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**Queensland  
Government**

Department of  
**Main Roads**

# ENGINEERING BOREHOLE LOG

FOR GEOTECHNICAL TERMS AND  
SYMBOLS REFER FORM F:GEOT 017/5-2009

BOREHOLE No   BH012  

SHEET   1   of   2  

REFERENCE No   H10620  

PROJECT   BRUCE HIGHWAY (COOROY - CURRA) SECTION A GEOTECHNICAL INVESTIGATION  

LOCATION   Cut 9B (Right Side Offramp)   COORDINATES   487768.7 E; 7080594.1 N  

PROJECT No   FG5825   SURFACE R.L.   130.80m   PLUNGE        DATE STARTED   25/8/09   GRID DATUM   MGA94  

JOB No   128/10A/901   HEIGHT DATUM   AHD   BEARING        DATE COMPLETED   25/8/09   DRILLER   R & D Drilling  

| DEPTH (m) | R.L. (m) | ALGER 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  |                  |     |
|-----------|----------|--|-----------|------------|--------|--|-----------|----------------|-----------------|----|---|---|---|---|---------------------|---|----|-------------|----------------------------------|----------------|------------------|-----|
|           |          |  |           |            |        |  |           |                | EH              | VI | H | M | J | V | L                   | E | 20 |             |                                  |                | 60               | 200 |
| 0         | 130.80   |  |           |            |        |  |           |                |                 |    |   |   |   |   |                     |   |    |             |                                  |                |                  |     |
| 130.30    |          |  |           |            | A      | <b>SILT</b><br>Mottled grey to brown, moist, slightly gravelly.  | (ML)      |                |                 |    |   |   |   |   |                     |   |    |             |                                  | 5,9,10<br>N=19 | SPT              |     |
|           |          |  |           |            |        | <b>Silty SAND (RESIDUAL)</b><br>Brown, moist, medium dense, fine to coarse grained, well graded.   | (SM)      |                |                 |    |   |   |   |   |                     |   |    |             |                                  |                |                  |     |
| 129.30    |          |  |           |            | B      | <b>Silty CLAY (RESIDUAL)</b><br>Pale grey, moist, very stiff.  | (CL-ML)   |                |                 |    |   |   |   |   |                     |   |    |             |                                  |                | 4,7,10<br>N=17   | SPT |
|           |          |  |           |            |        | Intermediate plasticity, traces of plant material.   |           |                |                 |    |   |   |   |   |                     |   |    |             |                                  |                |                  |     |
| 128.30    |          |  |           |            | C      | <b>SANDSTONE (XW):</b><br>Generally exhibits engineering properties of grey to brown, moist, medium dense to dense, fine to medium grained, well graded clayey sand. |           |                |                 |    |   |   |   |   |                     |   |    |             |                                  |                | 10,12,15<br>N=27 | SPT |
|           |          |  |           |            | D      | Occasional coarse sand particles, occasional extremely weathered siltstone interbeds.  |           |                |                 |    |   |   |   |   |                     |   |    |             |                                  |                | 8,14,17<br>N=31  | SPT |
|           |          |  |           |            | E      |  |           |                |                 |    |   |   |   |   |                     |   |    |             |                                  |                | 12,17,20<br>N=37 | SPT |
|           |          |  |           |            | F      |  |           |                |                 |    |   |   |   |   |                     |   |    |             |                                  |                | 7,13,20<br>N=33  | SPT |
|           |          |  |           |            | G      |  |           |                |                 |    |   |   |   |   |                     |   |    |             |                                  |                | 10,12,18<br>N=30 | SPT |
|           |          |  |           |            | H      |  |           |                |                 |    |   |   |   |   |                     |   |    |             |                                  |                | 7,13,22<br>N=35  | SPT |
|           |          |  |           |            | J      |  |           |                |                 |    |   |   |   |   |                     |   |    |             |                                  |                | 10,16,22<br>N=38 | SPT |
|           |          |  |           |            | K      |  |           |                |                 |    |   |   |   |   |                     |   |    |             |                                  |                | 14,27,29<br>N>50 | SPT |
| 120.80    |          |  |           |            |        |  |           |                |                 |    |   |   |   |   |                     |   |    |             |                                  |                |                  |     |

REMARKS Detailed defect descriptions are shown on Form GEOT533/8 attached. Piezometer installed.

