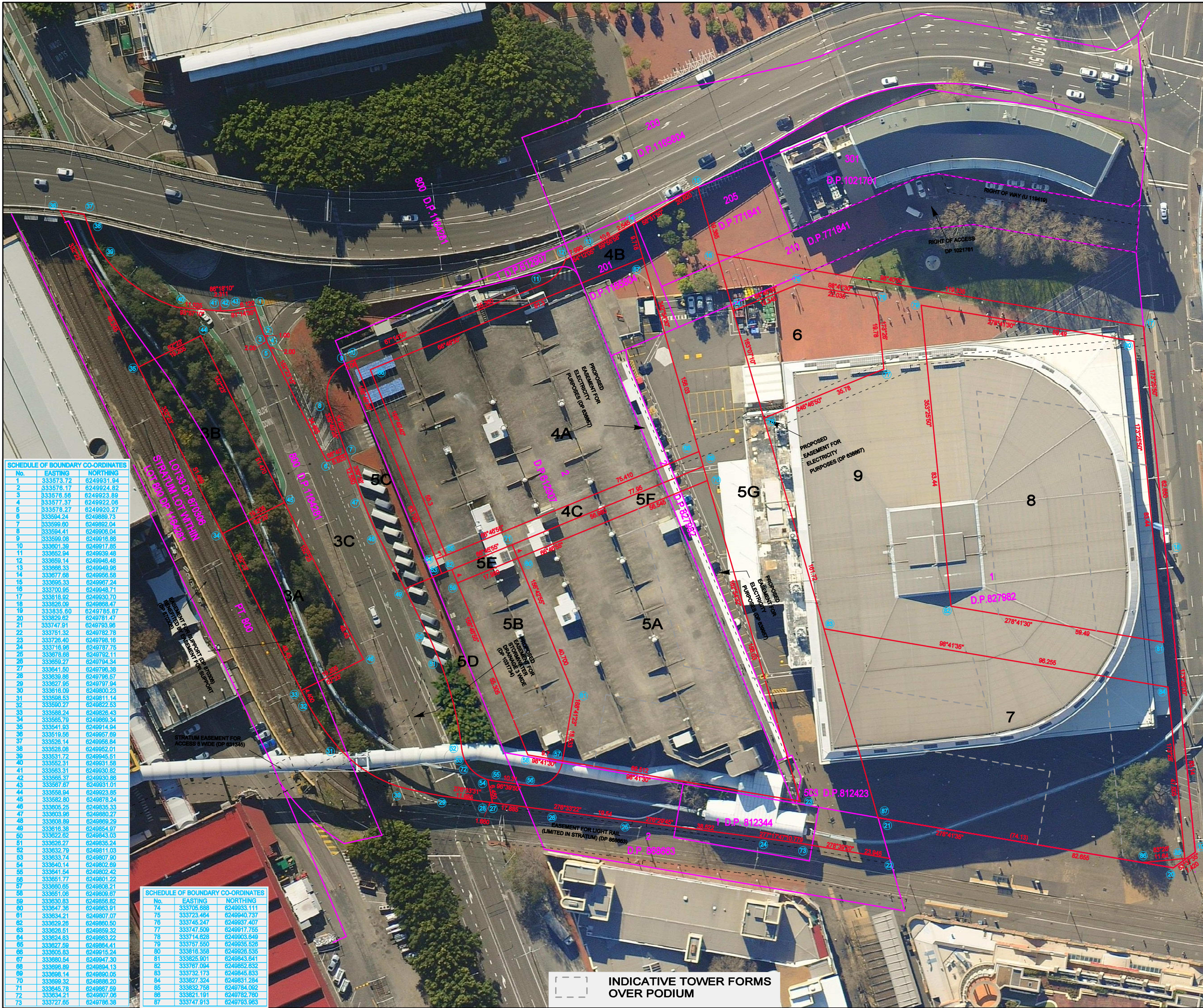




NOTES:

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.

NO PART OF THIS PLAN MAY BE REPRODUCED, COMMUNICATED, STORED IN A RETRIEVAL SYSTEM OR TRANSMITTED IN ANY FORM WITHOUT THE WRITTEN PERMISSION OF THE COPYRIGHT OWNER EXCEPT AS PERMITTED BY THE COPYRIGHT ACT 1968. ANY PERMITTED DOWNLOADING, ELECTRONIC STORAGE, DISPLAY, PRINT, COPY, REPRODUCTION OR COMMUNICATION OF THIS SURVEY SHOULD CONTAIN NO ALTERATION OR ADDITION TO THE ORIGINAL SURVEY.

COPYRIGHT © RYGATE & COMPANY PTY. LIMITED 2013.

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	TOWER FORMS ADDED	AMENDMENTS
A	12/12/2013		

RYGATE
SURVEYORS

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

• Suite 904 Level 9, 88 York St
Sydney NSW 2000
• +61 2 9282 8800
• +61 2 9282 8843
• surveyors@rygate.com.au
• rygate.com.au

SURVEYING SINCE 1893

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.
76098	76098_4	12/12/2013	4

OF 4 SHEETS

Appendix C

Borehole Logs

**Site Specific Remedial Action Plan
Haymarket, Sydney NSW**

Borehole No. **BH1**

Sheet 1 of 3

Office Job No.: **GEOTLCOV24303AA**

Engineering Log - Borehole

Client: **Sydney Harbour Foreshore Authority**

Date started: **7.6.2011**

Principal:

Date completed: **7.6.2011**

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

Logged by: **LJG**

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

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			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- kPa 100 200 300 400 meter	structure and additional observations
	1	2	3												
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	3	1			FILL: SAND: Coarse grained, red, brown, grey, trace of clay and fine to medium sandstone and brick gravel.	D			FILL
						SPT 7,11,10 N*=21		2			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		2							
ADV						SPT 1,1,2 N*=3	1	3		CL	Sandy CLAY: Low to medium plasticity clay, dark brown, coarse grained sand, with some shells.	M	F		POSSIBLY FILL?
						E+0ppm		3							
							0	4			4.00m Band of red partially cemented sand and ironstone gravel.	W			
						SPT 3,2,1 N*=3		5		SC	Clayey SAND: Medium to coarse grained, brown, red, orange mottled, low to medium plasticity clay, with some shells.		L		ESTUARINE/ALLUVIUM
							-1	5							
						SPT 1,2,4 N*=6	-2	6		SW	SAND: Medium to coarse grained, brown, grey, red, with some clay and shells.				
							-3	6		SP	SAND: Coarse grained, pale grey to grey, trace of clay and shells.		L-MD		RESIDUAL SOIL
						SPT 8/70mm N*=R	-4	7			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
								8							

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
AS auger screwing*	M mud	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		D disturbed sample		F firm
W washbore		N standard penetration test (SPT)		St stiff
CT cable tool		N* SPT - sample recovered		VSt very stiff
HA hand auger		Nc SPT with solid cone		H hard
DT diatube		V vane shear (kPa)		Fb friable
B blank bit		P pressuremeter		VL very loose
V V bit		Bs bulk sample		L loose
T TC bit		E environmental sample		MD medium dense
*bit shown by suffix e.g. ADT		R refusal		D dense
				VD very dense

