

Appendix D2

Geotechnical investigations:

RMS Factual Geotechnical Investigation Report

APPENDIX A
BOREHOLE LOGS AND CORE PHOTOS

NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : B22

FILE / JOB NO : G4372

SHEET : 1 OF 3

PROJECT : BERRY BYPASS
LOCATION :

POSITION : E: 286783.310, N: 6147011.350 (56 MGA94)

SURFACE ELEVATION : 19.410 (AHD)

ANGLE FROM HORIZONTAL : 90°

RIG TYPE : DB515

MOUNTING : Track

CONTRACTOR : RMS

DRILLER : R MORTON

DATE STARTED : 1/4/12

DATE COMPLETED : 2/4/12

DATE LOGGED : 2/4/12

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												
ADT	HW	E			0.0	[Hatched Pattern]	CH	CLAY WITH SILT: dark grey to black, medium to high plasticity, trace fine grained sand, trace medium gravel				ALLUVIUM	
			0.50m	SPT 3, 3, 5 N ^o =8		0.70m		CH	CLAY: red and pale grey mottled, high plasticity			F to St	0.50: SPT Recovery: 0.23 m 0.60: HP Samp = 200 kPa
			0.95m			1.20m		CH	CLAY: pale brown and pale grey brown, high plasticity			St	1.50: SPT Recovery: 0.45 m 1.60: HP Samp = 100 - 130 kPa
			1.50m	SPT 2, 3, 5 N ^o =8		1.95m		CH				M	
			2.50m	SPT 4, 6, 9 N ^o =15		2.60m		CH	CLAY: pale brown and pale grey brown mottled red, high plasticity			VSt	2.50: SPT Recovery: 0.45 m 2.60: HP Samp = 300 - 350 kPa
			2.95m			4.00m		CH					BEDROCK
			4.15m	SPT 19, 30/110mm N ^o =R		4.41m			SILTSTONE: brown and pale brown, soil properties; extremely weathered, extremely low strength				
			4.41m						Continued as Cored Drill Hole				
						5.0							
						6.0							
					7.0								
					8.0								

RMS:LIB 32.GLB Log RTA NON-CORE DRILL HOLE G4372 BERRY BYPASS.GPJ <<DrawingFiles>> 10/May/2012 14:50:8.30.002 Datgel.CPT Tool.gINT Add-In

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

CORED DRILL HOLE LOG

HOLE NO : B22

FILE / JOB NO : G4372

SHEET : 2 OF 3

PROJECT : BERRY BYPASS
LOCATION :

POSITION : E: 286783.310, N: 6147011.350 (56 MGA94) SURFACE ELEVATION : 19.410 (AHD) ANGLE FROM HORIZONTAL : 90°

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

DATE STARTED : 1/4/12 DATE COMPLETED : 2/4/12 DATE LOGGED : 2/4/12 LOGGED BY : MH CHECKED BY : DH

CASING DIAMETER : HW/NW BARREL (Length) : 1.50 m BIT : DRAG BIT/SURFACE SET BIT CONDITION : GOOD

DRILLING			MATERIAL				FRACTURES					
DRILLING & CASING	WATER	CORE LOSS (CORE LOSS 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 Is(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								
				4.41m		START CORING AT 4.41m						
		0% LOSS		5.0		SILTY SANDSTONE / SANDY SILTSTONE: brown and grey brown, fine grained, numerous iron stained joints and laminations	EW MW to HW					FZDB JT 35° Clay IR RF BP 0° Clay IR RF JT 60 - 50° Fe IR RF BP 0° Fe IR RF BP 0° Fe IR RF BP 0° Fe IR RF BP 5° Clay IR RF JT 0° Fe IR RF BP 10° Fe IR RF BP 0° Fe IR RF BPHB 0° Fe IR RF BPHB 0° Fe IR RF BPHB 5° Fe IR RF FZ DL
		7% LOSS		5.74m			EW					
		0% Water LOSS		5.85m		CORE LOSS 0.11m (5.74-5.85)						
				6.0		SILTY SANDSTONE / SANDY SILTSTONE: brown and grey brown, fine grained, iron stained throughout	EW MW to HW					SM 0° Clay 70 mm JT 50° Fe IR RF BP 0° Fe IR RF JT 10° Fe IR RF
				6.49m			EW					BPHB 0° Fe IR RF SM 0° Clay 20 mm SM 0° Clay 50 mm
		0% LOSS		7.0		SILTY SANDSTONE / SANDY SILTSTONE: grey and dark grey, fine grained, layered, thickly bedded, well cemented, poorly sorted, very thin laminae and veneers throughout	EW SW to F					HB HB DL DL
				8.0								

