# ENGINEERING BOREHOLE LOG

Queensland Government

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

BOREHOLE No **BH178**
SHEET 1 of 3
REFERENCE No **12119**

PROJECT Mackay Ring Road Geotechnical Investigation - Stage 1
LOCATION Fursden Creek Overflow Bridge Pier 4; CH: 8770m; COORDINATES 721427.5 E; 7661091.2 N
PROJECT No FG6184 SURFACE R.L. 7.39m PLUNGE DATE STARTED 16/10/14 GRID DATUM GDA 94 /MGA Zone 55
JOB No HEIGHT DATUM AHD BEARING DATE COMPLETED 17/10/14 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 (EH VH H M L VL EL) | DEFECT SPACING (mm) (EC VC C M W VW EW) | GRAPHIC LOG | ADDITIONAL DATA AND TEST RESULTS | SAMPLES | TESTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 7.39 | | | | **Clayey SILT (TOPSOIL)**<br>Dark brown, dry to moist, firm.<br>Low plasticity. | | (ML) | | | | | | | |
| 0.70 | 6.69 | | | | **SAND (ALLUVIUM)**<br>Pale brown, moist, loose.<br>Fine grained. | | | | | | | | | |
| 1 | | | | A | | | | | | | | 2,3,4<br>N=7 | | SPT |
| 2 | | | | B | | | | | | | | 2,3,3<br>N=6 | | SPT |
| 3 | | | | C | | | (SP) | | | | | 3,3,3<br>N=6 | | SPT |
| 4 | | | | D | | | | | | | | 3,2,3<br>N=5 | | SPT |
| 5 | | | | E | 5.00m: Increasing in clay content.<br>Becoming medium dense. | | | | | | | 6,6,7<br>N=13 | | SPT |
| 5.90 | 1.49 | | | | | | | | | | | | | |
| 6 | | | | F | **Sandy GRAVEL (ALLUVIUM)**<br>Pale grey, moist to wet, medium dense to very dense.<br>Fine to medium gravel. Fine to coarse grained sand. Trace clay. | | | | | | | 30/150 | | SPT |
| | | | | | | | | | | | | 6.50m: Boulder. | | |
| 7 | | | | G | | | (GW) | | | | | 13,22,18<br>N=40 | | SPT |
| 8 | | | | H | | | | | | | | 8,8,10<br>N=18 | | SPT |
| 8.80 | -1.41 | | | | | | | | | | | | | |
| 9 | | | | J | **SAND (ALLUVIUM)**<br>Pale brown, moist to wet, medium dense.<br>Trace fine gravel. | | (SP) | | | | | 6,6,6<br>N=12 | | SPT |
| 10 | -2.61 | | | | | | | | | | | | | |

REMARKS kgwu - Wundaru Granodiorite;
# Sample failed along existing defect surface.

LOGGED BY ME

TMR JAN 15.GLB Log A_ENGINEERING BOREHOLE LOG W LITHOLOGY FG6184 - BOREHOLES.GPJ <<DrawingFile>> Datgel CPT Tool gINt Add-In 04/03/2015 10:52

