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Queensland Government

GEOTECHNICAL BOREHOLE LOG

FOR GEOTECHNICAL TERMS AND SYMBOLS REFER FORM F:GEOT 017/8-2014 FINAL 18/03/2016

BH259 BOREHOLE No

Sheet 1 of 4

H12268

REFERENCE No Mackay Ring Road PROJECT Pioneer River Bridge, Pier 19 (CL) COORDINATES 721371.2 E; 7660663.3 N LOCATION FG6184 PLUNGE 90° DATE STARTED 17/07/2015 GRID DATUM GDA 94 / MGA Z55 SURFACE RL 6.15m PROJECT No 242/10G/906 DRILLER Saxon Drilling HEIGHT DATUM A.H.D. DATE COMPLETED 18/07/2015 JOB No BEARING USCS WEATHERING ADDITIONAL DATA INTACT DEFECT SPACING SAMPLES TESTS Ê LITHOLOGY AND TEST RESULTS STRENGTH RΙ DEPTH SAMP MATERIAL DESCRIPTION CORE REC % Silty Sandy CLAY (Topsoil) Dark brown, dry to moist, firm. Medium plasticity, trace rootlets. SPT 5.05 Silty SAND (Alluvium) SPT Brown, moist, very loose becoming loose with depth. (SM) Fine grained sand. SPT 2, 3, 5 4.15 Silty Clayey SAND (Alluvium) В SPT Brown, moist, medium dense. Fine grained sand. 2.50m: fines content increasing. SPT N=10 3.00 to 3.60m: dark brown, moist, stiff, sandy clay. High plasticity (SC) С SPT 4, 5, 7 N=12 SPT N=10 D SPT 3, 5, 10 1.75 N=15 SAND trace silt and gravel (Alluvium) DX SPT 6, 10, 10 Pale brown, moist, medium dense. Medium grained sand, fine to medium grained gravel, rounded SPT 7, 10, 10 N=20 5.50m: becomes dense. Gravelly (SP) sand lens. SPT 7, 15, 24 SPT 6.50m: medium to coarse grained 13, 18, 19 -0.85 Gravelly SAND (Alluvium) G SPT Brown, wet, dense. N=33 Coarse grained sand, fine to (SW) medium grained gravel, subangular SPT 9, 11, 18 -1.75 Clayey SAND trace silt (Alluvium) Pale grey, moist, medium dense. SPT 8, 8, 14 Fine grained sand, medium N=22 plasticity. Clayey bands throughout. SPT 3. 4. 8 (SC) SPT N=8 9.50m: becomes loose. SPT Continued on next sheet REMARKS: Kgwu = Wundaru Granodiorite **LOGGED BY REVIEWED BY** S.Foley C.Boyes TMR GEOTECHNICAL BOREHOLE LOG - CREATED WITH HOLEBASE SI

Queensland Government

GEOTECHNICAL BOREHOLE LOG

FINAL 18/03/2016

BOREHOLE No BH259

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FOR GEOTECHNICAL TERMS AND H12268 REFERENCE No SYMBOLS REFER FORM F:GEOT 017/8-2014 Mackay Ring Road PROJECT COORDINATES 721371.2 E; 7660663.3 N Pioneer River Bridge, Pier 19 (CL) LOCATION FG6184 PLUNGE 90° DATE STARTED 17/07/2015 GRID DATUM GDA 94 / MGA Z55 SURFACE RL 6.15m PROJECT No 242/10G/906 DRILLER Saxon Drilling HEIGHT DATUM A.H.D. DATE COMPLETED 18/07/2015 JOB No BEARING USCS WEATHERING ADDITIONAL DATA INTACT DEFECT SPACING SAMPLES TESTS Ê LITHOLOGY AND TEST RESULTS STRENGTH RΙ DEPTH SAMP MATERIAL DESCRIPTION CORE REC % Clayey SAND trace silt (Alluvium) (Cont'd) N=12 SPT N=17 11.00m: becomes medium grained sand, trace fine to medium grained (SC) 8, 13, 12 gravel, subrounded grains. N=25 SPT 9, 13, 13 N=24 SPT -6.35 Sandy CLAY (Residual) SPT 9, 14, 14 Grey and orange brown, moist, very N=28 13 Fine to medium grained sand, SPT medium plasticity. -7.35 GRANODIORITE (Kgwu M> SPT 13, 17, 30/145 XW: Recovered as grey, brown and pink, moist, very dense, silty clayey sand. Fine to medium grained sand. SPT 18, 26, 30/115 xw 15 7, 30, 30/50 -10.15 (0) MICRODIORITE (Kgwu 16.61m-17.00m: SZ: Cly, MW: Dark grey, fine grained, brecciated; Js: 15°; PI/Sm; OP; Cly; massive, high strength. Brecciated Js: 60° to 70°; PI-Un/Sm; OP; Cly Ct; 17 from 16.60 to 17.00m. (0) 100 Is(50)=3.30 MPa I (17.20m) -11.20 Js: 60°-75° (~3/m); PI-Un/Sm, OP, (0) Clv Ct: Js: 0°-30° (5/m); PI/Ro, Cly and CA XW 18.00m-18.10m: CORE LOSS GRANODIORITE (Kgwu 88 (0) XW: Recovered as speckled grey, 100 dark grey and pink, moist, very (0) dense, clayey gravelly sand. Fine to XW coarse grained sand, fine gravel. 19 Pyrite throughout. 19.69m-19.80m: CORE LOSS 曲 8 7 19.92m-20.00m: CORE LOSS Continued on next sheet REMARKS: Kgwu = Wundaru Granodiorite **LOGGED BY REVIEWED BY** C.Boyes S.Foley TMR GEOTECHNICAL BOREHOLE LOG - CREATED WITH HOLEBASE SI