Borehole No. **BH10**

Sheet 1 of 4
Office Job No.: **GEOTLCOV24303AA**

Engineering Log - Borehole

Client: **Sydney Harbour Foreshore Authority**

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	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- kPa	structure and additional observations
ADT	1 2 3	C	C						BRICK PAVERS: FILL: Gravelly SAND: Medium to coarse, brown, fine to medium angular gravel. CONCRETE: 0.20m FILL: Clayey SAND: Coarse grained, brown FILL: Sandy CLAY: Medium plasticity, red-brown/pale grey. 1.09m - With some asphalt gravel.	D			PAVEMENT
				SPT 8/90mm N*=R	2	1				D			FILL
					1	2			FILL: Silty CLAY: Low to medium plasticity, grey, brown, trace of sand. FILL: CLAY: Medium to high plasticity, red, brown, pale grey, orange mottled, with some fine gravel.	M			1m - Slight odour, tar and asphalt. 1.09m - Strong odour
				SPT 3,2,3 N*=5	0	3				D			
					-1	4		SM	Silty SAND: Medium to coarse grained, black, with some shells, trace of fine gravel.	W	VL		ESTUARINE
				SPT 1,0,0 N*=0	-1	5		SC	Clayey SAND: Coarse grained, brown, medium to high plasticity clay.				ESTUARINE
					-2	6		SC	Clayey SAND: Coarse grained, black, low plasticity clay, with some shells, trace of silt.				
					-3	7		CH	CLAY: High plasticity, red brown, grey with some sand.	St			ALLUVIUM / SLOPE WASH
				SPT 4,5,7 N*=12	-4	8		CL-CH	Sandy CLAY: Medium to high plasticity clay, pale grey, yellow brown.	MD			
					-5	8		CH	CLAY: High plasticity, red brown, grey, with some coarse sand.	VSt			
method				support				notes, samples, tests				classification symbols and soil description	
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				M mud 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				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				moisture D dry M moist W wet Wp plastic limit WL 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 No. **BH10**

Engineering Log - Borehole

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

Client: **Sydney Harbour Foreshore Authority**

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			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	structure and additional observations		
	1	2	3														
WB						SPT 6,7,9 N*=16	-6	9		CH	CLAY: High plasticity, red brown, grey, with some coarse sand. (continued)	W	VSt			RESIDUAL SOIL	
								CH		St/VSt							
						SPT 5,5,7 N*=12		10		SC							MD
							-8	11			Borehole BH10 continued as cored hole						
							-9	12									
							-10	13									
							-11	14									
							-12	15									
							-13	16									

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
AS AD RR W CT HA DT B V T *bit shown by suffix e.g. ADT	M mud 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	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	based on unified classification system moisture D dry M moist W wet Wp plastic limit WL liquid limit	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 No. **BH11**

Engineering Log - Borehole

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

Client: **Sydney Harbour Foreshore Authority**

Date started: **1.6.2011**

Principal:

Date completed: **1.6.2011**

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

Logged by: ***RH***

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

Checked by: **SS**

drill model and mounting:						Ausrock 2000 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			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
	1	2	3												
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	-2	1			FILL: SANDSTONE BOULDER: Pale yellow and white				0.70m distinct bitumen odour
						E+1.1ppm									0.80m SPT1 moved from 1.0m to 1.50m due to sandstone boulder.
						SPT 13,5,3 N*=8	-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				
						E+0.3ppm				CL	Silty CLAY: Low plasticity, pale grey mottled red.	W	F		ALLUVIUM
										SC	Clayey SAND: Fine to medium grained, dark grey, clay rich and sand rich layers throughout		MD		
						U ₅₀	-0	3							3.00m distinct organic odour
						E+0.6ppm									
							-1	4		CH	CLAY: High plasticity, dark grey, brown.		S-F		
						SPT 3,4,10 N*=14	-2	5		CL	Silty CLAY: Low plasticity, pale grey mottled red and orange iron stained, with some red clay pockets throughout.		VSt	X X X	RESIDUAL SOIL
							-3	6			5.70m increased iron staining			X X	
						SPT 7,8,9 N*=17	-4	7							
						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						VSt very stiff	
HA hand auger						10/1/98 water level on date shown		Nc SPT with solid cone						H hard	
DT diatube						water inflow		V vane shear (kPa)			moisture			Fb friable	
B blank bit						water outflow		P pressuremeter			D dry			VL very loose	
V V bit								Bs bulk sample			M moist			L loose	
T TC bit								E environmental sample			W wet			MD medium dense	
*bit shown by suffix e.g. ADT								R refusal			Wp plastic limit			D dense	
											WL liquid limit			VD very dense	

Borehole No. **BH11**

Engineering Log - Borehole

Sheet 2 of 3
Office Job No.: **GEOTLCOV24303AA**

Client: **Sydney Harbour Foreshore Authority**

Date started: **1.6.2011**

Principal:

Date completed: **1.6.2011**

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

Logged by: **RH**

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

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			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				structure and additional observations
	1	2	3											kPa 100 200 300 400				
											Borehole BH11 continued as cored hole							
								-6	9									
								-7	10									
								-8	11									
								-9	12									
								-10	13									
								-11	14									
								-12	15									
								-13	16									

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 1 2 3 4	D disturbed sample		F firm
W washbore	 no resistance ranging to refusal	N standard penetration test (SPT)		St stiff
CT cable tool	water	N* SPT - sample recovered		VSt very stiff
HA hand auger	10/1/98 water level on date shown	Nc SPT with solid cone		H hard
DT diatube		V vane shear (kPa)	moisture	Fb friable
B blank bit		P pressuremeter	D dry	VL very loose
V V bit		Bs bulk sample	M moist	L loose
T TC bit		E environmental sample	W wet	MD medium dense
*bit shown by suffix e.g. ADT		R refusal	Wp plastic limit	D dense
			WL liquid limit	VD very dense

Engineering Log - Borehole

Client: **Sydney Harbour Foreshore Authority**

Date started: **10.6.2011**

Principal:

Date completed: **10.6.2011**

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

Logged by: **RC**

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

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	support	water	notes samples, tests, etc	depth metres	graphic log	classification symbol	material	structure and additional observations
ADT	1 2 3	C	C	E+0ppm				FILL: Clayey SAND: Fine to medium grained, brown, trace of gravel and rootlets.	TOPSOIL/FILL
				E+0ppm	2			FILL: CONCRETE: Pale grey (100mm)	FILL (Pavement?)
				E+0.7ppm	1			FILL: Silty SAND: Fine to medium grained, dark grey to black, with some clay and fine rounded gravel.	FILL slight odour
				SPT 4,4,3 N*=7	1			FILL: Very low strength shale remoulding as brown silty clay.	
				E+0.8ppm	2			FILL: Silty CLAY: High plasticity, red-brown mottled orange-brown, with some sand.	
					0			2.7m - With some fine to medium subangular ironstone gravel.	
				SPT 0,0,1 N*=1	3		CH	3.4m - Band with some sand and shells (50mm). Silty CLAY: High plasticity, dark grey, with some bands of medium grained sand and some shells.	3.0m - SPT rods sunk 400mm under hammer weight ESTUARINE
				U ₅₀	-1			3.95m - With some fibres.	
								4.2m - Becoming grey.	
				SPT 2,2,4 N*=6	-2		CH	4.7m - Becoming mottled red.	
								Sandy CLAY: High plasticity, pale grey mottled red and orange-brown, medium grained sand, trace of silt.	COLLUVIUM / SLOPE WASH
					-3				
				SPT 2,4,8 N*=12	6				
					-4				
					7		SP	SAND: Medium grained, pale grey mottled brown, trace of clay.	RESIDUAL SOIL
				SPT 3,11,30/60mm N*=R	-5				
					8			7.75m - Becoming yellow and red.	WEATHERED BEDROCK

method	support	penetration	water	classification symbols and soil description	consistency/density index
AS AD RR W CT HA DT B V T	M mud 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			moisture D dry M moist W wet Wp plastic limit WL liquid limit	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 No. **BH13**

