



CLIENT: Transport for NSW

COORDS: 333719.3 m E 6252119.3 m N MGA94 56

PROJECT: Sydney Metro City and Southwest

SURFACE RL: 2.49 m DATUM: AHD

LOCATION: Hickson Road Barangaroo

INCLINATION: -45° DIRECTION: 348°

PROJECT NoPCS 00013/10701

HOLE DEPTH: 50.90 m

SHEET: 1 OF 7 REV: C

DRILL RIG: Hanjin DB8

CONTRACTOR: Terratest

LOGGED: MB DATE: 21/11/16

CHECKED: HB

DATE: 24/11/16

Drilling			Sampling		Field Material Description								
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY	DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
DTC	GWNO	0	2.45				X		ASPHALT FILL: Sandy COBBLES fine to coarse, grey and brown, fine to coarse sand, with some coarse, sandstone gravel				ROAD SURFACE FILL
			0.60				X		SANDSTONE grey and orange-brown, medium to coarse grained, low strength and slightly weathered				WEATHERED BEDROCK
		1	2.07						For Continuation Refer to Sheet 2				
		2											
		3											
		4											
		5											
		6											
		7											
		8											
		9											
		10											

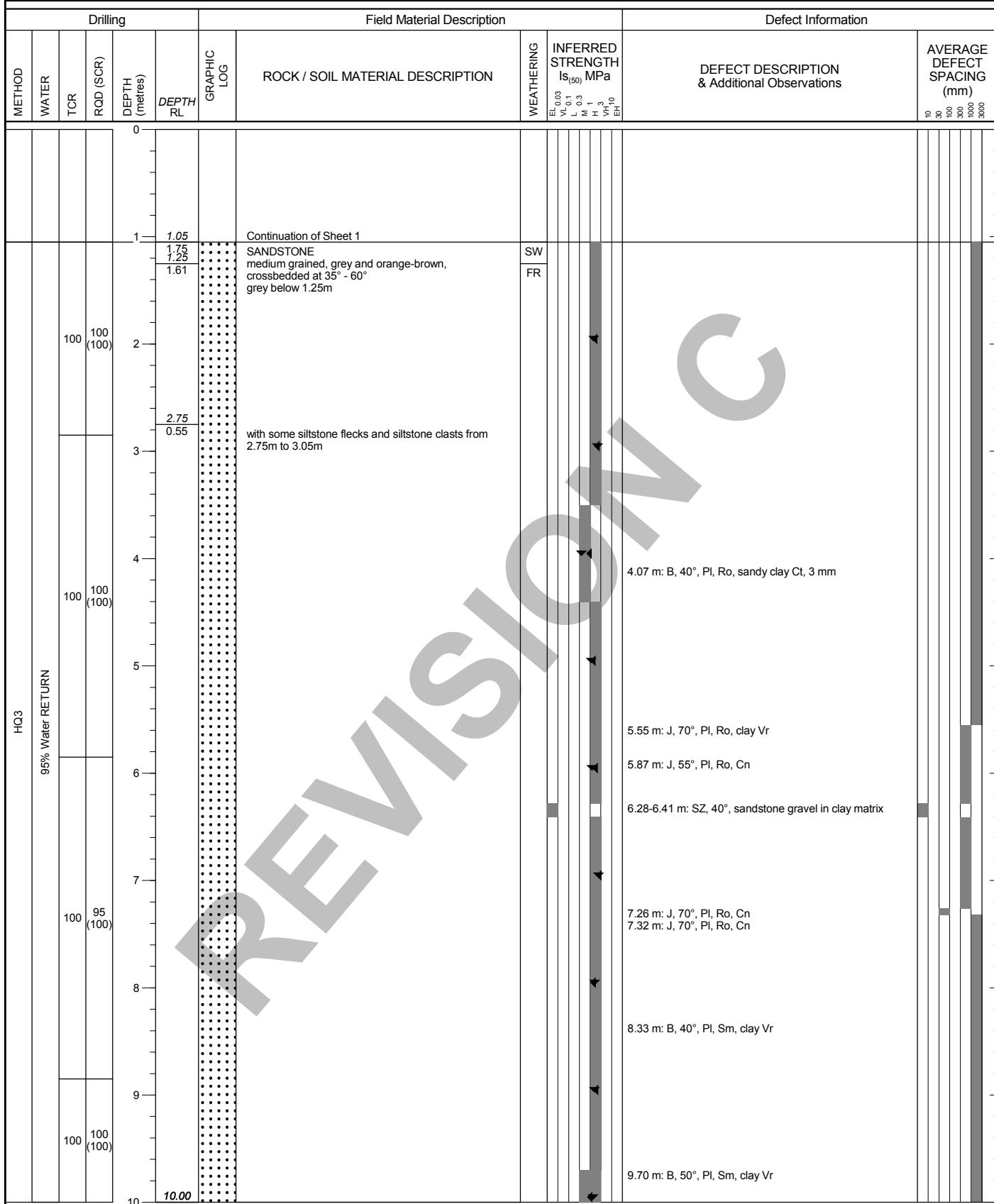
This report of borehole must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F01a
RL3