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

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Geotechnical Investigation
Bore Hole: B22

Photo 1 of 2

G4372
HW 1 - Princes Highway
Berry Bypass



Transport
Roads & Maritime
Services



Geotechnical Investigation
Bore Hole: B22

Photo 2 of 2

G4372
HW 1 - Princes Highway
Berry Bypass



Transport
Roads & Maritime
Services

NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : B22A

FILE / JOB NO : G4372

SHEET : 1 OF 3

PROJECT : BERRY BYPASS
LOCATION : SOUTHERN ALIGNMENT

POSITION : E: 286876.180, N: 6147237.250 (56 MGA94)

SURFACE ELEVATION : 20.440 (AHD)

ANGLE FROM HORIZONTAL : 90°

RIG TYPE : COMACCHIO 205 MOUNTING : Track

CONTRACTOR : TERRATEST

DRILLER : A ZUMMO

DATE STARTED : 11/4/12

DATE COMPLETED : 12/4/12

DATE LOGGED : 12/4/12

LOGGED BY : RH

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											
ADIT HW Casing	N/A	E			0.0	CL-CI	SILTY CLAY: pale brown and grey brown, low to medium plasticity, trace fine to coarse grained sand				TOPSOIL	
						0.25m	CI-CH	SILTY CLAY AND CLAY: pale brown becoming brown, high becoming medium plasticity, trace fine to coarse grained sand, trace gravel				ALLUVIUM
				1.00m SPT 5, 8, 9 N*=17	1.0	CI	SANDY SILTY CLAY AND SILTY CLAY: pale grey, red brown and dark red brown, medium plasticity, fine grained sand, trace medium grained sand	M			1.00: SPT Recovery: 0.45 m	
				1.45m	1.60m		SANDY SILTY CLAY AND SANDY CLAY: dark brown with dark red brown and grey, low and medium plasticity, fine and medium grained sand, trace coarse grained sand, trace gravel, and charcoal fragments			Vst	1.20: Acid sulphate test sample 1.30: HP Samp = 325 - 400 kPa	
				2.50m SPT 5, 6, 7 N*=13	2.0	CL-CI					2.50: SPT Recovery: 0.45 m	
				2.95m	3.0				M with W		2.70: Acid sulphate test sample 2.80: HP Samp = 300 kPa	
					3.60m		SANDY CLAY: brown and pale brown, medium with high plasticity, fine to coarse grained sand, trace fine to coarse gravel					
				4.00m SPT 25 30/150mm N*=R 4.30m	3.90m	CI-CH					4.00: SPT Recovery: 0.15 m 4.10: Acid sulphate test sample	
					4.0	GC	CLAYEY SANDY GRAVEL AND COBBLES: pale grey, pale green grey, pale brown, brown and red brown, fine to coarse gravel, rounded to angular, low to very high strength basalt, fine to coarse grained sand, low to high plasticity matrix of tuffaceous sandy clay and clay, very high strength basalt cobbles	M		VD		
					5.0							
				5.55m SPT N-R	5.45m		BASALT BOULDER: grey; slightly weathered, very high to extremely high strength					
					5.65m							
					6.0		Continued as Cored Drill Hole					
					7.0							
					8.0							