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

Engineering Log - Borehole

Client: **Sydney Harbour Foreshore Authority**

Date started: **9.6.2011**

Principal:

Date completed: **9.6.2011**

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

Logged by: **RC**

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

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			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	structure and additional observations
	1	2	3												
ADT							3				FILL: Rectangular, red-brown concrete pavers (50mm) overlying medium grained pale brown sand (50mm) FILL: Sandy GRAVEL: Medium to coarse, grey, fine to medium grained sand. FILL: Gravelly SAND: Fine to medium grained, brown, fine to coarse angular to subrounded gravel.	D			PAVEMENT
ADV							1								FILL
					SPT 10,8,2 N*=10		2				FILL: SAND: Medium grained, pale brown.	M			
							2				1.8m - With some brown gravel.	W			
				4m at 12pm on 9/6/2011			1		CH		Silty CLAY: High plasticity, dark grey.	>Wp	S		ESTUARINE
					SPT 1,1,1 N*=2		3							xxx	
					U ₅₀		0							x	3m - With sulfuric odour
							4						F/St		
					SPT 3,6,6 N*=12		-1								
							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
					SPT 5,4,4 N*=8		6				6.5m - Becoming red.			xx	
							-3				6.8m - One rootlet.			x	
					SPT 6,6,7 N*=13		-4								
							8								
method						support		notes, samples, tests			classification symbols and soil description			consistency/density index	
AS auger screwing*						M mud		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						VSt very stiff	
HA hand auger								Nc SPT with solid cone						H hard	
DT diatube						water		V vane shear (kPa)			moisture			Fb friable	
B blank bit						10/1/98 water level on date shown		P pressuremeter			D dry			VL very loose	
V V bit								Bs bulk sample			M moist			L loose	
T TC bit						water inflow		E environmental sample			W wet			MD medium dense	
*bit shown by suffix e.g. ADT						water outflow		R refusal			Wp plastic limit			D dense	
											WL liquid limit			VD very dense	

Borehole No. **BH13**

Engineering Log - Borehole

Sheet 2 of 3
Office Job No.: **GEOTLCOV24303AA**

Client: **Sydney Harbour Foreshore Authority**

Date started: **9.6.2011**

Principal:

Date completed: **9.6.2011**

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

Logged by: **RC**

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

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			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- kPa 100 200 300 400	structure and additional observations		
	1	2	3														
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		
							-7	10									
NMLC					SPT R,30/140,R N*=R						Borehole BH13 continued as cored hole				SPT hammer bouncing		
							-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		

Borehole No. **BH14**

Engineering Log - Borehole

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			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	structure and additional observations
	1	2	3												
ADT				C	C						FILL: ASPHALT: Dark grey, medium to coarse gravel, overlying medium to coarse, pale brown. Sandy GRAVEL. Gravelly SAND: Fine to medium grained, brown, dark brown, fine to coarse gravel, with some basalt cobbles (70mm), trace of silt.	D			PAVEMENT FILL
						E+0.0ppm	3								
						E+0.0ppm									
						SPT 3,2,2 N*=4	2	1							
								2			FILL: CONCRETE: Pale grey				
								2			FILL: Gravelly SAND:	M			
								1							
						SPT 1,0,0 N*=0		3		CH	Silty CLAY: High plasticity, dark grey, grey, trace of medium grained sand.	>Wp	VS	X	ESTUARINE
								0			3.5m - With some bands of sand.				
								4							
						SPT 2,3,2 N*=5	-1	5		CH	Silty CLAY: High plasticity, red mottled pale grey.		S/F	X X X	COLLUVIUM / SLOPE WASH
								5							
								-2							
						SPT 3,3,5 N*=8		6		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
								-3							
								7							
						SPT R,20/90 N*=R	-4	8			SANDSTONE: Medium to coarse grained, pale grey to white, remoulds to a sand. Borehole BH14 continued as cored hole				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		N* SPT - sample recovered		VSt very stiff
HA hand auger		Nc SPT with solid cone		H hard
DT diatube		V vane shear (kPa)		Fb friable
B blank bit		P pressuremeter		VL very loose
V V bit		Bs bulk sample		L loose
T TC bit		E environmental sample		MD medium dense
*bit shown by suffix e.g. ADT		R refusal		D dense
				VD very dense

Engineering Log - Borehole

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			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
	1	2	3												
ADT				C	C		3				FILL: BITUMEN: 0.30m				FILL
						E+0.3ppm					FILL: CONCRETE: 0.10m				
								1			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. 1.0m - Crushed orange brick.	D M			No odour/ staining.
						SPT 8/160mm N*=R	2				1.50m - With some clay and coarse sandstone gravel, trace of cobbles.				1m - SPT refused on gravel
								2							
								1							
						SPT 3,1,2 N*=3	3			SC CL	Clayey SAND: Medium to coarse grained, black, dark grey, high plasticity clay, trace of organics. Silty CLAY: Low plasticity, dark brown, dark grey, with some organic material and some shells.	W M-W	MD F		ESTUARINE
								0		SC	Clayey SAND: Coarse grained, dark grey, brown, trace of shells.	W	L-MD		ALLUVIUM
								4		CH	CLAY: High plasticity, pale grey mottled red brown, trace of sand. 3.5m - With some interbedded sand layers.		St-VSt		
						SPT 3,4,5 N*=9	-1			SC CH	Clayey SAND: Coarse grained, dark grey, dark brown, low plasticity clay, trace of shells. CLAY: High plasticity, pale grey, trace of fine sand.		MD St		SLOPE WASH
								5							
								-2			5.20m - Pale grey, pale brown mottled.	M			ALLUVIUM
								6			5.80m - Pale grey, red, brown mottled, trace of fine to coarse sand and fine ironstone.				SLOPE WASH
						SPT 2,4,6 N*=10	-3								
								7							
								-4							
										CL	Sandy CLAY: Low to medium plasticity, pale brown mottled red, coarse sand.		St		ALLUVIUM
						SPT 7,5,6 N*=11				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	support	notes, samples, tests	classification symbols and soil description	consistency/density index
AS AD RR W CT HA DT B V T *bit shown by suffix e.g. ADT	M mud 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	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	based on unified classification system moisture D dry M moist W wet Wp plastic limit WL liquid limit	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 No. **BH15**

Sheet 2 of 3

Office Job No.: **GEOTLCOV24303AA**

Engineering Log - Borehole

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			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				structure and additional observations	
	1	2	3											100 kPa	200 kPa	300 kPa	400 kPa		
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	
								9			Borehole BH15 continued as cored hole							TC Bit refusal at 8.50m	
							-6												
							10												
							-7												
							11												
							-8												
							12												
							-9												
							13												
							-10												
							14												
							-11												
							15												
							-12												
							16												
method						support		notes, samples, tests				classification symbols and soil description				consistency/density index			
AS auger screwing*						M mud		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								D disturbed sample								F firm			
W washbore								N standard penetration test (SPT)								St stiff			
CT cable tool								N* SPT - sample recovered								VSt very stiff			
HA hand auger								Nc SPT with solid cone								H hard			
DT diatube								V vane shear (kPa)								Fb friable			
B blank bit								P pressuremeter								VL very loose			
V V bit								Bs bulk sample								L loose			
T TC bit								E environmental sample								MD medium dense			
*bit shown by suffix								R refusal								D dense			
e.g. ADT																VD very dense			

Borehole No. **BH16**

Engineering Log - Borehole

Client: **Sydney Harbour Foreshore Authority**

Principal:

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

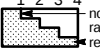
Borehole Location: **Harbour Street, Haymarket, NSW**