CLIENT: Transport for NSW
 PROJECT: Sydney Metro City and Southwest
 LOCATION: Hickson Road Barangaroo
 PROJECT NoPCS 00013/10701

COORDS: 333719.3 m E 6252119.3 m N MGA94 56
 SURFACE RL: 2.49 m DATUM: AHD
 INCLINATION: -45° DIRECTION: 348°
 HOLE DEPTH: 50.90 m

SHEET: 2 OF 7 REV: C
 DRILL RIG: Hanjin DB8
 CONTRACTOR: Terratest
 LOGGED: MB DATE: 21/11/16
 CHECKED: HB DATE: 24/11/16



This report of borehole must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F02a
RL3

CLIENT: Transport for NSW
 PROJECT: Sydney Metro City and Southwest
 LOCATION: Hickson Road Barangaroo
 PROJECT NoPCS 00013/10701

COORDS: 333719.3 m E 6252119.3 m N MGA94 56
 SURFACE RL: 2.49 m DATUM: AHD
 INCLINATION: -45° DIRECTION: 348°
 HOLE DEPTH: 50.90 m

SHEET: 3 OF 7 REV: C
 DRILL RIG: Hanjin DB8
 CONTRACTOR: Terratest
 LOGGED: MB DATE: 21/11/16
 CHECKED: HB DATE: 24/11/16

Drilling				Field Material Description				Defect Information			
METHOD	WATER	TCR	ROD (SCR)	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH $I_s(50)$ MPa	DEFECT DESCRIPTION & Additional Observations	AVERAGE DEFECT SPACING (mm)
HQ3	95% Water RETURN			10	-4.58		SANDSTONE medium grained, grey, crossbedded at 35° - 60°	FR		10.67 m: J, 70°, Pl, Ro, Cn	10
				100 (100)	100 (100)		from 11.20m: massive, with some siltstone flecks			11.12 m: J, 70°, Pl, Ti, displaced beddings 11.20 m: B, 50°, Pl, Sm, clay Ct, 3 mm 11.33-11.60 m: J, 75°, Pl, Ro, clay Vr	30
							from 12.05m: indistinctly crossbedded at 20° - 40°			12.02 m: J, 55°, Pl, Ro, Cn 12.13 m: J, 70°, Pl, Ro, clay Vr 12.18 m: J, 70°, Un, Ro, clay Vr 12.22 m: J, 70°, Un, Ro, clay Vr 12.41 m: J, 70°, Pl, Ro, clay Vr 12.44 m: J, 70°, Pl, Ro, clay Vr 12.47 m: J, 90°, Pl, Ro, sandy clay Vr, length 570mm 12.52 m: J, 60°, Pl, Ro, clay Vr 12.75-14.25 m: SZ, 45-80°, sandstone gravel in clayey sand matrix 12.75 m: J, 90°, Pl, Ro, sandy clay Vr 12.75-14.25 m: SZ, 45-80°, sandstone gravel in clayey sand matrix 12.75 m: J, 90°, Pl, Ro, sandy clay Vr	100
				100 (95)	10 (95)		from 12.55m: with some siltstone flecks, massive				300
							from 13.80m to 14.25m: some siltstone clasts				300
							from 14.40m: crossbedded at 50° - 65°			14.28 m: J, 65°, Pl, Ro, Cn 14.35 m: J, 80°, Pl, Ro, length 200mm Cn 14.53 m: B, 65°, Pl, Sm, clay Vr	300
				100 (70)	70 (90)						300
							15.14 m: B, 65°, Pl, Sm, clay Vr 15.29 m: B, 60°, Pl, Sm, sandy clay Vr 15.31 m: J, 60°, Un, Ro, Cn 15.46 m: J, 50°, Pl, Ti, displaced beddings 15.62 m: B, 60°, Pl, Sm, clay Vr				
							15.80-16.69 m: SZ, 45-80°, sandstone/siltstone gravel in clayey sand matrix				
				100 (15)	15 (70)		SANDSTONE medium grained, grey, crossbedded at 35° - 50°, grey, medium grained sandstone (70%) interbedded with dark grey siltstone (30%), at varying degrees				
							16.69-17.30 m: SANDSTONE from 20.68m: massive			16.90-18.03 m: SZ, 45-70°, sandstone gravel in clayey sand matrix	
							from 17.30m: massive				
				100 (60)	60 (95)					18.14 m: J, 40°, Pl, Ro, clay Vr 18.26 m: J, 40°, Pl, Ro, clay Vr 18.31 m: J, 60°, Pl, Ro, clay Vr 18.48 m: J, 45°, Pl, Ro, clay Vr	
							from 18.90m to 19.70m: some siltstone clasts			18.66 m: J, 25°, Pl, Ro, clay Vr 18.75-19.50 m: SZ, 45-85°, sandstone gravel in silty clay matrix	