Queensland Government

# ENGINEERING BOREHOLE LOG

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

BOREHOLE No **BH178**
SHEET 2 of 3
REFERENCE No **12119**

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JOB No HEIGHT DATUM AHD BEARING DATE COMPLETED 17/10/14 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 EH VH H M L VL EL | DEFECT SPACING (mm) EC VC C M W VW EW | GRAPHIC LOG | ADDITIONAL DATA AND TEST RESULTS | SAMPLES | TESTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 | -2.61 | | | K | **Silty CLAY (RESIDUAL)**<br>Pale brown and grey, moist, very stiff.<br>High plasticity.<br>Trace fine grained sand. Trace fine gravel. | | | | | | | 5,7,13<br>N=20 | | SPT |
| 11 | | | | L | | | | | | | | 5,8,12<br>N=20 | | SPT |
| 12 | | | | M | | | (CH) | | | | | 5,8,11<br>N=19 | | SPT |
| 13 | | | | N | | | | | | | | 10,12,17<br>N=29 | | SPT |
| 14.10 | -6.71 | | | P | **GRANODIORITE (Kgwu)**<br>**XW:** Recovered as grey and brown, moist, hard Silty CLAY. | | | | | | | 13,24,27<br>N=51 | | SPT |
| 15 | | | | Q | | | | | | | | 30/140 | | SPT |
| 16 | | | | R | | | XW | | | | | 28,30/45 | | SPT |
| 17 | | | | S | | | | | | | | 16,30/80 | | SPT |
| 17.40 | -10.01 | | | | **GRANODIORITE (Kgwu)**<br>**HW:** Grey and brown, fine to medium grained, very low strength. | | | | | | | | | |
| 18 | | | | T | | | | | | | | 30/80 | | SPT |
| 19 | | | | U | | | HW | | | | | 30/140 | | SPT |
| 20 | | | | | | | | | | | | 15/5 | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20 | -12.61 | | | V | **GRANODIORITE (Kgwu)**<br>**HW:** (Cont'd) | | | HW | | | | hb | | SPT |
| 21.08 | -13.64 | | | W | | | | | | | | 30/30 | | SPT |
| 21 | | | (32) | | **GRANODIORITE (Kgwu)**<br>**MW:** Grey and pink, fine to medium grained, massive, low to high strength. | | | MW<br>HW<br>MW | | | | hb<br>Is(50) = 1.70MPa; #<br>Is(50) = 0.69MPa | | D (21.10m)<br>A (21.13m) |
| | | | 72 | | | | | | | | | 21.65m-21.90m: Core Loss | | |
| 22 | | | (0) | | | | | MW<br>HW | | | | | | |
| 22.70 | -15.31 | | 100 | | | | | MW | | | | 21.60m-23.80m: HFZ; SZ? | | |
| 23 | | | (0) | | **GRANODIORITE (Kgwu)**<br>**SW:** Grey and pink, fine to medium grained, massive, high to mainly very high strength.<br>Defects:<br>- Js; 0°-30° (1/m); Pl/Sm-Ro, OP, some CA;<br>- Js; 30°-60° (4/m); Pl/Sm-Ro, OP, some CA; | | | SW | | | | | | |
| | | | 62 | | | | | | | | | 23.26m-23.61m: Core Loss | | |
| 24 | | | (53) | | | | | | | | | Is(50) = 2.97MPa; # | | D (24.02m) |
| | | | | | | | | | | | | 24.31m-24.34m: Clay seam, 30°. | | |
| 25 | | | 100 | | | | | | | | | UCS=29.1MPa | | |
| | | | (97) | | | | | | | | | Is(50) = 6.60MPa; #<br>Is(50) = 4.03MPa | | A (25.15m)<br>D (25.22m) |
| 26 | | | | | | | | SW | | | | | | |
| | | | 100 | | | | | | | | | | | |
| | | | (88) | | | | | | | | | Is(50) = 4.77MPa; #<br>Is(50) = 6.38MPa | | D (26.55m)<br>A (26.59m) |
| 27 | | | | | | | | | | | | | | |
| 28.00 | -20.61 | | 100 | | | | | | | | | Is(50) = 6.24MPa | | A (27.82m) |
| 28 | | | | | Borehole terminated at 28m. . | | | | | | | | | |
| 29 | | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | |

REMARKS kgwu - Wundaru Granodiorite;
# Sample failed along existing defect surface.

