No Odour, PID = 4.5ppm
					CH	**Sandy CLAY:** High plasticity, dark grey/grey, fine grained sand		F-St	ALLUVIUM
			►				>Wp		
				SPT 2,2,3 N*=5					No Odour, PID = 1.0ppm
								St	
				SPT 4,7,11 N*=18		7.5m - Becoming dark grey/grey, mottled yellow-brown			No Odour, PID = 1.0ppm

Borehole terminated at 7.95m

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
DT	diatube
B	blank bit
V	V bit
T	TC bit
TBX	Tubex
*bit shown by suffix	
e.g.	ADT

support

C casing N nil

penetration

1 2 3 4

no resistance ranging to refusal

water

▼ 10/1/98 water level on date shown

► water inflow

◄ water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
P	pressure meter
Bs	bulk sample
R	refusal
E	environmental sample
PID	PID measurement
WS	water sample
PZ	piezometer
ALT	air lift test

classification symbols and soil description based on unified classification system

moisture

D	dry	W	wet
M	moist	Wp	plastic limit
		W_L	liquid limit

well details

▨ betonite

▤ sand

▥ slotted PVC

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

PIEZOMETER GINTGEOTLCOV24303AC_COMBINED WITH AA GINT.GPJ COFFEY.GDT 24.5.12

Form GEO 5.10 Issue 3 Rev.0

coffey geotechnics

Engineering Log - Borehole

Borehole No. **NBH26**
Sheet 1 of 1
Project No: **GEOTLCOV24303AC**

Client: **Infrastructure NSW**
Principal:
Project: **SICEEP**
Borehole Location: **See Figure 3**

Date started: **24.4.2012**
Date completed: **24.4.2012**
Logged by: **ACM**
Checked by: **DS**

drill model and mounting:	XC Drill Track	Easting:		slope: -90°	R.L. Surface: 3.3
hole diameter:	100 mm	Northing		bearing: N/A	datum: AHD

drilling information							material substance						
method	penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	**material** soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro-meter kPa 100 200 300 400	**structure and additional observations**
ADT		N	None Observed		3				**ASPHALT:** (0.3m)				PAVEMENT
				E					**FILL: Silty GRAVEL:** Fine to medium grained, subangular, pale grey, mottled pale brown, with some fine to medium grained sand and red brick fragments	M			FILL No Odour, PID = 2.7ppm
									SANDSTONE: Fine to medium grained, pale grey to orange-brown, highly weathered, low to medium strength				BEDROCK
						1			Borehole NBH26 terminated at 0.8m				
					2								
						2							
					1								
						3							
					0								
						4							
					-1								
						5							
					-2								
						6							
					-3								
						7							
					-4								
						8							

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit

*bit shown by suffix
e.g. ADT

support
M mud N nil
C casing

penetration
1 2 3 4
no resistance ranging to refusal

water
10/1/98 water level on date shown
water inflow
water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description
based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey geotechnics

Engineering Log - Borehole

Borehole No.	*NBH27*
Sheet	1 of 1
Project No:	*GEOTLCOV24303AC*
Date started:	*27.4.2012*
Date completed:	*27.4.2012*
Logged by:	*ACM*
Checked by:	*DS*

Client: *Infrastructure NSW*

Principal:

Project: *SICEEP*

Borehole Location: *See Figure 3*

drill model and mounting:	XP60 Truck	Easting:		slope:	-90°	R.L. Surface:	2.7
hole diameter:	100 mm	Northing		bearing:	N/A	datum:	AHD

drilling information | **material substance**

method	penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	**material** soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro-meter kPa 100 200 300 400	**structure and additional observations**
ADT	▒						▬		**ASPHALT:** (0.15m)	D			PAVEMENT
	▒			E E	2	1	☒		**FILL: Gravelly SAND:** Fine grained, dark brown, mottled dark grey, fine to medium grained, subangular to angular gravel	M			FILL No Odour
	▒						△		**CONCRETE:** (0.4m)	D			CONCRETE
	▒			SPT 2,2,4 N*=6	1 0	2	▨	CL	**CLAY:** Medium plasticity, pale brown, mottled orange-brown, red-brown	<Wp	F		ALLUVIUM No Odour, PID = 2.1ppm
	▒		▼	SPT 2,1,2 N*=3	-1	3	░	SP	**SAND:** Coarse grained, dark grey, mottled black, with some fine grained, subangular gravel	M W	L		No odour, PID = 2.8ppm
	▒					4	░	SC	**Clayey SAND:** Fine to medium grained, dark grey, mottled black, with some organics		VL		Organic Odour
	▒			SPT 3,3,3 N*=6	-2	5	▨	CH	**CLAY:** Medium to high plasticity, pale brown, mottled dark grey	>Wp	St		No Odour, PID = 0.4ppm
					-3 -4 -5	6 7 8			Borehole NBH27 terminated at 5m				

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit

*bit shown by suffix
e.g. ADT

support

M mud N nil
C casing

penetration

1 2 3 4 no resistance ranging to refusal

water

▼ 10/1/98 water level on date shown

► water inflow

◄ water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description

based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

BOREHOLE GINTGEOTLCOV24303AC_COMBINED WITH AA GINT.GPJ COFFEY.GDT 24.5.12

Form GEO 5.3 Issue 3 Rev.2

coffey geotechnics

Engineering Log - Borehole

Client:	*Infrastructure NSW*	Borehole No.	***NBH29***
		Sheet	1 of 1
		Project No:	***GEOTLCOV24303AC***
		Date started:	***17.4.2012***
Principal:		Date completed:	***17.4.2012***
Project:	***SICEEP***	Logged by:	***JW***
Borehole Location:	***See Figure 3***	Checked by:	***DS***

drill model and mounting:	XP60 Ute	Easting:	333735	slope:	-90°	R.L. Surface:	3
hole diameter:	100 mm	Northing	6249927	bearing:	N/A	datum:	AHD

drilling information / **material substance**

method	support	water	notes samples, tests, etc	RL	depth metres	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	structure and additional observations
ADT	N	None Observed					**FILL: Red Brick** (0.08m)	D		PAVEMENT
			E				**FILL: SAND:** Coarse grained, yellow-brown, with some shell fragments and quartz grains	M		FILL No Odour, PID = 1.7ppm
DT							**FILL: Sandy GRAVEL:** Medium to coarse grained, angular, dark grey, fine to coarse grained sand	D		CONCRETE SLAB
ADT							**Concrete:** (0.2m) with 10mm reinforcement	M		FILL
			E	2	1		**FILL: Clayey SAND:** Fine grained, dark grey, low plasticity clay			Stong Hydrocarbon Odour, PID = 75.3ppm
			SPT 2,2,4 N*=6				**FILL: CLAY:** High plasticity, pale grey, mottled orange-brown with some iron oxide staining	<Wp		
			E	1	2		2m - Becoming dark grey.			No Odour, PID = 35.2ppm
			SPT 1,2,1 N*=3	0	3	CH	**CLAY:** High plasticity, pale grey, mottled orange-brown		F-St	ALLUVIUM
			E							No Odour, PID = 3.4ppm
				-1	4					
			SPT 3,4,6 N*=10							
				-2	5		Borehole NBH29 terminated at 4.95m			
				-3	6					
				-4	7					
				-5	8					