This report of borehole must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F02a
RL3

CLIENT: Transport for NSW

COORDS: 333719.3 m E 6252119.3 m N MGA94 56

SHEET: 4 OF 7 REV: C

PROJECT: Sydney Metro City and Southwest

SURFACE RL: 2.49 m DATUM: AHD

DRILL RIG: Hanjin DB8

LOCATION: Hickson Road Barangaroo

INCLINATION: -45° DIRECTION: 348°

CONTRACTOR: Terratest

PROJECT NoPCS 00013/10701

HOLE DEPTH: 50.90 m

LOGGED: MB DATE: 21/11/16

CHECKED: HB DATE: 24/11/16

Drilling				Field Material Description				Defect Information			
METHOD	WATER	TCR	ROD (SCR)	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH $I_s(50)$ MPa	DEFECT DESCRIPTION & Additional Observations	AVERAGE DEFECT SPACING (mm)
								EL 0.03 V 0.1 L 0.3 M 1 H 3 VH 10 EH			10 30 100 300 1000 3000
HQ3	95% Water RETURN			20			SANDSTONE from 20.68m: massive	FR		20.03 m: J, 15°, Pl, Ro, clay Vr 20.11 m: J, 30°, Pl, Ro, clay Vr 20.15 m: J, 10°, Pl, Ro, clay Vr	
		100	60 (95)				from 20.58m: crossbedded at 25° from 20.68m: massive	HW		20.58 m: B, 25°, Pl, Sm, clay Vr 20.68 m: B, 25°, Pl, Sm, clay Vr 20.80-21.16 m: SZ, 45°, sandstone gravel in clayey sand matrix	
				21				FR		21.81 m: J, 30°, Pl, Sm, clay Vr	
		100	75 (100)							22.28 m: J, 45°, Pl, Sm, clay Vr 22.33 m: J, 0-60°, Un, Ro, clay Vr, length 60mm 22.50 m: J, 35°, Pl, Ro, Ch 22.54 m: J, 45°, Pl, Ro, Ch 22.64 m: J, 60°, Pl, Ro, Ch 22.69 m: J, 55°, Pl, Ro, clay Vr	
				22						23.18 m: J, 20°, Pl, Ro, clay Vr	
				23			from 23.40m to 23.60m: some siltstone clasts			23.40-23.45 m: DS, 45°, sandy clay 23.53 m: J, 45°, Pl, Ro, Ch	
				24			from 23.70m: crossbedded at 45° - 70°				
				24.12			LAMINITE dark grey siltstone (80%) interlaminated with grey, fine to medium grained sandstone (20%) at 30 - 45°	SW - FR		24.04 m: J, 75°, Pl, Ro, Ch 24.05 m: J, 55°, Pl, Ro, Ch	
				24.57						24.38-24.40 m: DS, 25°, sandy clay 24.44 m: J, 45°, Pl, Ro, Ch 24.49 m: J, 40°, Pl, Ro, clay Vr 24.63 m: J, 20°, Pl, Ro, clay Vr 24.80-25.20 m: J, 85°, Pl, Ro, clay Vr	
		100	85 (95)								
				25						25.35 m: B, 35°, Pl, Ro, Ch 25.41-25.59 m: SZ, 40°, laminite gravel in clay matrix 25.60 m: B, 45°, Pl, Sm, clay Ct, 7 mm	
				25.60						25.76 m: J, 55°, Pl, Ro, clay Vr 25.86 m: J, 55°, Pl, Ro, clay Vr 25.96 m: J, 55°, Pl, Ro, clay Vr 26.16 m: J, 65°, Pl, Ro, clay Vr	
				26							
				26.70						26.70 m: J, 55°, Pl, Ro, clay Vr	
				27						27.00 m: J, 45°, Un, Ro, clay Vr 27.17 m: J, 70°, Pl, Ro, clay Vr	
				28							
		100	45 (100)							27.66 m: J, 55°, Pl, Ro, clay Vr 27.80-28.10 m: J, 90°, Pl, He, displaced beddings 27.85 m: J, 65°, Pl, Ro, clay Vr	
				28.46						28.10 m: B, 40°, Pl, Ro, carbonaceous Vr 28.24 m: J, 40°, Pl, Ro, clay Vr 28.28 m: J, 90°, Pl, Ro, clay, displaced bedding Vr, length 360mm	
				28.46						28.30 m: J, 70°, Pl, Ro, clay Vr 28.46 m: B, 35°, Pl, Sm, clay Ct, 4 mm	
				29						28.86 m: SZ, 75°, sandstone gravel in clayey sand matrix	
				29.08						29.14 m: J, 40°, Pl, Ro, Ch 29.22 m: B, 45°, Pl, Ro, clay Vr	
				29.22						29.38 m: J, 65°, Pl, Ro, Ch 29.50 m: J, 40°, Pl, Ro, Ch	
				29.22						29.56-29.65 m: SZ, 70°, siltstone gravel in clay matrix	
				29.56						29.70 m: J, 50°, Pl, Sm, Ch	
				29.56						29.91 m: J, 50°, Pl, Sm, Ch	
				29.90							
				29.90							
				30							
				30							