Sheet 1 of 6

Office Job No.: **GEOTLCOV24303AA**Date started: **20.6.2011**Date completed: **21.6.2011**

Logged by: **LJG**

Checked by: **SS**

drill model and mounting:		HydraPac 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			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	
	1	2	3														
PH				C	C			3			BRICK PAVERS: 0.06m 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.	D					FILL
AD								2			FILL: SAND: Medium to coarse grained, brown, with some clay and fine gravel.	M					
WB					▶			1				W					
								3									
								0		CL/SC	Sandy CLAY/Clayey SAND: Low plasticity clay, medium to coarse grained sand, grey, brown, with some organic material.						ESTUARINE
								4									
								-1									
								5		CH	CLAY: High plasticity, red, brown, grey, trace of sand.						SLOPE WASH
						U ₅₀		-2									
								6									
								-3									ALLUVIUM
								7		CH	Sandy CLAY: High plasticity, grey, coarse sand.						
								-4		SP	SAND: Coarse grained, grey, brown, trace of clay.						
								8									
method						support		notes, samples, tests				classification symbols and soil description				consistency/density index	
AS AD RR W CT HA DT B V T *bit shown by suffix e.g. ADT						M mud 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		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				based on unified classification system moisture D dry M moist W wet Wp plastic limit W _L liquid limit				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 No. **BH16**

Sheet 2 of 6

Office Job No.: **GEOTLCOV24303AA**

Engineering Log - Borehole

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			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- kPa	meter	structure and additional observations			
	1	2	3																
WB				C	C							W							
							-5	9		SP	SAND: Coarse grained, grey, brown, trace of clay. <i>(continued)</i>								
										SC	Clayey SAND: Medium to coarse sand, pale grey, red, brown, high plasticity clay.								
							-6	10											
							-7	11		SP	SAND: Coarse grained, grey, pale grey, trace of clay.						RESIDUAL SOIL		
							-8	12											
							-9	13											
							-10	14			SANDSTONE: Extremely weathered, coarse grained, pale grey to red brown, estimated to be low strength. Remoulds to a sand. 13.45m - Highly weathered. Borehole BH16 continued as cored hole						WEATHERED BEDROCK		
							-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			

Borehole No. **BH17**

Sheet 1 of 4
Office Job No.: **GEOTLCOV24303AA**

Engineering Log - Borehole

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							material substance									
method	penetration			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	
	1	2	3													
ADT				C	C		3				FILL: BRICK PAVERS: Brown, 0.08m FILL: Clayey Gravelly SAND: Medium to coarse grained, brown, grey, fine gravel, medium plasticity clay.	D			FILL	
						SPT 6,7,4 N*=11	2	1			FILL: SAND: Coarse grained, grey, brown, yellow, red mottled, with some fine sandstone gravel, trace of clay.					
								2								
					▶		1				FILL: Silty CLAY: Low plasticity, black, with some organic material, trace of sand and fine gravel.	W				
						SPT 2,0,0 N*=0	3				3.10m - With some sand.					
							0									
						SPT 2,3,5 N*=8	-1	4	CH		CLAY: High plasticity, red, brown, grey, trace of fine ironstone gravel.	M	St-VSt	×	ALLUVIUM	
								5								
						SPT 2,5,6 N*=11	-2	6	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	
							-3	7	CL		Gravelly CLAY: Low plasticity, brown, grey, red, fine angular sandstone and ironstone gravel.	W		×	ALLUVIUM	
						SPT 4,7,8 N*=15	-4		CH		CLAY: High plasticity, pale grey, red brown mottled, trace of sand.			×		
							8									
method						support		notes, samples, tests				classification symbols and soil description			consistency/density index	
AS auger screwing*						M mud		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							VSt very stiff	
HA hand auger								Nc SPT with solid cone							H hard	
DT diatube						water		V vane shear (kPa)				moisture			Fb friable	
B blank bit						10/1/98 water level on date shown		P pressuremeter				D dry			VL very loose	
V V bit						▶ water inflow		Bs bulk sample				M moist			L loose	
T TC bit						◀ water outflow		E environmental sample				W wet			MD medium dense	
*bit shown by suffix e.g. ADT								R refusal				Wp plastic limit			D dense	
												W _L liquid limit			VD very dense	

Borehole No. **BH17**

Engineering Log - Borehole

Sheet 2 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						material substance										
method	penetration			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	structure and additional observations	
	1	2	3													
ADT				C	C		-5			CH	CLAY: High plasticity, pale grey, red brown mottled, trace of sand. <i>(continued)</i> 8.10m - With some coarse sand.	W	St-VSt		RESIDUAL SOIL	
						SPT 4,12,10 N*=22		9		SC	Clayey SAND: Coarse grained, pale grey, grey.		MD			
							-6			CH	Sandy CLAY: High plasticity clay, grey, pale grey, coarse sand.		St-VSt	x		
						SPT 4,16 N*=R	-7	10			SANDSTONE: Extremely weathered, coarse grained, pale grey, remoulds to a sandy clay. 10.30m - Highly weathered.			x	WEATHERED BEDROCK	
							-8	11			Borehole BH17 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 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

Client: **Sydney Harbour Foreshore Authority**

Principal:

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

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

Borehole No. **BH2**

Sheet 1 of 3

Office Job No.: **GEOTLCOV24303AA**

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			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	structure and additional observations	
	1	2	3													
DT				C	C						ASPHALT CONCRETE	D			PAVEMENT	
ADT						E+0ppm	-3				FILL: Sandy SILT: Low plasticity, pale brown, fine to medium grained sand with some clay. 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.	M			FILL	
						SPT 8,5,4 N*=9	-1									
						E+1.0ppm	-2									
						E+0ppm	-2									
							-1					2.5m - Increasing clay content.				
						SPT 4,3,3 N*=6	-3									
							-0									
							-4			SW	SAND: Fine to coarse grained, grey, trace of silt.	VL			ALLUVIUM Slight organic odour.	
						SPT 1,1,0 N*=1	-1									
							-5			SC	Clayey SAND: Fine to medium to coarse grained, dark brown, low to medium plasticity clay.	L-MD				
							-2			SC	Clayey SAND: Fine to coarse grained, pale grey, clay with some pockets of shells throughout.	W			5.7m - Distinct organic odour	
						SPT 1,2,3 N*=5	-6									
							-3									
NM/C							-7				SANDSTONE: Extremely weathered, medium to coarse grained, pale yellow and brown, estimated to be very low strength, remoulds to a sand.				WEATHERED BEDROCK	
							-4									
							-8									

method	support	penetration	water	classification symbols and soil description	consistency/density index
AS AD RR W CT HA DT B V T *bit shown by suffix e.g. ADT	M mud C casing no resistance ranging to refusal 10/1/98 water level on date shown water inflow water outflow	1 2 3 4		Borehole tests used 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	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
				moisture D dry M moist W wet Wp plastic limit WL liquid limit	

Borehole No. **BH3**

Sheet 1 of 4

Office Job No.: **GEOTLCOV24303AA**

Engineering Log - Borehole

Client: **Sydney Harbour Foreshore Authority**

Date started: **2.6.2011**

Principal:

Date completed: **2.6.2011**

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

Logged by: **RH**

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

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			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	1	2	3	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
						SPT 9,6,8 N*=14		1			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.				
						E+1.4ppm	2								
						E+0.4ppm		2							
							1								
						SPT 4,5,10 N*=15		3							
							0								
							4		SW		SAND: Fine to coarse grained, with some low plasticity fines.		L		ALLUVIUM
						SPT 4,3,2 N*=5	-1								
							5		SC		Clayey SAND: Fine grained, dark brown, clay.	W			
							-2		SW		SAND: Medium to coarse grained, pale grey, trace of fines.		L-MD		
						SPT 5,4,3 N*=7		6							
							-3								
							7		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								
							8								