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit

*bit shown by suffix
e.g. ADT

support

M mud
N nil
C casing

penetration

1 2 3 4 no resistance ranging to refusal

water

10/1/98 water level on date shown

water inflow

water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description
based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

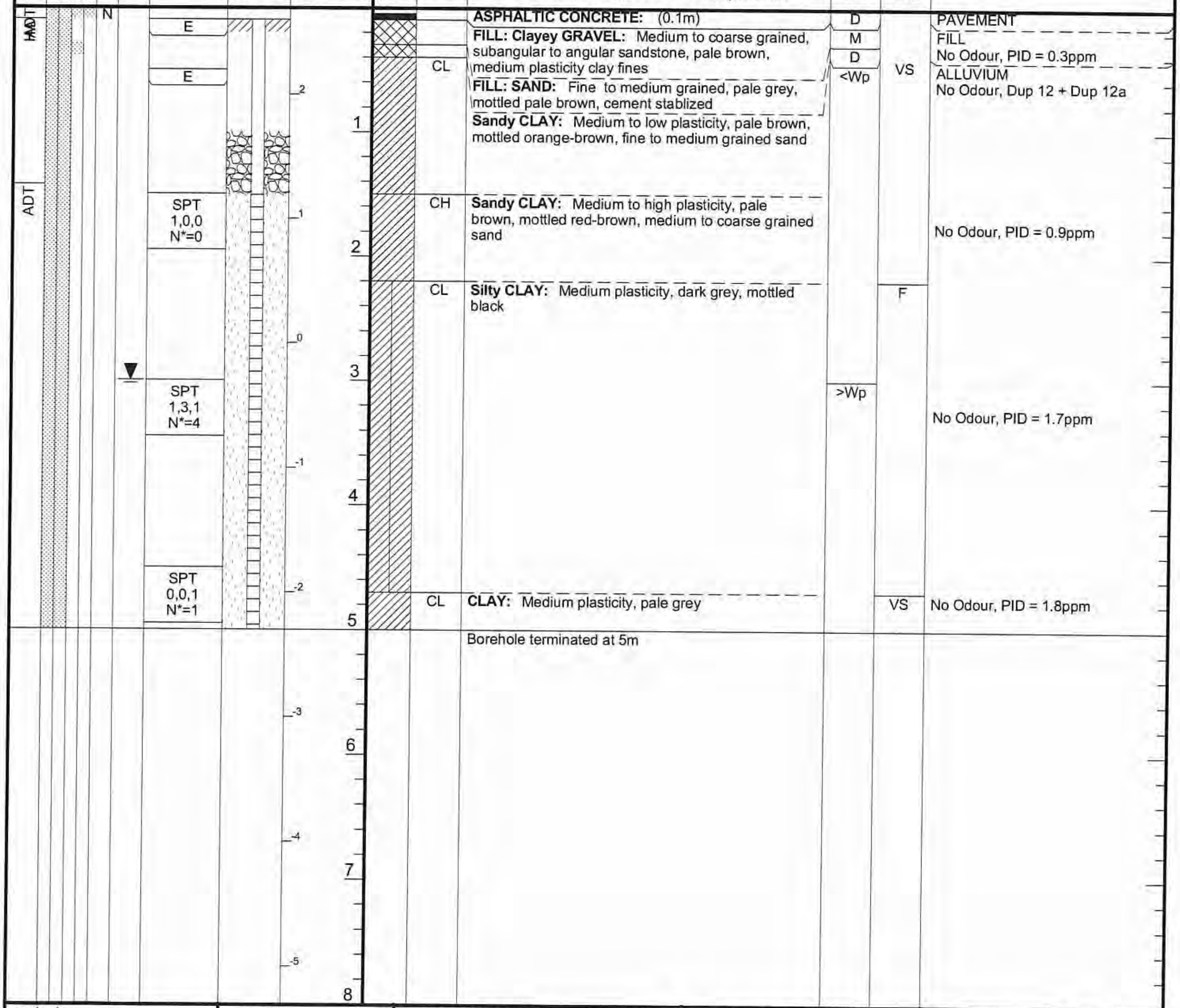
coffey geotechnics

Borehole No.	NBH30
Sheet	1 of 1
Project No:	GEOTLCOV24303AC

Engineering Log - Piezometer

Client:	*Infrastructure NSW*	Date started:	27.4.2012
Principal:		Date completed:	27.4.2012
Project:	*SICEEP*	Logged by:	ACM
Borehole Location:	*See Figure 3*	Checked by:	DS

drill model & mounting: XP60 Truck	Easting:	slope:	-90°	R.L. Surface:	2.7
hole diameter: 100	Northing:	bearing:	N/A	datum:	AHD



drilling information | **material substance**

method	support	water	notes samples, tests, etc	RL	depth metres	classification symbol	material — soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	structure and additional observations
HA ADT	N		E				**ASPHALTIC CONCRETE:** (0.1m)	D		PAVEMENT
							FILL: Clayey GRAVEL: Medium to coarse grained, subangular to angular sandstone, pale brown, medium plasticity clay fines	M		FILL No Odour, PID = 0.3ppm
			E	2			**FILL: SAND:** Fine to medium grained, pale grey, mottled pale brown, cement stablized	D		
					1	CL	**Sandy CLAY:** Medium to low plasticity, pale brown, mottled orange-brown, fine to medium grained sand	<Wp	VS	ALLUVIUM No Odour, Dup 12 + Dup 12a
ADT			SPT 1,0,0 N*=0	1	2	CH	**Sandy CLAY:** Medium to high plasticity, pale brown, mottled red-brown, medium to coarse grained sand			No Odour, PID = 0.9ppm
				0		CL	**Silty CLAY:** Medium plasticity, dark grey, mottled black		F	
		▼	SPT 1,3,1 N*=4	-1	3 4			>Wp		No Odour, PID = 1.7ppm
			SPT 0,0,1 N*=1	-2	5	CL	**CLAY:** Medium plasticity, pale grey		VS	No Odour, PID = 1.8ppm
							Borehole terminated at 5m			
				-3 -4 -5	6 7 8					