This report of borehole must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

 GAP gINT FN. F02a
 RL3

CLIENT: Transport for NSW

COORDS: 333719.3 m E 6252119.3 m N MGA94 56

SHEET: 5 OF 7 REV: C

PROJECT: Sydney Metro City and Southwest

SURFACE RL: 2.49 m DATUM: AHD

DRILL RIG: Hanjin DB8

LOCATION: Hickson Road Barangaroo

INCLINATION: -45° DIRECTION: 348°

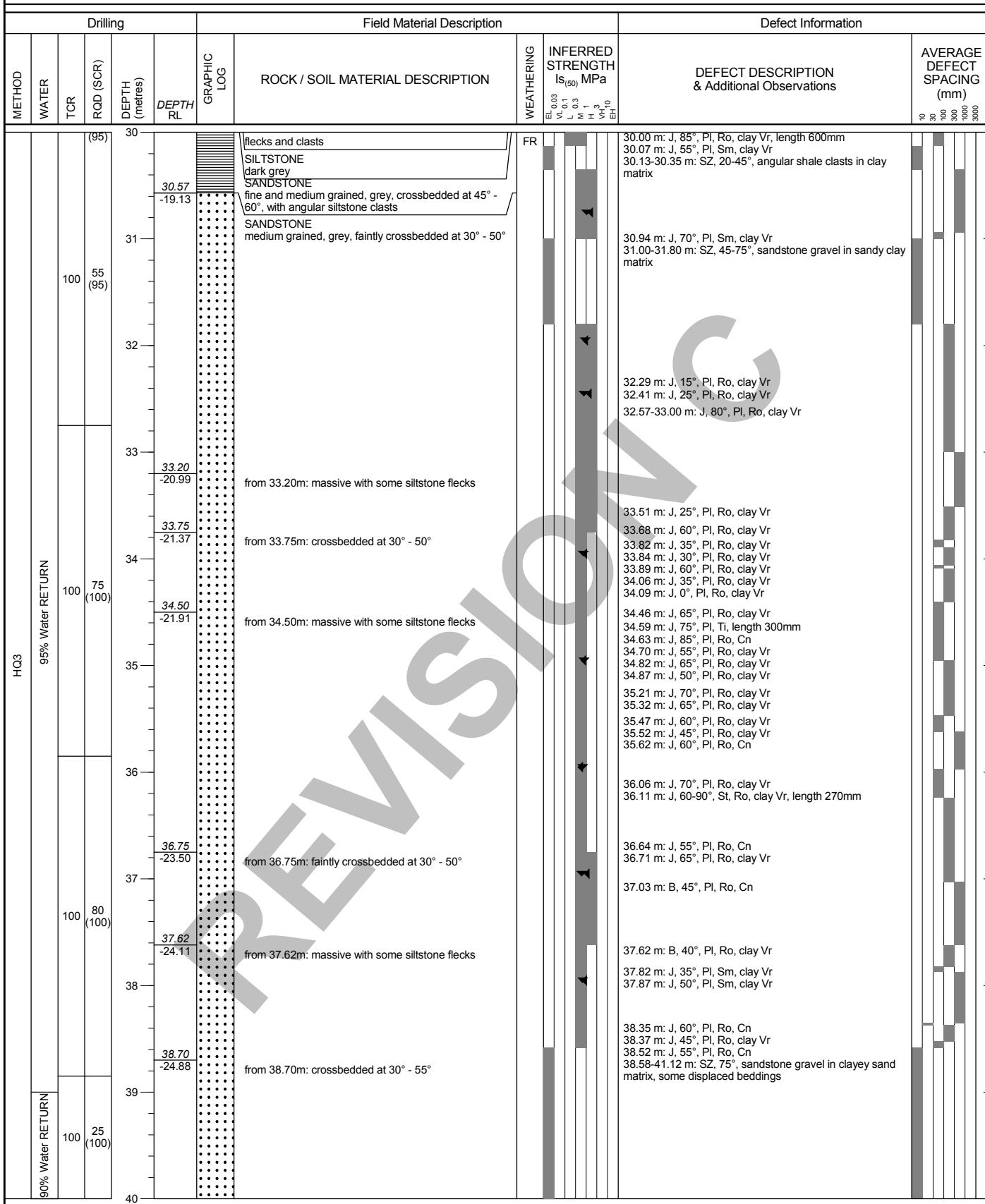
CONTRACTOR: Terratest

PROJECT NoPCS 00013/10701

HOLE DEPTH: 50.90 m

LOGGED: MB DATE: 21/11/16

CHECKED: HB DATE: 24/11/16



This report of borehole must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