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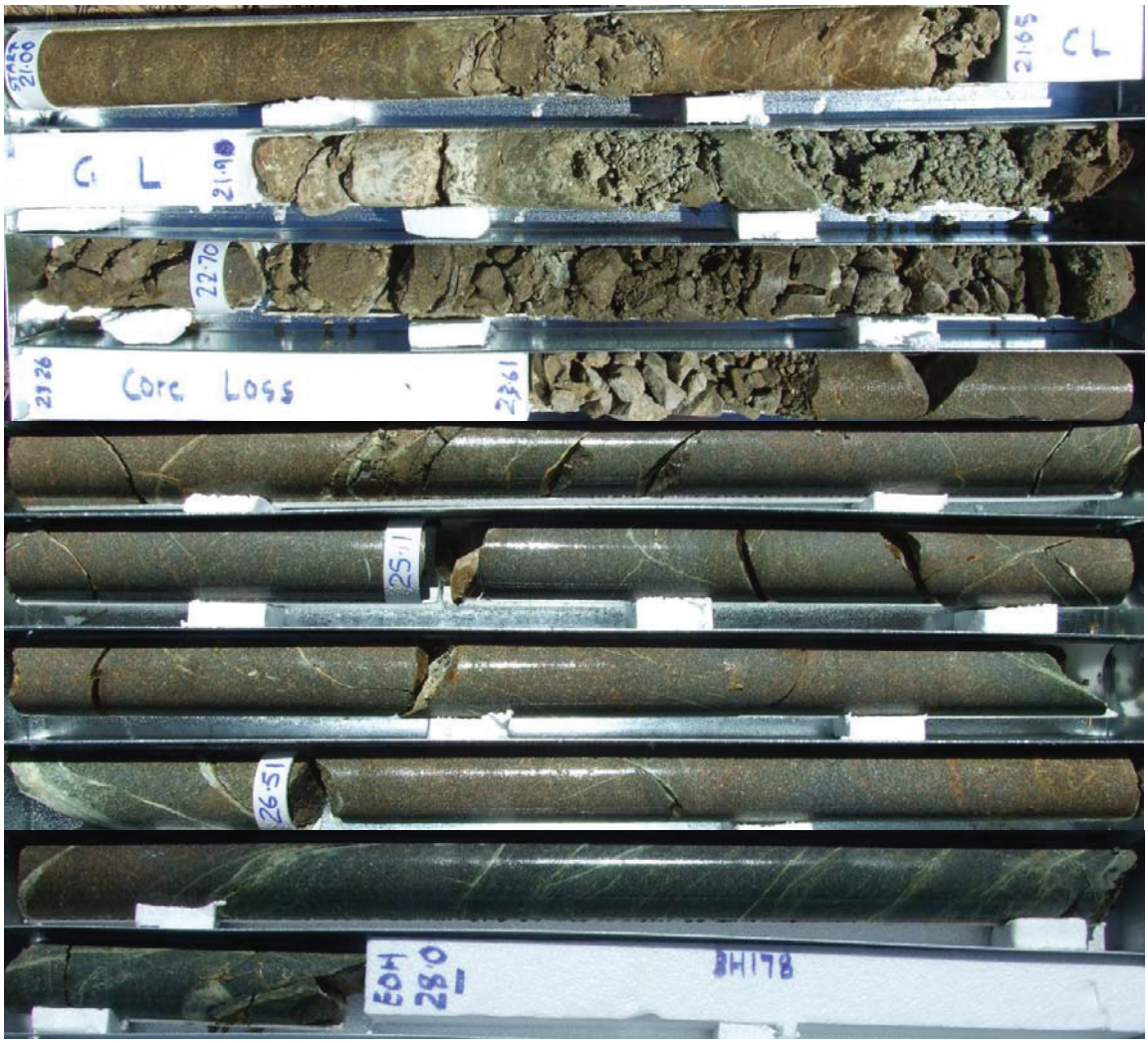
**CORE PHOTO LOG**

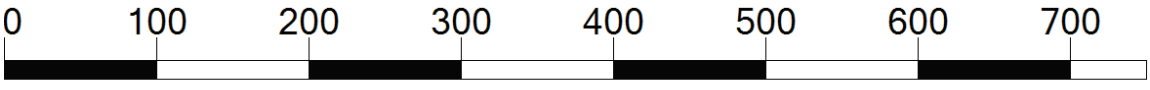
DEPARTMENT OF TRANSPORT & MAIN ROADS
Geotechnical Branch
35 Butterfield Street, HERSTON Qld 4006
Phone 07 3066 3336

Queensland Government

Department of Transport and Main Roads

| | | | |
|---|---|---|---|
| Project Name | **Mackay – Ring Road** | | |
| Project No | FG6184 | Date | 17/10/14 |
| Borehole No | BH178 | TMR H No | 12119 |
| Location | Fursden Creek Overflow Bridge | Start Depth (m) | 21.0 |
| Detail | Pier 4 | Finish Depth (m) | 28.0 |
| Chainage | **8770m** | Submitted By | M.Ensor |
| Remarks | | | |




SCALE 1:5



**GEOT043/1**