PIEZOMETER GINTGEOTLCOV24303AC_COMBINED WITH AA GINT.GPJ COFFEY.GDT 24.5.12

method	
AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
DT	diatube
B	blank bit
V	V bit
T	TC bit
TBX	Tubex
*bit shown by suffix	
e.g.	ADT

support
C casing N nil

penetration
1 2 3 4
no resistance ranging to refusal

water
▼ 10/1/98 water level on date shown
► water inflow
◄ water outflow

notes, samples, tests	
U_{50}	undisturbed sample 50mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
P	pressure meter
Bs	bulk sample
R	refusal
E	environmental sample
PID	PID measurement
WS	water sample
PZ	piezometer
ALT	air lift test

classification symbols and soil description based on unified classification system

moisture			
D	dry	W	wet
M	moist	Wp	plastic limit
		W_L	liquid limit

well details
▨ betonite
▒ sand
▤ slotted PVC

consistency/density index	
VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey environments

Engineering Log - Borehole

Client:	*INSW*	Borehole No.	***CBH5***
		Sheet	1 of 1
		Office Job No.:	***GEOTLCOV24303AD***
		Date started:	***25.7.2012***
Principal:		Date completed:	***25.7.2012***
Project:	*SICEEP, Darling Harbour, Sydney NSW*	Logged by:	***PD***
Borehole Location:	*SICEEP Darling Harbour, Sydney NSW*	Checked by:	***ML***

drill model and mounting:	B80 MOBILE DRILL TRACK	Easting:	slope: -90°		R.L. Surface:
hole diameter:	120 mm	Northing	bearing:		datum:

drilling information | **material substance**

method	penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro-meter kPa 100 200 300 400	structure and additional observations
ADV									**BRICK:**				
									SAND: Yellow brown, medium grained.	D	F		No odour or staining.
									ROADBASE:				
ADT				E+-3.1ppm		0.5			**FILL:** Gravelly clayey sand, grey brown, fine grained gravel dark grey rock material.				Dup 4
				E+-4.2ppm		1.0							
				E+-5.8ppm		1.5			White gravel fragments.				
									FILL: Gravelly clay, low plasticity, dark grey gravel, glass/shell fragments.				
				E+-6.2ppm		2.0							
									Borehole CBH5 terminated at 2.2m				
						2.5							
						3.0							
						3.5							
						4.0							
						4.5							
						5.0							

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit

*bit shown by suffix
e.g. ADT

support

M	mud	N	nil
C	casing		

penetration
1 2 3 4
no resistance ranging to refusal

water
10/1/98 water level on date shown
water inflow
water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description
based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey environments

Engineering Log - Borehole

Borehole No. **CBH5A**

Sheet 1 of 1

Office Job No.: *GEOTLCOV24303AD*

Client: *INSW*

Principal:

Project: *SICEEP, Darling Harbour, Sydney NSW*

Borehole Location: *SICEEP Darling Harbour, Sydney NSW*

Date started: *27.7.2012*

Date completed: *27.7.2012*

Logged by: *PD*

Checked by: *ML*

drill model and mounting: B80 MOBILE DRILL TRACK Easting:

slope: -90°

R.L. Surface:

hole diameter: 120 mm

Northing

bearing:

datum:

drilling information							material substance						
method	penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro-meter kPa 100 200 300 400	structure and additional observations
AD/V									**BRICK.**	D	F		No odour, No staining observed.
									SAND: Medium grained, yellow and brown.				
									ROADBASE:				
				E+ 0.7ppm					**FILL:** GRAVELLY CLAYEYSAND, fine grained, grey brown. Gravel fine to medium grained, dark grey.				
						1							
				E+ 1.9ppm									
				E+ 5.0ppm					Some white gravel fragments.				
									GRAVELLY CLAY: Low plasticity, dark grey, 1-5 cm rockpieces, some white shell fragments.				
						2							
				E+ 3.0ppm									
				E+ 1.3ppm					Becoming brown, minor shell and shell fragments..	M			
						3							
				E+ 2.0ppm					Orange brick fragments, shells and shell fragments.				Dup8
				E+ 1.1ppm					Increasing sand content.	W			ASS1
						4							
				E+ 0.6ppm					Becoming grey.				
				E+ 0.9ppm									
						5							
				E+ 1.3ppm									
									Ironstone band, red grey.	D	H		
									SAND, Highly weathered. Sandstone, medium to fine grained, red.		F		
				E+ 1.9ppm		6							ASS2
									Borehole CBH5A terminated at 6m				
						7							

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit
*bit shown by suffix	
e.g.	ADT

support

M	mud	N	nil
C	casing		

penetration

1 2 3 4

no resistance ranging to refusal

water

▼ 10/1/98 water level on date shown

► water inflow

◄ water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description

based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey environments

Engineering Log - Piezometer

Borehole No. **CBH6/MW6**

Sheet 1 of 1

Office Job No.: **GEOTLCOV24303AD**

Client: **INSW**

Principal:

Project: **SICEEP, Darling Harbour, Sydney NSW**

Borehole Location: **SICEEP Darling Harbour, Sydney NSW**

Date started: **25.7.2012**

Date completed: **25.7.2012**

Logged by: **PD**

Checked by: **ML**

drill model & mounting: B80 MOBILE DRILL TRACK

Easting:

slope: -90°

R.L. Surface:

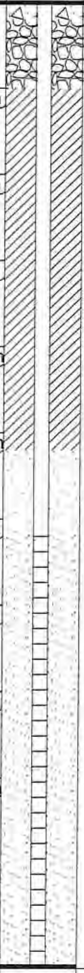
hole diameter:

Northing:

bearing:

datum:

drilling information / material substance



method	water	notes samples, tests, etc	depth metres	material (soil type: plasticity or particle characteristics, colour, secondary and minor components.)	moisture condition	consistency/ density index	structure and additional observations
ADV				**BRICK:**			
				SAND: Yellow brown, medium grained.	D	S	No odour or staining.
				ROADBASE:			
ADT		E+-9.0ppm		**FILL:** Gravelly clayey sand, fine grained, dark grey, fine gravel.		F	
		E+-9.0ppm	1	**GRAVELLY SANDY CLAY**: Low-medium plasticity, brown, coarse grey, cream, white gravel, igneous rocks and sandstone.			
		E+-8.6ppm		**CLAY:** Medium plasticity, red-grey.			
	►	E+-10.0ppm	2	Becoming slightly paler in colour.			
		E+-10.2ppm		**GRAVELLY CLAY**: medium plasticity, red. Coarse grey and orange gravel.	M		(ASS1)
		E+-9.7ppm	3	**CLAYEY SAND:** Fine grained, dark grey, shell fragments.			(ASS2)
		E+-9.6ppm		**SANDY CLAY:** Medium plasticity, dark grey, shell fragments.	W		(ASS3)
		E+-9.7ppm	4	**CLAY:** High plasticity, dark grey.	M		(ASS4)
		E+-10.0ppm		**CLAYEY SAND:** Medium grained, dark grey.		H	(ASS5)
		E+-13.9ppm	5	Orange grey mottled.			(ASS6)
		E+-15.8ppm					(ASS7)
				Borehole terminated at 5.6m			
			6				
			7				