 GAP gINT FN. F02a
 RL3

CLIENT: Transport for NSW

COORDS: 333719.3 m E 6252119.3 m N MGA94 56

SHEET: 6 OF 7 REV: C

PROJECT: Sydney Metro City and Southwest

SURFACE RL: 2.49 m DATUM: AHD

DRILL RIG: Hanjin DB8

LOCATION: Hickson Road Barangaroo

INCLINATION: -45° DIRECTION: 348°

CONTRACTOR: Terratest

PROJECT NoPCS 00013/10701

HOLE DEPTH: 50.90 m

LOGGED: MB DATE: 21/11/16

CHECKED: HB DATE: 24/11/16

Drilling				Field Material Description				Defect Information			
METHOD	WATER	TCR	ROD (SCR)	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH Is ₍₅₀₎ MPa	DEFECT DESCRIPTION & Additional Observations	AVERAGE DEFECT SPACING (mm)
HQ3	90% Water RETURN			40			SANDSTONE medium grained, grey, faintly crossbedded at 30° - 50°	FR			
				100 25 (100)	41	41.03 -26.52	from 41.03m - 41.15m: medium grained, grey, crossbedded at 30° - 55° distorted bedding			41.44 m: B, 35°, Pl, Ro, clay Ct, 8 mm 41.49 m: J, 60°, Pl, Ro, clay Ct	10 30 100 300 1000 3000
					41.57 -26.90		SANDSTONE medium to coarse grained, grey, crossbedded at 30° - 55°			42.00 m: J, 60°, Pl, Ro, Cn 42.17 m: B, 35°, Pl, Ro, clay Ct, 3 mm 42.23 m: B, 35°, Pl, Ro, clay Vr 42.26 m: B, 35°, Pl, Ro, clay Vr 42.32 m: B, 35°, Pl, Ro, clay Ct, 2 mm	
					42	42.15 -27.31	from 42.15m to 42.35m: some siltstone laminations at 35°				
				100 90 (100)	43	43.35 -28.16	from 43.35m to 44.15m: some fine to medium quartz gravel			42.93 m: J, 55°, Pl, Ro, Cn 43.13 m: J, 70°, Pl, Ro, Cn 43.29 m: J, 65°, Pl, Ro, Cn 43.38 m: J, 60°, Pl, Ro, Cn	
					44					43.95 m: J, 70°, Pl, Ro, Cn	
					45	45.00 -29.33	from 45.00m to 45.10m: some fine to medium quartz gravel			44.25 m: B, 35°, Pl, Sm, sandy clay Ct, 10 mm 44.35 m: J, 65°, Pl, Ro, clay Vr 44.41 m: B, 40°, Pl, Sm, clay Vr 44.43 m: J, 60°, Pl, Ro, clay Vr 44.60-44.92 m: J, 80°, Pl, Ro, clay Vr	
					45.35 -29.58		from 45.35m to 45.45m: some carbonaceous laminations at 35°				
				100 100 (100)	46					45.77 m: B, 45°, Pl, Ro, clay Ct, 3 mm 45.77-45.99 m: J, 85°, Pl, Ro, Cn 45.77 m: B, 45°, Pl, Ro, clay Ct, 3 mm 45.77-45.99 m: J, 85°, Pl, Ro, Cn	