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
AS AD RR W CT HA DT B V T *bit shown by suffix e.g. ADT	M mud 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	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	based on unified classification system moisture D dry M moist W wet Wp plastic limit WL liquid limit	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 No. **BH3**

Sheet 2 of 4

Office Job No.: **GEOTLCOV24303AA**

Engineering Log - Borehole

Client: **Sydney Harbour Foreshore Authority**

Date started: **2.6.2011**

Principal:

Date completed: **2.6.2011**

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

Logged by: **RH**

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

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			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- kPa	meter	structure and additional observations		
ADV	1	2	3	C	C					SC		M	L-MD	100	200	300	400	WEATHERED BEDROCK
							-5				SANDSTONE: Extremely to highly weathered, fine to coarse grained, pale orange brown, estimated to be very low to low strength. Borehole BH3 continued as cored hole							
								9										
							-6											
							10											
							-7											
							11											
							-8											
							12											
							-9											
							13											
							-10											
							14											
							-11											
							15											
							-12											
							16											

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
AS AD RR W CT HA DT B V T	M mud C casing penetration 1 2 3 4  water 10/1/98 water level on date shown water inflow water outflow	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	based on unified classification system moisture D dry M moist W wet Wp plastic limit WL liquid limit	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 No. **BH4**

Sheet 1 of 4

Office Job No.: **GEOTLCOV24303AA**

Engineering Log - Borehole

Client: **Sydney Harbour Foreshore Authority**

Date started: **6.6.2011**

Principal:

Date completed: **6.6.2011**

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

Logged by: **RH**

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

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			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	structure and additional observations	
DT	1	2	3	C	C						ASPHALT: CONCRETE:	D			PAVEMENT	
ADV						E+0.4ppm		1			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	
						SPT 4,5,6 N*=11	-2									
						E+0ppm										
						E+0.7ppm	2				2m - Band of partially cemented sand.					
							-1								2.3m - Slight hydrocarbon odour.	
						SPT 2,2,4 N*=6	3									
						E+0ppm	0									
						SPT 8,8,5 N*=13	-1	4				4m - Band of red, partially cemented sand.	W			
							5		SC	Clayey SAND: Fine to medium grained, grey.		L		ALLUVIUM		
							-2									
						SPT 5,3,2 N*=5	6			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									
						SPT 8,14,11 N*=25	7			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		
							-4									
							8									

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
AS AD RR W CT HA DT B V T *bit shown by suffix e.g. ADT	M mud 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	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	based on unified classification system moisture D dry M moist W wet Wp plastic limit WL liquid limit	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 No. **BH4**

Sheet 2 of 4

Office Job No.: **GEOTLCOV24303AA**

Engineering Log - Borehole

Client: **Sydney Harbour Foreshore Authority**

Date started: **6.6.2011**

Principal:

Date completed: **6.6.2011**

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

Logged by: **RH**

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

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			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- kPa	meter	structure and additional observations					
	1	2	3																		
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						support		notes, samples, tests				classification symbols and soil description				consistency/density index					
AS AD RR W CT HA DT B V T *bit shown by suffix e.g.						auger screwing* auger drilling* roller/tricone washbore cable tool hand auger diatube blank bit V bit TC bit ADT		M mud 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				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				based on unified classification system moisture D dry M moist W wet Wp plastic limit W _L liquid limit				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 No. **BH5**

Engineering Log - Borehole

Client: **Sydney Harbour Foreshore Authority**

Principal:

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

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

Sheet 1 of 4

Office Job No.: **GEOTLCOV24303AA**Date started: **14.6.2011**Date completed: **15.6.2011**

Logged by: **LJG**

Checked by: **SS**

drill model and mounting:						Ausroco 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			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		
	1	2	3														
ADT				C	C			-2			FILL: BRICK PAVERS: FILL: SAND: Coarse sand, brown, trace of roots. 0.3m - Medium to coarse sand with some clay, trace of gravel. 0.5m - Brown, yellow.	D			FILL		
						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. 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			2.50m - With some fine shale gravels.						
							-1	3		SM	Silty SAND: Coarse grained, black with some shells.	W	L		ESTUARINE/ALLUVIUM		
							-2	4		SC	Clayey SAND: Coarse grained, brown, medium plasticity clay, trace of shells and fine gravel.						
						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 fibrous materials.	>Wp	S-F				
							-3	6							5.6m - Organic material in SPT sulphur odour		
						SPT 2,1,2 N*=3	-4	7		SC	Clayey SAND: Coarse grained, dark brown to black, low plasticity clay, trace of fine gravel.		L				
							-5	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	X X X	SLOPE WASH		
						SPT 7,8,12 N*=20											
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										D disturbed sample				F firm			
W washbore										N standard penetration test (SPT)				St stiff			
CT cable tool										N* SPT - sample recovered				VSt very stiff			
HA hand auger										Nc SPT with solid cone				H hard			
DT diatube										V vane shear (kPa)				Fb friable			
B blank bit										P pressuremeter				VL very loose			
V V bit										Bs bulk sample				L loose			
T TC bit										E environmental sample				MD medium dense			
*bit shown by suffix e.g. ADT										R refusal				D dense			
														VD very dense			

Borehole No. **BH5**

Engineering Log - Borehole

Client: **Sydney Harbour Foreshore Authority**

Principal:

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

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

Sheet 2 of 4

Office Job No.: **GEOTLCOV24303AA**Date started: **14.6.2011**

Date completed: **15.6.2011**

Logged by: **LJG**

Checked by: **SS**

drill model and mounting:						Ausrock 2000 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			support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material	moisture condition	consistency/ density index	pocket penetro- meter kPa	structure and additional observations	
WB	1	2	3	C	C											
							-6			CH	Sandy CLAY: Low to medium plasticity, pale grey, medium sand, with some silt.	>Wp	VSt-H		ALLUVIUM	
						SPT 4,6,6 N*=12	9			CS			St			
							-7									X
														X		
							-8			CH	CLAY: High plasticity, dark grey, trace of silt.	VSt-H				
						SPT 7,9,13 N*=22	10									X
							-9									X
														X		
							-10							X		
														X		
							-11			SC	Clayey SAND: Medium to coarse, brown, grey, trace of gravel.	W	L-MD		ESTUARINE 11.50m - No sample recovered	
						SPT 4,3,2 N*=5	12									X
							-13									X
													X			
							-12			CL	Silty CLAY: Low plasticity, dark brown, black, with some organic material (wood) very light.	>Wp	St			
						SPT 4,7,14 N*=21	13									X
							-14									X
														X		
							-15			SC	Clayey SAND: Coarse grained, pale grey, dark grey, low plasticity clay, trace of silt.	W	L-MD		WEATHERED BEDROCK	
						SPT 3,5,9 N*=14	15									X
							-16									X
													X			
													X			
													X			
													X			
method	auger screwing*					support	M mud	N nil	notes, samples, tests			classification symbols and soil description			consistency/density index	
AD	auger drilling*					C casing			U ₅₀ undisturbed sample 50mm diameter			based on unified classification system			VS very soft	
RR	roller/tricone					penetration	1 2 3 4		U ₆₃ undisturbed sample 63mm diameter						S soft	
W	washbore								D disturbed sample						F firm	
CT	cable tool								N standard penetration test (SPT)						St stiff	
HA	hand auger								N* SPT - sample recovered						VSt very stiff	
DT	diatube								Nc SPT with solid cone						H hard	
B	blank bit								V vane shear (kPa)						Fb friable	
V	V bit								P pressuremeter						VL very loose	
T	TC bit								Bs bulk sample						L loose	
*bit shown by suffix e.g. ADT									E environmental sample						MD medium dense	
									R refusal						D dense	
															VD very dense	