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
DT	diatube
B	blank bit
V	V bit
T	TC bit
TBX	Tubex
*bit shown by suffix	
e.g.	ADT

support

C casing N nil

penetration

1 2 3 4 no resistance ranging to refusal

water

▼ 10/1/98 water level on date shown

► water inflow

◄ water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
P	pressure meter
Bs	bulk sample
R	refusal
E	environmental sample
PID	PID measurement
WS	water sample
PZ	piezometer
ALT	air lift test

classification symbols and soil description

based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey environments

Engineering Log - Borehole

Borehole No.	***CBH7***
Sheet	1 of 1
Office Job No.:	***GEOTLCOV24303AD***
Date started:	***25.7.2012***
Date completed:	***25.7.2012***
Logged by:	***PD***
Checked by:	***ML***

Client: ***INSW***

Principal:

Project: ***SICEEP, Darling Harbour, Sydney NSW***

Borehole Location: ***SICEEP Darling Harbour, Sydney NSW***

drill model and mounting: KOMATSU 05 TRACK	Easting:	slope:	-90°	R.L. Surface:	
hole diameter: 120 mm	Northing	bearing:		datum:	

drilling information							material substance						
method	penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro-meter kPa 100 200 300 400	structure and additional observations
ADV									**ASPHALT:**				
									ROADBASE:				
									GRAVELLY CLAYEY SAND: Yellow brown, fine to medium gravel, dark grey, cream, crushed stones.	D	F		FILL. No odour or staining.
V-BIT													
				E+-8.7ppm		0.5							
				E+-9.6ppm		1.0							Dup 3 Dup 3A.
									GRAVELLY SAND: Low plasticity, grey, gravel, medium shale gravel.				
				E+-9.3ppm		1.5							
									Borehole CBH7 terminated at 1.6m				
						2.0							
						2.5							
						3.0							

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit

*bit shown by suffix
e.g. ADT

support

M mud N nil
C casing

penetration

1 2 3 4 no resistance ranging to refusal

water

10/1/98 water level on date shown

water inflow

water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description

based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

BOREHOLE GEOTLCOV24303AD.GPJ COFFEY.GDT 15.8.12

Form GEO 5.3 Issue 3 Rev.2

coffey environments

Engineering Log - Borehole

Borehole No. **CBH7A**
Sheet 1 of 1
Office Job No.: **GEOTLCOV24303AD**

Client: **INSW**
Principal:
Project: **SICEEP, Darling Harbour, Sydney NSW**
Borehole Location: **SICEEP Darling Harbour, Sydney NSW**

Date started: **27.7.2012**
Date completed: **27.7.2012**
Logged by: **PD**
Checked by: **ML**

drill model and mounting: KOMATSU 05 TRACK
Easting:
slope: -90°
R.L. Surface:
hole diameter: 120 mm
Northing
bearing:
datum:

drilling information							material substance						
method	penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro-meter kPa 100 200 300 400	structure and additional observations
ADV									**ASPHALT**:				
ADT									**ROADBASE:**	D	F		No odour, no staining observed.
				E+ 1.3ppm E+ 1.1ppm		1			**FILL:** Gravelly sandy CLAY, ow plasticity, yellow brown. 1mm - 3 cm Gravel, dark grey and cream crushed stones/ rock pieces				
				E+ 5.4ppm E+ 7.0ppm		2			Becoming dark grey.				
									GRAVELLY CLAY: Low plasticity, yellow brown, gravel (1-5cm), dark grey rock.				
			►	E+ , 8.0ppm		3			**GRAVELLY SAND CLAY**: Low plasticity, dark grey (1-5mm), grey.		S		
				E+ 9.7ppm							F		Dup 7, Dup 7A, ASS4.
				E+ 9.9ppm E+ 9.2ppm		4			Becoming grey brown, medium plasticity, medium shale gravel.				
									CLAY: Redish brown, gravel (1-5cm), red brown, grey sandstone.				
				E+ 9.3ppm E+ 11.4ppm		5		CL	**GRAVELLY SANDY CLAY**: Medium plasticity, dark grey, medium grained gravel.	M			ASS1
				E+ 12.1ppm		6			**CLAY:** Less sandy, white shell and shell fragments.				ASS3
						7			Borehole CBH7A terminated at 6m				

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit
*bit shown by suffix	
e.g.	ADT

support
M mud N nil
C casing

penetration
1 2 3 4
no resistance ranging to refusal

water
▼ 10/1/98 water level on date shown
► water inflow
◄ water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description
based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

BOREHOLE GEOTLCOV24303AD.GPJ COFFEY.GDT 15.8.12

Form GEO 5.3 Issue 3 Rev.2

coffey environments

Engineering Log - Borehole

Borehole No. **CBH8**
Sheet 1 of 1
Office Job No.: **GEOTLCOV24303AD**

Client: ***INSW***
Principal:
Project: ***SICEEP, Darling Harbour, Sydney NSW***
Borehole Location: ***SICEEP Darling Harbour, Sydney NSW***

Date started: ***24.7.2012***
Date completed: ***24.7.2012***
Logged by: ***PD***
Checked by: ***ML***

drill model and mounting: KOMATSU 05 TRACK
hole diameter: 120 mm
Easting:
Northing
slope: -90°
bearing:
R.L. Surface:
datum:

drilling information							material substance						
method	penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro-meter kPa 100 200 300 400	structure and additional observations
V-BITS									**ASPHALT:**				
									FILL: Gravelly clayey silt, dark grey, medium dark grey gravel.	D	F		No odour or staining.
				E+9.9ppm									
						1							
				E+10.9ppm					**GRAVEL:** Some sand, orange, clay/brick fragments.				
									GRAVELLY CLAY: Low plasticity, grey, medium crushed shale gravel, some orange fragments.				
				E+11.2ppm					**GRAVELLY SANDY CLAY:** Low-medium plasticity, grey brown, gravelly gravel, orange-grey.				ASS1
						2							
				E+11.1ppm						M			
				E+11.3ppm					Becoming orange in colour.				
									CLAYEY SAND: Medium-fine grained, dark grey.				Organic matter odour, no staining.
						3							
				E+14.6ppm									Dup1, Dup 1A
				E+12.9ppm					Increasing clay content, some white shell fragments.				ASS2
						4							
				E+12.5ppm									ASS3
				E+11.8ppm									ASS4
						5			**GRAVELLY SANDY CLAY:** Medium plasticity, yellow brown, medium dark yellow grey gravel.				
				E+12.8ppm									ASS5
				E+11.8ppm									Dup2, ASS6,
				E+12.7ppm		6							ASS7
									Borehole CBH8 terminated at 6m				
						7							

