Appendix C Logs and Well Construction Details



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43217997/G02/1

Appendix C Logs and Well Construction Details

C1. Borehole Logs and Core Photos

J:\JOBS\43217997\6 DELIV\FINAL REPORT\GEOTECHNICAL REPORT\CD\GEO_APPENDICES\APPENDIX C\APPENDIX C - LABEL.DOC

IRS Austr vl 3, 116 Drilling Co	Miller St	reet, North	Sydney N cquarie	ISW 2060 Fax:	+61.2.8925 5500 +61.2.8925 5555	Refere	ence: (esessment	Client: Costco Wholesale (Location: 17-21 Parramatta R				Ltd
ogged B Checked Date Star Date Finis	By: ted:	J Kor V Tandji 13-6-09 13-6-09	Bore Size: Total Depth Casing Size			inates:	6252986.00 mN 319461.00 mE	Drill Type: SFA "V" Bit, Hand Auger Drill Model: Truck Mounted Rig Drill Fluid: N/A	ing				
SAMPLE TYPE	RUN (m)	FIELD SHEAR STRENGTH (kPa)	PENETROMETER BLOWS (N)	SAMPLING AND OTHER TESTING	GROUND WATER DATA AND COMMENTS		GRAPHIC LOG		ON OF STRATA	MOISTURE CONDITION	USCS	CONSISTENCY/ DENSITY	GEOLOGICAL
	U	_				- 0		Concrete (150mm thic	k) graded, angular, brown, moist				
SO						-			b high plasticity, grey, with a trace of soft	M			
SQ	Hand Auger					- - - - - - - - -		organics, moist, very s	soft	М			
			N=N/A	SPT@1.5m sank		-		CLAY, medium to high gravels, moist to wet,	n plasticity, grey, with a trace of very soft			vs	
SPT						-		j , , , , , , , , , ,					
						2	 						
						-							
						-	 						
						-	 						
SPI			N=1	SPT@3.0m 0,0,1		- 3	 	Becoming greyish brow	wn with high plasticity at 3.0m			VS	
A solution						-							
						-							
	Ħ					- 4		Becoming dark grey w	vith marine odour at 4.30m				
	V Bit					-				M/W			
			N=N/A	SPT@4.5m sank		-						vs	
SPT				Jank		-							
\square						-							

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URS Non-cored Hole

BOREHOLE SB06

Sheet 2 of 2

URS Australia Pty Ltd Lvl 3, 116 Miller Street, North Sydney NSW 2060

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00 Project **43217997** 55 No.: Project Reference:

oject Preliminary Geotechnical Assessment

	SAMPLE TYPE	RUN (m)	FIELD SHEAR STRENGTH (kPa)	PENETROMETER BLOWS (N)	SAMPLING AND OTHER TESTING	GROUND WATER DATA AND COMMENTS		GRAPHIC LOG	DESCRIPTION OF STRATA	MOISTURE CONDITION	USCS	CONSISTENCY/ DENSITY	GEOLOGICAL DESCRIPTION
	SPT SPT SPT		EIE	N=17	SPT@6.0m 5,8,9 SPT@6.9m 25/100mm		- 5 5 6 6 7 - 7		Getting harder to drill from 5.50m Shale fragments observed below 5.8m Bore discontinued at 7.0m (V bit and SPT refusal)			St/VSI	
SYDNEY_GEOTECH J:\JOB	Remark	(S: DS C ir	in "SAM Run (r	IPLE TY n)" colur	PE" column repre nn represents Co	esents Disturbe oncrete Cutting	- - - ed Sam	ple					

U		S	No	n-core	d Hole			BC	OREH	IOLE SB07				
URS Austra Lvl 3, 116 M Drilling Col	1iller Str	eet, North			+61.2.8925 5500 +61.2.8925 5555	Refere	ence: (Preliminary Geotechnical Assessment I3217997	Client: Location:	Costco Wholesale 17-21 Parramatta R				Ltd
Logged By Checked B Date Starte Date Finish	By: ed:	J Kor V Tandji 31-5-09 31-5-09	ria	Bore Size: Total Depth Casing Size		Relativ	ve Leve inates:	k: mRL 6252990.00 mN 319511.00 mE		SFA "V" Bit, Hand Auger Truck Mounted Rig N/A	ing			
SAMPLE TYPE	RUN (m)	FIELD SHEAR STRENGTH (kPa)	PENETROMETER BLOWS (N)	SAMPLING AND OTHER TESTING	GROUND WATER DATA AND COMMENTS	 • DEPTH (m)	GRAPHIC LOG	DESCRIP		STRATA	MOISTURE CONDITION	NSCS	CONSISTENCY/ DENSITY	GEOLOGICAL
-	C					- - -	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	medium grain, moist	y graded, ar	ngular, dirty brown, fine to , reddish brown, moist	М			FILL
-	Hand Auger	_				- - - - - - - -			gn prosiony	, readisir brown, moist	м			
SPT C			N=5	SPT @ 2.0m 2,2,3		- - - - - - - - - - - -		Silty CLAY, medium Becoming pale brov With a trace of irons Becoming greyish br	vn at 2.0m tone at 2.30				F	ALLUVIUM
-				W _e =19.5% LL=36		- - - - - - - - - -		Stiff at 3.50m			M/W			
- -	Butterfly Bit			LL=36 PI=18 q _u =122kPa Density(dry)= 1.74t/m ³		- - - - - - - - -								
						- - -		Shale fragments obe	erved at 4.7r	n				