Borehole No. **BH5**

Sheet 3 of 4

Office Job No.: **GEOTLCOV24303AA**

Date started: **14.6.2011**

Date completed: **15.6.2011**

Logged by: **LJG**

Checked by: **SS**

Engineering Log - Borehole

Client: **Sydney Harbour Foreshore Authority**

Principal:

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

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

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	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- kPa 100 200 300 400	meter	structure and additional observations					
WB					-14				SANDSTONE: Extremely weathered, pale grey, brown, coarse grained, estimated to be very low strength, remoulds to SAND. (continued) Borehole BH5 continued as cored hole										
					-17														
					-15														
					-18														
					-16														
					-19														
					-17														
					-20														
					-18														
					-21														
					-22														
					-23														
					-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 WL 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 No. **BH6**

Engineering Log - Borehole

Sheet 1 of 4
Office Job No.: **GEOTLCOV24303AA**

Client: **Sydney Harbour Foreshore Authority**

Date started: **9.6.2011**

Principal:

Date completed: **9.6.2011**

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

Logged by: **LJG**

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

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						material substance									
method	penetration			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	structure and additional observations
	1	2	3											100 200 300 400	
ADT				C		E+0ppm					FILL: ASPHALT: 0.02m thick	D			PAVEMENT
											FILL: GRAVEL: Medium to coarse, subangular to subrounded, black, grey, trace of sand and clay.				
DT						E. QC06, QC07+0ppm	-2				FILL: CONCRETE: 0.08m	D			
								1			FILL: GRAVEL: Medium to coarse angular to subangular, grey/brown, trace of fine gravel and sand.	D			FILL
											FILL: CONCRETE: 0.16m				
ADT						SPT 2,3,3 N*=6	-1				FILL: GRAVEL: Medium to coarse, angular to subrounded, trace of fine gravel and cobbles.	<Wp			
						E+0.4ppm		2			FILL: SANDSTONE BOULDER: Coarse grained, yellow/orange, rounded.				
											FILL: CLAY: High plasticity, red brown, pale grey, grey mottled, trace of fine gravel, ironstone and shale. (shale fill)	M			
							0				1.80m - Grey, with some fine shale angular gravel.				
						E+0ppm					FILL: SAND: Coarse grained, grey/brown, trace of silt and rubber.	W			
								3							
						SPT 5,2,2 N*=4	-1								
						E+0ppm		4		SC	Clayey SAND: Coarse grained, brown, grey, low plasticity clay.				ESTUARINE
										CL	Sandy CLAY: Low plasticity, brown, black, coarse sand, trace of silt.		F		
W						SPT 0,2,3 N*=5	-2								
								5		CL	CLAY: Low to medium red, brown, with some fine sand.				
							-3								
						E+0ppm		6		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		
							-4			CL	Sandy CLAY: Low to medium plasticity, pale grey.		St	X	
						SPT 5,3,5 N*=8		7		CH	CLAY: High plasticity, red-brown, pale grey, micaceous.		VSt	X	SLOPE WASH
							-5			CL-CH	Sandy CLAY: Medium to high plasticity, grey, pale grey, coarse sand.				ALLUVIUM
								8							

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
AS AD RR W CT HA DT B V T *bit shown by suffix e.g. ADT	M mud 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	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	based on unified classification system moisture D dry M moist W wet Wp plastic limit WL liquid limit	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 No. **BH6**

Sheet 2 of 4

Office Job No.: **GEOTLCOV24303AA**

Engineering Log - Borehole

Client: **Sydney Harbour Foreshore Authority**

Date started: **9.6.2011**

Principal:

Date completed: **9.6.2011**

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

Logged by: **LJG**

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

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						material substance									
method	penetration			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	structure and additional observations
	1	2	3												
W				C	C	U ₅₀				CL-CH	Sandy CLAY: Medium to high plasticity, grey, pale grey, coarse sand. (<i>continued</i>)	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	11		CH	Silty CLAY: High plasticity, dark grey, brown, black, micaeous.		VSt-H		ALLUVIUM
						SPT 5,8,10 N*=18	-9	12		SP	SAND: Coarse grained, grey, dark grey, with some clay.		MD		
						SPT 0,5,7 N*=12	-10	13			14m - Dark grey, black, trace of organics.				
						SPT 9,R N*=R	-11	14			At 15m - With some silt and organic material.				RESIDUAL SOIL?
							-12	15			SANDSTONE: Extremely weathered, coarse grained, black, dark grey, estimated low strength, with some organic matter.				WEATHERED BEDROCK
							-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 C casing penetration 1 2 3 4  water  10/1/98 water level on date shown  water inflow  water outflow		Borehole 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 No. **BH7**

Sheet 1 of 6

Office Job No.: **GEOTLCOV24303AA**

Engineering Log - Borehole

Client: **Sydney Harbour Foreshore Authority**

Date started: **15.6.2011**

Principal:

Date completed: **17.6.2011**

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

Logged by: **RC**

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

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			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	1	2	3	C	C		2	1			FILL: ASPHALT: (70mm thickness) overlying sandy gravel; medium to coarse grained, brown, dark grey.	D			PAVEMENT																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
																		FILL																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
																				D																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
AS AD RR W CT HA DT B V T *bit shown by suffix e.g. ADT	M mud C casing penetration 1 2 3 4  water 10/1/98 water level on date shown water inflow water outflow	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	based on unified classification system moisture D dry M moist W wet Wp plastic limit WL liquid limit	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 No. **BH7**

Sheet 2 of 6

Office Job No.: **GEOTLCOV24303AA**

Engineering Log - Borehole

Client: **Sydney Harbour Foreshore Authority**

Date started: **15.6.2011**

Principal:

Date completed: **17.6.2011**

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

Logged by: **RC**

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

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			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											
	1	2	3																							
WRR				C	C			-5		CH	CLAY: High plasticity, red brown, orange brown, pale grey, with some fine grained sand.	>Wp	F			SLOPE WASH										
										CH																

Borehole No. **BH7**

Sheet 3 of 6

Office Job No.: **GEOTLCOV24303AA**

Engineering Log - Borehole

Client: **Sydney Harbour Foreshore Authority**

Date started: **15.6.2011**

Principal:

Date completed: **17.6.2011**

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

Logged by: **RC**

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

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			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- kPa	meter	structure and additional observations
WRR	1	2	3	C	C						SANDSTONE: Medium to coarse grained, pale grey to white, extremely weathered to highly weathered. (continued)			100	200	
											Borehole BH7 continued as cored hole			300	400	
							-12	17								
							-13	18								
							-14	19								
							-15	20								
							-16	21								
							-17	22								
							-18	23								
								24								

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 1 2 3 4	D disturbed sample		F firm
W washbore	no resistance ranging to refusal	N standard penetration test (SPT)		St stiff
CT cable tool		N* SPT - sample recovered		VSt very stiff
HA hand auger		Nc SPT with solid cone		H hard
DT diatube		V vane shear (kPa)		Fb friable
B blank bit		P pressuremeter		VL very loose
V V bit	10/1/98 water level on date shown	Bs bulk sample		L loose
T TC bit		E environmental sample		MD medium dense
*bit shown by suffix e.g. ADT	water inflow water outflow	R refusal	moisture D dry M moist W wet Wp plastic limit WL liquid limit	D dense VD very dense