					47	46.70 -30.53	from 46.70m to 47.30m: some fine to medium quartz gravel			46.65 m: J, 60°, Pl, Ro, Cn 46.80 m: J, 70°, Pl, Ro, clay Vr 47.00 m: J, 60°, Pl, Ro, Cn 47.26 m: J, 65°, Pl, Ro, Cn	
					48					47.58 m: B, 35°, Pl, Sm, clay Ct, 2 mm 47.85-48.08 m: J, 75°, Pl, Ro, clay Vr	
				100 90 (95)	49	49.55 -32.55	from 49.55m to 50.30m: some carbonaceous laminations at 25°			48.10-48.31 m: J, 80°, Pl, Ro, clay Vr 48.16-48.31 m: J, 75°, Pl, Ro, clay Vr 48.20-48.39 m: J, 80°, Pl, Ro, clay Vr 48.37 m: J, 70°, Pl, Ro, Cn	
					50					48.93 m: J, 55°, Pl, Ro, Cn	
										49.57 m: J, 60°, Pl, Ti 49.75 m: B, 50°, Pl, Ro, Cn	

This report of borehole must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

 GAP gINT FN. F02a
 RL3



CLIENT: Transport for NSW

COORDS: 333719.3 m E 6252119.3 m N MGA94 56

PROJECT: Sydney Metro City and Southwest

SURFACE RL: 2.49 m DATUM: AHD

LOCATION: Hickson Road Barangaroo

INCLINATION: -45° DIRECTION: 348°

PROJECT NoPCS 00013/10701

HOLE DEPTH: 50.90 m

SHEET: 7 OF 7 REV: C

DRILL RIG: Hanjin DB8

CONTRACTOR: Terratest

LOGGED: MB DATE: 21/11/16

CHECKED: HB DATE: 24/11/16

Drilling				Field Material Description				Defect Information			
METHOD	WATER	TCR	ROD (SCR)	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH $f_s(50)$ MPa	DEFECT DESCRIPTION & Additional Observations	AVERAGE DEFECT SPACING (mm)
HQ3	90% Water RETURN	100	90 (95)	50	50.90		SANDSTONE medium to coarse grained, grey, crossbedded at 30° - 55°	FR	Vf 0.03 L 0.1 M 1 H 3 Vh 10 EH	49.99 m: J, 70°, Pl, Ro, Cn 50.28 m: B, 45°, Pl, Ro, clay Vr 50.30-50.38 m: J, 90°, Un, Ro, Cn	10 30 100 300 1000 3000
				51	-33.50		END OF BOREHOLE @ 50.90 m TARGET DEPTH PIEZOMETER INSTALLED				
				52							
				53							
				54							
				55							
				56							
				57							
				58							
				59							
				60							

This report of borehole must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F02a
RL3