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

CORED DRILL HOLE LOG

HOLE NO : B22A

FILE / JOB NO : G4372

SHEET : 2 OF 3



PROJECT : BERRY BYPASS
LOCATION : SOUTHERN ALIGNMENT

POSITION : E: 286876.180, N: 6147237.250 (56 MGA94) SURFACE ELEVATION : 20.440 (AHD) ANGLE FROM HORIZONTAL : 90°

RIG TYPE : COMACCHIO 205 MOUNTING : Track CONTRACTOR : TERRATEST DRILLER : A ZUMMO

DATE STARTED : 11/4/12 DATE COMPLETED : 12/4/12 DATE LOGGED : 12/4/12 LOGGED BY : RH CHECKED BY : DH

CASING DIAMETER : HW BARREL (Length) : 3.00 m BIT : IMPREG. 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 Is(50) ● Axial ○ Diametral	NATURAL FRACTURE (mm)	VISUAL	ADDITIONAL DATA (joints, partings, seams, zones, etc) Description, orientation, infilling or coating, shape, roughness, thickness, other		
												EL _{-0.03}	VL _{-0.1}
				0.0									
				1.0									
				2.0									
				3.0									
				4.0									
				5.0									
				5.65		START CORING AT 5.65m							
				6.0		BASALT GRAVEL AND COBBLES: grey, pale to dark red brown and off white, low to high plasticity tuffaceous clay matrix. Fine to coarse grained tuffaceous sand. Possible boulders	SW and EW						SW to EW basalt gravel and cobbles in a tuffaceous clay matrix
			6.10	MW to EW									
			6.80	SW to EW									
			7.60										
				8.0									

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

CORED DRILL HOLE LOG

HOLE NO : B22A

FILE / JOB NO : G4372

SHEET : 3 OF 3

PROJECT : BERRY BYPASS
LOCATION : SOUTHERN ALIGNMENT

POSITION : E: 286876.180, N: 6147237.250 (56 MGA94) SURFACE ELEVATION : 20.440 (AHD) ANGLE FROM HORIZONTAL : 90°

RIG TYPE : COMACCHIO 205 MOUNTING : Track CONTRACTOR : TERRATEST DRILLER : A ZUMMO

DATE STARTED : 11/4/12 DATE COMPLETED : 12/4/12 DATE LOGGED : 12/4/12 LOGGED BY : RH 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 (s(50))	NATURAL FRACTURE (mm)	ADDITIONAL DATA
DRILLING & CASING			(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	8.0		BASALT GRAVEL AND COBBLES: grey, pale to dark red brown and off white, low to high plasticity tuffaceous clay matrix. Fine to coarse grained tuffaceous sand. Possible boulders (continued)	SW to EW			SW to EW basalt gravel and cobbles in a tuffaceous clay matrix
8.40							
19% LOSS	8.66m						
	9.0		CLAYEY SAND AND SANDY CLAY: sand is red grey brown, fine to coarse grained sand, trace fine to coarse sandstone and basalt gravel, and charcoal fragments; clay is low with medium plasticity				ALLUVIUM
	9.28m						
	9.50		CORE LOSS 0.22m (9.28-9.50)				loss in possible clayey sandy gravel
9.50							
9% LOSS	9.50m						
0% Polymer LOSS (Casing at 4.0m)	9.50		CLAYEY SANDY GRAVEL: grey brown and red brown, fine to coarse gravel, rounded to angular, basalt, fine to coarse grained sand, low and medium plasticity clay, trace SW basalt cobbles				
	9.94m						
	10.0		CLAYEY SAND: red grey brown and brown, fine to coarse grained sand, low plasticity clay, trace angular to sub-rounded to 20mm basalt gravel				ALLUVIUM
	10.40m						
	11.0		CLAYEY SANDY GRAVEL COBBLES, AND BOULDERS: grey and red grey brown, fine to coarse gravel, rounded to angular, basalt, fine to coarse grained sand, low plasticity clay, very high strength basalt cobbles, and boulders				ALLUVIUM
	11.31m						
	11.50		CORE LOSS 0.19m (11.31-11.50)				loss in probable clayey sandy gravel
0% LOSS	11.50						
	11.95		CLAYEY SANDY GRAVEL COBBLES, AND BOULDERS: as above grey and red grey with green grey, trace of medium plasticity pockets				ALLUVIUM
0% LOSS	11.95						
0% LOSS	12.20						
6% LOSS	12.20						
	12.26m						
	12.32m		CORE LOSS 0.06m (12.26-12.32)				loss in probable clayey sandy gravel
	12.46m		CLAYEY SANDY GRAVEL COBBLES, AND BOULDERS: as above				ALLUVIUM
	13.0		SILTY SANDSTONE AND SANDY SILTSTONE: grey and dark grey, fine grained, layered, current and disturbed bedding at 0° - 15°	F			HB
	13.25						DL
0% LOSS	13.25						DB
	14.0		predominantly sandy siltstone with silty sandstone				HB
	15.0		SANDY SILTSTONE: dark grey, layered, current and disturbed bedding at 0° - 15°, fine grained sand with trace medium and coarse grained sand				DB
	15.00m						DB
	16.00		16.00m BOREHOLEB22A TERMINATED AT 16.00 m				