Non-cored Hole

BOREHOLE SB07

Sheet 2 of 2

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¹⁰ Project **43217997**

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Project Reference: Preliminary Geotechnical Assessment

	SAMPLE TYPE	RUN (m)	FIELD SHEAR STRENGTH (kPa)	PENETROMETER BLOWS (N)		GROUND WATER DATA AND COMMENTS	– DEPTH (m)	GRAPHIC LOG	DESCRIPTION OF STRATA	MOISTURE CONDITION	USCS	G CONSISTENCY/	GEOLOGICAL DESCRIPTION
-	SPT			N-29	SPT @ 5.0m 8,12,17		- - - - - - - - - -		Dry below 5.0m SILTSTONE, extremely low strength, extremely weathered, drak grey	D		Vol	RESIDUAL
	Las	-		N=N/A	SPT @ 6.5m 25/150mm		- - - - - -		V Bit refusal at 6.7m, continues with NMLC coring			Н	
60/							- - - - - - -						
SYDNEY_GEOTECH J.:JOBS/43217997/5 WORKS/GEOTECHNICAL INVESTIGATIONLOGS/LIDCOMBE SB.GPJ URS1.GDT 7/9/09							- 8 - - - - -						
CAL INVESTIGATION/LOGS/LID							- - 9 - - - -						
217997/5 WORKS/GEOTECHNI							- - - - - - - -						
SEOTECH J:\JOBS\43							 - - -						
SYDNEY_G	Remark	C ir Wc LL	n "Run (r in "Sam and PL ii	n)" colur pling an n "Samp	nn represents Co d Other Testing" ling and Other To	oncrete Cutting column represe esting" column	ents Wa	ater co ent Liqi	 in "SAMPLE TYPE" column represents Undisturbed Sample ntent uid Limit and Plastic Limit respectively d Compressive Strength 				



URS Cored Borehole

BOREHOLE SB07

URS Australia PT	TY LTD			Preliminary Geotechnical	Client:	Costco Wholesale (Australia) Pty Ltd
Drilling Contract	tor: Macquarie Pty	Ltd	Project No.:	Assessment 43217997	Location:	17-21 Parramatta Road, Lidcombe
Logged By:	J Kor	Bore Size: 100mm mm	Relative Lev	el: mRL	Drill Type:	NMLC - Diamond Impreg. Bit
Checked By:	V Tandjiria	Casing Size: mm Total Depth: 10.00 m	Coordinates:	6252990.00 mN	Drill Model	Truck Mounted Rig
Date Started:	31-5-09	Borehole Inclination and		319511.00 mE		U
Date Finished:	31-5-09	Bearing: 90° from horizontal at ° True North	Permit No:		Drill Fluid:	Water



vl 3, 1	16 N	lia Pty I liller Str ntracto	eet, North			+61.2.8925 5500 +61.2.8925 5555	Refere	ence: C	Preliminary Geotechnical Assessment 3217997	Client: Location:	Costco Wholesale 17-21 Parramatta R	-	-	-	Ltd
ogge heck ate S ate F	ed B Starte	y: ed:	J Kor V Tandji 13-6-09 13-6-09	ria	Bore Size: Total Deptl Casing Siz	n: 10.08 m		inates:	: mRL 6253017.00 mN 319528.00 mE		SFA "V" Bit, Hand Auger Truck Mounted Rig N/A	ing			
S MDI E TVDE		RUN (m)	FIELD SHEAR STRENGTH (kPa)	PENETROMETER BLOWS (N)	SAMPLING AND OTHER TESTING	GROUND WATER DATA AND COMMENTS		GRAPHIC LOG	DESCRIP	TION OF	STRATA	MOISTURE CONDITION	USCS	CONSISTENCY/ DENSITY	GEOLOGICAL
		ပ					0		CONCRETE (190m		- I				
	DS	Hand Auger					- - - -	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	glass and sandstone	e fragments,	ngular, brown, with a trace of dry to moist	D/M			
							- 1	<u>88</u>	Furnace SLAG, blac			D/M			- EILL
	SPT			N=6	SPT@1.5m 1,3,3		- - - - - - - - - - - - - -		CLAY, medium plas	ticity, brown	ısh grey, moist, firm			F	Σ
X	SPT	V Bit		N=6	SPT@3.0m 2,3,3		- - - - - - - - - - - - -					м			ALLUVIUM
	SPT			N=19	SPT@4.5m 5,8,11		- 4 - - - - - - - -		Becoming mottled g Stiff at 4.50m	rey-brown a	t 4.20m			St	