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit
*bit shown by suffix	
e.g.	ADT

support

M mud N nil
C casing

penetration

1 2 3 4
no resistance ranging to refusal

water

▼ 10/1/98 water level on date shown
► water inflow
◄ water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description

based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

BOREHOLE GEOTLCOV24303AD.GPJ COFFEY.GDT 15.8.12

Form GEO 5.3 Issue 3 Rev.2

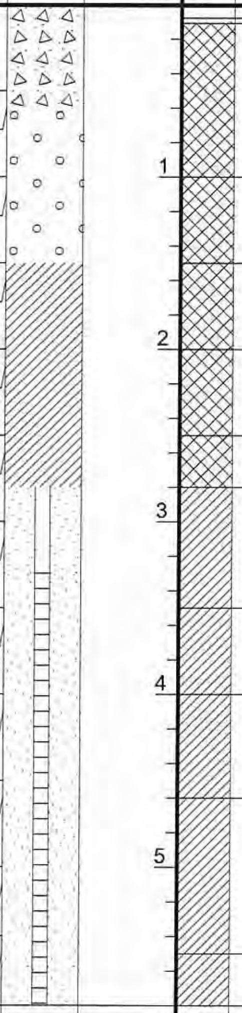
coffey environments

Engineering Log - Piezometer

Borehole No.	*CBH9 / MW9*
Sheet	1 of 1
Office Job No.:	*GEOTLCOV24303AD*
Client:	*INSW*
Principal:	
Project:	*SICEEP, Darling Harbour, Sydney NSW*
Borehole Location:	*SICEEP Darling Harbour, Sydney NSW*
Date started:	*26.7.2012*
Date completed:	*26.7.2012*
Logged by:	*PD*
Checked by:	*ML*

drill model & mounting: B80 MOBILE DRILL TRACK	Easting:	slope: -90°	R.L. Surface:
hole diameter:	Northing:	bearing:	datum:

drilling information | **material substance**



method	penetration 1 2 3	support	water	notes samples, tests, etc	material: soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	structure and additional observations
SandS					**BRICK:**			
					SAND:	D	F	FILL. No odour, no staining observed.
				E+ 3.1 ppm	**GRAVELLY CLAYEY SAND**: Fine grained, dark grey. Fine, dark grey gravel, minor orange rock shards.			
				E+ 5.2 ppm	Some yellow coarse grained sand, plus dark grey clayey sand, fragments of orange bricks.			
				E+ 6.4 ppm	Increasing clay content, orange brick fragments and ceramic pieces.			
				E+ 6.8 ppm	**CLAY:<<B> Medium plasticity, yellow brown.**			Dup 5A
				E+ 7.0 ppm	Becoming grey-red.			
			►	E+ 6.7 ppm	**SANDY CLAY**: Medium plasticity, dark grey.	M		ASS1
				E+ 5.8 ppm	Minor white shell fragments.			ASS2
				E+ 3.0 ppm	White shells and shell fragments (1mm-7cm).	W		ASS3
				E+ 5.0 ppm	**CLAY:** Medium plasticity, red. slight yellow grey mottled.	D		ASS4
				E+ 4.2 ppm				ASS5
				E+ 4.5 ppm	Grey, red mottled.			ASS6
					Borehole terminated at 5.8m			

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
DT	diatube
B	blank bit
V	V bit
T	TC bit
TBX	Tubex
*bit shown by suffix	
e.g.	ADT

support

C casing N nil

penetration

1 2 3 4 no resistance ranging to refusal

water

▼ 10/1/98 water level on date shown

► water inflow

◄ water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
P	pressure meter
Bs	bulk sample
R	refusal
E	environmental sample
PID	PID measurement
WS	water sample
PZ	piezometer
ALT	air lift test

classification symbols and soil description

based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

PIEZOMETER GEOTLCOV24303AD.GPJ COFFEY.GDT 15.8.12

Form GEO 5.10 Issue 3 Rev.0

coffey environments

Engineering Log - Borehole

Borehole No.	**CBH10**
Sheet	1 of 1
Office Job No.:	**GEOTLCOV24303AD**
Client:	**INSW**
Principal:	
Project:	**SICEEP, Darling Harbour, Sydney NSW**
Borehole Location:	**SICEEP Darling Harbour, Sydney NSW**
Date started:	**26.7.2012**
Date completed:	**26.7.2012**
Logged by:	**JG**
Checked by:	**ML**

drill model and mounting:	B80 MOBILE DRILL TRACK	Easting:		slope:	-90°	R.L. Surface:	
hole diameter:	120 mm	Northing		bearing:		datum:	

drilling information | **material substance**

method	penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	**material** soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro-meter kPa 100 200 300 400	**structure and additional observations**
									BRICK:	M			Brick pavement.
									GRAVELLY SAND: Medium to coarse grained, brown pale grey, fine to medium grained gravel (cemented material).				
				E+2.4 ppm		0.5			**GRAVELLY SANDY CLAY:** Low plasticity, dark grey / dark brow, with orange brown mottling, trace of cobbles.				
				E+2.3 ppm		1.0			**CLAYEY SAND:** Medium to coarse grained, grey pale grey with orange brown mottling, trace of fine to coarse gravel.				
				E+7.4 ppm		1.5			**SANDY CLAY:** Low plasticity, dark grey, medium grained sand, trace of fine to medium grained gravel.				
				E+7.3 ppm		2.0			**CLAY:**Low plasticity, motted grey pale, orange brown, dark grey, trace of fine grained sand.				Dup 5, Dup 5A
				E+4.8 ppm		2.5			**SANDY CLAY:** Fine to medium grained, pale yellow / pale brow.				
				E+6.3 ppm		3.0			**CLAY:** High plasticity, mottled grey / pale grey, orange brown, trace of fine gravels.				
				E+ 6.1 ppm		3.5		CH	**CLAY:**High plasticity, dark grey.	Wp			ASS1
				E+ 5.3 ppm		4.0			**SANDY CLAY:** Fine to medium grained, dark grey, trace of shell fragments.				ASS2
									Borehole CBH10 terminated at 4m				
						4.5							
						5.0							