Queensland Government

GEOTECHNICAL BOREHOLE LOG

FOR GEOTECHNICAL TERMS AND SYMBOLS REFER FORM F:GEOT 017/8-2014

FINAL 18/03/2016

BH259 BOREHOLE No

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H12268

REFERENCE No Mackay Ring Road PROJECT COORDINATES 721371.2 E; 7660663.3 N Pioneer River Bridge, Pier 19 (CL) LOCATION FG6184 SURFACE RL 6.15m PLUNGE 90° DATE STARTED 17/07/2015 GRID DATUM GDA 94 / MGA Z55 PROJECT No 242/10G/906 DRILLER Saxon Drilling HEIGHT DATUM A.H.D. DATE COMPLETED 18/07/2015 JOB No BEARING USCS WEATHERING ADDITIONAL DATA INTACT DEFECT SPACING SAMPLES TESTS Ê LITHOLOGY AND TEST RESULTS STRENGTH RΙ DEPTH MATERIAL DESCRIPTION (m) CORE REC % ᇁᆂᆂᆂᅬᅿᅿᆿᅵᇚᆼᄓॾᇂᇂᇕ (0) GRANODIORITE (Kgwu XW 20.18m-20.50m: CORE LOSS 40 (B) -14.35 XW: (Cont'd) (0) GRANODIORITE (Kgwu HW HW: Speckled dark grey, grey and pink, medium to coarse gr4ained, 21.30m-21.50m: CORE LOSS massive, extremely low to low 1 21.50m-21.54m: CORE LOSS

21.50m-21.54m: CORE LOSS strength. Broken throughout. Js: 15° to 25°; (<4/m); PI/Sm; OP or Is(50)=0.04 MPa A (21.70m) HW CD; Cn or CA VN; xw -16.25 GRANODIORITE (Kgwu Is(50)=7.40 MPa A (22.70m) SW: Speckled dark grey, grey and Is(50)=8.70 MPa D (22.80m)-23 pink, medium to coarse grained, 23.15m-23.22m: Js: 70°; Pl-Un/Ro; massive, high to very high strength. Js: 15° to 35°; (3/m); PI/Sm; OP or 23.29m-23.33m: HW BZ; 100 CD; Cn or CA VN <10mm; Js: 5° to 15°; (~2/m); Pl-Un/Sm; OP; Cn of CA Ct; Is(50)=5.60 MPa Is(50)=4.30 MPa D (24.60m) A (24.70m)-25 С 25.12m; J: 60°: PI/Ro: OP: 100 25.15 to 25.73m: Microdiorite (SW) SW 25.60m-25.66m; BZ: D (25.85m)_ Is(50)=2.30 MPa Is(50)=7.10 MPa 26 A (25.95m) Is(50)=5.00 MPa A (26.79m)-Is(50)=18.00 MPa D (26.90m) 27 A (27.47m)-Is(50)=7.10 MPa 28 100 (89) Is(50)=1.80 MPa D (28.50m) -22.45 100 MICRODIORITE (Kgwu 28.70m-28.83m: DI (83) SW SW: Grey, fine grained, massive, -23.05 very high strength. Calcite veins throughout. UCS=33.20 MPa (29.46m) GRANODIORITE (Kgwu SW Continued on next sheet REMARKS: Kgwu = Wundaru Granodiorite **LOGGED BY REVIEWED BY** C.Boyes S.Foley