URS Non-cored Hole

BOREHOLE SB10

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00 Project **43217997**

Project Reference:

oject Preliminary Geotechnical Assessment

	SAMPLE TYPE	RUN (m)	FIELD SHEAR STRENGTH (kPa)	PENETROMETER BLOWS (N)	SAMPLING AND OTHER TESTING	GROUND WATER DATA AND COMMENTS	 9 DEPTH (m)	GRAPHIC LOG	DESCRIPTION OF STRATA	MOISTURE CONDITION	nscs	CONSISTENCY/ DENSITY	GEOLOGICAL DESCRIPTION
-							- - - - -		Getting harder to drill and shale fragments observed at 5.50m				RESIDUAL
	SPT			N=N/A	SPT@6.0m 20,25/110mm		- - - - - - -		V Bit refusal at 6.00m SPT refusal at 6.30m, continues with NMLC coring			VSt	
-							- - - - - - -						
:.GPJ URS1.GDT 7/9/09							- - - - - - - -						
3ATION/LOGS/LIDCOMBE SE							- - - - - - - 9						
S/GEOTECHNICAL INVESTIC							- - - - - -						
SYDNEY_GEOTECH J:J.JOBS14321799715 WORKS/GEOTECHNICAL INVESTIGATIONLOGS/LIDCOMBE SB.GPJ URS1.GDT 7/9/09							— 10 - - - - - -						
SYDNEY_GEOTECH	Remark	(s: DS Cir	in "SAN Run (ו	IPLE TY n)" colur	PE" column repre nn represents Co	esents Disturbe oncrete Cutting	- ed Sam	ple					



URS Cored Borehole

BOREHOLE SB10

URS Australia PT	Y LTD			Preliminary Geotechnical	Client:	Costco Wholesale (Australia) Pty Ltd
Drilling Contract	or: Macquarie Pty	Ltd	Project No.:	Assessment 43217997	Location:	17-21 Parramatta Road, Lidcombe
Logged By:	J Kor	Bore Size: 100mm mm	Relative Lev	el: mRL	Drill Type:	NMLC - Diamond Impreg. Bit
Checked By: Date Started:	V Tandjiria 13-6-09	Total Depth: 10.00 m	Coordinates	6253017.00 mN 319528.00 mE	Drill Model:	Truck Mounted Rig
Date Finished:	13-6-09	Borehole Inclination and Bearing: 90° from horizontal at ° True North	Permit No:		Drill Fluid:	Water



	U	R	5	No	n-core	d Hole			B	OREH	IOLE SB12			Sheet	
l	JRS Aust ₋vl 3, 116 Drilling C	Miller S	treet, North	n Sydney N Icquarie	ISW 2060 Fax: -	+61.2.8925 5500 +61.2.8925 5555	Refere	ence: C	Preliminary Geotechnical Assessment 3217997	Client: Location:	Costco Wholesale 17-21 Parramatta F				Ltd
([Logged E Checked Date Star Date Fini	By: rted:	J Kor V Tandj 30-5-09 30-5-09	iria	Bore Size: Total Depth Casing Size			linates:	: mRL 6253029.00 mN 319560.00 mE		SFA "V" Bit, Hand Auge Hydra Power N/A	ring			
	SAMPLE TYPE	RUN (m)	FIELD SHEAR STRENGTH (kPa)	PENETROMETER BLOWS (N)	SAMPLING AND OTHER TESTING	GROUND WATER DATA AND COMMENTS	– О DEPTH (m)	GRAPHIC LOG	DESCRIP		STRATA	MOISTURE CONDITION	USCS	CONSISTENCY/ DENSITY	GEOLOGICAL DESCRIPTION
-		V Bit					-	<u>88</u>	Bitumen (100mm thi Road Base	ck)					
-		Hand Auger					- - - - -		FILL, sand, uniforml medium size grain, r	y graded, ar noist	igular, brown, fine to				
-	-						- 1 - - - - -			adium plant	inity and areas with a trans	M			EILL
DCOMBE SB.GPJ URS1.GDT 7/9/09		-		N=1	SPT @ 2.0m 0,0,1		- 2		Very soft at 2.0m Wet at 2.10m	erry soft to s	icity, dark grey, with a trace			VS	
SYDNEY_GEOTECH J.J.JOBS4321799715 WORKS/GEOTECHNICAL INVESTIGATIONLOGS/LIDCOMBE SB.GPJ U					W _c =18% LL=26 Pl=15 Density(dry)= 1.811/m ² c,=0.29m ² /yr c=32kPa phi'=18° SPT @ 4.0m sank		3		Very soft at 4.0m Becoming black grey	y from 4.25n	1	М		vs	ALLUVIUM
SYDNEY_GEOTECH J:\JOBS\432179							-								

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Non-cored Hole

BOREHOLE SB12

URS Australia Pty Ltd Lvl 3, 116 Miller Street, North Sydney NSW 2060

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⁰ Project **43217997** 5 No.:

Project Reference:

oject Preliminary Geotechnical Assessment

	SAMPLE TYPE	RUN (m)	FIELD SHEAR STRENGTH (kPa)	Z PENETROMETER BLOWS (N)		GROUND WATER DATA AND COMMENTS	 2 DEPTH (m)	GRAPHIC LOG	DESCRIPTION OF STRATA	MOISTURE CONDITION	nscs	DENSISTENCY/	GEOLOGICAL DESCRIPTION
-	SPT (11-3	SPT @ 5.0m 1,4,5		- - - - - -		Stiff at 5.0m Bedoming reddish brown at 5.2m Ironstone band observed between 5.20m to 5.45m CLAY, medium plasticity, reddish brown, moist, stiff to very stiff				
-	SPT			N=29	SPT @ 6.0m 6,12,17		- 6 - - - - - -		Very stiff and dry to moist at 6.0m	D/M		VSt	RESIDUAL
	SPT			N=N/A	SPT @ 7.0m 12,25,25/60mm		- - - - - -		SHALE, extremely low strength, extremely weathered, grey Getting harder to drill at 7.7m	D		н	
COMBE SB.GPJ URS1.GDT 7							- - 8 - - - - -		Bore discontinued at 8.0m (V Bit refusal)				
CAL INVESTIGATION/LOGS/LID							- - - - - - - -						
SYDNEY_GEOTECH J:JUDBS4321799716 WORKSIGEOTECHNICAL INVESTIGATIONILOGSILIDCOMBE SB.GPJ URS1.GDT 7/9/09							- - - - - - - -						
SYDNEY_GEOTECH J:\JOBS\43	Remark	Wc LL c, ii	in "Sam and PL ii າ "Sampl	pling an n "Samp ing and	Other Testing" c	column represe esting" column olumn represer	ents Wa represents Coe	ater con ent Liqu fficient	ntent uid Limit and Plastic Limit respectively of Consolidation ective coefficient and effective friction angle respectively				

	U	Л	R	5	No	n-core	d Hole			B	OREH	OLE SB14			Sheet	1 of 2
L	vl 3, 1	116 N	alia Pty /liller St ntracto	reet, North	Sydney N cquarie	ISW 2060 Fax:	+61.2.8925 5500 +61.2.8925 5555	Refer	ence: (Preliminary Geotechnical Assessment I3217997	Client: Location:	Costco Wholesale 17-21 Parramatta F	-	-	-	Ltd
C C	ogge heck ate S ate F	ed E Starte	By: ed:	J Kor V Tandji 30-5-09 30-5-09	ria	Bore Size: Total Depth Casing Size			linates:	i: mRL 6253013.00 mN 319587.00 mE		SFA "V" Bit, Hand Auge Hydra Power N/A	ring			
			RUN (m)	FIELD SHEAR STRENGTH (kPa)	PENETROMETER BLOWS (N)	SAMPLING AND OTHER TESTING	GROUND WATER DATA AND COMMENTS	O DEPTH (m)	GRAPHIC LOG	DESCRIP		STRATA	MOISTURE	USCS	CONSISTENCY/ DENSITY	GEOLOGICAL DESCRIPTION
-			V Bit						<u>88</u> 88	Bitumen (30mm thic Slag		,				
-			Hand Auger					- - - - - - - - - - - 1	8 8 8 8 8 8 8 8 8 8 8 8 8 8	FILL, sand, uniforml medium size grain, r	y graded, an noist	gular, brown, fine to	м			FILL
		7			N=6	SPT @ 2.0m 2,2,4		- - - - - - - - - - - 2		Sandy Silty CLAY, n firm to very stiff	nedium plast	icity, reddish brown, moist,			F	
VLIDCOMBE SB.GPJ URS1.GDT		SPT			N=11	SPT @ 3.0m		- - - - - - - - - 3		With a trace of irons	tone at 3.0m				St	ALLUVIUM
HNICAL INVESTIGATION/LOGS	X	SPT				3,6,5		- - - - - -								
SYDNEY_GEOTECH J:J.JOBS43217997/5 WORKS/GEOTECHNICAL INVESTIGATION/LOGS/LIDCOMBE SB.GPJ URS1.GDT 7/9/09		SPT	V Bit		N=16	SPT @ 4.0m 4,5,11		- 4 - - - - - - -		Large amount of iror	nstone at 4.4	5m	M		St/VSt	
SYDNEY_GEOTECH J:		<u> </u>		1	1	1	1	1	<u> </u>					1		

URS **Non-cored Hole**

BOREHOLE SB14

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Project **43217997** No.:

Project Reference:

Preliminary Geotechnical Assessment

	SAMPLE TYPE	RUN (m)	FIELD SHEAR STRENGTH (kPa)	PENETROMETER BLOWS (N)	SAMPLING AND OTHER TESTING	GROUND WATER DATA AND COMMENTS	DEPTH (m)	GRAPHIC LOG	DESCRIPTION OF STRATA	MOISTURE CONDITION	NSCS	CONSISTENCY/ DENSITY	GEOLOGICAL DESCRIPTION
	SAMPLE 1		FIELD SH STRENGT			DATA AND	HLdg 		V Bit refusal at 6.9m, continues with NMLC coring	D D CONDITION	INSCR	E CONSIST DENSITY	RESIDUAL GEOLOG
SYDNEY_GEOTECH J:\JOBS\432	Remark	Wc LL a	in "Sam and PL i	pling an n "Samp	PE" column repro d Other Testing" ling and Other Tr Other Testing" c	column represe estina" column	ents Wa represe	ater coi ent Liai	ntent Jid Limit and Plastic Limit respectively Compressive Strength				



URS Cored Borehole

BOREHOLE SB14

URS Australia PT	Y LTD		Project Reference:	ference: Geotechnical		Costco Wholesale (Australia) Pty Ltd
Drilling Contract	or: Macquarie Pty I	Ltd	Project No.:	Assessment 43217997	Location:	17-21 Parramatta Road, Lidcombe
Logged By:	J Kor	Bore Size: 100mm mm	Relative Lev	/el: mRL	Drill Type:	NMLC - Diamond Impreg. Bit
Checked By: Date Started:	V Tandjiria 30-5-09	Casing Size: mm Total Depth: 10.00 m Borehole Inclination and	Coordinates	6253013.00 mN 319587.00 mE		Hydra Power
Date Finished:	30-5-09	Bearing: 90° from horizontal at ° True North	Permit No:		Drill Fluid:	Water

DR	ILLING			MATERIAL DESCRIPTION	DISCONTINUITY DESCRIPTION						
ME IHUU WATER RUN/RECOVERY	FIELD TESTS/ SAMPLING	2 DEPTH (m)	GRAPHIC LOG	DESCRIPTION OF STRATA (Rock type, strength, Weathering, color, fabric, grain size, inclusions, degree of fracturing)	WEATHERING	STRENGTH Is (50) MPa	RQD (%)	0.19 20-49 50-99 100-199 SPACING 200-599 (mm) >600	DEFECT LOG	DEFECT DESCRIPTION (Defect type, inclination, shape, roughness, infill, thickness)	
MMLC - UAMOND IMPREGNAI ED BI		-3^{-1}		Continues from non-cored log at 6.90m SHALE, low to medium strength, extremely weathered to distinctly weathered, dark grey, thinly laminated, highly fractured to slightly freactured	DW		6.9 71 8.95			−JN, Ir, R, Shale fragments −BG, 0°-5°, PI, S, KL −BG, 0°-5°, PI, S, C(1mm)	
100%				Point Load Test at 9.56m A=0.67, D=0.28 Discontinued at 10.0m, target depth reached			95			— BG, 0°-5°, Pl, S, C(1mm) — BG, 0°-5°, Pl, S, KL	

I	Ú.	RS	5	No	n-e	core	d Hole			В	OREH	IOLE SB15			Sheet	1 of 2
		ralia Pty L Miller Str	td eet, North	Sydney N	ISW 20		+61.2.8925 5500 +61.2.8925 5555		ence: G	Preliminary Geotechnical	Client:	Costco Wholesale (Aust	ralia)	Pty I	_td
Drilli	ing C	ontractor	: Mae	cquarie	Pty Lt	td		Projec	-	Assessment 3217997	Location:	17-21 Parramatta R	d, Lid	com	be	
Che Date	ged E cked e Star e Fini	By: ted:	J Kor / Tandjii 13-6-09 13-6-09	ria		Bore Size: Total Depth Casing Size			ve Level linates: t No:	: mRL 6253035.00 mN 319604.00 mE	Drill Type: Drill Model: Drill Fluid:	SFA "V" Bit, Hand Auger Truck Mounted Rig N/A	ing			
	SAMPLE TYPE	RUN (m)	FIELD SHEAR STRENGTH (kPa)	PENETROMETER BLOWS (N)	AND	MPLING OTHER STING	GROUND WATER DATA AND COMMENTS		GRAPHIC LOG	DESCRIP	TION OF	STRATA	MOISTURE CONDITION	USCS	CONSISTENCY/ DENSITY	GEOLOGICAL
	× S	and Auger C	-					- 0 - - - - -	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	CONCRETE (150mr		igular, brown, moist				

SYDNEY_GEOTECH J:JU0BS\43217997\5 WORKS\GEOTECHNICAL INVESTIGATIONILOGS\LIDCOMBE SB.GPJ URS1.GDT 7/9/09

	SAMPLE TYP	RUN (m)	FIELD SHEAR STRENGTH (H	PENETROME BLOWS (N)	SAMPLING AND OTHER TESTING	GROUND WATER DATA AND COMMENTS	DEPTH (m)	GRAPHIC LC	DESCRIPTION OF STRATA	MOISTURE	nscs	CONSISTENC DENSITY	GEOLOGICA DESCRIPTIC
		ပ					- 0		CONCRETE (150mm thick)				
	۲ ۵						-	20	FILL, sand, uniformly graded, angular, brown, moist				
		ıger					-	20					
		Hand Auger				-	-	20					
		На				-	-	20					
							1	<u>8</u> 8					
						-	- '	20					
							-	22		М			
				N-40			-	20				L/MD	
	A. I			N=10	SPT@1.5m 3,4,6		-	22	Loose to medium dense at 1.5m				=
X	SPT						-	20					FILL
						-	- -	20					
							- 2	20					
							-	\times					
	S						-	× × ×	Silty SAND, uniformly graded, angular, dark brown, dry to moist, loose (Possible FILL)				
							-	× ×					
						-	-	× × × ×		D/M			
						-	-	× ×					
$\left[\right]$	7			N=5	SPT@3.0m 2,3,2		- 3	× . × . ×. × . ×				L	
X	SPT					-	-	×	CLAY, low to medium plasticity, mottled red-brown, dry to moist, firm			F	
L						-	-						
							-						
							-						
		Bit				-	-			D/M			
		A B					4 -						
						-	-						
							-						
	7			N=5	SPT@4.5m 1,2,3			 	CLAY, medium to high plasticity, greyish brown, with some ironstone, moist, firm			F	
X	SPT						-						
Ľ	V.						-						
]		1		1	<u> </u>		<u> </u>		1		1	I

URS Non-cored Hole

BOREHOLE SB15

Sheet 2 of 2

URS Australia Pty Ltd Lvl 3, 116 Miller Street, North Sydney NSW 2060

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00 Project **43217997**

Project **Prelim** Reference:

pject Preliminary Geotechnical Assessment

	SAMPLE TYPE	RUN (m)	FIELD SHEAR STRENGTH (kPa)	PENETROMETER BLOWS (N)	SAMPLING AND OTHER TESTING	GROUND WATER DATA AND COMMENTS	– DEPTH (m)	GRAPHIC LOG	DESCRIPTION OF STRATA	MOISTURE CONDITION	NSCS	CONSISTENCY/ DENSITY	GEOLOGICAL DESCRIPTION
	SPT			N=6	SPT@6.0m 3,3,3		- - - - - - - - - - - - - - - - - - -		Becoming brown and wet at 6.45m	М			ALLUN
-	- PTR			N=N/A	SPT@7.0m 25/140mm		7 - - -		Bore discontinued at 7.14m (SPT and V Bit refusal)				
E SB.GPJ URS1.GDT 7/9/09	-						 - - - - - - - -						
LINVESTIGATION/LOGS/LIDCOMB							- - - - - - - - - -						
SYDNEY_GEOTECH J:JOBS/43217997/5 WORKS/GEOTECHNICAL INVESTIGATIONILOGS/LIDCOMBE SB.GPJ URS1.GDT 7/9/09							- - - - - - - - -						
SEOTECH J:\JOB							-						
SYDNEY_C	Remark	(s: DS Cir	וח "SAM ו "Run (r	PLE TY n)" colur	PE" column repre nn represents Co	esents Disturbe oncrete Cutting	d Sam	pie					

ſ	U	R	5	No	on-co	ore	d Hole			B	OREF	IOLE SB18			Sheet	1 of 2
L	.vl 3, 116	tralia Pty 6 Miller S Contract	treet, No	rth Sydney I Iacquarie			+61.2.8925 5500 +61.2.8925 5555	Refer	ence:	Preliminary Geotechnical Assessment	Client: Location:	Costco Wholesale (17-21 Parramatta R				Ltd
L C	ogged Checked Date Sta	By: I By: arted:	J Kor V Tano 29-5-0 29-5-0	djiria 9	Bor Tot	re Size: al Depth sing Size	100mm mm : 7.13 m e: mm	Relati	ive Leve dinates:	43217997 el: mRL 6252981.00 mN 319648.00 mE		SFA "V" Bit, Hand Auger Truck Mounted Rig N/A	ing			
	SAMPLE TYPE	RUN (m)	FIELD SHEAR	PENETROMETER BLOWS (N)	SAMP AND O TEST	THER	GROUND WATER DATA AND COMMENTS	D EPTH (m)	GRAPHIC LOG	DESCRIP		STRATA	MOISTURE CONDITION	USCS	CONSISTENCY/ DENSITY	GEOLOGICAL DESCRIPTION
-		<pre>Loc < Bit</pre>	_					- 0	575 1010	FILL, sand, uniformly	y graded, ar	ngular, brown, fine to				
-		Hand Auger						- - - - - - - - - - - 1	 8 9 8 9 8 9 9<		noist		М			FILL
60/6	-	2		N=9	SPT@2.	0m		- - - - - - - - - - - 2				brownish dark grey, moist,			St	
DMBE SB.GPJ URS1.GDT 7/9/09		- 5			2,3,6			- - - - -					м			ALLUVIUM
AL INVESTIGATION/LOGS/LIUCC		5		N=22	SPT@3. 7,8,14	0m		3 - - - - -		Very stiff at 3.0m					VSt	
SYDNEY_GEOTECH J.:JUBS432179975 WORKS/GEOTECHNICAL INVESTIGATIONLOGS/LIDCOMBE SB.GPJ URS1.		V Bit		N=43	SPT@4. 9,22,21	0m		- - - - - - - - -		Silty CLAY, medium very stiff to hard	plasticity, re	edish brown, dry to moist,			н	
										2						

URS

Non-cored Hole

BOREHOLE SB18

URS Australia Pty Ltd Lvl 3, 116 Miller Street, North Sydney NSW 2060

Phone: +61.2.8925 5500 Fax: +61.2.8925 5555

00 Project **43217997**

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Project Reference: Preliminary Geotechnical Assessment

	SAMPLE TYPE	RUN (m)	FIELD SHEAR STRENGTH (kPa)	BLOWS (N)		GROUND WATER DATA AND COMMENTS	– DEPTH (m)	GRAPHIC LOG		MOISTURE CONDITION	USCS	CONSISTENCY/	GEOLOGICAL
-		_			SPT@5.0m 8,12,75		- - - - - - - - -		Very stiff at 5.0m	D/M		VSt	RESIDUAL
-	TqS	-		N=26	SPT@6.0m 6,11,15		6 - - - -		Hard at 6.0m SHALE, extremely low strength, extremely weathered, dark grey			н	
-	XPI		-	N=N/A	SPT@7.0m 25/130mm		- - - - - - -		SPT refusal at 7.13m, continues with NMLC coring	D			
							- - - -						
SB.GPJ URS1.GDT 7							- 8 - - -						
ION/TOGS/TIDCOMBE							 - - - - - 9						
CHNICAL INVESTIGAT							- - - -						
97\5 WORKS\GEOTE							- - 10 - -						
SYDNEY_GEOTECH J:JOBS14321799715 WORKS/GEOTECHNICAL INVESTIGATIONLOGSILIDCOMBE SB.GPJ URS1.GDT 7/9/09							- - - -						
SYDNEY_GEO	Remarl	s: DS	in "SAM	LE TY	 PE" column repre	Lesents Disturbe	d Sam	ple		1			

URS Non-	-cored Hole	BC	Sheet 1 of 2 OREHOLE SB22
URS Australia Pty Ltd Lvl 3, 116 Miller Street, North Sydney NSW Drilling Contractor: Macquarie Pty			Client:Costco Wholesale (Australia) Pty LtdLocation:17-21 Parramatta Rd, Lidcombe
Logged By: J Kor Checked By: V Tandjiria	Bore Size: 100mm mm Total Depth: 8.40 m	Relative Level: mRL Coordinates: 6252928.00 mN	Drill Type: SFA "Butterfly" Bit, Hand Augering Drill Model: Truck Mounted Rig
Date Started: 31-5-09 Date Finished: 31-5-09	Casing Size: mm	319646.00 mE Permit No:	Drill Fluid: N/A

SAMPLE TYPE		RUN (m)	FIELD SHEAR STRENGTH (kPa)	PENETROMETER BLOWS (N)	SAMPLING AND OTHER TESTING	GROUND WATER DATA AND COMMENTS		GRAPHIC LOG	DESCRIPTION OF STRATA	MOISTURE	NSCS	CONSISTENCY/ DENSITY	GEOLOGICAL
		U					- 0		CONCRETE (120mm thick)				
		er					-	$\infty \infty$	Fill, sand, uniformly graded, angular, brown, fine to medium size grain, moist	м			FILL
X	DS	Hand Auger					_	×××× 	CLAY, medium to high plasticity, reddish brown, moist				ALLUVIUM
		Ŧ					- - 1		With mottled brown and a trace of ironstone at 0.85m	м			ALL
	DS						- - - -		Becoming greyish brown at 1.30m				
X	SPT			N=23	SPT @ 2.0m 5,8,15		- - - - - -		Very stiff at 2.0m			VSt	
\bigvee	SPT	Butterfly Bit		N=46	SPT @ 3.0m 8,17,29		 - - - - - 3		Dry at 2.5m Hard at 3.0m	м		Н	RESIDUAL
/ \		BL					- - - -		With a trace of ironstone at 3.45m				
	SPT			N=40	SPT @ 4.0m 8,15,25		- 4 - - -		Hard at 4.0m			Н	
							-		SHALE, extremely low strength, extremely weathered, dark grey				[

URS

Non-cored Hole

BOREHOLE SB22

URS Australia Pty Ltd Lvl 3, 116 Miller Street, North Sydney NSW 2060

Phone: +61.2.8925 5500 50 Fax: +61.2.8925 5555

00 Project **43217997**

Project Reference:

oject Preliminary Geotechnical Assessment

Particle Parti		SAMPLE TYPE	RUN (m)	FIELD SHEAR STRENGTH (kPa)	PENETROMETER BLOWS (N)	SAMPLING AND OTHER TESTING	GROUND WATER DATA AND COMMENTS		GRAPHIC LOG	DESCRIPTION OF STRATA	MOISTURE CONDITION	NSCS	CONSISTENCY/ DENSITY	GEOLOGICAL DESCRIPTION
	-	SPT	-		N=N/A	SPT @ 5.4m 12,25/140mm		- 5 - -		Butterfly bit refusal at 5.40m. continues with NMLC coring	D			
	-													
	-							6 - -						
	-							- - -						
Open set Dis in "SAMPLE TYPE" column represente Disturbed Sample Cin "Run (m)" column represente Cutting	-							- 7 - -						
Total and the second								- 						
Remarks: DS in "SAMPLE TYPE" column represents Disturbed Sample Cin "Run (m)" column represents Concrete Cutting	GPJ URS1.GDT							- 8 - -						
SOUNDLYSUUT - <td< td=""><td>SILIDCOMBE SB.</td><td></td><td></td><td></td><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td><td></td><td></td><td></td></td<>	SILIDCOMBE SB.							-						
Remarks: DS in "SAMPLE TYPE" column represents Disturbed Sample C in "Run (m)" column represents Concrete Cutting	STIGATION/LOG							- 9 -						
Generation Generation <td>ECHNICAL INVE</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>- </td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	ECHNICAL INVE							- 						
Remarks: DS in "SAMPLE TYPE" column represents Disturbed Sample C in "Run (m)" column represents Concrete Cutting	15 WORKS/GEOT							- - 10 -						
Remarks: DS in "SAMPLE TYPE" column represents Disturbed Sample C in "Run (m)" column represents Concrete Cutting	NJOBS\43217997							- - - -						
Remarks: DS in "SAMPLE TYPE" column represents Disturbed Sample C in "Run (m)" column represents Concrete Cutting	OTECH J							-						
	SYDNEY_GE	Remark	(s: DS Cir	in "SAM ו "Run (r	IPLE TY m)" colur	PE" column repre nn represents Co	esents Disturbe oncrete Cutting	ed Sam	ple					

Sheet 2 of 2