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

ROADS AND MARITIME SERVICES, NSW



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Geotechnical Investigation
Bore Hole: B22A

Photo 1 of 3

G4372
HW 1 - Princes Highway
Berry Bypass



Transport
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Geotechnical Investigation
Bore Hole: B22A

Photo 2 of 3

G4372
HW 1 - Princes Highway
Berry Bypass



Transport
Roads & Maritime
Services



Geotechnical Investigation
Bore Hole: B22A

Photo 3 of 3

G4372
HW 1 - Princes Highway
Berry Bypass



Transport
Roads & Maritime
Services

NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : B23

FILE / JOB NO : G4372

SHEET : 1 OF 3

PROJECT : BERRY BYPASS
LOCATION :

POSITION : E: 289746.600, N: 6148316.170 (56 MGA94)

SURFACE ELEVATION : 2.660 (AHD)

ANGLE FROM HORIZONTAL : 90°

RIG TYPE : DB515

MOUNTING : Track

CONTRACTOR : RMS

DRILLER : R MORTON

DATE STARTED : 21/3/12

DATE COMPLETED : 21/3/12

DATE LOGGED : 21/3/12

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	STRUCTURE & Other Observations
DRILLING & CASING	WATER						
AD/J HW Casing	E-F	0.0	[Diagonal Hatching]		CLAY WITH SILT: brown and yellow brown mottled red and orange, medium to high plasticity, trace root fibres		ALLUVIUM
		0.50m					St to Vst 0.50: SPT Recovery: 0.4 m 0.60: HP Samp = 180 - 220 kPa
		0.95m					
		1.0			1.20m		
		1.50m			CLAY: grey and pale grey mottled red and brown, high plasticity		1.50: SPT Recovery: 0.45 m
		1.95m				M	1.90: HP Samp = 230 - 310 kPa
		2.50m					2.50: SPT Recovery: 0.45 m
		2.95m			CLAY as previous becoming more red brown	Vst	2.90: HP Samp = 320 - 390 kPa
		3.0					3.30: Install HW casing. Water table not available as wash boring commenced before water table.
		4.0					
		4.20m			4.10m		4.20: SPT Recovery: 0.07 m
		4.35m			SANDY GRAVEL: dark brown and brown, fine to medium gravel, sub-angular to angular, fine to coarse grained sand, trace silt, trace clay		
		5.0				W	
		5.00m			BOULDERS (POSSIBLE): 300mm		
		5.30m					
		5.70m			GRAVEL WITH SAND AND CLAY: gravel is red and red brown, fine to medium gravel, rounded to angular, with fine to coarse grained sand; clay is pale grey, high plasticity		5.70: SPT Recovery: 0.35 m
		6.15m				VD	
		7.0				M	
		7.20m					7.20: SPT Recovery: 0.18 m
		7.47m					
		8.0			7.90m		BEDROCK

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

NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : B23

FILE / JOB NO : G4372

SHEET : 2 OF 3

PROJECT : BERRY BYPASS
LOCATION :

POSITION : E: 289746.600, N: 6148316.170 (56 MGA94)

SURFACE ELEVATION : 2.660 (AHD)

ANGLE FROM HORIZONTAL : 90°

RIG TYPE : DB515

MOUNTING : Track

CONTRACTOR : RMS

DRILLER : R MORTON

DATE STARTED : 21/3/12

DATE COMPLETED : 21/3/12

DATE LOGGED : 21/3/12

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 Casing	NW Casing	H			8.0		8.74m	SANDY SILTSTONE / SILTY SANDSTONE: dark grey, fine grained; extremely weathered to highly weathered, low strength (<i>continued</i>)				BEDROCK
	0% Water LOSS			8.70m				Continued as Cored Drill Hole				
				SPT 30/40mm N=R 8.74m	9.0							
					10.0							
					11.0							
					12.0							
					13.0							
					14.0							
					15.0							
					16.0							

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

CORED DRILL HOLE LOG

HOLE NO : B23

FILE / JOB NO : G4372

SHEET : 3 OF 3

PROJECT : BERRY BYPASS
LOCATION :

POSITION : E: 289746.600, N: 6148316.170 (56 MGA94) SURFACE ELEVATION : 2.660 (AHD) ANGLE FROM HORIZONTAL : 90°

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

DATE STARTED : 21/3/12 DATE COMPLETED : 21/3/12 DATE LOGGED : 21/3/12 LOGGED BY : MH CHECKED BY : DH

CASING DIAMETER : HW/NW 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)	ADDITIONAL DATA				
DRILLING & CASING	DEPTH	LOG	ROCK TYPE : Colour, Grain size, Structure (texture, fabric, mineral composition, hardness alteration, cementation, etc as applicable)	Weathering	Is(50) ● Axial ○ Diametral	20 40 100 300 1000	(joints, partings, seams, zones, etc) Description, orientation, infilling or coating, shape, roughness, thickness, other				
WATER	DEPTH	LOG	ROCK TYPE : Colour, Grain size, Structure (texture, fabric, mineral composition, hardness alteration, cementation, etc as applicable)	Weathering	Is(50) ● Axial ○ Diametral	20 40 100 300 1000	(joints, partings, seams, zones, etc) Description, orientation, infilling or coating, shape, roughness, thickness, other				
CORE LOSS (%)	DEPTH	LOG	ROCK TYPE : Colour, Grain size, Structure (texture, fabric, mineral composition, hardness alteration, cementation, etc as applicable)	Weathering	Is(50) ● Axial ○ Diametral	20 40 100 300 1000	(joints, partings, seams, zones, etc) Description, orientation, infilling or coating, shape, roughness, thickness, other				
SAMPLES & FIELD TESTS	DEPTH	LOG	ROCK TYPE : Colour, Grain size, Structure (texture, fabric, mineral composition, hardness alteration, cementation, etc as applicable)	Weathering	Is(50) ● Axial ○ Diametral	20 40 100 300 1000	(joints, partings, seams, zones, etc) Description, orientation, infilling or coating, shape, roughness, thickness, other				
	8.0										
	8.74m		START CORING AT 8.74m								
	8.78m		CORE LOSS 0.04m (8.74-8.78)								
	9.0		SANDY SILTSTONE / SILTY SANDSTONE: dark grey to black, fine grained, very thin laminations 0°-10°. Moderately to well cemented. Poorly sorted. Numerous closed fractures / bedding planes 0°-10°.	MW to SW	●		DB BPDB 0° CN ST RF BP sDB CN IR RF				
	10.0			MW to SW	●		BP s 0° CN IR RF				
	11.0			SW to F	●		BPDB 0° CN IR RF DB BP 0° CN UN RF BP sDB 0° CN IR RF BP 20° CN IR RF BP sDB 0 - 5° CN IR RF BP 0 - 10° BP s 0 - 10° DBs				
	12.0			MW to SW	●		DBs JT 40° Pyrite IR RF JT 80° Pyrite IR RF DB JT 70° CN DIS RF				
	13.0			MW to SW	●		DB DB DL DB FZs DBs BP 0° CN IR RF BP 0° CN IR RF BP CN IR RF JT 30° CN IR RF JT 20° CN IR RF DB				
	14.0						DB HB DBs DBs				
	14.78						BP? 5° CN IR RF BPDB 0° MU IR RF BP?DB 5° MU IR RF BPDB 0° MU IR RF DB				
	15.0		BOREHOLEB23 TERMINATED AT 14.78 m								
	16.0										

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



Geotechnical Investigation
Bore Hole: B23

Photo 1 of 2

G4372
HW 1 - Princes Highway
Berry Bypass



Transport
Roads & Maritime
Services



Geotechnical Investigation
Bore Hole: B23

Photo 2 of 2

G4372
HW 1 - Princes Highway
Berry Bypass



Transport
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NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : N1
 FILE / JOB NO : G4372
 SHEET : 1 OF 3

PROJECT : BERRY BYPASS
 LOCATION :

POSITION : E: 289872.720, N: 6149947.880 (56 MGA94) SURFACE ELEVATION : 8.580 (AHD) ANGLE FROM HORIZONTAL : 90°
 RIG TYPE : Edson 3000 MOUNTING : Truck CONTRACTOR : TERRATEST DRILLER : R. WELSH
 DATE STARTED : 13/3/12 DATE COMPLETED : 14/3/12 DATE LOGGED : 14/3/12 LOGGED BY : TW 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
	0.0		ML	CLAYEY SILT: dark brown, low to medium plasticity			TOPSOIL
	0.30m						
	0.50m		CI-CH	SILTY CLAY: dark brown and dark grey, medium to high plasticity			ALLUVIUM
	0.85m						0.50: SPT Recovery: 0.3 m 0.60: HP Samp = 225 kPa
	0.95m						0.97: HP Samp = 170 kPa
	1.0						
	1.50m		CI-CH	SILTY CLAY: yellow brown, medium to high plasticity			St - Vst
	1.95m						1.50: SPT Recovery: 0.3 m 1.60: HP Samp = 240 kPa
	2.0						
	1.90m		CL	SANDY CLAY: yellow brown, low plasticity, fine grained sand			F
	2.20m						1.92: HP Samp = 80 kPa
	3.0						
	3.00m		GW	SANDY GRAVEL: brown, dark grey and red brown, fine to coarse gravel, medium to coarse grained sand, with occasional cobbles	M		D
	3.45m						3.00: SPT Recovery: 0.2 m
	3.50m						
	3.80m		GP	BOULDER			VD
	4.0						
	4.35m						
	4.50m		GW	COBBLES AND GRAVEL			
	4.95m						
	5.0						
	5.90m		GW	SANDY GRAVEL: brown, dark grey and red brown, fine to coarse gravel, medium to coarse grained sand			MD
	6.00m						4.50: SPT Recovery: 0.28 m
	6.0		SD	SILTY SANDSTONE: grey and dark grey; fresh			BEDROCK
	6.00m						
	7.0						
	8.0						
							Continued as Cored Drill Hole

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

CORED DRILL HOLE LOG

HOLE NO : N1

FILE / JOB NO : G4372

SHEET : 3 OF 3

PROJECT : BERRY BYPASS
LOCATION :

POSITION : E: 289872.720, N: 6149947.880 (56 MGA94) SURFACE ELEVATION : 8.580 (AHD) ANGLE FROM HORIZONTAL : 90°

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

DATE STARTED : 13/3/12 DATE COMPLETED : 14/3/12 DATE LOGGED : 14/3/12 LOGGED BY : TW CHECKED BY : DH

CASING DIAMETER : HW/PW 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 (m)	GRAPHIC LOG	ROCK TYPE : Colour, Grain size, Structure (texture, fabric, mineral composition, hardness alteration, cementation, etc as applicable)	Weathering	ESTIMATED STRENGTH Is(50) ● Axial ○ Diametral	NATURAL FRACTURE (mm)	(joints, partings, seams, zones, etc) Description, orientation, infilling or coating, shape, roughness, thickness, other	
<p>DRILLING & CASING</p> <p>WATER</p> <p>CORE LOSS (CORE LOSS RUN %)</p> <p>SAMPLES & FIELD TESTS</p> <p>DEPTH (m)</p> <p>GRAPHIC LOG</p>	<p>8.0</p> <p>8.95</p> <p>9.0</p> <p>10.00</p>		<p>SILTSTONE: dark grey with some grey, fine grained sandstone layers, bedded at 0-10°, occasional thin off-white secondary mineralised veins. (continued)</p>	<p>T</p>			<p>DB</p> <p>DB</p> <p>JT 70° MS IR RF</p> <p>DL</p> <p>DL</p> <p>DB</p> <p>BP 10° MS IR RF</p> <p>DB</p> <p>DB</p> <p>DB</p> <p>JT 75° MS PR RF</p> <p>DB</p> <p>DBs</p> <p>JT 75° MS IR RF</p> <p>DB</p> <p>DB</p>	
<p>BOREHOLEN1 TERMINATED AT 10.00 m</p>								
<p>11.0</p> <p>12.0</p> <p>13.0</p> <p>14.0</p> <p>15.0</p> <p>16.0</p>								

RMS:LIB 32, GLE Log RTA CORED DRILL HOLE G4372 BERRY BYPASS.GPJ <DrawingFiles> 10/May/2012 14:53 8.30.002 Datalog CPT Tool.GINT Add-In

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



Geotechnical Investigation
Bore Hole: N1

Photo 1 of 1

G4372
HW 1 - Princes Highway
Berry Bypass



Transport
Roads & Maritime
Services

NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : N2

FILE / JOB NO : G4372

SHEET : 1 OF 3

PROJECT : BERRY BYPASS
LOCATION :

POSITION : E: 289683.220, N: 6149925.120 (56 MGA94)

SURFACE ELEVATION : 9.410 (AHD)

ANGLE FROM HORIZONTAL : 90°

RIG TYPE : Edson 3000

MOUNTING : Truck

CONTRACTOR : TERRATEST

DRILLER : R. WELSH

DATE STARTED : 11/3/12

DATE COMPLETED : 13/3/12

DATE LOGGED : 13/3/12

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
	AD/T		VE	13/03/12		0.0	ML	0.30m	CLAYEY SILT: dark brown, low to medium plasticity				TOPSOIL
					0.50m SPT 3, 3, 5 N [*] =8	0.65m	CI-CH	0.65m	SILTY CLAY: dark brown and dark grey, medium to high plasticity		St - VSt		ALLUVIUM 0.50: SPT Recovery: 0.3 m 0.60: HP Samp = 200 kPa
					0.95m	1.0	CI		SILTY CLAY: brown, medium plasticity, trace fine grained sand, slightly micaceous.		St		0.85: HP Samp = 170 kPa
					1.50m SPT 2, 3, 4 N [*] =7	1.80m	CI	1.80m					1.50: SPT Recovery: 0.24 m 1.60: HP Samp = 150 kPa
					1.95m	2.0	CL	2.00m	SANDY CLAY: brown, low plasticity, fine grained sand		S - F		1.90: HP Samp = 50 kPa
					3.00m SPT 22, 22, 14 N [*] =36	3.0	GW		SANDY GRAVEL: yellow brown, dark grey and red brown, fine to coarse gravel, medium to coarse grained sand, occasional cobbles		D		3.00: SPT Recovery: 0.28 m
					3.45m	4.0					M		
					4.50m SPT 16, 16, 20 N [*] =36	4.95m							4.50: SPT Recovery: 0.3 m
					4.95m	5.0							
					6.00m SPT 26, 30/150mm HB N [*] =R 6.30m	6.0	GC	5.50m	GRAVEL (CLAY BOUND): blue grey, grey and yellow brown, fine to coarse gravel, sub-angular, medium plasticity		VD		6.00: SPT Recovery: 0.26 m
					7.50m SPT 41/150mm HB N [*] =R 7.65m	7.0	GP	7.00m	GRAVEL AND COBBLES: dark grey and yellow brown				7.50: SPT Recovery: 0.05 m
						8.0							

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

NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : N2

FILE / JOB NO : G4372

SHEET : 2 OF 3

PROJECT : BERRY BYPASS
LOCATION :

POSITION : E: 289683.220, N: 6149925.120 (56 MGA94)

SURFACE ELEVATION : 9.410 (AHD)

ANGLE FROM HORIZONTAL : 90°

RIG TYPE : Edson 3000

MOUNTING : Truck

CONTRACTOR : TERRATEST

DRILLER : R. WELSH

DATE STARTED : 11/3/12

DATE COMPLETED : 13/3/12

DATE LOGGED : 13/3/12

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	100% LOSS	H			8.0	GP	8.70m	GRAVEL AND COBBLES: dark grey and yellow brown (<i>continued</i>)	M	VD		
		VH			9.0		9.00m	SILTSTONE: dark grey; fresh				BEDROCK
					10.0			Continued as Cored Drill Hole				
					11.0							
					12.0							
					13.0							
					14.0							
					15.0							
					16.0							

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



Geotechnical Investigation
Bore Hole: N2

Photo 1 of 1

G4372
HW 1 - Princes Highway
Berry Bypass



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