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit
*bit shown by suffix	
e.g.	ADT

support

M mud N nil

C casing

penetration

1 2 3 4 — no resistance ranging to refusal

water

▼ 10/1/98 water level on date shown

► water inflow

◄ water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description

based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey environments

Engineering Log - Borehole

Borehole No. **CBH11**

Sheet 1 of 1

Office Job No.: **GEOTLCOV24303AD**

Client: ***INSW***

Principal:

Project: ***SICEEP, Darling Harbour, Sydney NSW***

Borehole Location: ***SICEEP Darling Harbour, Sydney NSW***

Date started: ***25.7.2012***

Date completed: ***25.7.2012***

Logged by: ***PD***

Checked by: ***ML***

drill model and mounting: B80 MOBILE DRILL TRACK Easting:

slope: -90°

R.L. Surface:

hole diameter: 120 mm Northing

bearing:

datum:

drilling information							material substance						
method	penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	**material** soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro-meter kPa 100 200 300 400	**structure and additional observations**
ADV									**BRICK:**				
									SAND: medium grained, yellow brown.				
									ROADBASE: **FILL:** Gravelly sandy clay, low plasticity, dark grey, gravel, some orange clay brick fragments.	D	F		FILL. No odour or staining.
ADT				E+-4.2ppm									
									CONCRETE:				
									FILL: Gravelly sand, fine grained, dark grey gravel with grey rock pieces.				
						1							
				E+7.1ppm									
									GRAVELLY SAND: Medium grained, yellow-brown gravel, some red-brown fragments.		S		
				E+-9.2ppm									
									GRAVELLY CLAY: Low plasticity gravel, some grey-brown rock pieces.		F		
						2							
				E+-10.9ppm									
									Increasing clay content, medium plasticity, gravel with some stone pieces, yellow-brown.				
				E+11.7ppm									
						3							
				E+11.8ppm									
									CLAY: Medium high plasticity, dark grey with organic sediment.	M			
				E+12.1ppm									ASS1
									Increase sand content, white shell fragments.	W			
				E+11.4ppm		4							Dup6, Ass2
									Borehole CBH11 terminated at 4m				
						5							
						6							

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit

*bit shown by suffix

e.g. ADT

support

M mud N nil

C casing

penetration

1 2 3 4

no resistance ranging to refusal

water

▼ 10/1/98 water level on date shown

► water inflow

◄ water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description

based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey environments

Environmental Log - Borehole

Borehole No. **BH118**
Sheet 1 of 1
Office Job No.: **GEOTLCOV24303AF**

Client: ***Infrastructure NSW***
Principal:
Project: ***SICEEP***
Borehole Location: ***Darling Harbour, NSW***

Date started: ***12.12.2012***
Date completed: ***12.12.2012***
Logged by: ***PD***
Checked by: ***ML***

drill model and mounting: Komatsu 05 Track
hole diameter: 100 mm
Easting:
Northing
slope: -90°
bearing:
R.L. Surface:
datum: AHD

drilling information							material substance						
method	penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro-meter kPa 100 200 300 400	structure and additional observations
SS				E+2.0ppm					**ASPHALT**				
									FILL: Gravelly SAND: Fine grained, dark grey brown. Gravel is fine crushed concrete and orange brick fragments	D	F		No odour or staining
				E, A+1.5ppm									
						1							
				E, QC21, QC21A+1.6ppm					Some crushed concrete and metal pieces				
SPT													
				E+1.6ppm					**FILL:** Clayey SAND: Fine grained, brown	D	F		No odour or staining
						2							
				E, A+1.8ppm									
				E+2.0ppm									
			▼			3							
				E+1.5ppm					**ALLUVIUM:** SAND: Fine to medium grained, dark grey, organic	M	F		Organic matter odour, no staining
										W			
				E+1.6ppm									
						4			Large white shell pieces				
				E+1.8ppm									
				E+5.7ppm					Minor white shell fragments and sandstone pieces				
									Borehole BH118 terminated at 4.5m				
						5							
						6							

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit
*bit shown by suffix	
e.g.	ADT

support

M	mud	N	nil
C	casing		

penetration

1 2 3 4
no resistance ranging to refusal

water

▼ 10/1/98 water level on date shown
► water inflow
◄ water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description
based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey environments

Environmental Log - Borehole

Borehole No.	***BH119***
Sheet	1 of 1
Office Job No.:	***GEOTLCOV24303AF***
Date started:	***12.12.2012***
Date completed:	***12.12.2012***
Logged by:	***PD***
Checked by:	***ML***

Client: ***Infrastructure NSW***

Principal:

Project: ***SICEEP***

Borehole Location: ***Darling Harbour, NSW***

drill model and mounting:	Komatsu 05 Track	Easting:		slope:	-90°	R.L. Surface:	
hole diameter:	100 mm	Northing		bearing:		datum:	AHD

drilling information							material substance						
method	penetration 1 2 3	support	water	**notes** samples, tests, etc	RL	depth metres	graphic log	classification symbol	**material** soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro-meter kPa 100 200 300 400	**structure and additional observations**
HA									**CONCRETE**				
									SAND: Medium grained, yellow to brown.	D	S		No odour or staining.
				E, A+1.1ppm					**FILL:** Gravelly Clayey SAND: Fine grained, dark grey. Gravel fine to meidum, grey rock pieces.	D	F		No odour or staining.
				E					Asbestos fibrous sheet (approx 6mm)				
				E, QC20+1.3ppm		0.5			**FILL:** Gravelly CLAY: Low plasticity, orange to grey. Gravel fine, orange ironstone fragments.	D	F		No odour or staining.
									Gravelly Sandy CLAY: Low plasticity, dark grey. Gravel fine to medium, dark grey rock pieces.	D	H		No odour or staining.
SPT				E+1.1ppm		1.0			**Clayey SAND:** Highly weathered sandstone, fine grained, orange to brown.	D	H		No odour or staining.
				E, A+1.1ppm		1.5			**Sandy CLAY:** Low plasticity, yellow to brown.	D	H		No odour or staining.
						2.0							
				E+1.2ppm									
				E+1.3ppm					**Silty CLAY:** Organic, medium to high plasticity, dark grey. 1mm darker grey seams of potentientially organic matter.	D	H		No odour or staining.
						2.5							
				E+1.4ppm		3.0							
									Borehole BH119 terminated at 3m				
						3.5							
						4.0							

