

Appendix A - Borelogs

Engineering Log - Borehole

client: **NSW Health Infrastructure**

principal:

project: **Forensic Pathology & Coroners Court**

location: **480 Weeroona Road, Lidcombe**

Borehole ID: **BH01**

sheet: 1 of 3

project no: **GEOTLCOV25551AA**

date started: **02 Mar 2016**

date completed: **02 Mar 2016**

logged by: **TO**

checked by:

position: E: 318810; N: 6249155 (Datum Not Specified) surface elevation: 35.04 m (AHD) angle from horizontal: 90°
drill model: GEO205, Track mounted drilling fluid: hole diameter : 96 mm

drilling information				material substance			
method & support	penetration	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description
AD/T	1	E	-35				FILL: Sandy CLAY: low plasticity, brown to dark brown, sand is fine to medium grained, trace of silt and rootlets.
	2	E					FILL: Gravelly CLAY: high plasticity, brown and red-brown, gravel is fine to coarse grained, sub-angular to angular.
	3	SPT 5, 6, 11 N*=17	-34	1.0		CH	0.3 m: clay becoming medium-high plasticity, gravel becoming fine to medium grained
			-33	2.0			Silty CLAY: high plasticity, pale grey mottled red-brown and yellow-brown.
		SPT 34, 32/80mm HB N*=R	-32	3.0			SHALE: pale grey to grey, extremely weathered, estimated very low strength.
			-31	4.0			Borehole BH01 continued as cored hole
			-30	5.0			
			-29	6.0			
			-28	7.0			

method AD auger drilling* AS auger screwing* HA hand auger W washbore * bit shown by suffix e.g. AD/T B blank bit T TC bit V V bit	support M mud C casing penetration 10-Oct-12 water level on date shown water inflow water outflow	samples & field tests B bulk disturbed sample D disturbed sample E environmental sample SS split spoon sample U## undisturbed sample ##mm diameter HP hand penetrometer (kPa) N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone VS vane shear; peak/remoulded (kPa) R refusal HB hammer bouncing	classification symbol & soil description based on Unified Classification System moisture D dry M moist W wet Wp plastic limit Wi liquid limit	consistency / relative density 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
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CDE_0_9_06_LIBRARY.GLB rev:AM Log COF BOREHOLE: NON CORED GEOTLCOV25551AA GEOTINVEST.GPJ <<DrawingFile>> 15/03/2016 15:51

Engineering Log - Cored Borehole

client: **NSW Health Infrastructure**

principal:

project: **Forensic Pathology & Coroners Court**

location: **480 Weeroona Road, Lidcombe**

Borehole ID. **BH01**

sheet: 2 of 3

project no. **GEOTLCOV25551AA**

date started: **02 Mar 2016**

date completed: **02 Mar 2016**

logged by: **TO**

checked by:

position: E: 318810; N: 6249155 (Datum Not Specified) surface elevation: 35.04 m (AHD) angle from horizontal: 90°
drill model: GEO205, Track mounted drilling fluid: hole diameter: 96 mm vane id.:

drilling information				material substance				rock mass defects				
method & support	water	RL (m)	depth (m)	graphic log	material description ROCK TYPE: grain characteristics, colour, structure, minor components	weathering & alteration	estimated strength & Is50 X = axial O = diametral a = axial, d = diametral	samples, field tests & Is(50) (MPa)	core run & RQD	defect spacing (mm)	additional observations and defect descriptions (type, inclination, planarity, roughness, coating, thickness, other)	
											particular	general
		-35										
		-34	1.0									
		-33	2.0									
		-32	3.0									
					start coring at 3.80m							
		-31	4.0		SHALE: dark grey, red-brown, yellow-brown and pale grey, massive.	MW		a=0.24 d=0.04	93%		PT, 0 - 5°, UN, RO, Fe SN PT, 0 - 5°, UN, RO, Fe SN	Defects are: PT, 0 - 10°, IR, RO, CN - Fe SN, unless otherwise described
						HW		a=0.08			JT, 75 - 80°, PL, RO, CN CS, 25°, IR, RO, Fe SN, =45 mm	
		-30	5.0		SHALE: dark grey to black, massive.	SW		a=0.20 d=0.36	100%		JT, 60°, CU, RO, Fe SN JT, 85°, CU, RO, CN	
								a=0.45 d=0.09			PT, 0°, PL, RO, CN PT, 20°, CU, RO, Fe SN	
		-29	6.0						97%		JT, 45°, PL, Fe SN, healed	
		-28	7.0			HW		a=0.51 d=0.24				
						FR			86%		CS, 0°, PL, RO, =10 mm	
method & support AS auger screwing AD auger drilling CB claw or blade bit W washbore NMLCNMLC core (51.9 mm) NQ wireline core (47.6mm) HQ wireline core (63.5mm) PQ wireline core (85.0mm) SPT standard penetration test				water 10/10/12, water level on date shown water inflow complete drilling fluid loss partial drilling fluid loss 25uL water pressure test result (lugeons) for depth interval shown		graphic log / core recovery core recovered (graphic symbols indicate material) no core recovered core run & RQD barrel withdrawn RQD = Rock Quality Designation (%)		weathering & alteration* RS residual soil XW extremely weathered HW highly weathered DW distinctly weathered MW moderately weathered SW slightly weathered FR fresh *W replaced with A for alteration strength VL very low L low M medium H high VH very high EH extremely high		defect type PT parting JT joint SZ shear zone SS shear surface CO contact CS crushed seam SM seam planarity PL planar CU curved UN undulating ST stepped IR irregular roughness SL slickensided POL polished SO smooth RO rough VR very rough coating CN clean SN stain VN veneer CO coating		

Engineering Log - Cored Borehole

client: **NSW Health Infrastructure**

principal:

project: **Forensic Pathology & Coroners Court**

location: **480 Weeroona Road, Lidcombe**

Borehole ID. **BH01**

sheet: 3 of 3

project no. **GEOTLCOV25551AA**

date started: **02 Mar 2016**

date completed: **02 Mar 2016**

logged by: **TO**

checked by:

position: E: 318810; N: 6249155 (Datum Not Specified) surface elevation: 35.04 m (AHD) angle from horizontal: 90°
drill model: GEO205, Track mounted drilling fluid: hole diameter : 96 mm vane id.:

drilling information				material substance				rock mass defects			
method & support	water	RL (m)	depth (m)	graphic log	material description ROCK TYPE: grain characteristics, colour, structure, minor components	weathering & alteration	estimated strength & Is50 X = axial; O = diametral a = axial; d = diametral	samples, field tests & Is(50) (MPa)	core run & RQD	defect spacing (mm)	additional observations and defect descriptions (type, inclination, planarity, roughness, coating, thickness, other)
		-27			SHALE: dark grey to black, massive. (continued)	FR			86%		
		-26	9.0		LAMINITE: Sandstone (60%) fine grained, pale grey and Siltstone(40%), dark grey, distinctly laminated at 0-5°.			a=0.53 d=0.78			JT, 25°, IR, RO, CN
		-25	10.0		9.90 m: becoming 80% Siltstone and 20% Sandstone			a=3.84 d=1.14	100%		
		-24	11.0		Borehole BH01 terminated at 10.35 m Target depth						
		-23	12.0								
		-22	13.0								
		-21	14.0								
		-20	15.0								

method & support AS auger screwing AD auger drilling CB claw or blade bit W washbore NMLCNMLC core (51.9 mm) NQ wireline core (47.6mm) HQ wireline core (63.5mm) PQ wireline core (85.0mm) SPT standard penetration test	water 10/10/12, water level on date shown water inflow complete drilling fluid loss partial drilling fluid loss water pressure test result (lugeons) for depth interval shown	graphic log / core recovery core recovered (graphic symbols indicate material) no core recovered core run & RQD barrel withdrawn RQD = Rock Quality Designation (%)	weathering & alteration* RS residual soil XW extremely weathered HW highly weathered DW distinctly weathered MW moderately weathered SW slightly weathered FR fresh *W replaced with A for alteration strength VL very low L low M medium H high VH very high EH extremely high	defect type PT parting JT joint SZ shear zone SS shear surface CO contact CS crushed seam SM seam roughness SL slickensided POL polished SO smooth RO rough VR very rough	planarity PL planar CU curved UN undulating ST stepped IR irregular coating CN clean SN stain VN veneer CO coating
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Piezometer Installation Log

client: **NSW Health Infrastructure**

principal:

project: **Forensic Pathology & Coroners Court**

location: **480 Weeroona Road, Lidcombe**

Hole ID. **BH01**

sheet: 1 of 1

project no. **GEOTLCOV25551AA**

date started: **02 Mar 2016**

date completed: **02 Mar 2016**

logged by: **TO**

checked by:

position: E: 318810; N: 6249155 (Datum Not Specified)