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# ENGINEERING BOREHOLE LOG

FOR GEOTECHNICAL TERMS AND SYMBOLS REFER FORM F:GEOT 017/5-2009

BOREHOLE No   BH012    
SHEET   2   of   2    
REFERENCE No   H10620  

PROJECT   BRUCE HIGHWAY (COOROY - CURRA) SECTION A GEOTECHNICAL INVESTIGATION    
LOCATION   Cut 9B (Right Side Offramp)   COORDINATES   487768.7 E; 7080594.1 N    
PROJECT No   FG5825   SURFACE R.L.   130.80m   PLUNGE        DATE STARTED   25/8/09   GRID DATUM   MGA94    
JOB No   128/10A/901   HEIGHT DATUM   AHD   BEARING        DATE COMPLETED   25/8/09   DRILLER   R & D Drilling  

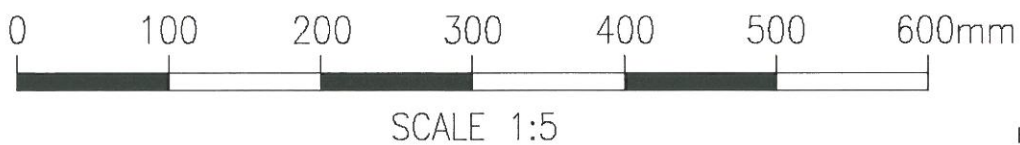
GLD\_DMR\_LIB\_01.GLB Log A. ENGINEERING BOREHOLE LOG W LITHOLOGY FG5825 BRUCE HWY COOROY-CURRA SECTION A BHS.GPJ DWG98012.GDW Datagel CPT Tool.gini Add-in 12/05/2010 10:29

| DEPTH (m) | R.L. (m) | AUGER CASING WASH BORING CORE DRILLING | RQD (%) | CORE REC % | SAMPLE | MATERIAL DESCRIPTION   | LITHOLOGY | UCS WEATHERING | INTACT STRENGTH | DEFECT SPACING (mm) | GRAPHIC LOG | ADDITIONAL DATA AND TEST RESULTS                                   | SAMPLES TESTS |
|-----------|----------|--|---------|------------|--------|--|-----------|----------------|-----------------|---------------------|-------------|--|---------------|
|           |          |  |         |            |        |  |           |                |                 |                     |             |  |               |
| 10        | 120.80   |  |         |            |        | <b>SILTSTONE (SW):</b><br>Pale grey, fine grained.<br><br>Defects typically dip at 10° and are open. \ | XXXXXX    |                |                 |                     |             | Is(50) = 0.09MPa<br>Is(50) = 0.04MPa                               | o<br>x        |
| 11        |          |  |         |            |        | Surfaces are typically planar, smooth and clean.<br><br>Grading to fine grained sandstone with depth.  | XXXXXX    | SW             |                 |                     |             | MC = 18.2%; UCS=324kPa<br><br>Is(50) = 0.06MPa<br>Is(50) = 0.07MPa | UCS<br>x<br>o |
| 119.17    |          |  | 100     | (68)       |        | <b>SANDSTONE (HW):</b><br>Pale brown, coarse grained, weakly cemented.                                 | .....     | HW             |                 |                     |             |  |               |
| 118.76    |          |  |         |            |        | <b>CONGLOMERATE (MW):</b><br>Brown, exhibits engineering properties of stiff gravelly Clay.            | OO        | MW             |                 |                     |             |  |               |
| 118.30    |          |  | 100     |            |        | Borehole terminated at 12.5m   |           |                |                 |                     |             |  |               |
| 13        |          |  |         |            |        |  |           |                |                 |                     |             |  |               |
| 14        |          |  |         |            |        |  |           |                |                 |                     |             |  |               |
| 15        |          |  |         |            |        |  |           |                |                 |                     |             |  |               |
| 16        |          |  |         |            |        |  |           |                |                 |                     |             |  |               |
| 17        |          |  |         |            |        |  |           |                |                 |                     |             |  |               |
| 18        |          |  |         |            |        |  |           |                |                 |                     |             |  |               |
| 19        |          |  |         |            |        |  |           |                |                 |                     |             |  |               |
| 20        |          |  |         |            |        |  |           |                |                 |                     |             |  |               |

REMARKS   Detailed defect descriptions are shown on Form GEOT533/8 attached. Piezometer installed.  