Borehole No. **BH8**

Sheet 1 of 1

Office Job No.: **GEOTLCOV24303AA**

Date started: **14.6.2011**

Date completed: **14.6.2011**

Logged by: **RC**

Checked by: **SS**

Engineering Log - Borehole

Client: **Sydney Harbour Foreshore Authority**

Principal:

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

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

drilling information				material substance												
method	penetration	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material	moisture condition	consistency/ density index	pocket penetro- kPa	meter	structure and additional observations		
1	2	3							soil type: plasticity or particle characteristics, colour, secondary and minor components.			100	200	300	400	
ADT		C	C		2				FILL: ASPHALT: Dark grey, 70mm thickness overlying sands gravel: medium grained, grey, fine grained.	D						PAVEMENT
						1			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
					1				VOID:							
					2											
					3											
					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	support	notes, samples, tests	classification symbols and soil description	consistency/density index
AS AD RR W CT HA DT B V T	M mud 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	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	based on unified classification system moisture D dry M moist W wet Wp plastic limit WL liquid limit	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 No. **BH9**

Engineering Log - Borehole

Client: **Sydney Harbour Foreshore Authority**

Principal:

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

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

Sheet 1 of 1

Office Job No.: **GEOTLCOV24303AA**Date started: **15.6.2011**Date completed: **15.6.2011**

Logged by: **RC**

Checked by: **SS**

drill model and mounting:				Hydrabus 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			support		water		notes samples, tests, etc		RL		depth metres		graphic log		classification symbol		material				moisture condition		consistency/ density index		pocket penetro- meter kPa		structure and additional observations	
ADT					Not Observed				E+0.0ppm		-		2						soil type: plasticity or particle characteristics, colour, secondary and minor components.				D						PAVEMENT SUB BASE FILL PREVIOUS PAVEMENT	
											1		1						soil type: plasticity or particle characteristics, colour, secondary and minor components.								BH9 was terminated at shallow depth due to obstructions after many attempts.			
											1		1						soil type: plasticity or particle characteristics, colour, secondary and minor components.											
											2		2						soil type: plasticity or particle characteristics, colour, secondary and minor components.											
											0		0						soil type: plasticity or particle characteristics, colour, secondary and minor components.											
											3		3						soil type: plasticity or particle characteristics, colour, secondary and minor components.											
											-1		-1						soil type: plasticity or particle characteristics, colour, secondary and minor components.											
											4		4						soil type: plasticity or particle characteristics, colour, secondary and minor components.											
											-2		-2						soil type: plasticity or particle characteristics, colour, secondary and minor components.											
											5		5						soil type: plasticity or particle characteristics, colour, secondary and minor components.											
											-3		-3						soil type: plasticity or particle characteristics, colour, secondary and minor components.											
											6		6						soil type: plasticity or particle characteristics, colour, secondary and minor components.											
											-4		-4						soil type: plasticity or particle characteristics, colour, secondary and minor components.											
											7		7						soil type: plasticity or particle characteristics, colour, secondary and minor components.											
											-5		-5						soil type: plasticity or particle characteristics, colour, secondary and minor components.											
											8		8						soil type: plasticity or particle characteristics, colour, secondary and minor components.											
method				support				notes, samples, tests				classification symbols and soil description				consistency/density index														
AS AD RR W CT HA DT B V T *bit shown by suffix e.g. ADT				M mud C casing penetration 1 2 3 4 water 10/1/98 water level on date shown water inflow water outflow				N nil 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				based on unified classification system moisture D dry M moist W wet Wp plastic limit W _L liquid limit				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 No. **EB1**

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

Engineering Log - Borehole

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			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		
	1	2	3														
						E+0.0ppm		0.5			ASPHALT Gravelly SAND: Medium to coarse grained, grey to brown, fine to medium grained gravel.	D/M			50mm Asphalt. FILL.		
						E+0.0ppm		1.0			Sandy CLAY: Low plasticity, red to brown, fine to medium grained.	D/M			Sandstone flecks.		
						E+2.7ppm		1.5			Sandy CLAY: Low plasticity, dark brown to brown, fine to medium grained.	M			Mild organic odour.		
						E+0.6ppm		2.0			Sandy CLAY: Medium plasticity, grey to brown, fine grained.	M			Residual clays.		
						E+0.0ppm		3.0									
								3.5			Borehole EB1 terminated at 3.1m						
								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 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 No. **EB2**

Engineering Log - Borehole

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:

[illegible]

Borehole No. **EB3**

Sheet 1 of 1

Office Job No.: **GEOTLCOV24303AA**

Engineering Log - Borehole

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			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	structure and additional observations	
	1	2	3													
						E+0.0ppm					ASPHALT	D	L		50mm Asphalt.	
						E+0.1ppm					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+0.0ppm		1								
						E+3.7ppm					Sandy CLAY: Medium plasticity, grey, fine grained.	M	F		Residual.	
						E+2.6ppm		2			SAND: Fine grained, yellow to brown.	M	F		Mild hydrocarbon odour.	
						E+7.6ppm		3			SAND: Fine grained, grey to brown.	M/W	F		Mild hydrocarbon odour.	
						E+1.1ppm		4			Sandy CLAY: Medium plasticity, yellow to brown, fine grained.	W	St		Residual clays.	
						E+0.0ppm		5								
						E+0.0ppm		6			Sandy CLAY: Medium to high plasticity, yellow mottled grey, fine grained.	M	St			
						E+0.0ppm					Borehole EB3 terminated at 6.1m					
								7								
								8								
method						support		notes, samples, tests				classification symbols and soil description			consistency/density index	
AS AD RR W CT HA DT B V T *bit shown by suffix e.g. ADT						M mud C casing penetration 1 2 3 4  water  10/1/98 water level on date shown  water inflow  water outflow		N nil 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				based on unified classification system moisture D dry M moist W wet Wp plastic limit WL liquid limit			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	

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
AS auger screwing*	M mud	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		D disturbed sample		F firm
W washbore		N standard penetration test (SPT)		St stiff
CT cable tool		N* SPT - sample recovered		VSt very stiff
HA hand auger		Nc SPT with solid cone		H hard
DT diatube		V vane shear (kPa)		Fb friable
B blank bit		P pressuremeter		VL very loose
V V bit		Bs bulk sample		L loose
T TC bit		E environmental sample		MD medium dense
*bit shown by suffix e.g. ADT		R refusal		D dense
				VD very dense

Engineering Log - Borehole

Client: **Infrastructure NSW**

Principal:

Project: **SICEEP**

Borehole Location: **See Figure 3**

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**

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			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			structure and additional observations	
	1	2	3											100	200	300	400	
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	2				FILL: Concrete: (0.25m)	D						CONCRETE SLAB
								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				FILL: CLAY: High plasticity, dark grey, mottled orange-brown, pale grey, trace fine grained sand, and medium grained, subangular sandstone gravel	<Wp						No Odour, PID = 0.8ppm
							2											
							0			CL	Sandy CLAY: Low plasticity, dark grey, mottled black, fine grained sand	>Wp	VS	X				ALLUVIUM
						SPT 1,0,1 N*=1	3							X				No Odour, PID = 0.3ppm
							-1				Borehole NBH23 terminated at 3.45m							
							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 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 WL 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

Client: **Infrastructure NSW**

Principal:

Project: **SICEEP**

Borehole Location: **See Figure 3**

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**

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			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	structure and additional observations
	1	2	3												
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			FILL
											FILL: Gravelly Sandy CLAY: Low plasticity, dark grey, mottled dark brown, fine to medium grained sand and fine to medium grained, subangular gravel	<Wp			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				
											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
ADT										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				