CORE PHOTOGRAPHS: SRT BH077

CLIENT: Transport for NSW

COORDS: 333719.3 m E 6252119.3 m N MGA94 56

SHEET: 1 OF 7 REV: C

PROJECT: Sydney Metro City and Southwest

SURFACE RL: 2.49 m DATUM: AHD

DRILL RIG: Hanjin DB8

LOCATION: Hickson Road Barangaroo

INCLINATION: -45° DIRECTION: 348°

CONTRACTOR: Terratest

PROJECT NoPCS 00013/10701

HOLE DEPTH: 50.90 m

LOGGED: MB DATE: 21/11/16

CHECKED: HB DATE: 24/11/16



CORE PHOTOGRAPHS: SRT BH077

CLIENT: Transport for NSW

COORDS: 333719.3 m E 6252119.3 m N MGA94 56

SHEET: 2 OF 7 REV: C

PROJECT: Sydney Metro City and Southwest

SURFACE RL: 2.49 m DATUM: AHD

DRILL RIG: Hanjin DB8

LOCATION: Hickson Road Barangaroo

INCLINATION: -45° DIRECTION: 348°

CONTRACTOR: Terratest

PROJECT NoPCS 00013/10701

HOLE DEPTH: 50.90 m

LOGGED: MB

DATE: 21/11/16

CHECKED: HB

DATE: 24/11/16



CORE PHOTOGRAPHS: SRT BH077

CLIENT: Transport for NSW

COORDS: 333719.3 m E 6252119.3 m N MGA94 56

SHEET: 3 OF 7 REV: C

PROJECT: Sydney Metro City and Southwest

SURFACE RL: 2.49 m DATUM: AHD

DRILL RIG: Hanjin DB8

LOCATION: Hickson Road Barangaroo

INCLINATION: -45° DIRECTION: 348°

CONTRACTOR: Terratest

PROJECT NoPCS 00013/10701

HOLE DEPTH: 50.90 m

LOGGED: MB DATE: 21/11/16

CHECKED: HB DATE: 24/11/16



CORE PHOTOGRAPHS: SRT BH077

CLIENT: Transport for NSW

COORDS: 333719.3 m E 6252119.3 m N MGA94 56

SHEET: 4 OF 7 REV: C

PROJECT: Sydney Metro City and Southwest

SURFACE RL: 2.49 m DATUM: AHD

DRILL RIG: Hanjin DB8

LOCATION: Hickson Road Barangaroo