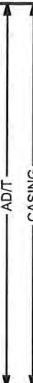
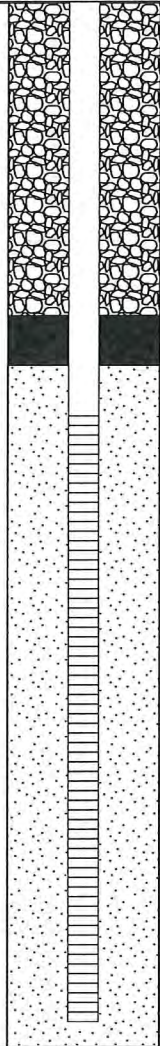
surface elevation: 35.04 m (AHD)

angle from horizontal: 90°

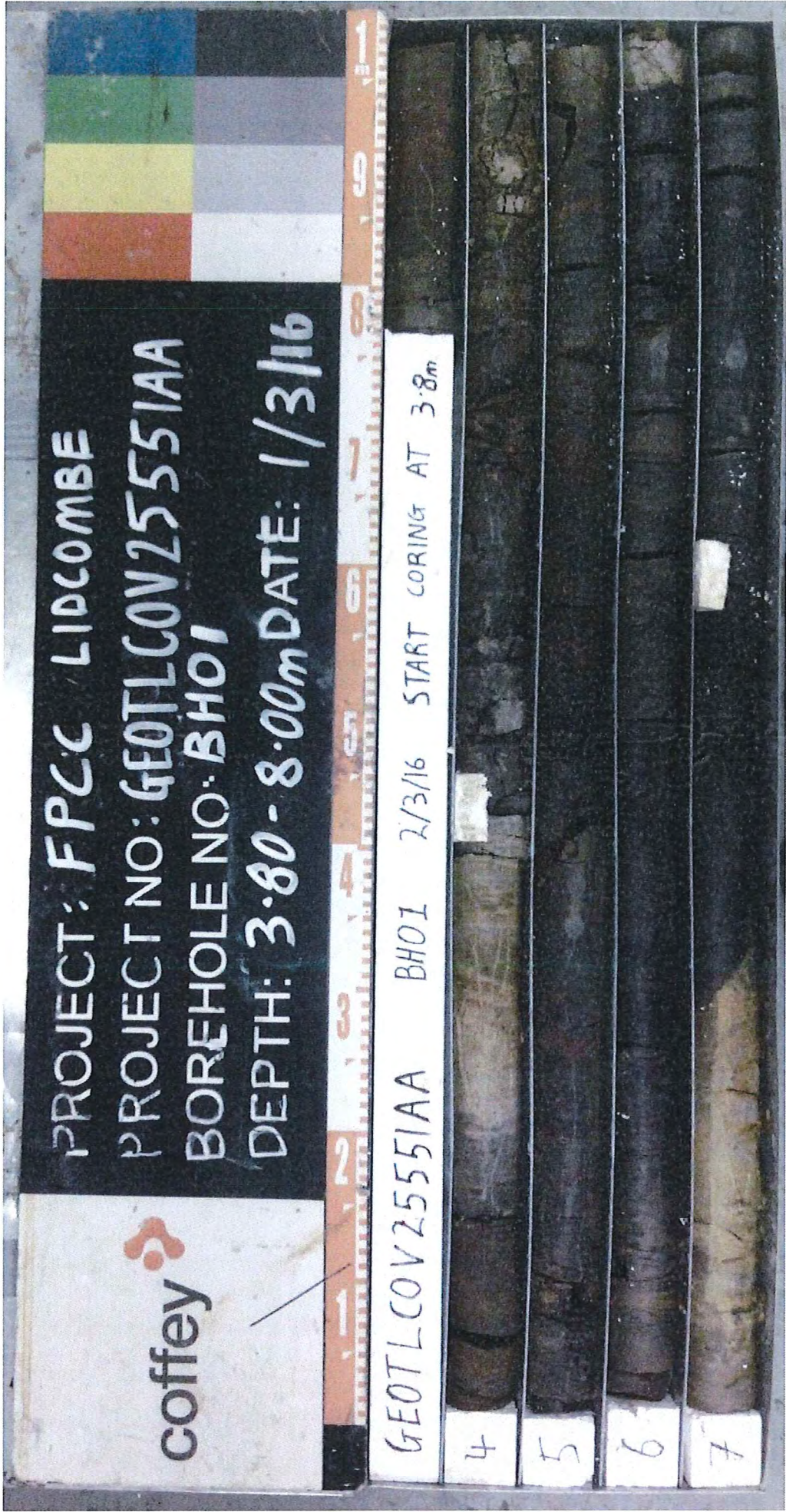
equipment type: GEO205, Track mounted

drilling fluid:

hole diameter : 96 mm

drilling information				material substance		piezometer construction details	
method & support	water	RL (m)	depth (m)	graphic log	material name		bore construction license: drilling company: driller: driller's permit no.:
 AD/T CASING  NMLC	   	-34 -32 -30 -28 -26 -24	1		FILL		Concrete
			2		RESIDUAL SOIL		Cuttings
			3		WEATHERED BEDROCK		Bentonite
			4				
			5				
			6				
			7				
			8				
			9				
			10				
			11				

method & support	graphic log / core recovery	ID	type	installation date	stickup (m)	tip depth (m)	water level (m)	Relative Levels (AHD)		
see engineering log for details water  10-Oct-12, water level on date shown  water inflow  complete drilling fluid loss  partial drilling fluid loss  water pressure test result (lugeons) for depth interval shown	 core recovered (graphic symbols indicate material)  no core recovered	BH01	standpipe		0.69 m	10.10 m		stickup	tip	water level
								34.35	24.94	



PointID : BH01 Depth Range: 3.80 - 8.00 m

drawn	IS	client: NSW Health Infrastructure
approved		
date	15/03/2016	
scale	N.T.S.	
original size	A4	
		project: Forensic Pathology & Coroners Court 480 Weeroona Road, Lidcombe
		title: CORE PHOTOGRAPH BH01
		project no: GEOTLCOV25551AA fig no: FIGURE 1 rev:



PointID : BH01 Depth Range: 8.00 - 10.35 m

drawn	IS		client: NSW Health Infrastructure	
approved				
date	15/03/2016			
scale	N.T.S.			
original size	A4			
		project no: GEOTLCOV2551AA	fig no: FIGURE 2	rev:

Engineering Log - Borehole

client: **NSW Health Infrastructure**

principal:

project: **Forensic Pathology & Coroners Court**

location: **480 Weeroona Road, Lidcombe**

Borehole ID. **BH04**

sheet: 1 of 2

project no. **GEOTLCOV25551AA**

date started: **01 Mar 2016**

