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Queensland Government

GEOTECHNICAL BOREHOLE LOG

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

BOREHOLE No **BH251**

Sheet 1 of 4

REFERENCE No **H12260**

PROJECT Mackay Ring Road
 LOCATION Pioneer River Bridge, Pier 16 (RHS) COORDINATES 721368.0 E; 7660558.8 N
 PROJECT No FG6184 SURFACE RL 3.09m PLUNGE 90° DATE STARTED 16/11/2015 GRID DATUM GDA 94 / MGA 255
 JOB No 242/10G/906 HEIGHT DATUM A.H.D. BEARING ° DATE COMPLETED 18/11/2015 DRILLER Saxon Drilling

| DEPTH (m) | R.L. (m) | AUGER CASING WASHBORING CORE DRILLING | RQD (%) CORE REC % | SAMPLE | MATERIAL DESCRIPTION | LITHOLOGY | USCS WEATHERING | INTACT STRENGTH | DEFECT SPACING | ADDITIONAL DATA AND TEST RESULTS | SAMPLES TESTS | | |
|--------------|----------|---------------------------------------|-----------------------|--------|---|-----------|-----------------|-----------------|----------------|----------------------------------|-------------------|-----|----|
| | | | | | | | | | | | | EH | VH |
| 0.00 - 1.00 | | | | A | SAND trace silt and gravel (Fill) Pale orange grey, moist, very loose. Fine to medium grained sand, fine to coarse grained gravel, angular grains. 1.00m: becomes pale orange and grey, clay content decreasing. | (SP) | | | | | 2, 1, 1 N=2 | SPT | |
| 1.00 - 2.00 | | | | B | | | | | | | 1, 1, 1 N=2 | SPT | |
| 2.00 - 3.00 | 0.29 | | | C | Gravelly SAND trace silt and clay (Alluvium) Dark grey, wet, loose. Fine to medium grained sand, fine to coarse grained gravel, rounded grains. | (SP) | | | | | 3, 3, 4 N=7 | SPT | |
| 3.00 - 4.00 | | | | D | | | | | | | 2, 2, 5 N=7 | SPT | |
| 4.00 - 5.00 | -2.31 | | | E | | | | | | | 2, 3, 2 N=5 | SPT | |
| 5.00 - 6.00 | -2.91 | | | F | CLAY trace sand (Alluvium) Pale brown grey, moist, firm. Fine grained sand, low plasticity. | (CL) | | | | | 10, 8, 10 N=18 | SPT | |
| 6.00 - 7.00 | | | | G | Silty SAND trace clay (Alluvium) Pale grey, moist, medium dense. Fine to medium grained sand. | | | | | | 5, 5, 9 N=14 | SPT | |
| 7.00 - 8.00 | | | | H | | (SM) | | | | | 6, 8, 9 N=17 | SPT | |
| 8.00 - 9.00 | | | | I | 8.00m: becomes medium to coarse grained sand. | | | | | | 6, 6, 6 N=12 | SPT | |
| 9.00 - 10.00 | -6.41 | | | | Clayey SAND (Residual) Yellow brown, moist, medium dense | (SC) | | | | | | | |
| | -6.91 | | | | | | | | | | | | |

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REMARKS: Kgwu = Wundaru Granodiorite

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| LOGGED BY | REVIEWED BY |
| C.Boyes | S.Foley |



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

BOREHOLE No **BH251**

Sheet 2 of 4

REFERENCE No **H12260**

PROJECT Mackay Ring Road
 LOCATION Pioneer River Bridge, Pier 16 (RHS) COORDINATES 721368.0 E; 7660558.8 N
 PROJECT No FG6184 SURFACE RL 3.09m PLUNGE 90° DATE STARTED 16/11/2015 GRID DATUM GDA 94 / MGA Z55
 JOB No 242/10G/906 HEIGHT DATUM A.H.D. BEARING ° DATE COMPLETED 18/11/2015 DRILLER Saxon Drilling