INCLINATION: -45° DIRECTION: 348°

CONTRACTOR: Terratest

PROJECT NoPCS 00013/10701

HOLE DEPTH: 50.90 m

LOGGED: MB

DATE: 21/11/16

CHECKED: HB

DATE: 24/11/16



CORE PHOTOGRAPHS: SRT BH077

CLIENT: Transport for NSW

COORDS: 333719.3 m E 6252119.3 m N MGA94 56

SHEET: 5 OF 7 REV: C

PROJECT: Sydney Metro City and Southwest

SURFACE RL: 2.49 m DATUM: AHD

DRILL RIG: Hanjin DB8

LOCATION: Hickson Road Barangaroo

INCLINATION: -45° DIRECTION: 348°

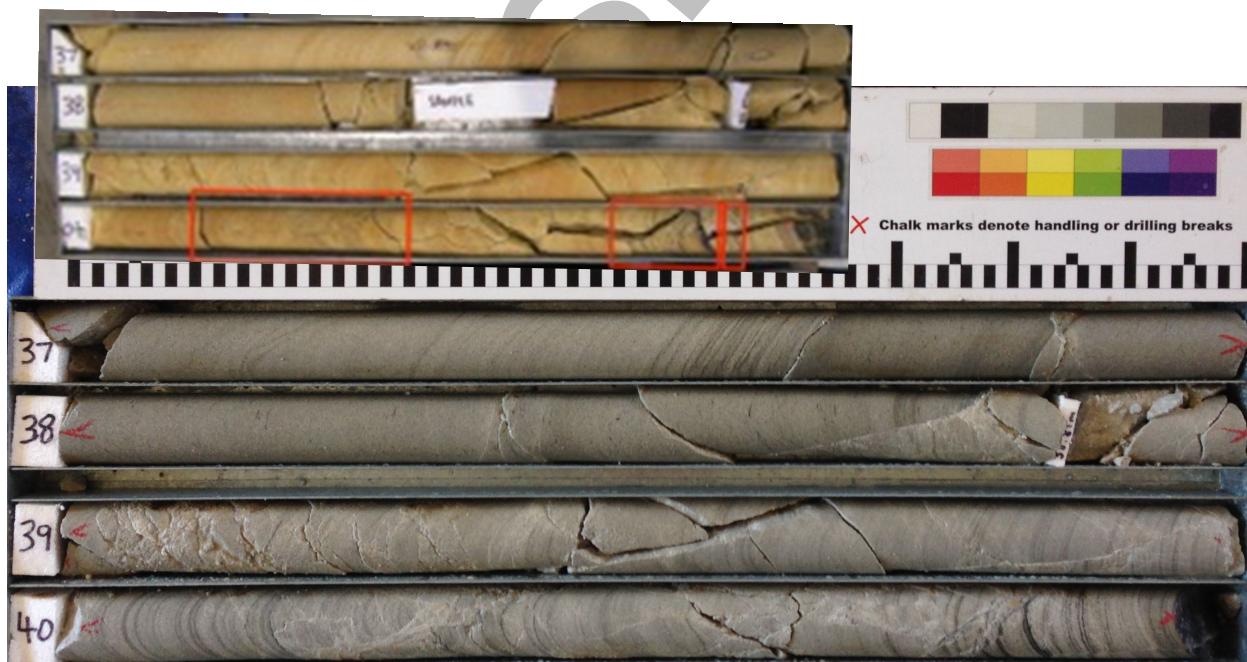
CONTRACTOR: Terratest

PROJECT NoPCS 00013/10701

HOLE DEPTH: 50.90 m

LOGGED: MB DATE: 21/11/16

CHECKED: HB DATE: 24/11/16



CORE PHOTOGRAPHS: SRT BH077

CLIENT: Transport for NSW

COORDS: 333719.3 m E 6252119.3 m N MGA94 56

SHEET: 6 OF 7 REV: C

PROJECT: Sydney Metro City and Southwest

SURFACE RL: 2.49 m DATUM: AHD

DRILL RIG: Hanjin DB8

LOCATION: Hickson Road Barangaroo

INCLINATION: -45° DIRECTION: 348°

CONTRACTOR: Terratest

PROJECT NoPCS 00013/10701

HOLE DEPTH: 50.90 m

LOGGED: MB DATE: 21/11/16

CHECKED: HB DATE: 24/11/16



CORE PHOTOGRAPHS: SRT BH077

CLIENT: Transport for NSW

COORDS: 333719.3 m E 6252119.3 m N MGA94 56

SHEET: 7 OF 7 REV: C

PROJECT: Sydney Metro City and Southwest

SURFACE RL: 2.49 m DATUM: AHD

DRILL RIG: Hanjin DB8

LOCATION: Hickson Road Barangaroo

INCLINATION: -45° DIRECTION: 348°

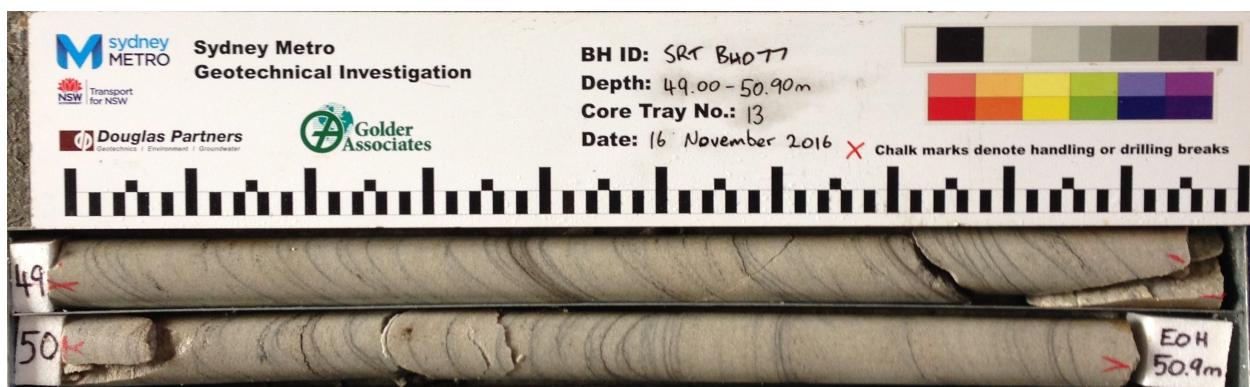
CONTRACTOR: Terratest

PROJECT NoPCS 00013/10701

HOLE DEPTH: 50.90 m

LOGGED: MB DATE: 21/11/16

CHECKED: HB DATE: 24/11/16



REVISION