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Project: **Bruce Highway Upgrade (Cooroy – Curra) Section A**  
Borehole No: **BH 12**  
Start Depth: 10.00m  
Finish Depth: 12.50m  
Project No: FG5825  
H No: 10620



F:GEOT043/1



**GEOTECHNICAL BRANCH LABORATORY**

Materials Services - Brisbane  
 35 Butterfield Street, HERSTON Q 4006  
 Phone: (07) 3115 3000 Fax: (07) 3115 3011



**DEFECT DESCRIPTIONS  
 OF ENGINEERING BORELOGS**

[CHARACTERISATION OF DEFECTS ARE IN ACCORDANCE WITH  
 GEOTECHNICAL TERMS AND SYMBOLS – FORM : GEOT 017/5 – 2009

|                       |        |
|-----------------------|--------|
| <b>BOREHOLE NO.:</b>  | BH12   |
| <b>SHEET:</b>         | 1 of 1 |
| <b>REFERENCE NO.:</b> | H10620 |

|                      |   |                      |       |
|----------------------|---|----------------------|-------|
| <b>PROJECT:</b>      | Bruce Highway Upgrade (Cooroy – Curra) Section A Geotechnical Investigation |                      |       |
| <b>LOCATION:</b>     | Cut 9B (Right side offramp)   |                      |       |
| <b>PROJECT NO.:</b>  | FG5825  | <b>SURFACE R.L.:</b> | 130.8 |
| <b>DRILLER:</b>      | R & D Drilling  |                      |       |
| <b>JOB NO.:</b>      | 128/10A/901   | <b>DATUM:</b>        | MGA94 |
| <b>DATE DRILLED:</b> | 25/8/09   |                      |       |

| DEPTH       | DEFECT TYPE | DIP (DEGREES) | PLANARITY | ROUGHNESS | APERTURE | WALL ALTERATION | OTHER    |
|-------------|-------------|---------------|-----------|-----------|----------|-----------------|----------|
| 10.44       | J           | 10            | PI        | S         | O        | Cn              |          |
| 10.56       | J           | 35            | PI        | S         | O        | Cn              |          |
| 10.68       | J           | 30            | PI        | S         | O        | Cn              |          |
| 10.90       | J           | 10            | PI        | S         | O        | Cn              |          |
| 11.00       | J           | 15            | PI        | S         | O        | Cn              |          |
| 11.07       | J           | 10            | PI        | S         | O        | Cn              |          |
| 11.50-12.50 | WS          |               |           |           |          |                 | Cly sand |
|             |             |               |           |           |          |                 |          |
|             |             |               |           |           |          |                 |          |
|             |             |               |           |           |          |                 |          |
|             |             |               |           |           |          |                 |          |
|             |             |               |           |           |          |                 |          |
|             |             |               |           |           |          |                 |          |
|             |             |               |           |           |          |                 |          |
|             |             |               |           |           |          |                 |          |
|             |             |               |           |           |          |                 |          |
|             |             |               |           |           |          |                 |          |
|             |             |               |           |           |          |                 |          |
|             |             |               |           |           |          |                 |          |
|             |             |               |           |           |          |                 |          |
|             |             |               |           |           |          |                 |          |
|             |             |               |           |           |          |                 |          |

**Abbreviations** (as per F: GEOT 017/5 – 2009)

| ROUGHNESS        |                | WALL ALTERATIONS |                          | TYPE  |                       | OTHER   |                  |
|------------------|----------------|------------------|--------------------------|-------|-----------------------|---------|------------------|
| R                | Rough          | FeSt             | Iron Stained             | J, Js | Joint, Joints         | Cln     | Clay Infill      |
| Sr               | Slightly Rough | W                | Weathered                | B     | Bedding               | CLy     | Clayey           |
| S                | Smooth         | Smn              | Secondary Mineralisation | BP    | Bedding Parting       | Co      | Coal Seam        |
| SL               | Slickensided   | Cn               | Clean                    | FP    | Foliation Parting     | Carb    | Carbonaceous     |
| PO               | Polished       | MnSt             | Manganese Stained        | LP    | Lamination Parting    | Sl      | Sand Infill      |
| <b>PLANARITY</b> |                | <b>APERTURE</b>  |                          | CLV   | Cleavage              | QZ      | Quartz           |
| PI               | Planar         | C                | Closed                   | Fr    | Fracture              | CA      | Calcite          |
| St               | Stepped        | O                | Open                     | SZ    | Sheared Zone          | Chl     | Chlorite         |
| Un               | Undulating     | F                | Filled                   | CZ    | Crushed Zone          | In      | Incipient        |
| Cu               | Curved         | T                | Tight                    | BZ    | Broken Zone           | Int     | Intersecting     |
| Ir               | Irregular      |                  |                          | HFZ   | Highly Fractured Zone | Lam (s) | Lamination (s)   |
|                  |                |                  |                          | WS    | Weathered Seam        | Di      | Drilling Induced |
|                  |                |                  |                          | Vn    | Vein                  | H       | Horizontal       |
|                  |                |                  |                          |       |                       | V       | Vertical         |

NOTE: This sheet should be read in conjunction with appropriate Engineering Borelog. Defect angles were measured with respect to horizontal plane.