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit
*bit shown by suffix	
e.g.	ADT

support

M mud

N nil

C casing

penetration

1 2 3 4

no resistance ranging to refusal

water

▼ 10/1/98 water level on date shown

► water inflow

◄ water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description

based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey environments

Environmental Log - Piezometer

Borehole No.	*BH120/MW120*
Sheet	1 of 1
Office Job No.:	*GEOTLCOV24303AF*
Client:	*Infrastructure NSW*
Principal:	
Project:	*SICEEP*
Borehole Location:	*Darling Harbour, NSW*
Date started:	*18.12.2012*
Date completed:	*18.12.2012*
Logged by:	*PD*
Checked by:	*ML*

drill model & mounting:	Komatsu 05 Track	Easting:	333679.383	slope:	-90°	R.L. Surface:	2.710
hole diameter:	115	Northing:	6249893.26	bearing:		datum:	AHD

drilling information | **material substance**

method	penetration 1 2 3	support	water	notes samples, tests, etc	well details	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	structure and additional observations
SS				E, A+2.3ppm						**ASPHALT** **FILL:** Silty GRAVEL: Fine to medium grained, grey	D	F	No odour or staining
				E+0.9ppm		2				**FILL:** Gravelly SAND: Fine to medium grained, cream, crushed sandstone	D	F	No odour or staining
				E+5.6ppm			1			Sandstone becoming more brown in colour, orange brick fragments		H	
				E, A+10ppm		1				Material turns grey and becomes slightly clayey			
				E+6.6ppm			2						
			▼	E+7.3ppm						**ALLUVIUM:** Clayey SAND: Fine grained, yellow brown	W	F	No odour or staining
				E, QC34+6.8ppm		0	3			**Clayey SAND:** Alluvial, fine grained, dark grey	W	F	No odour or staining
				E+5.5ppm		-1							organic matter odour, no staining
				E+5.9ppm			4			Abundant white shells			
										Borehole terminated at 4m			
						-2	5						
						-3	6						

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
DT	diatube
B	blank bit
V	V bit
T	TC bit
TBX	Tubex
*bit shown by suffix	
e.g.	ADT

support

C casing N nil

penetration

1 2 3 4 — no resistance ranging to refusal

water

▼ 10/1/98 water level on date shown

► water inflow

◄ water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
P	pressure meter
Bs	bulk sample
R	refusal
E	environmental sample
PID	PID measurement
WS	water sample
PZ	piezometer
ALT	air lift test

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

PIEZOMETER GEOTLCOV24303AF.GPJ COFFEY.GDT 16.1.13

coffey environments

Environmental Log - Borehole

Borehole No.	**BH121**
Sheet	1 of 1
Office Job No.:	**GEOTLCOV24303AF**
Date started:	**18.12.2012**
Date completed:	**18.12.2012**
Logged by:	**PD**
Checked by:	**ML**

Client: ***Infrastructure NSW***

Principal:

Project: ***SICEEP***

Borehole Location: ***Darling Harbour, NSW***

drill model and mounting:	Komatsu 05 Track	Easting:		slope:	-90°	R.L. Surface:	
hole diameter:	100 mm	Northing		bearing:		datum:	AHD

drilling information							material substance						
method	penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro-meter kPa 100 200 300 400	structure and additional observations
SST									**ASPHALT**				
				E+7.3ppm					**FILL:** Silty GRAVEL: Medium grained, brown. Gravel is fine to medium grey igneous rock pieces	D	F		No odour or staining
				E, A+9.3ppm		0.5			**FILL:** Gravelly Clayey SAND: Medium grained, dark grey. Gravel is fine to medium dark grey and orange brown rock fragments with some crushed orange brick fragments				
									Concrete Slab Borehole BH121 terminated at 0.6m				
						1.0							
						1.5							
						2.0							

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit

*bit shown by suffix
e.g. ADT

support

M	mud	N	nil
C	casing		

penetration
1 2 3 4
no resistance ranging to refusal

water

▼	10/1/98 water level on date shown
▶	water inflow
◀	water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description
based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey environments

Environmental Log - Borehole

Borehole No.	*BH121A*
Sheet	1 of 1
Office Job No.:	*GEOTLCOV24303AF*
Date started:	*18.12.2012*
Date completed:	*18.12.2012*
Logged by:	*PD*
Checked by:	*ML*

Client: *Infrastructure NSW*

Principal:

Project: *SICEEP*

Borehole Location: *Darling Harbour, NSW*

drill model and mounting:	Komatsu 05 Track	Easting:		slope:	-90°	R.L. Surface:	
hole diameter:	100 mm	Northing		bearing:		datum:	AHD

drilling information							material substance						
method	penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro-meter kPa 100 200 300 400	structure and additional observations
SST				E+3.1ppm					**ASPHALT**				
									FILL: Gravelly Clayey SAND: Fine to medium grained, dark grey. Gravel is fine to medium grained, Dark grey rock pieces	D	F		No odour or staining
				E+9.0ppm		0.5			**FILL:** Gravelly SAND: Fine grained, brown. Gravel is fine to medium grey brown rock pieces with some crushed red brick fragments	D	F		No odour or staining
				E, A+12ppm		1.0			**FILL:** Gravelly Sandy CLAY: Low plasticity, dark grey. Gravel is fine grey rock pieces and crushed concrete and orange brick fragments with some rusted metal pieces	D	F		No odour or staining
				E, QC35, QC35A+11.3ppm		1.5			White ceramic piece and more metal pieces and red/orange brick pieces				
				E+8.0ppm		2.0			More white ceramic/porcelain pieces				
			▼	E, A+8.0ppm		2.5			**ALLUVIUM:** Clayey SAND: Fine grained, yellow brown	M	F		No odour or staining
				E+4.6ppm					**Sandy CLAY:** Medium plasticity, dark grey	M	F		No odour or staining
						3.0							
				E+5.2ppm		3.5			Some white shells	W			
									Borehole BH121A terminated at 3.5m				
						4.0							

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit

*bit shown by suffix
e.g. ADT

support

M mud N nil
C casing

penetration
1 2 3 4
no resistance ranging to refusal

water

▼ 10/1/98 water level on date shown
water inflow
water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description
based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey environments

Environmental Log - Borehole

Borehole No.	**BH122**
Sheet	1 of 1
Office Job No.:	***GEOTLCOV24303AF***
Date started:	***13.12.2012***
Date completed:	***13.12.2012***
Logged by:	***PD***
Checked by:	***ML***

Client: ***Infrastructure NSW***

Principal:

Project: ***SICEEP***

Borehole Location: ***Darling Harbour, NSW***

drill model and mounting:	Komatsu 05 Track	Easting:		slope:	-90°	R.L. Surface:	
hole diameter:	100 mm	Northing		bearing:		datum:	AHD

drilling information | **material substance**

method	penetration 1 2 3	support	water	**notes** samples, tests, etc	RL	depth metres	graphic log	classification symbol	**material** soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro-meter kPa 100 200 300 400	**structure and additional observations**
HA									**MULCH, SAWDUST AND TOPSOIL**	D	L		No odour or staining
				E, EC22+12.9ppm			▨		**FILL:** Gravelly SAND: Fine grained, brown. Gravel is very fine brown and dark grey rock pieces	D	S		No odour or staining
SS						0.5	▨		Crushed grey sandstone noted				
				E, A+19.9ppm			▨				H		
				E+19.8ppm		1.0	▨		Ssandstone and dark grey igneous rocks and concrete noted				
SPT							▨						
SS				E+19.9ppm		1.5	▨		Occassional orange crushed brick fragments				
									Borehole BH122 terminated at 1.7m				
						2.0							
						2.5							
						3.0							
						3.5							
						4.0							