date completed: **01 Mar 2016**

logged by: **TO**

checked by:

position: E: 318801; N: 6249101 (Datum Not Specified) surface elevation: 33.80 m (AHD) angle from horizontal: 90°
drill model: GEO205, Track mounted drilling fluid: hole diameter : 96 mm

drilling information				material substance								
method & support	penetration	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components	moisture condition	consistency / relative density	hand penetrometer (kPa)	structure and additional observations
	1		E					FILL: Gravelly CLAY: low plasticity, brown, gravel is fine to medium grained and sub-angular.				FILL
	2		E									
	3		SPT 6, 8, 12 N*=20	-33	1.0		CH	CLAY: high plasticity, pale grey mottled red-brown and yellow-brown, with some fine-medium size ironstone gravel.	<Wp	VSt / H		RESIDUAL SOIL
				-32	2.0			SHALE: pale grey, brown and grey, extremely weathered, estimated very low to low strength.				WEATHERED BEDROCK
			SPT 8, 14, 18 HB N*=32	-31	3.0							
			SPT 30, 40, 46 a=1638 N*=R	-30	4.0							
				-29	5.0			Borehole BH04 continued as cored hole				
				-28	6.0							
				-27	7.0							
				-26								

method AD auger drilling* AS auger screwing* HA hand auger W washbore * bit shown by suffix e.g. B blank bit T TC bit V V bit	support M mud C casing penetration  water 10-Oct-12 water level on date shown water inflow water outflow	samples & field tests B bulk disturbed sample D disturbed sample E environmental sample SS split spoon sample U## undisturbed sample ##mm diameter HP hand penetrometer (kPa) N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone VS vane shear; peak/remoulded (kPa) R refusal HB hammer bouncing	classification symbol & soil description based on Unified Classification System moisture D dry M moist W wet Wp plastic limit Wl liquid limit	consistency / relative density 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
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client: **NSW Health Infrastructure**

