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ENGINEERING BOREHOLE LOG

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

BOREHOLE No **BH115**
SHEET **1** of **3**
REFERENCE No **12061**

PROJECT Mackay Ring Road Geotechnical Investigation - Stage 1
LOCATION Peak Downs Hwy Overpass Abutment A; CH: 5568m; COORDINATES 720966.6 E; 7657922.8 N
PROJECT No FG6184 SURFACE R.L. 12.47m PLUNGE _____ DATE STARTED 23/9/14 GRID DATUM GDA 94 /MGA Zone 55
JOB No _____ HEIGHT DATUM AHD BEARING _____ DATE COMPLETED 24/9/14 DRILLER Saxon Drilling

| DEPTH (m) | R.L. (m) | AUGER CASING WASH BORING CORE DRILLING | RQD () % | CORE REC % | SAMPLE | MATERIAL DESCRIPTION | LITHOLOGY | USC WEATHERING | INTACT STRENGTH | DEFECT SPACING (mm) | GRAPHIC LOG | ADDITIONAL DATA AND TEST RESULTS | SAMPLES TESTS |
|-----------|----------|--|-----------|------------|--------|--|-----------|----------------|-----------------|---------------------|-------------|----------------------------------|---------------|
| 0 | 12.47 | | | | | | | | | | | | |
| 0.40 | 12.07 | | | | | Clayey SILT (TOPSOIL) Dark brown, moist, soft. Low plasticity. | (ML) | | | | | | |
| 1 | | | | | A | Silty CLAY (ALLUVIUM) Brown and orange mottled grey, moist, mainly stiff to very stiff. Medium plasticity. | | | | | | 3.5,7 N=12 | SPT |
| 2 | | | | | B | | (CI) | | | | | 3,3,6 N=9 | SPT |
| 3 | | | | | C | | | | | | | 4,6,10 N=16 | SPT |
| 3.50 | 8.97 | | | | | Silty Sandy CLAY (ALLUVIUM) Brown and orange mottled grey, moist, very stiff. Medium plasticity. Some pockets of fine grained Clayey SAND. | | | | | | 5,8,15 N=23 | SPT |
| 4 | | | | | D | | | | | | | | |
| 5 | | | | | E | 5.00m: Becoming firm to stiff. | (CI) | | | | | 5,2,4 N=6 | SPT |
| 6 | | | | | F | | | | | | | 2,4,6 N=10 | SPT |
| 6.90 | 5.57 | | | | | Silty CLAY (ALLUVIUM) Dark grey, moist, stiff to very stiff. High plasticity. | | | | | | 5,7,11 N=18 | SPT |
| 7 | | | | | G | | | | | | | | |
| 8 | | | | | H | | (CH) | | | | | 3,9,7 N=16 | SPT |
| 9 | | | | | J | | | | | | | 3,5,7 N=12 | SPT |
| 10 | | | | | | | | | | | | | |

REMARKS Kgwu - Wundaru Granodiorite;

Sample failed along existing defect surface.

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MS

ENGINEERING BOREHOLE LOG

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

BOREHOLE No **BH115**
SHEET **2** of **3**
REFERENCE No **12061**

PROJECT Mackay Ring Road Geotechnical Investigation - Stage 1
LOCATION Peak Downs Hwy Overpass Abutment A; CH: 5568m; COORDINATES 720966.6 E; 7657922.8 N
PROJECT No FG6184 SURFACE R.L. 12.47m PLUNGE _____ DATE STARTED 23/9/14 GRID DATUM GDA 94 /MGA Zone 55
JOB No _____ HEIGHT DATUM AHD BEARING _____ DATE COMPLETED 24/9/14 DRILLER Saxon Drilling

| DEPTH (m) | R.L. (m) | AUGER CASING WASH BORING CORE DRILLING | RQD () % | CORE REC % | SAMPLE | MATERIAL DESCRIPTION | LITHOLOGY | USC WEATHERING | INTACT STRENGTH | DEFECT SPACING (mm) | GRAPHIC LOG | ADDITIONAL DATA AND TEST RESULTS | SAMPLES TESTS |
|-----------|----------|--|-----------|------------|--------|---|-----------|----------------|-----------------|---------------------|-------------|----------------------------------|---------------|
| 10 | 2.47 | | | | | | | | | | | | |
| 11 | | | | | K | Silty CLAY (ALLUVIUM) (Cont'd) Becoming brown and yellow mottled grey. | | | | | | 3,3,7 N=10 | SPT |
| 12 | | | | | L | | (CH) | | | | | 5,8,11 N=19 | SPT |
| 12.50 | -0.03 | | | | M | | | | | | | 4,7,9 N=16 | SPT |
| 13 | | | | | N | Sandy CLAY (RESIDUAL) Brown and orange mottled grey, moist, very stiff. Medium to high plasticity. | (CI-CH) | | | | | 4,9,12 N=21 | SPT |
| 13.80 | -1.33 | | | | P | Silty CLAY (RESIDUAL) Brown and orange mottled grey, moist, very stiff. High plasticity. | | | | | | 7,10,16 N=26 | SPT |
| 14 | | | | | Q | | | | | | | 8,11,15 N=26 | SPT |
| 15 | | | | | R | | (CH) | | | | | 7,11,16 N=27 | SPT |
| 16 | | | | | S | | | | | | | 7,9,14 N=23 | SPT |
| 17 | | | | | T | | | | | | | 7,10,14 N=24 | SPT |
| 18 | | | | | U | | | | | | | 8,10,14 N=24 | SPT |
| 19 | | | | | | | | | | | | | |
| 19.60 | -7.13 | | | | | Clayey SAND (RESIDUAL) | (SC) | | | | | | |
| 20 | | | | | | | | | | | | | |

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ENGINEERING BOREHOLE LOG

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SYMBOLS REFER FORM F:GEOT 017/8-2014

BOREHOLE No **BH115**
SHEET **3** of **3**
REFERENCE No **12061**

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JOB No _____ HEIGHT DATUM AHD BEARING _____ DATE COMPLETED 24/9/14 DRILLER Saxon Drilling

| DEPTH (m) | R.L. (m) | AUGER CASING WASH BORING CORE DRILLING | RQD () % | CORE REC % | SAMPLE | MATERIAL DESCRIPTION | LITHOLOGY | USC WEATHERING | INTACT STRENGTH | DEFECT SPACING (mm) | GRAPHIC LOG | ADDITIONAL DATA AND TEST RESULTS | SAMPLES TESTS |
|-----------|----------|--|-----------|------------|--------|--|-----------|----------------|-----------------|---------------------|-------------|--|--|
| 20 | -7.53 | | | | V | Clayey SAND (RESIDUAL) (Cont'd) Pale grey-brown, moist, dense. Fine to medium grained. | | | | | | 9,10,26 N=36 | SPT |
| 21 | | | | | W | | (SC) | | | | | 8,14,16 N=30 | SPT |
| 22 | | | | | X | | | | | | | 9,14,18 N=32 | SPT |
| 22.30 | -9.83 | | | | | Sandy CLAY (RESIDUAL) Grey-brown, moist, hard. Medium plasticity. | | | | | | | |
| 23 | | | | | Y | | (CI) | | | | | 29,20,17 N=37 | SPT |
| 23.30 | -10.83 | | | | | MICRODIORITE (Kgwu) XW: Recovered as dark brown-grey, moist to dry, very dense Clayey SAND. Fine grained. Some HW rock fragments. | | XW | | | | | |
| 24 | | | | | Z | | | | | | | 27,30/50 | SPT |
| 24.50 | -12.03 | | | | | | | | | | | | |
| 25 | | | (13) | | | MICRODIORITE (Kgwu) MW: Dark grey to black, fine grained, massive, high strength. Defects: - Js; 25° (2/m); Pl/Ro, OP, Fe St; - Js; 40° (3/m); Pl/Ro, OP, Fe St; - Js; 65° (1/m); Pl/Ro, OP, Fe St; | | MW | | | | Is(50) = 3.13MPa; # | D (24.84m) |
| 25.15 | -12.68 | | | | | | | | | | | | |
| 26 | | | 100 | | | GRANODIORITE (Kgwu) MW: Pale grey and orange, fine to coarse grained, massive, mainly medium strength. Defects: - Js; 5°-15° (4/m); Pl/Ro, OP, Fe St, some Cly Vr; - Js; 40°-45° (2/m); Pl/Ro, OP, Fe St, some Cly Vr; - Js; 55°-60° (2/m); Pl/Ro, OP, Fe St, some Cly Vr; - Js; 85°-90° (1/m); Pl/Ro, OP, Fe St, some Cly Vr; Frequent microdiorite inclusions | | MW | | | | 25.48m-25.57m: XW zone. 25.85m-25.95m: XW zone. | |
| 27 | | | (34) | | | | | | | | | Is(50) = 0.97MPa Is(50) = 0.60MPa Is(50) = 0.30MPa | A (26.80m) D (27.13m) A (27.38m) |
| 27.90 | -15.43 | | | | | | | XW MW | | | | 27.50m-27.65m: XW zone. | |
| 28 | | | 100 | | | GRANODIORITE (Kgwu) SW: Pale grey to white, medium to coarse grained, massive, very high to extremely high strength. Frequent fine grained inclusion (xenoliths) throughout. Defects: - Js; 0°-10° (1/m); Pl/Ro, OP, Cn; | | | | | | UCS=425MPa; Is(50) = 6.45MPa; # Is(50) = 9.78MPa | A (28.27m) D (28.33m) |
| 29 | | | (100) | | | | | SW | | | | Is(50) = 12.41MPa | D (29.48m) |
| 29.75 | -17.28 | | 100 | | | | | | | | | | |
| 30 | | | | | | Borehole terminated at 29.75m. | | | | | | | |

REMARKS Kgwu - Wundaru Granodiorite;

Sample failed along existing defect surface.

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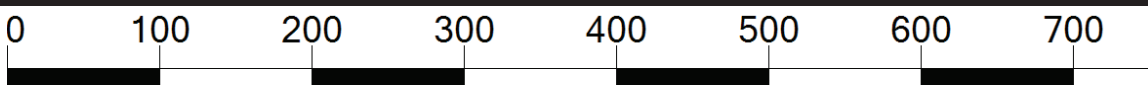
CORE PHOTO LOG

DEPARTMENT OF TRANSPORT & MAIN ROADS
Geotechnical Branch
35 Butterfield Street, HERSTON Qld 4006
Phone 07 3066 3336



Department of
Transport and Main Roads

| | | | |
|--------------|---------------------------|------------------|----------|
| Project Name | Mackay – Ring Road | | |
| Project No | FG6184 | Date | 24/09/14 |
| Borehole No | BH115 | TMR H No | 12061 |
| Location | Peak Downs Hwy Overpass | Start Depth (m) | 24.5 |
| Detail | Abutment A | Finish Depth (m) | 29.75 |
| Chainage | 5568 | Submitted By | J. Lopez |
| Remarks | | | |



SCALE 1:5