| DEPTH (m) | R.L. (m) | FAUGER CASING WASHBORING CORE DRILLING | RQD (%) CORE REC % | SAMPLE | MATERIAL DESCRIPTION | LITHOLOGY | USCS WEATHERING | INTACT STRENGTH | | DEFECT SPACING | | ADDITIONAL DATA AND TEST RESULTS | SAMPLES TESTS |
|-----------|----------|---|-----------------------|--------|---|-----------|-----------------|-------------------------------------|-------------------------------------|----------------|--|----------------------------------|---------------|
| | | | | | | | | EH VH H M J VI EI | EC VC C M W VW EW | | | | |
| -7.06 | | | | J | to dense. Medium to coarse grained sand. Clayey SAND (Residual) (Cont'd) | (SC) | | | | | | 13, 21, 27 N=48 | SPT |
| | | | | K | GRANODIORITE (Kgwu) XW: Recovered as Silty Clayey SAND: Pale yellow grey, dry to moist, dense. Fine to medium grained sand. | XW | | | | | | 15, 20, 23 N=43 | SPT |
| | | | | L | 12.00m: becomes pale grey, very dense. | | | | | | | 32, 30, 29 N=59 | SPT |
| -9.91 | | | | M | GRANODIORITE (Kgwu) XW: Recovered as Silty SAND: Pale grey, dry to moist, very dense. Fine to coarse grained sand, angular grains. | | | | | | | 23, 30/110mm | SPT |
| | | | | N | | | | | | | | 30/120mm | SPT |
| | | | | O | | XW | | | | | | 30/140mm | SPT |
| | | | | P | | | | | | | | 30/130mm | SPT |
| -13.91 | | | | Q | GRANODIORITE (Kgwu) HW: Pale red and grey, coarse grained, massive, extremely low to very low strength. | | | | | | | 30/20mm hb | SPT |
| | | | | R | 17.00m: becomes pale pink grey and dark grey. Fine to medium grained sand, angular grains. | | | | | | | 30/110mm | SPT |
| | | | | S | | HW | | | | | | 20/30mm hb | SPT |
| -16.91 | | | | | | | | | | | | | |

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REMARKS: Kgwu = Wundaru Granodiorite

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SYMBOLS REFER FORM F:GEOT 017/8-2014

BOREHOLE No **BH251**

Sheet 3 of 4

REFERENCE No **H12260**

| | | | |
|------------|-------------------------------------|-------------------------------------|-----------------------------|
| PROJECT | Mackay Ring Road | | |
| LOCATION | Pioneer River Bridge, Pier 16 (RHS) | COORDINATES 721368.0 E; 7660558.8 N | |
| PROJECT No | FG6184 | SURFACE RL 3.09m | PLUNGE 90° |
| | | | DATE STARTED 16/11/2015 |
| | | | GRID DATUM GDA 94 / MGA Z55 |
| JOB No | 242/10G/906 | HEIGHT DATUM A.H.D. | BEARING ° |
| | | | DATE COMPLETED 18/11/2015 |
| | | | DRILLER Saxon Drilling |

| DEPTH (m) | R.L. (m) | FAUGER CASING WASHBORING CORE DRILLING | RQD (%) CORE REC % | SAMPLE | MATERIAL DESCRIPTION | LITHOLOGY | USCS WEATHERING | INTACT STRENGTH | DEFECT SPACING | ADDITIONAL DATA AND TEST RESULTS | SAMPLES TESTS | | |
|-----------|----------|--|-----------------------|--------|--|-----------|-----------------|-----------------|----------------|----------------------------------|------------------------------------|---|----|
| | | | | | | | | | | | | EH | VH |
| 21 | | | | U | GRANODIORITE (Kgwu) HW: (Cont'd) | + | | | | | 30/50mm hb | SPT | |
| 22 | | | | V | 22.00m: becomes pale grey and dark grey. Fine to medium grained sand, angular to subangular grains. | + | | | | | 30/120mm hb | SPT | |
| 23 | | | | W | 23.00m: becomes pink grey and dark grey. | + | | | | | 30/120mm hb UCS=68.80 MPa | SPT (23.40m) | |
| 24 | | | | X | | + | | | | | 30/40mm hb | SPT | |
| 25 | | | | Y | | + | | | | | 30/20mm hb | SPT | |
| 26 | | | | Z | | + | | | | | hb | SPT | |
| 27 | | | | ZA | | + | | | | | hb | SPT | |
| 28 | -24.21 | | (64) | | GRANODIORITE (Kgwu) SW: Pale grey and dark grey, medium to coarse grained, porphyritic, extremely high strength. - Js: 5° to 15° (~4/m); Pl/Sm-Ro; TI; Cn or CA Vr; - Js: 20° to 30° (~3/m); Pl/Sm-Ro; TI; Cn or CA Vr; | + | MW | | | | 27.33m-27.43m: HFZ, HW; | A (27.60m) D (27.90m) | |
| 29 | -26.91 | | 100 (86) | | | + | SW | | | | 29.70m: VN; 50°; Pl/Sm; CA; <10mm; | Is(50)=0.56 MPa Is(50)=12.00 MPa UCS=110.00 MPa A (29.30m) D (29.40m) | |

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REMARKS: Kgwu = Wundaru Granodiorite

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| C.Boyes | S.Foley |



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SYMBOLS REFER FORM F:GEOT 017/8-2014

BOREHOLE No **BH251**

Sheet 4 of 4

REFERENCE No **H12260**

| | | | | | |
|------------|-------------------------------------|--------------|--------|-------------------------------------|------------------|
| PROJECT | Mackay Ring Road | | | | |
| LOCATION | Pioneer River Bridge, Pier 16 (RHS) | | | COORDINATES 721368.0 E; 7660558.8 N | |
| PROJECT No | FG6184 | SURFACE RL | 3.09m | PLUNGE | 90° |
| | | | | DATE STARTED | 16/11/2015 |
| | | | | GRID DATUM | GDA 94 / MGA 255 |
| JOB No | 242/10G/906 | HEIGHT DATUM | A.H.D. | BEARING | ° |
| | | | | DATE COMPLETED | 18/11/2015 |
| | | | | DRILLER | Saxon Drilling |

| DEPTH (m) | R.L. (m) | FAUGER CASING WASHBORING CONE DRILLING | RQD (%) CORE REC % | SAMPLE | MATERIAL DESCRIPTION | LITHOLOGY | USCS WEATHERING | INTACT STRENGTH | DEFECT SPACING | ADDITIONAL DATA AND TEST RESULTS | SAMPLES TESTS | | | | | | |
|-----------|----------|--|-----------------------|----------|---|-----------|-----------------|-----------------|----------------|---|--------------------------|----|---|----|---|----|---|
| | | | | | | | | | | | | EH | | EC | | EW | |
| | | | | | | | | | | | | VH | H | VC | C | VM | W |
| 31 | | | | | GRANODIORITE (Kgwu) SW: (Cont'd) - Js: 85° to 90° (~1/m); Un/Ro; TI; CA Vr <2mm; | + | | | M | Is(50)=2.90 MPa | A (30.07m) | | | | | | |
| 32 | | | | | | + | | | M | 31.31m: VN: 40°; Pl/Sm; CA, <10mm; Is(50)=6.80 MPa | A (31.50m) | | | | | | |
| | | | | | | + | | | M | 31.65m: VN: 60°; Pl/Sm; CA, <10mm; Is(50)=9.10 MPa | D (31.61m) | | | | | | |
| | | | | | | + | | | C | 32.00m: VN: 50°; Pl/Sm; CA, <15mm; Is(50)=1.30 MPa | D (32.37m) | | | | | | |
| 33 | | | 100 (65) | | From 32.94m: Defects become: - Js: 5° to 15° (~2/m); Pl/Ro; TI; Cn; - Js: 50° to 60° (<1/m); Pl/Ro-Sm; TI; CA Vr <2mm; | + | | | M | | | | | | | | |
| 34 | | | | | | + | | | C | | | | | | | | |
| | -31.48 | | | 100 (92) | MICRODIORITE (Kgwu) SW: Dark grey, fine grained, massive, very high strength. - Js: 5° to 10° (<4/m); Pl/Sm; TI; Cn; | + | SW | | M | Is(50)=6.50 MPa Is(50)=16.00 MPa | A (34.26m) D (34.36m) | | | | | | |
| 35 | | | | | | + | | | C | 34.57m: Contact: 55°; Un/Sm; CD; | | | | | | | |
| | | | | | | + | | | M | Is(50)=6.80 MPa | A (35.06m) | | | | | | |
| 36 | | | | | Granodiorite band | + | SW | | M | UCS=71.40 MPa | (36.05m) | | | | | | |
| | | | | | From 36.54m: - Js: 40°-55°(<2/m); Pl/Ro; TI; CA Vr | + | SW | | C | 36.23m: Contact: 60°; Un/Sm; CD; | | | | | | | |
| | | | | | | + | | | M | 36.54m: Contact: 60°; Un/Sm; CD; | | | | | | | |
| 37 | | | 100 | | GRANODIORITE (Kgwu) SW: Pale grey and dark grey, medium to coarse grained, porphyritic, extremely high strength. - Js: 5° to 15° (3/m); Pl/Sm-Ro; TI; CA Vr; Granodiorite band From 36.54m: - Js: 40°-55°(<2/m); Pl/Ro; TI; CA Vr Borehole completed at 37.27m | + | SW | | M | Is(50)=2.90 MPa Is(50)=4.80 MPa | D (36.85m) A (36.90m) | | | | | | |
| 38 | | | | | | + | | | | | | | | | | | |
| 39 | | | | | | + | | | | | | | | | | | |

REMARKS: Kgwu = Wundaru Granodiorite

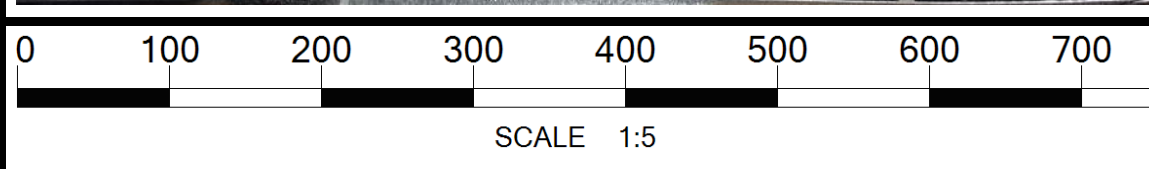
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|------------------|--------------------|
| LOGGED BY | REVIEWED BY |
| C.Boyes | S.Foley |

CORE PHOTO LOG

DEPARTMENT OF TRANSPORT AND MAIN ROADS
 Geotechnical Section
 35 Butterfield Street, Herston Qld 4006
 Phone 07 3066 3336



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|--------------|-------------------------------------|------------------|----------|
| Project Name | Mackay – Ring Road (Stage 2) | | |
| Project No. | FG6184 | Date | 18/11/15 |
| Borehole No. | BH 251 | TMR H No. | H12260 |
| Location | Pioneer River Bridge | Start Depth (m) | 27.30 |
| Detail | Pier 16, RHS | Finish Depth (m) | 37.27 |
| Chainage | | Submitted By | M.Ensor |
| Remarks | | | |



CORE PHOTO LOG

DEPARTMENT OF TRANSPORT AND MAIN ROADS
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| Project Name | Mackay – Ring Road (Stage 2) | | |
| Project No. | FG6184 | Date | 18/11/15 |
| Borehole No. | BH 251 | TMR H No. | H12260 |
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| Chainage | | Submitted By | M.Ensor |
| Remarks | | | |



SCALE 1:5