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit

*bit shown by suffix
e.g. ADT

support

M mud
N nil
C casing

penetration

1 2 3 4
no resistance ranging to refusal

water

▼ 10/1/98 water level on date shown

► water inflow

◄ water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description
based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey environments

Environmental Log - Borehole

Client:	*Infrastructure NSW*	Borehole No.	***BH122A***
Principal:		Sheet	1 of 1
Project:	***SICEEP***	Office Job No.:	***GEOTLCOV24303AF***
Borehole Location:	***Darling Harbour, NSW***	Date started:	***13.12.2012***
		Date completed:	***13.12.2012***
		Logged by:	***PD***
		Checked by:	***ML***

drill model and mounting:	Komatsu 05 Track	Easting:		slope:	-90°	R.L. Surface:	
hole diameter:	100 mm	Northing		bearing:		datum:	AHD

drilling information							**material substance**						
method	penetration 1 2 3	support	water	**notes** samples, tests, etc	RL	depth metres	graphic log	classification symbol	**material** soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro-meter kPa 100 200 300 400	**structure and additional observations**
HA				E, A+2.3ppm			▨		**MULCH, SAWDUST AND TOPSOIL**	D	L		No odour or staining
SS/T							▨		**FILL:** Gravelly SAND: Fine grained, grey brown. Gravel is very fine brown and dark grey rock fragments	D	H		No odour or staining
				E+1.5ppm			▨		Sandstone and ballast and orange brick pieces and fragments				
				E+1.6ppm		1	▨						
				E, A+1.6ppm			▨						
SPT				E, QC25, QC25A+1.4ppm		2	▨		Some ironstone pieces				
							▨		**ALLUVIUM:** Sandy CLAY: Low plasticity, orange grey	D	F		No odour or staining
				E+2.0ppm			▨						
				E, A+1.5ppm		3	▨						
				E+1.9ppm					**SAND:** Alluvial, fine to medium grained, dark grey	D	H		No odour or staining
				E+2.5ppm		4							Slight organic matter odour, no staining
									Borehole BH122A terminated at 4m				
						5							
						6							

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit
*bit shown by suffix	
e.g.	ADT

support

M	mud	N	nil
C	casing		

penetration
1 2 3 4
no resistance ranging to refusal

water
▼ 10/1/98 water level on date shown
► water inflow
◄ water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description
based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey environments

Environmental Log - Borehole

Borehole No.	**BH123**
Sheet	1 of 1
Office Job No.:	**GEOTLCOV24303AF**
Date started:	**13.12.2012**
Date completed:	**13.12.2012**
Logged by:	**PD**
Checked by:	**ML**

Client: ***Infrastructure NSW***

Principal:

Project: ***SICEEP***

Borehole Location: ***Darling Harbour, NSW***

drill model and mounting:	Komatsu 05 Track	Easting:		slope:	-90°	R.L. Surface:	
hole diameter:	100 mm	Northing		bearing:		datum:	AHD

drilling information							material substance						
method	penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro-meter kPa 100 200 300 400	structure and additional observations
HA									**MULCH, WOODCHIP AND TOPSOIL**	D	L		No odour or staining
				E, A+19.2ppm					**FILL:** Gravelly Clayey SAND: Fine grained, brown. Gravel is very fine brown and dark grey rock fragments	D	H		No odour or staining
SS/T									Some white crushed concrete				
				E+20.1ppm		0.5							
									Some very fine crushed orange brick fragments				
				E+29.0ppm		1.0							
				E, A+41.7ppm		1.5							
									Borehole BH123 terminated at 1.7m				
						2.0							

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit

*bit shown by suffix
e.g. ADT

support

M	mud	N	nil
C	casing		

penetration

1 2 3 4
no resistance ranging to refusal

water

▼ 10/1/98 water level on date shown

► water inflow

◄ water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description

based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey environments

Environmental Log - Borehole

Borehole No.	**BH123A**
Sheet	1 of 1
Office Job No.:	*GEOTLCOV24303AF*
Date started:	*13.12.2012*
Date completed:	*13.12.2012*
Logged by:	*PD*
Checked by:	*ML*

Client: *Infrastructure NSW*

Principal:

Project: *SICEEP*

Borehole Location: *Darling Harbour, NSW*

drill model and mounting:	Komatsu 05 Track	Easting:		slope:	-90°	R.L. Surface:	
hole diameter:	100 mm	Northing		bearing:		datum:	AHD

drilling information | **material substance**

method	penetration 1 2 3	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	**material** soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro-meter kPa 100 200 300 400	**structure and additional observations**
HA				E+1.3ppm					**MULCH, WOODCHIPS AND TOPSOIL**	D	L		No odour or staining
SST									**FILL:** Gravelly Clayey SAND: Fine grained, brown. Gravel is very fine brown and dark grey rock fragments	D	H		No odour or staining
				E, QC23, QC23A+1.4ppm									
						1							
				E, A+1.4ppm									
				E, A+1.5ppm									
						2							
SPT				E+1.9ppm									
									ALLUVIUM: CLAY: Low plasticity, grey mottled orange red, some fine black seams/layering within the clay	D	F		No odour or staining
				E+1.7ppm									
						3							
SS				E, A+1.5ppm							H		
									Clayey SAND: Fine grained, dark brown	D	F		No odour or staining
				E, QC24+2.1ppm									
						4			Sand becomes medium grained, grey brown	M			No odour or staining
				E+1.9ppm									
				E+2.1ppm					Remnants of vegetation		H		Slight orangic matter odour, no staining
									Borehole BH123A terminated at 4.5m				
						5							
						6							

method
AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
HA	hand auger
DT	diatube
B	blank bit
V	V bit
T	TC bit
*bit shown by suffix	
e.g.	ADT

support
M	mud	N	nil
C	casing		

penetration

1 2 3 4

no resistance ranging to refusal

water

▼ 10/1/98 water level on date shown

► water inflow

◄ water outflow

notes, samples, tests
U_{50}	undisturbed sample 50mm diameter
U_{63}	undisturbed sample 63mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
V	vane shear (kPa)
P	pressuremeter
Bs	bulk sample
E	environmental sample
R	refusal

classification symbols and soil description

based on unified classification system

moisture
D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index
VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense