

Appendix C Logs and Well Construction Details

Appendix C

Logs and Well Construction Details

C1. Borehole Logs and Core Photos



Non-cored Hole

BOREHOLE SB06

Sheet 1 of 2

URS Australia Pty Ltd Lvl 3, 116 Miller Street, North Sydney NSW 2060		Phone: +61.2.8925 5500 Fax: +61.2.8925 5555	Project Reference: Preliminary Geotechnical Assessment	Client: Costco Wholesale (Australia) Pty Ltd
Drilling Contractor: Macquarie Pty Ltd			Project No.: 43217997	Location: 17-21 Parramatta Rd, Lidcombe
Logged By: J Kor	Bore Size: 100mm mm	Relative Level: mRL	Drill Type: SFA "V" Bit, Hand Augering	
Checked By: V Tandjiria	Total Depth: 7.00 m	Coordinates: 6252986.00 mN		
Date Started: 13-6-09	Casing Size: mm	319461.00 mE		
Date Finished: 13-6-09		Permit No:	Drill Model: Truck Mounted Rig	
			Drill Fluid: N/A	

SYDNEY_GEOTECH J:\JOBS\43217997\5 WORKS\GEOTECHNICAL INVESTIGATION\LOGS\LIDCOMBE SB.GPJ URS1 GDT 7/9/09

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	USCS	CONSISTENCY/DENSITY	GEOLOGICAL DESCRIPTION
	C					0		Concrete (150mm thick)				FILL
								FILL, sand, uniformly graded, angular, brown, moist	M			
	Hand Auger					1		Silty CLAY, medium to high plasticity, grey, with a trace of organics, moist, very soft	M			ALLUVIUM
			N=N/A	SPT@1.5m sank		2		CLAY, medium to high plasticity, grey, with a trace of gravels, moist to wet, very soft			VS	
			N=1	SPT@3.0m 0,0,1		3		Becoming greyish brown with high plasticity at 3.0m			VS	
	V Bit					4		Becoming dark grey with marine odour at 4.30m	M/W		VS	
			N=N/A	SPT@4.5m sank								

Project Reference:	Preliminary Geotechnical Assessment
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Remarks: DS in "SAMPLE TYPE" column represents Disturbed Sample
C in "Run (m)" column represents Concrete Cutting

















Non-cored Hole

BOREHOLE SB07

Sheet 1 of 2

URS Australia Pty Ltd Lvl 3, 116 Miller Street, North Sydney NSW 2060	Phone: +61.2.8925 5500 Fax: +61.2.8925 5555	Project Reference: Preliminary Geotechnical Assessment	Client: Costco Wholesale (Australia) Pty Ltd
Drilling Contractor: Macquarie Pty Ltd		Project No.: 43217997	Location: 17-21 Parramatta Rd, Lidcombe
Logged By: J Kor	Bore Size: 100mm mm	Relative Level: mRL	Drill Type: SFA "V" Bit, Hand Augering
Checked By: V Tandjiria	Total Depth: 10.00 m	Coordinates: 6252990.00 mN	Drill Model: Truck Mounted Rig
Date Started: 31-5-09	Casing Size: mm	319511.00 mE	Drill Fluid: N/A
Date Finished: 31-5-09		Permit No:	

SYDNEY_GEOTECH J:\JOBS\43217997\5 WORKS\GEOTECHNICAL INVESTIGATION\LOGS\LIDCOMBE SB.GPJ URS1.GDT 7/9/09

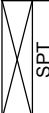



SAMPLE TYPE	RUN (m)	FIELD SHEAR STRENGTH (kPa)	PENETROMETER BLOWS (N)	SAMPLING AND OTHER TESTING	GROUND WATER DATA AND COMMENTS	DEPTH (m)	GRAPHIC LOG	DESCRIPTION OF STRATA	MOISTURE CONDITION	USCS	CONSISTENCY/DENSITY	GEOLOGICAL DESCRIPTION
 DS Hand Auger	C					0		CONCRETE (150mm thick)				
								FILL, sand, uniformly graded, angular, dirty brown, fine to medium grain, moist	M			FILL
								CLAY, medium to high plasticity, reddish brown, moist				
 DS SPT			N=5	SPT @ 2.0m 2,2,3		1			M			
						2		Silty CLAY, medium plasticity, dark grey, moist to wet, firm			F	ALLUVIUM
								Becoming pale brown at 2.0m				
 UD Butterfly Bit								With a trace of ironstone at 2.30m				
								Becoming greyish brown at 2.45m				
								Stiff at 3.50m	M/W			
				W _c =19.5% LL=36 PI=18 q _c =122kPa Density(dry)=1.74t/m ³		3						
						4		Shale fragments observed at 4.7m				

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

Phone: +61.2.8925 5500
Fax: +61.2.8925 5555

Project No.: **43217997**

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	USCS	CONSISTENCY/DENSITY	GEOLOGICAL DESCRIPTION
 SPT			N=29	SPT @ 5.0m 8,12,17		5		Dry below 5.0m SILTSTONE, extremely low strength, extremely weathered, drak grey			Vst	RESIDUAL
 SPT			N=N/A	SPT @ 6.5m 25/150mm		6			D		H	
						7		V Bit refusal at 6.7m, continues with NMLC coring				
						8						
						9						
						10						

Remarks: DS in "SAMPLE TYPE" column represents Disturbed Sample; UD in "SAMPLE TYPE" column represents Undisturbed Sample
C in "Run (m)" column represents Concrete Cutting
Wc in "Sampling and Other Testing" column represents Water content
LL and PL in "Sampling and Other Testing" column represent Liquid Limit and Plastic Limit respectively
q_u in "Sampling and Other Testing" column represents Unconfined Compressive Strength

Bore No: SB07
Client: Costco Wholesale (Australia) Pty Ltd
Project: Phase I and II Site Investigations
Box 1 of 1
Depth: 6.7 - 10.0 m
Date: 31 May 2009





Cored Borehole

BOREHOLE SB07

Sheet 1 of 1

URS Australia PTY LTD

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

DRILLING

MATERIAL DESCRIPTION

DISCONTINUITY DESCRIPTION

METHOD	WATER	RUN/RECOVERY	FIELD TESTS/ SAMPLING	DEPTH (m)	GRAPHIC LOG	DESCRIPTION OF STRATA <small>(Rock type, strength, Weathering, color, fabric, grain size, inclusions, degree of fracturing)</small>	WEATHERING <small>EL -0.03 VL -0.1 M -0.3 H -1 VH -3 EH -10</small>	STRENGTH Is (50) MPa	RQD (%)	DEFECT SPACING (mm) <small>0-19 20-49 50-99 100-199 200-599 >600</small>	DEFECT LOG	DEFECT DESCRIPTION <small>(Defect type, inclination, shape, roughness, infill, thickness)</small>
				5								
				6								
				6.7		Continues from non-cored log at 6.70m	XW		6.7			
				7		SHALE, very low to low strength, extremely weathered to distinctly weathered, brownish grey, thinly laminated, highly fractured to fractured	DW					BG, 5°-10°, Pl, S, KL
						SHALE, low to medium strength, distinctly weathered to slightly weathered, dark grey, thinly laminated, fractured to slightly fractured	SW					BG, 5°-10°, Pl, S, KL BG, 0°-5°, Pl, S, KL BG, 5°-10°, Pl, S, shale fragments BG, 0°-5°, Pl, S, KL BG, 5°-10°, Pl, S, C JN, 40°-45°, Wa, S, KL
				8					66			BG, 0°-5°, Pl, S, KL BG, 10°-15°, Pl, S, shale fragments JN, 75°-80°, Pl, S, KL BG, 0°-5°, Pl, S, KL BG, 5°-10°, Pl, S, KL BG, 5°-10°, Pl, S, KL
				8.85		Point Load Test at 8.67m A=0.34, D=0.29			8.85			BG, 0°-5°, Pl, S, KL BG, 5°-10°, Pl, S, KL BG, 0°-5°, Pl, S, KL BG, 5°-10°, Pl, S, KL BG, 0°-5°, Pl, S, KL
				9		Point Load Test at 9.29m A=0.33, D=0.43			77			BG, 0°-5°, Pl, S, KL BG, 0°-5°, Pl, S, KL JN, 5°-10°, St, S, KL BG, 0°-5°, Pl, S, KL
				10		Discontinued at 10.0m, target depth reached						

Remarks: Point Load Strength results displayed as Is50 (MPa), D=Diametral, A=Axial



Non-cored Hole

BOREHOLE SB10

Sheet 1 of 2

URS Australia Pty Ltd Lvl 3, 116 Miller Street, North Sydney NSW 2060	Phone: +61.2.8925 5500 Fax: +61.2.8925 5555	Project Reference: Preliminary Geotechnical Assessment	Client: Costco Wholesale (Australia) Pty Ltd
Drilling Contractor: Macquarie Pty Ltd		Project No.: 43217997	Location: 17-21 Parramatta Rd, Lidcombe
Logged By: J Kor	Bore Size: 100mm mm	Relative Level: mRL	Drill Type: SFA "V" Bit, Hand Augering
Checked By: V Tandjiria	Total Depth: 10.08 m	Coordinates: 6253017.00 mN	Drill Model: Truck Mounted Rig
Date Started: 13-6-09	Casing Size: mm	319528.00 mE	Drill Fluid: N/A
Date Finished: 13-6-09		Permit No:	

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	USCS	CONSISTENCY/DENSITY	GEOLOGICAL DESCRIPTION
DS	C					0		CONCRETE (190mm)				
DS	Hand Auger							FILL, sand, uniformly graded, angular, brown, with a trace of glass and sandstone fragments, dry to moist	D/M			
DS						1		Furnace SLAG, black, with some gravels	D/M			FILL
SPT			N=6	SPT@1.5m 1,3,3		2		CLAY, medium plasticity, brownish grey, moist, firm			F	
SPT	V Bit		N=6	SPT@3.0m 2,3,3		3						ALLUVIUM
SPT			N=19	SPT@4.5m 5,8,11		4		Becoming mottled grey-brown at 4.20m Stiff at 4.50m	M		St	

Project Reference:	Preliminary Geotechnical Assessment
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Remarks: DS in "SAMPLE TYPE" column represents Disturbed Sample
C in "Run (m)" column represents Concrete Cutting

Bore No: SB10
Client: Costco Wholesale (Australia) Pty Ltd
Project: Phase I and II Site Investigations
Box 1 of 1
Depth: 6.3 - 10.0 m
Date: 13 June 2009





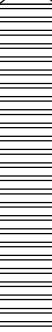
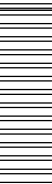
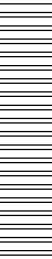


Cored Borehole

BOREHOLE SB10

Sheet 1 of 1

URS Australia PTY LTD		Phone:	Project Reference: Preliminary Geotechnical Assessment	Client: Costco Wholesale (Australia) Pty Ltd
		Fax:		
Drilling Contractor: Macquarie Pty Ltd			Project No.: 43217997	Location: 17-21 Parramatta Road, Lidcombe
Logged By: J Kor		Bore Size: 100mm mm	Relative Level: mRL	Drill Type: NMLC - Diamond Impreg. Bit
Checked By: V Tandjiria		Casing Size: mm	Coordinates: 6253017.00 mN	
Date Started: 13-6-09		Total Depth: 10.00 m	319528.00 mE	
Date Finished: 13-6-09		Borehole Inclination and Bearing: 90° from horizontal at ° True North	Permit No:	

DRILLING					MATERIAL DESCRIPTION					DISCONTINUITY DESCRIPTION				
METHOD	WATER	RUN/RECOVERY	FIELD TESTS/ SAMPLING	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 (%)	DEFECT SPACING (mm)	DEFECT LOG	DEFECT DESCRIPTION (Defect type, inclination, shape, roughness, infill, thickness)		
				5				EL - 0.03 VL - 0.1 LM - 0.3 HM - 3 HT - 10 BT - 10		0-19 20-49 50-99 100-199 200-599 ≥600				
NMLC - DIAMOND IMPREGNATED BIT		6.3				Continues from non-cored log at 6.30m SHALE, extremely low to low strength, extremely weathered, brownish grey, thinly laminated, fragmented to highly fractured	XW		6.3					
				7		Core loss (6.83m to 7.00m) As above			9					
		92%		8										
		8.5		9		SHALE, medium strength, distinctly weathered to slightly weathered, dark grey, thinly laminated, fractured	DW		8.5			JN, Ir, R, Shale Fragments —BG, 0°-5°, Pl, S, KL —BG, 0°-5°, Pl, S, C(1mm) —BG, 0°-5°, Pl, S, C(1mm) —BG, 0°-5°, Pl, S, KL		
		100%		10		Discontinued at 10.0m, target depth reached			100					



Non-cored Hole

BOREHOLE SB12

Sheet 1 of 2

URS Australia Pty Ltd Lvl 3, 116 Miller Street, North Sydney NSW 2060	Phone: +61.2.8925 5500 Fax: +61.2.8925 5555	Project Reference: Preliminary Geotechnical Assessment	Client: Costco Wholesale (Australia) Pty Ltd
Drilling Contractor: Macquarie Pty Ltd		Project No.: 43217997	Location: 17-21 Parramatta Rd, Lidcombe
Logged By: J Kor	Bore Size: 100mm mm	Relative Level: mRL	Drill Type: SFA "V" Bit, Hand Augering
Checked By: V Tandjiria	Total Depth: 8.00 m	Coordinates: 6253029.00 mN	Drill Model: Hydra Power
Date Started: 30-5-09	Casing Size: mm	319560.00 mE	Drill Fluid: N/A
Date Finished: 30-5-09		Permit No:	

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	USCS	CONSISTENCY/DENSITY	GEOLOGICAL DESCRIPTION
SPT	V Bit					0		Bitumen (100mm thick) Road Base				
	Hand Auger					1		FILL, sand, uniformly graded, angular, brown, fine to medium size grain, moist	M			FILL
UD			N=1	SPT @ 2.0m 0,0,1		2		Silty CLAY, low to medium plasticity, dark grey, with a trace of fine sand, moist, very soft to stiff Very soft at 2.0m Wet at 2.10m			VS	
						3			M			ALLUVIUM
SPT			N=N/A	SPT @ 4.0m sank		4		Very soft at 4.0m Becoming black grey from 4.25m			VS	
	V Bit											



Non-cored Hole

BOREHOLE SB12

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

Phone: +61.2.8925 5500
Fax: +61.2.8925 5555

Project No.: **43217997**

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	USCS	CONSISTENCY/DENSITY	GEOLOGICAL DESCRIPTION
SPT			N=9	SPT @ 5.0m 1,4,5		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			St	
SPT			N=29	SPT @ 6.0m 6,12,17		6		Very stiff and dry to moist at 6.0m	D/M		VSt	
SPT			N=N/A	SPT @ 7.0m 12,25,25/60mm		7		SHALE, extremely low strength, extremely weathered, grey Getting harder to drill at 7.7m	D		H	
						8		Bore discontinued at 8.0m (V Bit refusal)				
						9						
						10						

Remarks: UD in "SAMPLE TYPE" column represents Undisturbed Sample
Wc in "Sampling and Other Testing" column represents Water content
LL and PL in "Sampling and Other Testing" column represent Liquid Limit and Plastic Limit respectively
c_v in "Sampling and Other Testing" column represents Coefficient of Consolidation
c' and phi' in "Sampling and Other Testing" column represents effective coefficient and effective friction angle respectively



Non-cored Hole

BOREHOLE SB14

Sheet 1 of 2

URS Australia Pty Ltd Lvl 3, 116 Miller Street, North Sydney NSW 2060	Phone: +61.2.8925 5500 Fax: +61.2.8925 5555	Project Reference: Preliminary Geotechnical Assessment	Client: Costco Wholesale (Australia) Pty Ltd
Drilling Contractor: Macquarie Pty Ltd		Project No.: 43217997	Location: 17-21 Parramatta Rd, Lidcombe
Logged By: J Kor	Bore Size: 100mm mm	Relative Level: mRL	Drill Type: SFA "V" Bit, Hand Augering
Checked By: V Tandjiria	Total Depth: 10.00 m	Coordinates: 6253013.00 mN	Drill Model: Hydra Power
Date Started: 30-5-09	Casing Size: mm	319587.00 mE	Drill Fluid: N/A
Date Finished: 30-5-09		Permit No:	

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	USCS	CONSISTENCY/DENSITY	GEOLOGICAL DESCRIPTION
SPT	V Bit					0		Bitumen (30mm thick) Slag				
	Hand Auger					1		FILL, sand, uniformly graded, angular, brown, fine to medium size grain, moist	M			FILL
						2		Sandy Silty CLAY, medium plasticity, reddish brown, moist, firm to very stiff			F	
SPT			N=6	SPT @ 2.0m 2,2,4		3		With a trace of ironstone at 3.0m			St	ALLUVIUM
SPT	V Bit		N=11	SPT @ 3.0m 3,6,5		4		Large amount of ironstone at 4.45m	M		St/VSt	

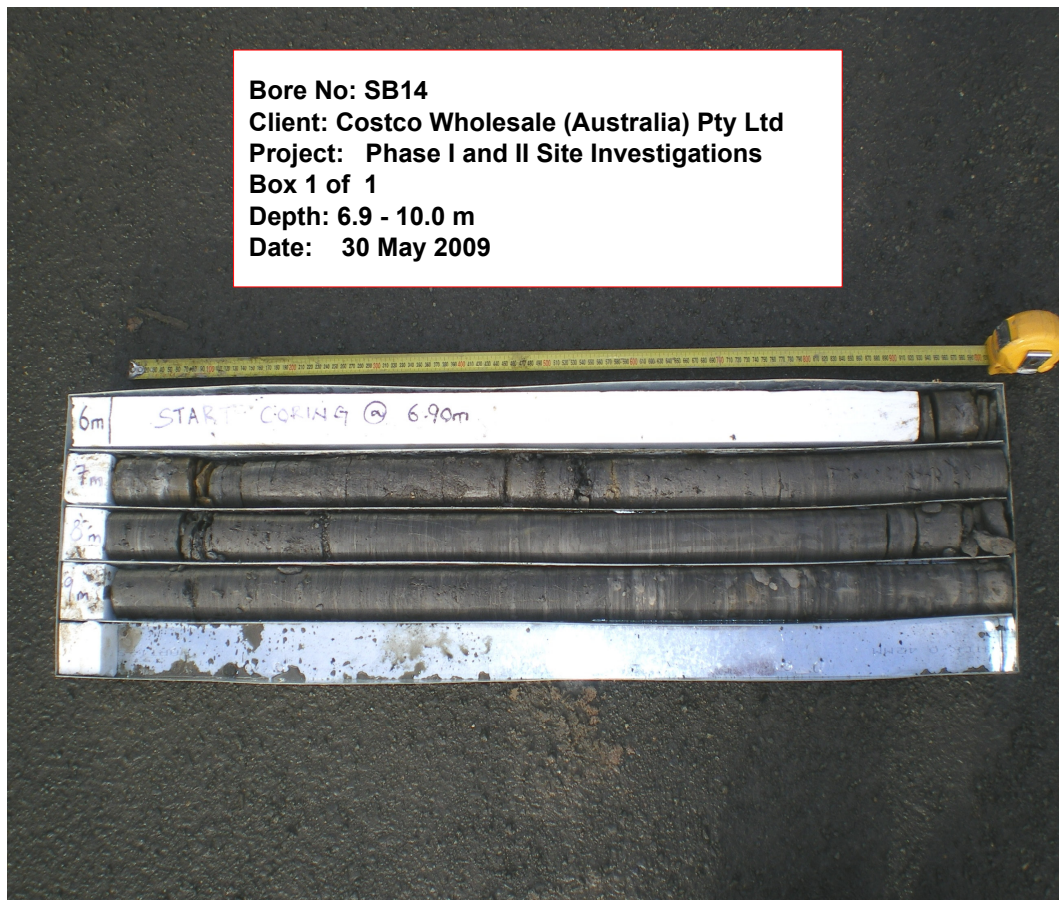
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SAMPLE TYPE	RUN (m)	FIELD SHEAR STRENGTH (kPa)	PENETROMETER BLOWS (N)	SAMPLING AND OTHER TESTING	GROUND WATER DATA AND COMMENTS	DEPTH (m)	GRAPHIC LOG	DESCRIPTION OF STRATA	MOISTURE CONDITION	USCS	CONSISTENCY/DENSITY	GEOLOGICAL DESCRIPTION
UD				W _c =18.8% LL=38 PI=21 q _u =67kPa Densirt(dry)=1.88t/m ³		5						
SPT			N=46	SPT @ 6.0m 12,18,28		6					H	
								SHALE, extremely low strength, extremely weathered, dark grey	D			
						7		V Bit refusal at 6.9m, continues with NMLC coring				
						8						
						9						
						10						

Remarks: UD in "SAMPLE TYPE" column represents Undisturbed Sample
 Wc in "Sampling and Other Testing" column represents Water content
 LL and PL in "Sampling and Other Testing" column represent Liquid Limit and Plastic Limit respectively
 q_u in "Sampling and Other Testing" column represents Unconfined Compressive Strength

□

Bore No: SB14
Client: Costco Wholesale (Australia) Pty Ltd
Project: Phase I and II Site Investigations
Box 1 of 1
Depth: 6.9 - 10.0 m
Date: 30 May 2009





Cored Borehole

BOREHOLE SB14

Sheet 1 of 1

URS Australia PTY LTD		Phone:	Project Reference: Preliminary Geotechnical Assessment	Client: Costco Wholesale (Australia) Pty Ltd
		Fax:		
Drilling Contractor: Macquarie Pty Ltd			Project No.: 43217997	Location: 17-21 Parramatta Road, Lidcombe
Logged By: J Kor	Bore Size: 100mm mm	Relative Level: mRL	Drill Type: NMLC - Diamond Impreg. Bit	
Checked By: V Tandjiria	Casing Size: mm	Coordinates: 6253013.00 mN		
Date Started: 30-5-09	Total Depth: 10.00 m	319587.00 mE		
Date Finished: 30-5-09	Borehole Inclination and Bearing: 90° from horizontal at ° True North	Permit No:		

DRILLING					MATERIAL DESCRIPTION					DISCONTINUITY DESCRIPTION				
METHOD	WATER	RUN/RECOVERY	FIELD TESTS/ SAMPLING	DEPTH (m)	GRAPHIC LOG	DESCRIPTION OF STRATA (Rock type, strength, Weathering, color, fabric, grain size, inclusions, degree of fracturing)	WEATHERING	STRENGTH Is (50) MPa EL -0.03 VL -0.1 ML -0.3 HL -1 VH -3 EH -10	RQD (%)	DEFECT SPACING (mm) 0-19 20-49 50-99 100-199 200-599 ≥600	DEFECT LOG	DEFECT DESCRIPTION (Defect type, inclination, shape, roughness, infill, thickness)		
NMLC - DIAMOND IMPREGNATED BIT				5										
				6										
			6.9	7		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 fractured	XW		6.9					
			100%	8					71					
						Point Load Test at 8.51m A=0.33, D=0.09	DW					JN, Ir, R, Shale fragments		
			8.95	9					8.95			BG, 0°-5°, Pl, S, C(1mm)		
			100%			Point Load Test at 9.56m A=0.67, D=0.28			95			BG, 0°-5°, Pl, S, C(1mm)		
				10		Discontinued at 10.0m, target depth reached						BG, 0°-5°, Pl, S, KL		

Remarks: Point Load Strength results displayed as Is50 (MPa), D=Diametral, A=Axial



Non-cored Hole

BOREHOLE SB15

Sheet 1 of 2

URS Australia Pty Ltd Lvl 3, 116 Miller Street, North Sydney NSW 2060	Phone: +61.2.8925 5500 Fax: +61.2.8925 5555	Project Reference: Preliminary Geotechnical Assessment	Client: Costco Wholesale (Australia) Pty Ltd
Drilling Contractor: Macquarie Pty Ltd		Project No.: 43217997	Location: 17-21 Parramatta Rd, Lidcombe
Logged By: J Kor	Bore Size: 100mm mm	Relative Level: mRL	Drill Type: SFA "V" Bit, Hand Augering
Checked By: V Tandjiria	Total Depth: 7.14 m	Coordinates: 6253035.00 mN	Drill Model: Truck Mounted Rig
Date Started: 13-6-09	Casing Size: mm	319604.00 mE	Drill Fluid: N/A
Date Finished: 13-6-09		Permit No:	

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	USCS	CONSISTENCY/DENSITY	GEOLOGICAL DESCRIPTION
DS	C					0		CONCRETE (150mm thick)				
Hand Auger						1		FILL, sand, uniformly graded, angular, brown, moist				
SPT			N=10	SPT@1.5m 3,4,6		2		Loose to medium dense at 1.5m	M		L/MD	FILL
DS						3		Silty SAND, uniformly graded, angular, dark brown, dry to moist, loose (Possible FILL)	D/M		L	
SPT			N=5	SPT@3.0m 2,3,2		4		CLAY, low to medium plasticity, mottled red-brown, dry to moist, firm	D/M		F	
	V Bit											
SPT			N=5	SPT@4.5m 1,2,3				CLAY, medium to high plasticity, greyish brown, with some ironstone, moist, firm			F	

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Project No.: **43217997**

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	USCS	CONSISTENCY/DENSITY	GEOLOGICAL DESCRIPTION
						5						
						6		Becoming brown and wet at 6.45m	M			ALLUVIUM
						7		Bore discontinued at 7.14m (SPT and V Bit refusal)				
						8						
						9						
						10						

Remarks: DS in "SAMPLE TYPE" column represents Disturbed Sample
C in "Run (m)" column represents Concrete Cutting



Non-cored Hole

BOREHOLE SB18

Sheet 1 of 2

URS Australia Pty Ltd Lvl 3, 116 Miller Street, North Sydney NSW 2060	Phone: +61.2.8925 5500 Fax: +61.2.8925 5555	Project Reference: Preliminary Geotechnical Assessment	Client: Costco Wholesale (Australia) Pty Ltd
Drilling Contractor: Macquarie Pty Ltd		Project No.: 43217997	Location: 17-21 Parramatta Rd, Lidcombe
Logged By: J Kor	Bore Size: 100mm mm	Relative Level: mRL	Drill Type: SFA "V" Bit, Hand Augering
Checked By: V Tandjiria	Total Depth: 7.13 m	Coordinates: 6252981.00 mN	Drill Model: Truck Mounted Rig
Date Started: 29-5-09	Casing Size: mm	319648.00 mE	Drill Fluid: N/A
Date Finished: 29-5-09		Permit No:	

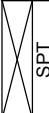
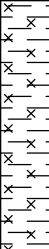

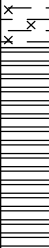


SAMPLE TYPE	RUN (m)	FIELD SHEAR STRENGTH (kPa)	PENETROMETER BLOWS (N)	SAMPLING AND OTHER TESTING	GROUND WATER DATA AND COMMENTS	DEPTH (m)	GRAPHIC LOG	DESCRIPTION OF STRATA	MOISTURE CONDITION	USCS	CONSISTENCY/DENSITY	GEOLOGICAL DESCRIPTION
DS	V Bit					0		Bitumen (60mm thick)				
DS	Hand Auger							Road Base				
DS								FILL, sand, uniformly graded, angular, brown, fine to medium size grain, moist	M			FILL
DS						1		Sandy CLAY, medium plasticity, brownish dark grey, moist, stiff to very stiff				
SPT			N=9	SPT@2.0m 2,3,6		2		Becoming reddish grey at 2.0m			St	
SPT			N=22	SPT@3.0m 7,8,14		3		Very stiff at 3.0m	M		VSt	ALLUVIUM
SPT	V Bit		N=43	SPT@4.0m 9,22,21		4		Silty CLAY, medium plasticity, redish brown, dry to moist, very stiff to hard			H	

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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	USCS	CONSISTENCY/DENSITY	GEOLOGICAL DESCRIPTION
 SPT			N=27	SPT@5.0m 8,12,75		5		Very stiff at 5.0m	D/M		Vst	RESIDUAL
 SPT			N=26	SPT@6.0m 6,11,15		6		Hard at 6.0m			H	
 SPT			N=N/A	SPT@7.0m 25/130mm		7		SHALE, extremely low strength, extremely weathered, dark grey	D			
								SPT refusal at 7.13m, continues with NMLC coring				
						8						
						9						
						10						

Remarks: DS in "SAMPLE TYPE" column represents Disturbed Sample



Non-cored Hole

BOREHOLE SB22

Sheet 1 of 2

URS Australia Pty Ltd Lvl 3, 116 Miller Street, North Sydney NSW 2060	Phone: +61.2.8925 5500 Fax: +61.2.8925 5555	Project Reference: Preliminary Geotechnical Assessment	Client: Costco Wholesale (Australia) Pty Ltd
Drilling Contractor: Macquarie Pty Ltd		Project No.: 43217997	Location: 17-21 Parramatta Rd, Lidcombe
Logged By: J Kor	Bore Size: 100mm mm	Relative Level: mRL	Drill Type: SFA "Butterfly" Bit, Hand Augering
Checked By: V Tandjiria	Total Depth: 8.40 m	Coordinates: 6252928.00 mN	Drill Model: Truck Mounted Rig
Date Started: 31-5-09	Casing Size: mm	319646.00 mE	Drill Fluid: N/A
Date Finished: 31-5-09		Permit No:	

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	USCS	CONSISTENCY/DENSITY	GEOLOGICAL DESCRIPTION
DS	C	Hand Auger				0		CONCRETE (120mm thick)				FILL
								Fill, sand, uniformly graded, angular, brown, fine to medium size grain, moist	M			
DS	Hand Auger							CLAY, medium to high plasticity, reddish brown, moist	M			ALLUVIUM
DS						1		With mottled brown and a trace of ironstone at 0.85m				
SPT	Butterfly Bit		N=23	SPT @ 2.0m 5,8,15		2		Becoming greyish brown at 1.30m	M		VSt	RESIDUAL
SPT								Very stiff at 2.0m				
SPT						3		Dry at 2.5m				
SPT								Hard at 3.0m				
SPT	Butterfly Bit		N=46	SPT @ 3.0m 8,17,29				With a trace of ironstone at 3.45m	M			RESIDUAL
SPT						4		Hard at 4.0m				
SPT	Butterfly Bit		N=40	SPT @ 4.0m 8,15,25								
								SHALE, extremely low strength, extremely weathered, dark grey				



Non-cored Hole

BOREHOLE SB22

Sheet 2 of 2

URS Australia Pty Ltd
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Project No.: **43217997**

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	USCS	CONSISTENCY/DENSITY	GEOLOGICAL DESCRIPTION
<div><div></div><div>SPT</div></div>			N=N/A	SPT @ 5.4m 12,25/140mm		5			D			
						6		Butterfly bit refusal at 5.40m, continues with NMLC coring				
						7						
						8						
						9						
						10						

Remarks: DS in "SAMPLE TYPE" column represents Disturbed Sample
C in "Run (m)" column represents Concrete Cutting