principal:

project: **Forensic Pathology & Coroners Court**

location: **480 Weeroona Road, Lidcombe**

Borehole ID. **BH04**

sheet: 2 of 2

project no. **GEOTLCOV25551AA**

date started: **01 Mar 2016**

date completed: **01 Mar 2016**

logged by: **TO**

checked by:

position: E: 318801; N: 6249101 (Datum Not Specified)

surface elevation: 33.80 m (AHD)

angle from horizontal: 90°

drill model: GEO205. Track mounted

drilling fluid:

hole diameter : 96 mm

vane id.:

CDP 0 9 06 LIBRARY.GLB rev:AM Log COF BOREHOLE: CORED GEOTLCOV25551AA GEOTINVEST.GPJ <<DrawingFile>> 15/03/2016 15:50



PointID : BH04 Depth Range: 4.10 - 7.00 m

drawn	IS		client:	NSW Health Infrastructure
approved			project:	Forensic Pathology & Coroners Court 480 Weeroona Road, Lidcombe
date	15/03/2016		title:	CORE PHOTOGRAPH BH04
scale	N.T.S.		project no:	GEOTLCOV2551AA
original size	A4		fig no:	FIGURE 1
			rev:	

Engineering Log - Borehole

client: **NSW Health Infrastructure**

principal:

project: **Forensic Pathology & Coroners Court**

location: **480 Weeroona Road, Lidcombe**

Borehole ID: **BH08**

sheet: 1 of 3

project no. **GEOTLCOV2551AA**

date started: **01 Mar 2016**

date completed: **01 Mar 2016**

logged by: **TO**

checked by:

position: E: 318840; N: 6249042 (Datum Not Specified) surface elevation: 34.26 m (AHD) angle from horizontal: 90°
drill model: GEO205, Track mounted drilling fluid: hole diameter : 96 mm

drilling information				material substance			
method & support	penetration	water	samples & field tests	depth (m)	classification symbol	material description	structure and additional observations
AD/T	1		E	34		FILL: CLAY: low plasticity, brown, with some fine to medium sub-angular gravel.	FILL
	2		E		CH	Silty CLAY: high plasticity, pale grey mottled red-brown and yellow-brown, with some fine to medium gravel size ironstone fragments.	RESIDUAL SOIL
	3		SPT 7, 12, 14 N*=26	33		1.1 m: some tree rootlets	HP >600 kPa HP >600 kPa
			SPT 8, 10, 18 N*=28	32		SHALE: pale grey and brown, extremely weathered, estimated very low strength.	WEATHERED BEDROCK
				31		2.5 m: becoming pale grey, red-brown with depth	
				30		3.5 m: becoming pale grey-grey	
			SPT 30 HB N*=R	30		Borehole BH08 continued as cored hole	
				29			
				28			
				27			

method AD auger drilling* AS auger screwing* HA hand auger W washbore * bit shown by suffix e.g. AD/T B blank bit T TC bit V V bit	support M mud C casing penetration 	samples & field tests B bulk disturbed sample D disturbed sample E environmental sample SS split spoon sample U## undisturbed sample ##mm diameter HP hand penetrometer (kPa) N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone VS vane shear; peak/remoulded (kPa) R refusal HB hammer bouncing	classification symbol & soil description based on Unified Classification System moisture D dry M moist W wet Wp plastic limit Wi liquid limit	consistency / relative density 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
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Engineering Log - Cored Borehole

client: **NSW Health Infrastructure**

principal:

project: **Forensic Pathology & Coroners Court**

location: **480 Weeroona Road, Lidcombe**

Borehole ID. **BH08**

sheet: 2 of 3

project no. **GEOTLCOV25551AA**

date started: **01 Mar 2016**

date completed: **01 Mar 2016**

logged by: **TO**

checked by:

position: E: 318840; N: 6249042 (Datum Not Specified)										surface elevation: 34.26 m (AHD)										angle from horizontal: 90°																			
drill model: GEO205, Track mounted										drilling fluid:										hole diameter : 96 mm										vane id.:									
drilling information				material substance										rock mass defects																									
method & support		water		RL (m)		depth (m)		graphic log		material description ROCK TYPE: grain characteristics, colour, structure, minor components						weathering & alteration		estimated strength & Is50 X = axial; O = diametral				samples, field tests & Is(50) (MPa) a = axial; d = diametral				core run & RQD		defect spacing (mm)				additional observations and defect descriptions (type, inclination, planarity, roughness, coating, thickness, other)							
																		VL L M H VH FH										30 100 300 1000 3000				particular <							

client: **NSW Health Infrastructure**

principal:

project: **Forensic Pathology & Coroners Court**

location: **480 Weeroona Road, Lidcombe**

Borehole ID. **BH08**

sheet: 3 of 3

project no. **GEOTLCOV25551AA**

date started: **01 Mar 2016**date completed: **01 Mar 2016**

logged by: **TO**

checked by:

position: E: 318840; N: 6249042 (Datum Not Specified)

surface elevation: 34.26 m (AHD)

angle from horizontal: 90°

drill model: GEO205, Track mounted

drilling fluid:

hole diameter : 96 mm

vane id.:

drilling information				material substance		rock mass defects						
method & support	water	RL (m)	depth (m)	graphic log	material description ROCK TYPE: grain characteristics, colour, structure, minor components	weathering & alteration	estimated strength & Is50 X = axial; O = diametral a = axial; d = diametral	samples, field tests & Is(50) (MPa)	core run & RQD	defect spacing (mm)	additional observations and defect descriptions (type, inclination, planarity, roughness, coating, thickness, other)	
											particular	general
NMLC			26		SHALE: dark grey to black, massive. (continued)	FR			96%		JT, 70 - 85°, IR, RO, CN JT, 50 - 85°, CU, RO, CN	
		9.0	LAMINITE: Sandstone (60%) fine grained and pale grey, Siltstone(40%), dark grey and distinctly laminated at 0-5°.		a=0.49 d=0.37				100%		JT, 80°, IR, RO, CN JT, 85 - 90°, IR, RO, CN JT, 85 - 90°, PL, RO, CN	
			10.0		9.40 m: becoming 90% Siltstone and 10% Sandstone			a=1.08 d=0.57				
			24		Borehole BH08 terminated at 9.98 m Target depth							
			11.0									
			23									
			12.0									
			22									
			13.0									
			21									
			14.0									
			20									
			15.0									
			19									

method & support

AS auger screwing
AD auger drilling
CB claw or blade bit
W washbore
NMLCNMLC core (51.9 mm)
NQ wireline core (47.6mm)
HQ wireline core (63.5mm)
PQ wireline core (85.0mm)
SPT standard penetration test

water

 10/10/12, water level on date shown
 water inflow
 complete drilling fluid loss
 partial drilling fluid loss
 water pressure test result (lugeons) for depth interval shown

graphic log / core recovery

 core recovered (graphic symbols indicate material)
 no core recovered

core run & RQD

 barrel withdrawn
RQD = Rock Quality Designation (%)

weathering & alteration*

RS residual soil
XW extremely weathered
HW highly weathered
DW distinctly weathered
MW moderately weathered
SW slightly weathered
FR fresh
*W replaced with A for alteration strength
VL very low
L low
M medium
H high
VH very high
EH extremely high

defect type

PT parting
JT joint
SZ shear zone
SS shear surface
CO contact
CS crushed seam
SM seam

planarity

PL planar
CU curved
UN undulating
ST stepped
IR irregular

roughness

SL slickensided
POL polished
SO smooth
RO rough
VR very rough

coating

CN clean
SN stain
VN veneer
CO coating

Piezometer Installation Log

client: **NSW Health Infrastructure**

principal:

project: **Forensic Pathology & Coroners Court**

location: **480 Weeroona Road, Lidcombe**

Hole ID. **BH08**

sheet: 1 of 1

project no. **GEOTLCOV25551AA**

date started: **01 Mar 2016**

date completed: **01 Mar 2016**

logged by: **TO**

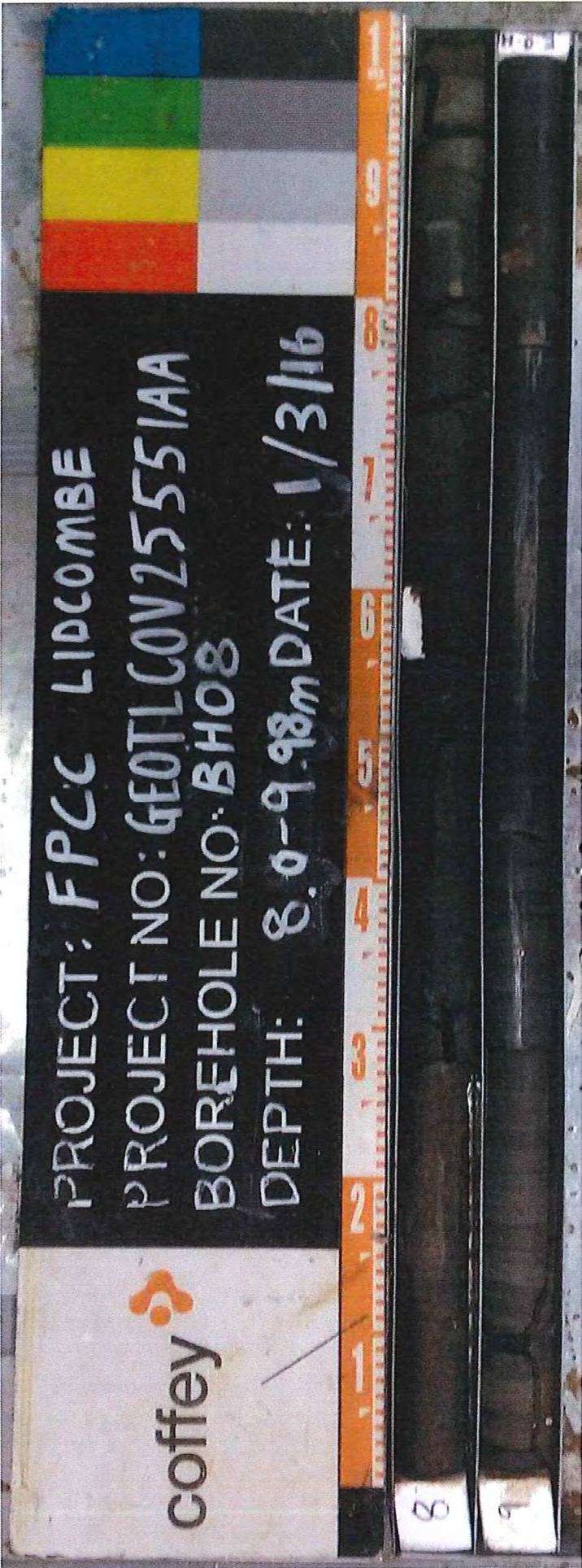
checked by:

position: E: 318840; N: 6249042 (Datum Not Specified) surface elevation: 34.26 m (AHD) angle from horizontal: 90°
equipment type: GEO205, Track mounted drilling fluid: hole diameter: 96 mm

drilling information				material substance	piezometer construction details	
method & support	water	RL (m)	depth (m)	graphic log	material name	bore construction license: drilling company: driller: driller's permit no.:
 		-34			FILL	Concrete
			1		RESIDUAL SOIL	
			2		WEATHERED BEDROCK	
		-32				
			3			Cuttings
			4			Bentonite
		-30				
			5			
			6			
		-28				
			7			Sand
			8			
		-26				
			9			
			10			
		-24				
			11			

method & support see engineering log for details		graphic log / core recovery		ID	type	installation date	stickup (m)	tip depth (m)	water level (m)	Relative Levels (AHD)		
water  10-Oct-12, water level on date shown  water inflow  complete drilling fluid loss  partial drilling fluid loss  water pressure test result (lugeons) for depth interval shown		 core recovered (graphic symbols indicate material)  no core recovered		BH08	standpipe		0.73 m	9.98 m		stickup	tip	water level
										33.53	24.28	





PointID : BH08 Depth Range: 8.00 - 9.98 m

drawn	IS		client:	NSW Health Infrastructure
approved			project:	Forensic Pathology & Coroners Court 480 Weeroona Road, Lidcombe
date	9/03/2016		title:	CORE PHOTOGRAPH BH08
scale	N.T.S.		project no:	GEOTLCOV2551AA
original size	A4		fig no:	FIGURE 11
			rev:	