TMR GEOTECHNICAL BOREHOLE LOG - CREATED WITH HOLEBASE SI

GEOTECHNICAL Queensland Government **BOREHOLE LOG**

FINAL 18/03/2016

BH259 BOREHOLE No

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FOR GEOTECHNICAL TERMS AND SYMBOLS REFER FORM F:GEOT 017/8-2014 H12268 REFERENCE No Mackay Ring Road PROJECT Pioneer River Bridge, Pier 19 (CL) COORDINATES 721371.2 E; 7660663.3 N LOCATION GRID DATUM GDA 94 / MGA Z55 FG6184 PLUNGE 90° DATE STARTED 17/07/2015 SURFACE RL 6.15m PROJECT No 242/10G/906 DRILLER Saxon Drilling HEIGHT DATUM A.H.D. DATE COMPLETED 18/07/2015 JOB No BEARING USCS WEATHERING ADDITIONAL DATA AND TEST RESULTS INTACT STRENGTH DEFECT SPACING LITHOLOGY SAMPLES TESTS Ξ SAMPLE DEPTH (RΙ MATERIAL DESCRIPTION (m) CORE REC % ᇁᆂᆂᇗᅴᅿᆿᅟᅴᇜᇰᄓᇗᇂᇂᇦ SW: Speckled dark grey, grey and Is(50)=8.10 MPa A (30.19m) pink, medium to coarse grained, Is(50)=15.00 MPa D (30.33m) massive, very high strength. Js: 20° to 45°; (5/m); PI/Sm; CD; CA VN <5mm; 30.88m: J: 5°; PI/Sm-Ro; OP; CA VN Js: 5° to 15°; (2/m); PI/Sm-Ro; OP; Is(50)=8.30 MPa D (31.00m) Is(50)=6.80 MPa Is(50)=14.00 MPa A (31.13m)some CA: SW Js: 15° to 35°; (2/m); PI/Sm-Ro; OP; D (31.20m)_ 100 (91) 31.77m: J: 65°; PI/Sm; OP; CA 32 Is(50)=8.50 MPa A (32.05m)_ Is(50)=5.40 MPa D (32.23m) -26.35 100 Borehole completed at 32.50m 33 35 37 REMARKS: Kgwu = Wundaru Granodiorite **LOGGED BY REVIEWED BY** C.Boyes S.Foley TMR GEOTECHNICAL BOREHOLE LOG - CREATED WITH HOLEBASE SI

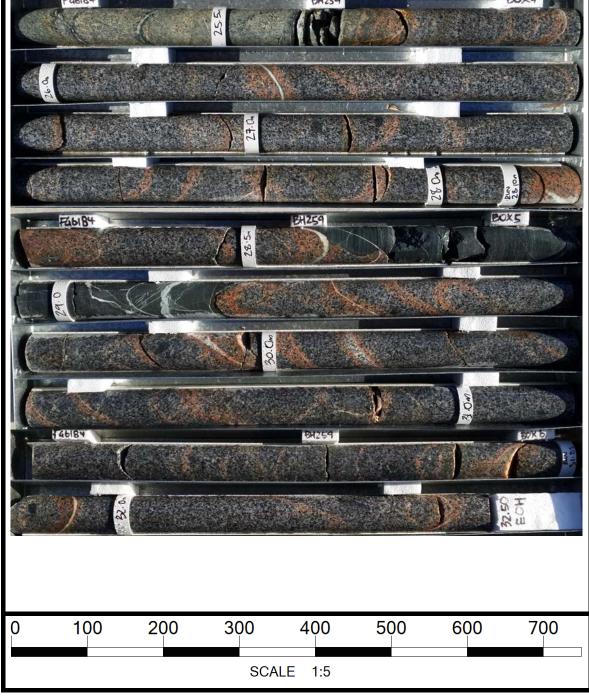


Project Name	Mackay – Ring Road (Stage 2)		
Project No.	FG6184	Date	19/07/15
Borehole No.	BH 259	TMR H No.	H12268
Location	Pioneer River Bridge	Start Depth (m)	16.30
Detail	Pier 19, centreline	Finish Depth (m)	32.50
Chainage		Submitted By	M.Ensor
Remarks			





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Location	Pioneer River Bridge	Start Depth (m)	16.30	
Detail	Pier 19, centreline	Finish Depth (m)	32.50	
Chainage		Submitted By	M.Ensor	
Remarks				
F46184 BOX4				





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Project No.	FG6184	Date	19/07/15
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Location	Pioneer River Bridge	Start Depth (m)	16.30
Detail	Pier 19, centreline	Finish Depth (m)	32.50
Chainage		Submitted By	M.Ensor
Remarks			





Project Name	Mackay – Ring Road (Stage 2)			
Project No.	FG6184	Date	19/07/15	
Borehole No.	BH259	TMR H No.	H12268	
Location	Pioneer River Bridge	Start Depth (m)	16.30	
Detail	Pier 19, centreline	Finish Depth (m)	32.50	
Chainage		Submitted By	M.Ensor	
Remarks				
F46184 BOX4				

