

Appendix D2

Geotechnical investigations:

RMS Factual Geotechnical Investigation Report

APPENDIX A
BOREHOLE LOGS AND CORE PHOTOS

NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : B5

FILE / JOB NO : G4372

SHEET : 1 OF 3

PROJECT : BERRY BYPASS
LOCATION :

POSITION : E: 289751.260, N: 6148686.710 (56 MGA94)

SURFACE ELEVATION : 2.570 (AHD)

ANGLE FROM HORIZONTAL : 90°

RIG TYPE : Edson 3000

MOUNTING : Truck

CONTRACTOR : TERRATEST

DRILLER : R. WELSH

DATE STARTED : 26/2/12

DATE COMPLETED : 27/2/12

DATE LOGGED : 27/2/12

LOGGED BY : TW

CHECKED BY : DH

DRILLING				MATERIAL									
PROGRESS	DRILLING & CASING	WATER	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY	RELATIVE DENSITY	STRUCTURE & Other Observations
	ADT HW Casing			27/02/12		0.0	CI-CH		SILTY CLAY: brown, medium to high plasticity				TOPSOIL
					0.50m SPT 2, 2, 2 N*=4	0.30m	CH		CLAY: yellow brown, high plasticity				ALLUVIUM
					0.95m U75	1.0							0.50: SPT Recovery: 0.2 m 0.60: HP Samp = 100 kPa
					1.55m SPT 1, 6, 23 N*=29	1.30m	CL		SANDY CLAY: yellow brown and grey, low plasticity, fine grained sand				St
					2.05m	1.85m							1.55: HP Samp = 145 kPa 1.60: SPT Recovery: 0.43 m
					3.00m SPT 11, 13, 11 N*=24	2.0	GC		CLAYEY GRAVEL: dark grey, yellow brown and pale grey, fine to coarse gravel, low plasticity sandy clay				MD
					3.45m	3.0							3.00: SPT Recovery: 0.4 m
					4.40m SPT 4, 2, 1 N*=3	3.75m	GC		CLAYEY GRAVEL: dark grey, yellow brown and pale grey, fine to coarse gravel, low plasticity sandy clay				M
					4.85m	4.0							4.40: SPT Recovery: 0.2 m
					5.80m SPT 5, 6, 3 N*=9	4.70m	GW		GRAVEL: yellow brown, brown, dark grey and off-white, fine to coarse gravel, non plastic				VL - L
					6.25m	5.0							5.80: SPT Recovery: 0.15 m
					7.50m SPT HW/200mm, 0, 1, 3 N*=4	7.20m	CI-CH		SILTY CLAY: dark grey, medium to high plasticity, trace fine grained sand				VS
						7.85m	GP						7.80: HP Samp <25 kPa

RMS:LIB 32.GLB Log RTA NON-CORE DRILL HOLE G4372 BERRY BYPASS.GPJ <-DrawingFiles> 10/May/2012 14:39:8.30.002 Datgel.CPT Tool.gINT Add-In

See Explanatory Notes for details of abbreviations & basis of descriptions.

ROADS AND MARITIME SERVICES, NSW



NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : B5

FILE / JOB NO : G4372

SHEET : 2 OF 3

PROJECT : BERRY BYPASS
LOCATION :

POSITION : E: 289751.260, N: 6148686.710 (56 MGA94)

SURFACE ELEVATION : 2.570 (AHD)

ANGLE FROM HORIZONTAL : 90°

RIG TYPE : Edson 3000

MOUNTING : Truck

CONTRACTOR : TERRATEST

DRILLER : R. WELSH


DATE STARTED : 26/2/12

DATE COMPLETED : 27/2/12

DATE LOGGED : 27/2/12

LOGGED BY : TW

CHECKED BY : DH

DRILLING					MATERIAL							
PROGRESS		DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY	RELATIVE DENSITY	STRUCTURE & Other Observations
DRILLING & CASING	WATER											
WB/RR		H VH		8.15m	8.0		GP	GRAVEL AND COBBLES: grey and yellow brown, medium to coarse gravel (<i>continued</i>)	M			
								Continued as Cored Drill Hole				
					9.0							
					10.0							
					11.0							
					12.0							
					13.0							
					14.0							
					15.0							
					16.0							

RMS:LIB 32_GLB_Log RTA NON-CORE DRILL HOLE G4372 BERRY BYPASS.GPJ <-DrawingFiles> 10/May/2012 14:39:8.30.002 Datgsl.CPT Tool.gINT Add-In

See Explanatory Notes for details of abbreviations & basis of descriptions.

ROADS AND MARITIME SERVICES, NSW



CORED DRILL HOLE LOG

HOLE NO : B5

FILE / JOB NO : G4372

SHEET : 3 OF 3

PROJECT : BERRY BYPASS
LOCATION :

POSITION : E: 289751.260, N: 6148686.710 (56 MGA94) SURFACE ELEVATION : 2.570 (AHD) ANGLE FROM HORIZONTAL : 90°

RIG TYPE : Edson 3000 MOUNTING : Truck CONTRACTOR : TERRATEST DRILLER : R. WELSH

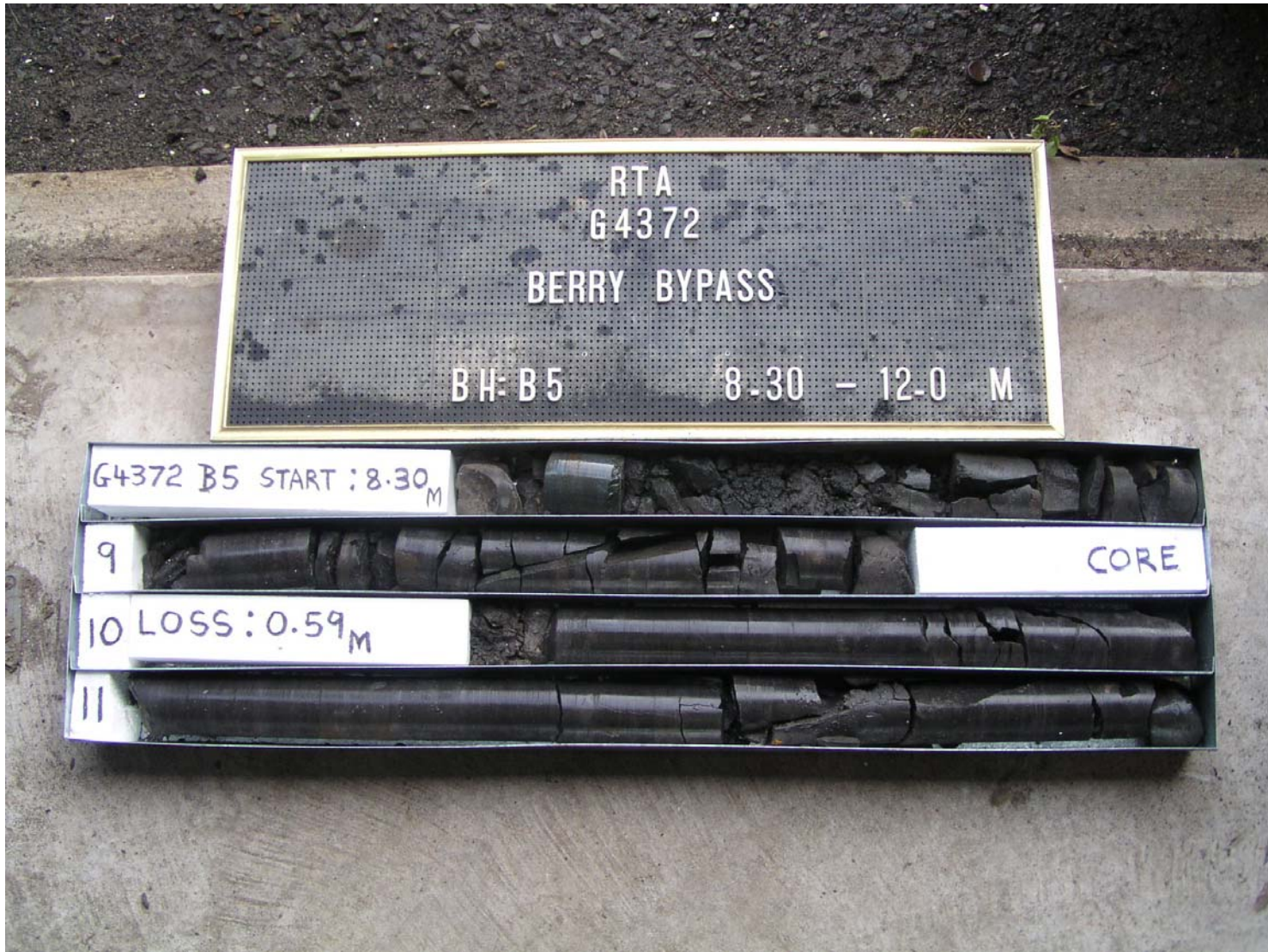
DATE STARTED : 26/2/12 DATE COMPLETED : 27/2/12 DATE LOGGED : 27/2/12 LOGGED BY : TW CHECKED BY : DH

CASING DIAMETER : HW BARREL (Length) : 3.00 m BIT : IMPREG BIT CONDITION : GOOD

DRILLING		MATERIAL			FRACTURES		
PROGRESS	DEPTH (m)	GRAPHIC LOG	DESCRIPTION	Weathering	ESTIMATED STRENGTH Is(50)	NATURAL FRACTURE (mm)	ADDITIONAL DATA
DRILLING & CASING	DEPTH		(texture, fabric, mineral composition, hardness alteration, cementation, etc as applicable)		● Axial ○ Diametral		(joints, partings, seams, zones, etc) Description, orientation, infilling or coating, shape, roughness, thickness, other
	8.0						
			8.30m START CORING AT 8.30m				
			8.45m COBBLES AND GRAVEL (GP): blue grey and yellow brown; (ALLUVIUM)	SW			
			SILTSTONE: dark grey, with medium grey fine grained sandstone interbedding, bedded at 0-10°. Occasional grey latite clasts and small off-white flecks.				
	9.0						BPs & JTs 0 - 90° Clay IR RF S PR
	9.00	0% LOSS					
		42% LOSS					
			9.73m				
			CORE LOSS 0.59m (9.73-10.32)				
	10.0						
			10.32m				
			SILTSTONE: dark grey, with medium grey fine grained sandstone interbedding, bedded at 0-10°. Occasional grey latite clasts and small off-white flecks.	EW F			
	10.40	0% LOSS					80 mm clayey layer
							DBs DB HB
							DB JT 75° - 90° MS IR RF DB DB DB
	11.0						
							DL DB
							JT 40° CN PR S DB
	12.00	0% LOSS					
							DB JT 30° MS IR RF DB DB DB
							DB DB DB
							BP 5° MS IR RF DB
							BP 5° MS IR RF DB
	13.0						
							DB JT 50° MS IR RF DB
	14.0						
							DB HB
	14.71						
			14.71m				
			BOREHOLEB5 TERMINATED AT 14.71 m				
	15.0						
	16.0						

See Explanatory Notes for details of abbreviations & basis of descriptions.

RMS.LIB.32.GLB.Log RTA CORED DRILL HOLE G4372 BERRY BYPASS.GPJ <DrawingFiles> 10/May/2012 14:39 8.30.002 Datalog CPT Tool.gINT Add-In



Geotechnical Investigation
Bore Hole: B5

Photo 1 of 2

G4372
HW 1 - Princes Highway
Berry Bypass



Transport
Roads & Maritime
Services



Geotechnical Investigation
Bore Hole: B5

Photo 2 of 2

G4372
HW 1 - Princes Highway
Berry Bypass



Transport
Roads & Maritime
Services

NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : B6

FILE / JOB NO : G4372

SHEET : 1 OF 3

PROJECT : BERRY BYPASS
LOCATION : SOUTHERN ALIGNMENT

POSITION : E: 289544.080, N: 6148517.270 (56 MGA94)

SURFACE ELEVATION : 3.690 (AHD)

ANGLE FROM HORIZONTAL : 90°

RIG TYPE : DB515

MOUNTING : Track

CONTRACTOR : RMS

DRILLER : R. MORTON

DATE STARTED : 5/3/12

DATE COMPLETED : 6/3/12

DATE LOGGED : 6/3/12

LOGGED BY : BA

CHECKED BY : DH

DRILLING					MATERIAL						
PROGRESS		GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY	RELATIVE DENSITY	STRUCTURE & Other Observations
DRILLING & CASING	WATER										
VE				0.0	CL-CI	0.05m	SILTY CLAY: brown, low to medium plasticity CLAY: brown to yellow brown, medium plasticity, root fibres throughout.	W-M	F		ALLUVIUM
			0.50m SPT 2, 3, 4 N*=7	0.50	CI						0.50: SPT Recovery: 0.225 m 0.60: HP Samp = 180 - 200 kPa
			0.95m	0.95							
			1.50m SPT 5, 10, 13 N*=23	1.50	CI	1.30m	CLAY: mottled brown and pale grey, high to medium plasticity				1.50: SPT Recovery: 0.45 m 1.60: HP Samp >400 kPa
			1.95m	1.95	CI						
			2.50m SPT 4, 8, 11 N*=19	2.50	CI-CH	2.60m	CLAY: pale grey with some brown patches, medium to high plasticity, trace medium and fine gravel, trace of root fibres.				2.50: SPT Recovery: 0.45 m 2.60: HP Samp = 190 - 200 kPa 2.70: HP Samp = 250 - 270 kPa
			2.95m	2.95	CI-CH						2.95: Ground water: unable to ascertain from 2.95m
			4.20m SPT 24, 6/5mm HB N*=R 4.36m	4.20	CI-CH	3.20m	CLAY: pale grey with some brown patches, medium to high plasticity, trace medium and fine grained sand, trace of root fibres. Increase in frequency of gravel content below 3.20m	M	VSt		4.20: SPT Recovery: 0.025 m; Note: medium gravel fragment wedged in end of SPT sampler; N value may be misleading
			5.70m SPT 24, 36, 25 N*=61	5.70	GC		CLAYEY GRAVEL, GRAVELLY CLAY, CLAY WITH GRAVEL, CLAY TRACE OF GRAVEL BANDS: brown with some pale grey, coarse to fine gravel, medium and high plasticity clay, trace sand, with occasional cobbles				5.70: SPT Recovery: 0.3 m
			6.15m	6.15							
			7.20m SPT 39, 32/80mm HB N*=R 7.43m	7.20		7.21m	SILTSTONE: grey with some brown patches				7.20: SPT Recovery: 0.23 m
				7.43		7.43m	Continued as Cored Drill Hole				BEDROCK
				8.0							

RMS.LIB.32.GLB.Log.RTA.NON-CORE.DRILL.HOLE.G4372.BERRY.BYPASS.GPJ <-DrawingFiles> 10/May/2012 14:40:8.30.002 Datgsl.CPT.Tool.gINT Add-In

See Explanatory Notes for details of abbreviations & basis of descriptions.

CORED DRILL HOLE LOG

HOLE NO : B6

FILE / JOB NO : G4372

SHEET : 2 OF 3

PROJECT : BERRY BYPASS
LOCATION : SOUTHERN ALIGNMENT

POSITION : E: 289544.080, N: 6148517.270 (56 MGA94) SURFACE ELEVATION : 3.690 (AHD) ANGLE FROM HORIZONTAL : 90°

RIG TYPE : DB515 MOUNTING : Track CONTRACTOR : RMS DRILLER : R. MORTON

DATE STARTED : 5/3/12 DATE COMPLETED : 6/3/12 DATE LOGGED : 6/3/12 LOGGED BY : BA CHECKED BY : DH

CASING DIAMETER : HW BARREL (Length) : 1.50 m BIT : STEP FACE BIT CONDITION : GOOD

DRILLING				MATERIAL				FRACTURES			
PROGRESS		DEPTH (m)	GRAPHIC LOG	DESCRIPTION ROCK TYPE : Colour, Grain size, Structure (texture, fabric, mineral composition, hardness alteration, cementation, etc as applicable)	Weathering	ESTIMATED STRENGTH Is(50)		NATURAL FRACTURE (mm)	VISUAL	ADDITIONAL DATA (joints, partings, seams, zones, etc) Description, orientation, infilling or coating, shape, roughness, thickness, other	
DRILLING & CASING	WATER					AXIAL	DIAMETRAL			SM	IR
		0.0									
		1.0									
		2.0									
		3.0									
		4.0									
		5.0									
		6.0									
		7.0									
		7.43		7.43m START CORING AT 7.43m							
		8.0		SILTSTONE: grey, current bedding predominantly at 0-15°, occasional cross bedding, trace of fine grained sand.	HW					SM Fe SN 10 mm BP 5 - 15° Fe IR RF JT 20° Fe cemented JT 55 - 65° Fe MS DIS closed	

RMS:LIB 32_GLB Log RTA CORED DRILL HOLE G4372 BERRY BYPASS.GPJ <DrawingFiles> 10/May/2012 14:40 8.30.002 Datalog CPT Tool.gINT Add.in

See Explanatory Notes for details of abbreviations & basis of descriptions.

CORED DRILL HOLE LOG

HOLE NO : B6

FILE / JOB NO : G4372

SHEET : 3 OF 3

PROJECT : BERRY BYPASS
LOCATION : SOUTHERN ALIGNMENT

POSITION : E: 289544.080, N: 6148517.270 (56 MGA94) SURFACE ELEVATION : 3.690 (AHD) ANGLE FROM HORIZONTAL : 90°

RIG TYPE : DB515 MOUNTING : Track CONTRACTOR : RMS DRILLER : R. MORTON

DATE STARTED : 5/3/12 DATE COMPLETED : 6/3/12 DATE LOGGED : 6/3/12 LOGGED BY : BA CHECKED BY : DH

CASING DIAMETER : HW BARREL (Length) : 1.50 m BIT : STEP FACE BIT CONDITION : GOOD

DRILLING			MATERIAL				FRACTURES	
PROGRESS	DEPTH (m)	GRAPHIC LOG	DESCRIPTION	Weathering	ESTIMATED STRENGTH Is(50)	NATURAL FRACTURE (mm)	VISUAL	ADDITIONAL DATA
DRILLING & CASING	DEPTH	LOG	(texture, fabric, mineral composition, hardness alteration, cementation, etc as applicable)		● Axial ○ Diametral			(joints, partings, seams, zones, etc) Description, orientation, infilling or coating, shape, roughness, thickness, other
<p>DRILLING & CASING</p> <p>WATER</p> <p>CORE LOSS (%)</p> <p>SAMPLES & FIELD TESTS</p>	<p>0% LOSS</p> <p>8.79</p> <p>0% LOSS</p> <p>10.23</p> <p>0% LOSS</p> <p>11.75</p> <p>0% LOSS</p> <p>13.27</p>		<p>SILTSTONE: grey, current bedding predominantly at 0-15°, occasional cross bedding, trace of fine grained sand. (continued)</p> <p>8.86m</p> <p>SILTSTONE WITH SOME SANDY SILTSTONE BANDS: grey, bedding variable 0-15°, some closed fractures, predominantly 0-15° with few closed joints up to 70°, fine grained sand.</p> <p>11.56m</p> <p>SANDY SILTSTONE: grey, bedding variable, predominantly at 0-15°, fine grained sand. Occasional voids up to 8mm below 11.75m</p> <p>13.27m</p>	<p>HW</p> <p>EW</p> <p>HW</p> <p>HW</p> <p>SW</p>	<p>Et -0.03</p> <p>Vt -0.1</p> <p>L -0.3</p> <p>M -1</p> <p>H -3</p> <p>VH -9</p> <p>EH -10</p>	<p>20</p> <p>40</p> <p>100</p> <p>300</p> <p>1000</p>	<p>DB</p> <p>DL</p> <p>FZ</p> <p>BP</p> <p>JT</p> <p>MS</p>	<p>JT 65° closed</p> <p>JT 45° PR <1 mm clayey, closed</p> <p>JT 35° PR <1 mm clayey, closed</p> <p>JT 50° closed</p> <p>BP 0° origin unknown, core spinning</p> <p>SM 70 mm EW and HW-EW</p> <p>DL</p> <p>JT 40° CN PR fracturing along JT</p> <p>DB(possible), BP 0° origin unknown, core spinning</p> <p>DB, JT 65 - 75° CN IR RF</p> <p>DB, JTs 15 - 55° CN IR RF DIS</p> <p>DL</p> <p>DB, JT 50 - 60° CN IR VR</p> <p>FZ</p> <p>DB(possible), JT 70° PR RF trace of pyrite</p> <p>DB, JT</p> <p>DB, JT</p> <p>DB, BP 8 - 10° CN IR RF</p> <p>DB, BP 8 - 12° CN IR RF</p> <p>DB, BP 65° PR RF partial pyrite</p> <p>DB, BP 5 - 15° CN IR RF</p> <p>DL</p> <p>BP 0 - 8° CN PR RF fracturing along BP</p> <p>DB, JT 65° PR RF trace pyrite</p> <p>DB, BP 0 - 10° CN IR RF</p> <p>JT 5 - 20° CN IR VR</p> <p>BP 0 - 15° CN IR RF</p> <p>BP 0 - 15° MS CN IR RF S</p> <p>JT 65 - 70° MS IR VR DIS</p> <p>BP 0 - 10° CN IR RF</p> <p>DB, BP 0 - 5° CN IR RF</p>
			BOREHOLEB6 TERMINATED AT 13.27 m					

RMS.LIB 32.GLB Log RTA CORED DRILL HOLE G4372 BERRY BYPASS.GPJ <DrawingFiles> 10/May/2012 14:40 8.30.002 Datgel CPT Tool.GINT Add-In

See Explanatory Notes for details of abbreviations & basis of descriptions.



Geotechnical Investigation
Bore Hole: B6

Photo 1 of 1

G4372
HW 1 - Princes Highway
Berry Bypass



Transport
Roads & Maritime
Services

NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : B7

FILE / JOB NO : G4372

SHEET : 1 OF 3

PROJECT : BERRY BYPASS
LOCATION :

POSITION : E: 289302.040, N: 6148435.940 (56 MGA94)

SURFACE ELEVATION : 4.710 (AHD)

ANGLE FROM HORIZONTAL : 90°

RIG TYPE : Edson 3000

MOUNTING : Truck

CONTRACTOR : TERRATEST

DRILLER : R. WELSH

DATE STARTED : 24/2/12

DATE COMPLETED : 26/2/12

DATE LOGGED : 26/2/12

LOGGED BY : TW

CHECKED BY : DH

DRILLING					MATERIAL								
PROGRESS		DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY	RELATIVE DENSITY	STRUCTURE & Other Observations	
DRILLING & CASING	WATER												
ADT CASING WB/RR 50% Polymer LOSS (PO casing at 5.50m)		VE	26/02/12	0.50m SPT 1, 0, 1 N ^r =1	0.0	CI		SILTY CLAY: brown, medium plasticity, trace of vegetation.				TOPSOIL	
				0.95m	0.55m			CLAY: yellow brown and pale grey, high plasticity				0.50: SPT Recovery: 0.28 m ALLUVIUM	
				1.10m U75	1.0							0.90: HP Samp = 70 kPa	
				1.65m SPT 2, 3, 4 N ^r =7	1.65							1.65: SPT Recovery: 0.3 m	
				2.10m	2.0	CH						2.05: HP Samp = 240 kPa	
				3.00m SPT 3, 6, 8 N ^r =14	3.0							3.00: SPT Recovery: 0.45 m 3.10: HP Samp = 350 kPa	
				3.45m	3.60			CLAY: yellow brown and pale grey, high plasticity					
				4.40m SPT 5, 6, 9 N ^r =15	4.0	CH						4.40: SPT Recovery: 0.5 m 4.50: HP Samp = 310 kPa	
				4.85m	4.80	CH			CLAY: grey and pale grey brown with some yellow brown, high plasticity, and pale off-white flecks.				4.80: HP Samp = 340 kPa
				6.00m SPT 19, 21, 30/149mm HB N=R	5.50				CLAYEY GRAVEL /GRAVELLY CLAY: pale grey and yellow brown, fine to coarse gravel, sub-angular, medium plasticity				
			6.45m	6.0	GC								
				6.60m	6.60	GP		GRAVEL AND COBBLES: red brown, yellow brown and dark grey, fine to coarse gravel, with latite cobbles					
				7.00m	7.0			Continued as Cored Drill Hole					

See Explanatory Notes for details of abbreviations & basis of descriptions.

RMS.LIB.32.GLB.Log.RTA.NON-CORE.DRILL.HOLE.G4372.BERRY.BYPASS.GPJ <-DrawingFiles> 10/May/2012 14:40:8.30.002 Datgcl.CPT Tool.gINT Add-In

CORED DRILL HOLE LOG

HOLE NO : B7

FILE / JOB NO : G4372

SHEET : 2 OF 3

PROJECT : BERRY BYPASS
LOCATION :

POSITION : E: 289302.040, N: 6148435.940 (56 MGA94) SURFACE ELEVATION : 4.710 (AHD) ANGLE FROM HORIZONTAL : 90°

RIG TYPE : Edson 3000 MOUNTING : Truck CONTRACTOR : TERRATEST DRILLER : R. WELSH

DATE STARTED : 24/2/12 DATE COMPLETED : 26/2/12 DATE LOGGED : 26/2/12 LOGGED BY : TW CHECKED BY : DH

CASING DIAMETER : PQ BARREL (Length) : 3.00 m BIT : STEP FACE BIT CONDITION : GOOD

DRILLING			MATERIAL				FRACTURES					
DRILLING & CASING	WATER	CORE LOSS (CORE LOSS DRILL DEPTH)	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	DESCRIPTION ROCK TYPE : Colour, Grain size, Structure (texture, fabric, mineral composition, hardness alteration, cementation, etc as applicable)	Weathering	ESTIMATED STRENGTH (s(50))		NATURAL FRACTURE (mm)	VISUAL	ADDITIONAL DATA (joints, partings, seams, zones, etc) Description, orientation, infilling or coating, shape, roughness, thickness, other
								● Axial	○ Diametral			
				0.0				EL -0.03 VL -0.1 L -0.3 M -1 H -3 VH -10 EH -10	20 40 100 300 1000			
				7.0		7.00m START CORING AT 7.00m						7.00-7.00-9.70 ALLUVIUM
		22% LOSS		7.30		7.30m GRAVEL AND COBBLES (GP): yellow brown, dark grey and red brown, fine to coarse gravel, with latite cobbles, with some pockets of low plasticity sandy clay; (ALLUVIUM)						
		0% LOSS		7.40		7.40m CORE LOSS 0.10m (7.30-7.40) (ALLUVIUM)						
		7.95		8.0		GRAVEL AND COBBLES (GP): yellow brown, dark grey and red brown, fine to coarse gravel, with latite cobbles, with some pockets of low plasticity clay; (ALLUVIUM)						

RMS:LIB 32.GLB Log RTA CORED DRILL HOLE G4372 BERRY BYPASS.GPJ <DrawingFiles> 10/May/2012 14:41 8.30.002 Datalog CPT Tool.GINT Add-In

See Explanatory Notes for details of abbreviations & basis of descriptions.

CORED DRILL HOLE LOG

HOLE NO : B7

FILE / JOB NO : G4372

SHEET : 3 OF 3

PROJECT : BERRY BYPASS
LOCATION :

POSITION : E: 289302.040, N: 6148435.940 (56 MGA94) SURFACE ELEVATION : 4.710 (AHD) ANGLE FROM HORIZONTAL : 90°

RIG TYPE : Edson 3000 MOUNTING : Truck CONTRACTOR : TERRATEST DRILLER : R. WELSH

DATE STARTED : 24/2/12 DATE COMPLETED : 26/2/12 DATE LOGGED : 26/2/12 LOGGED BY : TW CHECKED BY : DH

CASING DIAMETER : PQ BARREL (Length) : 3.00 m BIT : STEP FACE BIT CONDITION : GOOD

DRILLING		MATERIAL				FRACTURES	
PROGRESS	DEPTH (m)	DESCRIPTION	Weathering	ESTIMATED STRENGTH Is(50)	NATURAL FRACTURE (mm)	ADDITIONAL DATA	
DRILLING & CASING	GRAPHIC LOG	ROCK TYPE : Colour, Grain size, Structure (texture, fabric, mineral composition, hardness alteration, cementation, etc as applicable)		● Axial ○ Diametral		(joints, partings, seams, zones, etc) Description, orientation, infilling or coating, shape, roughness, thickness, other	
0% LOSS 8.20	8.0	GRAVEL AND COBBLES (GP): yellow brown, dark grey and red brown, fine to coarse gravel, with latite cobbles, with some pockets of low plasticity clay; (ALLUVIUM) (continued)				8.05: 7.00 - 9.70 ALLUVIUM	
0% LOSS 8.40	8.40	CORE LOSS 0.14m (8.40-8.54) (ALLUVIUM)					
23% LOSS 9.00	9.0	GRAVEL AND COBBLES (GP): yellow brown, dark grey and red brown, fine to coarse gravel, with latite cobbles, with some pockets of low plasticity clay; (ALLUVIUM)					
0% LOSS 9.45	9.45						
0% LOSS 9.75	9.75						
0% LOSS	10.0	SILTSTONE: dark grey and yellow brown, bedded at 0-10°.	SW			BP 10° Fe IR RF BP 10° Fe PR RF BP 5° Fe PR RF HB	
	10.38	SILTSTONE: dark grey, bedded at 0-10°.	F			BPsx4 5° Fe IR RF BP 10° Fe IR RF BP 10° Fe PR RF SM Clay 20 mm JT 20° Fe IR RF	
	11.0		EW			DB HB HB DB DB	
	12.0		F			DB DB DB DB DB BP 5° Clay IR RF	
	12.36	SILTSTONE: dark grey, bedded at 0-10°.				DBs & HBs	
	13.0					DB DL DBs DL DB DL DBs DL DB DL DB	
	13.35						
BOREHOLEB7 TERMINATED AT 13.35 m							
	14.0						
	15.0						
	16.0						

RMS.LIB 32.GLB Log RTA CORED DRILL HOLE G4372 BERRY BYPASS.GPJ <DrawingFiles> 10/May/2012 14:41 8.30.002 Datalog CPT Tool.GINT Add-In

See Explanatory Notes for details of abbreviations & basis of descriptions.



Geotechnical Investigation
Bore Hole: B7

Photo 1 of 2

G4372
HW 1 - Princes Highway
Berry Bypass



Transport
Roads & Maritime
Services



Geotechnical Investigation
Bore Hole: B7

Photo 2 of 2

G4372
HW 1 - Princes Highway
Berry Bypass



Transport
Roads & Maritime
Services

NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : B8

FILE / JOB NO : G4372

SHEET : 1 OF 2

PROJECT : BERRY BYPASS
LOCATION : SOUTHERN ALIGNMENT

POSITION : E: 289070.010, N: 6148357.540 (56 MGA94)

SURFACE ELEVATION : 3.800 (AHD)

ANGLE FROM HORIZONTAL : 90°

RIG TYPE : DB515

MOUNTING : Track

CONTRACTOR : RMS

DRILLER : R. MORTON

DATE STARTED : 8/3/12

DATE COMPLETED : 9/3/12

DATE LOGGED : 9/3/12

LOGGED BY : BA

CHECKED BY : DH

DRILLING				MATERIAL						
PROGRESS	DRILLING & CASING	WATER	DRILLING PENETRATION	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY	RELATIVE DENSITY	STRUCTURE & Other Observations
	ADT HW Casing		VE	0.0	CL	SILTY CLAY /CLAYEY SILT: dark brown, low plasticity	W - M	VS		ALLUVIUM
				0.10m	CL	SILTY CLAY: yellow brown to brown, low to medium plasticity, root fibres throughout.	M - W	S		
				0.50m	CL			S - F		0.50: SPT Recovery: 0.45 m 0.60: HP Samp = 40 - 60 kPa 0.70: HP Samp = 110 - 120 kPa
				0.69m	CI	SILTY CLAY: mottled yellow brown and grey brown, medium plasticity		F		
				0.95m	CI					
				1.20m	CI	CLAY: mottled orange brown and pale grey, medium to high plasticity, with silt, with few pockets and thin bands of clay, with sand.				
				1.50m	CI-CH			VSt		1.50: SPT Recovery: 0.44 m 1.60: HP Samp = 230 - 250 kPa
				1.95m	CI-CH	Clay: patchy pale grey and orange brown, high to medium plasticity				
				2.50m	CI-CH					2.50: SPT Recovery: 0.26 m 2.60: HP Samp = 320 - 360 kPa
				2.95m	CI-CH					
				3.70m	CH	CLAY: pale grey with orange brown and yellow brown patches, high plasticity, trace fine and medium gravel		M		
				4.20m	CH	As above with fine and medium grained sand, few cemented patches				4.20: SPT Recovery: 0.44 m 4.30: HP Samp = 180 - 220 kPa
				4.65m	CH			St - VSt		
				5.70m	CH	Clay: pale grey with bands of pale brown, high to medium plasticity, with fine and medium grained sand				5.70: SPT Recovery: 0.45 m 5.80: HP Samp >400 kPa
				6.15m	CH					
				6.75m	CH	CLAY: pale grey with orange brown and yellow brown patches, high plasticity, trace fine and medium gravel				
				7.20m	CH			VSt		7.20: SPT Recovery: 0.2 m
				7.40m	GP	GRAVEL: coarse to fine gravel, with medium plasticity clay, trace sand, occasional cobbles, occasional bands of clay with gravel, clay trace of gravel.		MD		
				8.00m	GP					

RMS.LIB.32.GLB.Log.RTA.NON-CORE.DRILL.HOLE.G4372.BERRY.BYPASS.GPJ <-DrawingFiles> 10/May/2012 14:41 8.30.002 Datgel.CPT.Tool.gINT.Add.in

See Explanatory Notes for details of abbreviations & basis of descriptions.

NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : B8

FILE / JOB NO : G4372

SHEET : 2 OF 2

PROJECT : BERRY BYPASS
 LOCATION : SOUTHERN ALIGNMENT

POSITION : E: 289070.010, N: 6148357.540 (56 MGA94) SURFACE ELEVATION : 3.800 (AHD) ANGLE FROM HORIZONTAL : 90°

RIG TYPE : DB515 MOUNTING : Track CONTRACTOR : RMS DRILLER : R. MORTON

DATE STARTED : 8/3/12 DATE COMPLETED : 9/3/12 DATE LOGGED : 9/3/12 LOGGED BY : BA CHECKED BY : DH

DRILLING					MATERIAL							
PROGRESS		DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY	RELATIVE DENSITY	STRUCTURE & Other Observations
DRILLING & CASING	WATER											
WBRR		F		8.70m SPT 17, 22, 18/75mm HB N=R 9.08m	8.0	(Symbol: Diagonal lines)		GRAVEL	M	MD		8.70: SPT Recovery: 0.22 m
	- 5% Polymer LOSS (HW casing at 2.60m)	F-H		9.45m SPT 20/40mm HB N=R 9.49m	9.0	(Symbol: Vertical lines)	9.20m	SILTSTONE: grey with some orange brown patches				BEDROCK
					9.49m	(Symbol: Vertical lines)	9.49m	BOREHOLEB8 TERMINATED AT 9.49 m				9.45: SPT Recovery: 0.035 m
					10.0			NOTE: Standpipe piezometer installed to 9.35m, bottom 3m slotted, road cover installed				
					11.0							
					12.0							
					13.0							
					14.0							
					15.0							
					16.0							

RMS:LIB 32, GLE: Log RTA NON-CORE DRILL HOLE G4372 BERRY BYPASS.GPJ <-DrawingFiles> 10/May/2012 14:41 8.30.002 Datgel.CPT Tool.gINT Add-In

See Explanatory Notes for details of abbreviations & basis of descriptions.

NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : B9

FILE / JOB NO : G4372

SHEET : 1 OF 3

PROJECT : BERRY BYPASS
LOCATION :

POSITION : E: 288642.250, N: 6148215.950 (56 MGA94)

SURFACE ELEVATION : 2.030 (AHD)

ANGLE FROM HORIZONTAL : 90°

RIG TYPE : DB515

MOUNTING : Track

CONTRACTOR : RMS

DRILLER : R MORTON

DATE STARTED : 19/3/12

DATE COMPLETED : 19/3/12

DATE LOGGED : 19/3/12

LOGGED BY : MH

CHECKED BY : DH

DRILLING				MATERIAL			
PROGRESS	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY	STRUCTURE & Other Observations
ADT HW Casing DB WB 0% Water LOSS	0.0	CH	CH	CLAY: dark grey mottled yellow orange and pale brown, high plasticity, trace silt	M to W	S to F	ALLUVIUM
	0.50m	SPT HW/70mm, 1, 3, 3 N*=6	0.50m	CLAY as above becoming grey in colour			0.50: SPT Recovery: 0.25 m
	0.95m						0.90: HP Samp = 180 kPa
	1.50m	SPT 2, 3, 4 N*=7	CH		M	St	1.50: SPT Recovery: 0.45 m 1.60: HP Samp = 120 - 180 kPa
	1.95m						
	2.35m	U75					
	2.35m	19/03/12 08:50	SM	SILTY SAND: pale grey brown, fine grained sand, trace clay	M to W	L	
	2.50m	SPT 2, 4, 4 N*=8	2.50m	SILTY SANDY CLAY: pale brown and pale grey brown mottled orange and red, medium plasticity, fine grained sand			2.50: SPT Recovery: 0.45 m
	2.95m		CI			St	2.90: HP Samp = 100 - 180 kPa
	3.70m			CLAY WITH SAND AND SILT: dark grey, medium to low plasticity, fine grained sand, with silt	M		
	4.20m	SPT 1, 3, 6 N*=9	SC			H	4.20: SPT Recovery: 0.45 m 4.60: HP Samp = 320 - 420 kPa
	4.65m						
	5.40m			GRAVEL: red and red brown, fine to medium gravel, sub-angular to angular, with sand, with silt	W	VD	5.65: SPT Recovery: 0.06 m
	5.65m	SPT 43/150mm N*=R 5.80m	GP				
	6.70m			CLAYEY GRAVEL WITH SILT: brown, red brown and pale grey, fine to medium gravel, sub-rounded to sub-angular, with silt	M	MD	7.15: SPT Recovery: 0.25 m
	7.15m	SPT 8, 16, 13 N*=29	GC				
	7.60m						
	7.80m		SW		M		

See Explanatory Notes for details of abbreviations & basis of descriptions.

ROADS AND MARITIME SERVICES, NSW



RMS.LIB.32.GLB.Log RTA NON-CORE DRILL HOLE G4372 BERRY BYPASS.GPJ <<DrawingFiles>> 10/May/2012 14:42:8.30.002 Datgel.CPT Tool.gINT Add-In

NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : B9
 FILE / JOB NO : G4372
 SHEET : 2 OF 3

PROJECT : BERRY BYPASS
 LOCATION :

POSITION : E: 288642.250, N: 6148215.950 (56 MGA94) SURFACE ELEVATION : 2.030 (AHD) ANGLE FROM HORIZONTAL : 90°
 RIG TYPE : DB515 MOUNTING : Track CONTRACTOR : RMS DRILLER : R MORTON
 DATE STARTED : 19/3/12 DATE COMPLETED : 19/3/12 DATE LOGGED : 19/3/12 LOGGED BY : MH CHECKED BY : DH

DRILLING					MATERIAL							
PROGRESS		DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY	RELATIVE DENSITY	STRUCTURE & Other Observations
DRILLING & CASING	WATER											
WB	0% Water LOSS	F-H		8.65m SPT 9, 12, 11 N*=23	8.0	SW	GRAVELLY SILTY SAND: brown, red brown and dark grey, fine to coarse grained sand, fine to medium sub-angular to sub-rounded gravel, trace low plasticity clay, occasional medium to coarse gravel layers to 20mm with trace clay (continued)	MD			8.65: SPT Recovery: 0.3 m	
				9.10m	9.0							
				10.15m SPT 17, 22, 15 N*=37	10.0		CLAYEY SANDY GRAVEL: brown and yellow brown mottled pale grey, fine to medium gravel, sub-rounded to sub-angular, fine to coarse grained sand, medium plasticity clay, trace silt	M				10.15: SPT Recovery: 0.25 m
				10.60m	11.0		Possible CLAYEY SANDY GRAVEL as previous					
		H		11.65m SPT 30/90mm N=R 11.74m	12.0	GP			M or W			11.65: SPT Recovery: 0 m
				13.15m SPT 30/60mm N=R 13.21m	13.0				VD			
					13.40m		SANDY SILTSTONE: grey		W			13.15: SPT Recovery: 0.06 m
					13.60m		GRAVEL as previous					
					14.0		Continued as Cored Drill Hole					
					15.0							
					16.0							

RMS.LIB.32.GLB.Log.RTA.NON-CORE.DRILL.HOLE.G4372.BERRY.BYPASS.GPJ <-DrawingFiles> 10/May/2012 14:42:8.30.002 Datgel.CPT Tool.gINT Add-in

See Explanatory Notes for details of abbreviations & basis of descriptions.

CORED DRILL HOLE LOG

HOLE NO : B9

FILE / JOB NO : G4372

SHEET : 3 OF 3

PROJECT : BERRY BYPASS
LOCATION :

POSITION : E: 288642.250, N: 6148215.950 (56 MGA94) SURFACE ELEVATION : 2.030 (AHD) ANGLE FROM HORIZONTAL : 90°

RIG TYPE : DB515 MOUNTING : Track CONTRACTOR : RMS DRILLER : R MORTON

DATE STARTED : 19/3/12 DATE COMPLETED : 19/3/12 DATE LOGGED : 19/3/12 LOGGED BY : MH CHECKED BY : DH

CASING DIAMETER : HW BARREL (Length) : 1.50 m BIT : STEP FACE BIT CONDITION : GOOD

DRILLING				MATERIAL				FRACTURES						
PROGRESS		CORE LOSS (CORE LOSS DRILL RUN %)	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	DESCRIPTION ROCK TYPE : Colour, Grain size, Structure (texture, fabric, mineral composition, hardness alteration, cementation, etc as applicable)	Weathering	ESTIMATED STRENGTH Is(50)				NATURAL FRACTURE (mm)	VISUAL	ADDITIONAL DATA (joints, partings, seams, zones, etc) Description, orientation, infilling or coating, shape, roughness, thickness, other
DRILLING & CASING	WATER							EL _{-0.03}	VL _{-0.1}	L _{-0.3}	M ₋₁			
				8.0										
				9.0										
				10.0										
				11.0										
				12.0										
				13.0										
				13.60		13.60m START CORING AT 13.60m								
		0% LOSS	Is(50) d=1.28 a=1.99 MPa	14.0		SANDY SILTSTONE / SILTY SANDSTONE: dark grey	SW					BP? 20° Fe IR RF		
		0% Water LOSS		14.71		14.71m						DBs		
			Is(50) d=0.93 a=1.74 MPa	15.0		BOREHOLEB9 TERMINATED AT 14.71 m								
				16.0										

RMS:LIB 32.GLB Log RTA CORED DRILL HOLE G4372 BERRY BYPASS.GPJ <DrawingFiles> 10/May/2012 14:42 8.30.002 Datgel CPT Tool.GINT Add-In

See Explanatory Notes for details of abbreviations & basis of descriptions.



Geotechnical Investigation
Bore Hole: B9

Photo 1 of 1

G4372
HW 1 - Princes Highway
Berry Bypass



Transport
Roads & Maritime
Services