BOREHOLE GINTGEOTLCOV24303AC_COMBINED WITH AA GINT.GPJ COFFEY.GDT 24.5.12

Engineering Log - Piezometer

Client: **Infrastructure NSW**

Principal:

Project: **SICEEP**

Borehole Location: **See Figure 3**

Borehole No. **NBH25**

Sheet 1 of 1

Project No: **GEOTLCOV24303AC**

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			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
DT	1	2	3									CONCRETE: (0.4m) with 10mm reinforcement	D		CONCRETE SLAB
HA						E						FILL: Sandy CLAY: Low plasticity, pale brown, fine grained sand, trace fine to medium grained, subangular gravel	<Wp		FILL
ADT						E			1			FILL: Clayey SAND: Fine grained, dark grey, with some fine to medium grained, subangular sandstone gravel	M		No Odour, Dup 2 + Dup 2a, PID = 8.3ppm
									2			2m - Becoming dark grey, mottled red-brown			No Odour, PID = 5.9ppm
						SPT 12/120, N*=R			3						
									4						
									5						
						SPT 4,2,10/80 N*=R			6			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
									7						
									8						
									9						
						SPT 11,13,7 N*=20			10		CH	Sandy CLAY: High plasticity, dark grey/grey, fine grained sand		F-St	ALLUVIUM
									11						
									12						
									13						
						SPT 2,2,3 N*=5			14				>Wp		No Odour, PID = 1.0ppm
									15						
									16					St	
									17						
						SPT 4,7,11 N*=18			18			7.5m - Becoming dark grey/grey, mottled yellow-brown			No Odour, PID = 1.0ppm

method	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 SPT - sample recovered SPT with solid cone pressure meter bulk sample refusal environmental sample PID measurement water sample piezometer air lift test	classification symbols and soil description based on unified classification system moisture D dry W wet M moist Wp plastic limit WL 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
--------	---	------------------------------	---	--	---	--

Engineering Log - Borehole

Client: **Infrastructure NSW**

Principal:

Project: **SICEEP**

Borehole Location: **See Figure 3**

Borehole No. **NBH26**

Sheet 1 of 1

Project No: **GEOTLCOV24303AC**

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	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	structure and additional observations	
ADT	1 2 3	N	None Observed						ASPHALT: (0.3m)				PAVEMENT	
				E	3				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  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 WL 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

Client: **Infrastructure NSW**

Principal:

Project: **SICEEP**

Borehole Location: **See Figure 3**

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**

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			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										
	1	2	3																						
ADT											ASPHALT: (0.15m)	D			PAVEMENT										
						E					FILL: Gravelly SAND: Fine grained, dark brown, mottled dark grey, fine to medium grained, subangular to angular gravel	M			FILL										
						E	2								No Odour										
							1				CONCRETE: (0.4m)	D			CONCRETE										
						SPT 2,2,4 N*=6	1			CL	CLAY: Medium plasticity, pale brown, mottled orange-brown, red-brown	<Wp	F		ALLUVIUM										
							2								No Odour, PID = 2.1ppm										
							0																		
							3			SP	SAND: Coarse grained, dark grey, mottled black, with some fine grained, subangular gravel	M	L		No odour, PID = 2.8ppm										
						SPT 2,1,2 N*=3						W													
						-1																			
						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			CH	CLAY: Medium to high plasticity, pale brown, mottled dark grey	>Wp	St		No Odour, PID = 0.4ppm										
							5																		
											Borehole NBH27 terminated at 5m														
							-3																		
							6																		
							-4																		
							7																		
							-5																		
							8																		
method						support						notes, samples, tests				classification symbols and soil description				consistency/density index					
AS AD RR W CT HA DT B V T *bit shown by suffix e.g. ADT						M mud 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						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						based on unified classification system moisture D dry M moist W wet Wp plastic limit WL liquid limit				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. **NBH29**

Sheet 1 of 1

Project No: **GEOTLCOV24303AC**

Date started: 17.4.2012

Date completed: **17.4.2012**

Logged by: **JW**

Checked by: **DS**

Client: **Infrastructure NSW**

Principal:

Project: **SICEEP**

Borehole Location: **See Figure 3**

drill model and mounting:						XP60 Ute		Eastings: 333735		slope: -90°		R.L. Surface: 3		
hole diameter:						100 mm		Northing: 6249927		bearing: N/A		datum: AHD		
drilling information								material substance						
method	penetration			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
	1	2	3											
ADT				N						FILL: Red Brick (0.08m)	D			PAVEMENT
					E					FILL: SAND: Coarse grained, yellow-brown, with some shell fragments and quartz grains	M			FILL
ADT DT										FILL: Sandy GRAVEL: Medium to coarse grained, angular, dark grey, fine to coarse grained sand	D			No Odour, PID = 1.7ppm
					E	2	1			Concrete: (0.2m) with 10mm reinforcement	M			CONCRETE SLAB FILL
					SPT 2,2,4 N*=6					FILL: Clayey SAND: Fine grained, dark grey, low plasticity clay				Stong Hydrocarbon Odour, PID = 75.3ppm
					E	1	2			FILL: CLAY: High plasticity, pale grey, mottled orange-brown with some iron oxide staining	<Wp			No Odour, PID = 35.2ppm
										2m - Becoming dark grey.				
					SPT 1,2,1 N*=3	0	3		CH	CLAY: High plasticity, pale grey, mottled orange-brown		F-St		ALLUVIUM
					E	-1	4						X	No Odour, PID = 3.4ppm
					SPT 3,4,6 N*=10	-2	5			Borehole NBH29 terminated at 4.95m			X	
						-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 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 WL 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 - Piezometer

Client: **Infrastructure NSW**

Principal:

Project: **SICEEP**

Borehole Location: **See Figure 3**

Borehole No. **NBH30**

Sheet 1 of 1

Project No: **GEOTLCOV24303AC**

Date started: **27.4.2012**

Date completed: **27.4.2012**

Logged by: **ACM**

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	penetration	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
ADT	1 2 3	N		E						ASPHALTIC CONCRETE: (0.1m)		D		PAVEMENT
				E						FILL: Clayey GRAVEL: Medium to coarse grained, subangular to angular sandstone, pale brown, medium plasticity clay fines	M			FILL
										FILL: SAND: Fine to medium grained, pale grey, mottled pale brown, cement stabilized	<Wp		VS	No Odour, PID = 0.3ppm
										Sandy CLAY: Medium to low plasticity, pale brown, mottled orange-brown, fine to medium grained sand				ALLUVIUM
				SPT 1,0,0 N*=0			1							No Odour, Dup 12 + Dup 12a
							2							
							3							
							4							
							5							
				SPT 1,3,1 N*=4			1			Sandy CLAY: Medium to high plasticity, pale brown, mottled red-brown, medium to coarse grained sand				No Odour, PID = 0.9ppm
							2							
							3			Silty CLAY: Medium plasticity, dark grey, mottled black		F		
							4							
							5							
				SPT 0,0,1 N*=1			1					>Wp		No Odour, PID = 1.7ppm
							2							
							3							
							4							
							5			CLAY: Medium plasticity, pale grey		VS		No Odour, PID = 1.8ppm
							6							
							7							
							8							
										Borehole terminated at 5m				

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 WL 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
--	--	---	--	---

Engineering Log - Borehole

Client: **INSW**

Principal:

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

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

Borehole No. **CBH5**

Sheet 1 of 1

Office Job No.: **GEOTLCOV24303AD**

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

U₅₀ undisturbed sample 50mm diameter

U₅₃ 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