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**Queensland  
Government**

**GEOTECHNICAL  
BOREHOLE LOG**

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

BOREHOLE No **BH15**

Sheet 1 of 3

REFERENCE No **H12972**

|            |                                |                                     |                             |
|------------|--------------------------------|-------------------------------------|-----------------------------|
| PROJECT    | Boyne River Bridge Repalcement |                                     |                             |
| LOCATION   | Pier 7, LHS                    | COORDINATES 323408.9 E; 7159826.0 N |                             |
| PROJECT No | FG6482                         | SURFACE RL 117.34m                  | PLUNGE 90°                  |
|            |                                |                                     | DATE STARTED 30/08/2017     |
|            |                                |                                     | GRID DATUM MGA Z56          |
| JOB No     | 249/435/375550                 | HEIGHT DATUM AHD                    | BEARING °                   |
|            |                                |                                     | DATE COMPLETED 31/08/2017   |
|            |                                |                                     | DRILLER NorthCoast Drilling |

| DEPTH (m) | R.L. (m) | AUGER CASING WASHBORING CORE DRILLING | RQD (%)<br>CORE REC % | SAMPLE | MATERIAL DESCRIPTION   | LITHOLOGY | USCS WEATHERING | INTACT STRENGTH | DEFECT SPACING | ADDITIONAL DATA AND TEST RESULTS | SAMPLES TESTS                                      |                                   |    |
|-----------|----------|---------------------------------------|-----------------------|--------|--|-----------|-----------------|-----------------|----------------|----------------------------------|--|-----------------------------------|----|
|           |          |                                       |                       |        |  |           |                 |                 |                |                                  |  | EH                                | VH |
| 1         |          |                                       |                       | A      | Sandy CLAY (Alluvium)<br>Brown, dry, stiff to very stiff. Low plasticity. Find grained sand. Trace silt.   | (CL)      |                 |                 |                |                                  | 3, 5, 6<br>N=11                                    | SPT                               |    |
| 2         | 115.54   |                                       |                       | B      | Sandy CLAY (Alluvium)<br>Grey brown and orange brown, moist, very stiff. High plasticity. Fine to medium grained sand. Trace silt, fine to coarse grained gravel.  |           |                 |                 |                |                                  | 7, 12, 13<br>N=25                                  | SPT                               |    |
| 3         |          |                                       |                       | C      |  | (CH)      |                 |                 |                |                                  | 7, 10, 10<br>N=20                                  | SPT                               |    |
| 4         | 112.94   |                                       |                       | D      |  |           |                 |                 |                |                                  | 9, 11, 16<br>N=27                                  | SPT                               |    |
| 5         | 112.54   |                                       |                       |        | Silty SAND (Alluvium)<br>Orange brown, medium to coarse grained, dense. Low plasticity fines. Trace fine grained gravel, clay.   | (SM)      |                 |                 |                |                                  |  |                                   |    |
| 6         | 111.44   |                                       |                       | E      | Sandy GRAVEL (Alluvium)<br>Pale grey and grey, medium to coarse grained, medium dense. Medium to coarse grained sand. Trace silty clay, cobbles. Gravel and cobbles of moderate to very high strength sandstone.   | (GP)      |                 |                 |                |                                  | 13, 6, 9<br>N=15                                   | SPT                               |    |
| 7         | 111.16   |                                       |                       | F      |  | (CH)      |                 |                 |                |                                  | 15, 30/140   | SPT                               |    |
| 7         | 110.04   |                                       | (56)                  |        | Silty CLAY (Residual)<br>Light grey mottled brown grey, moist. High plasticity. Trace fine to medium grained sand.   | XW        |                 |                 |                |                                  |  |                                   |    |
| 8         |          |                                       |                       |        | SANDSTONE (Je1)<br>XW: Recovered as Sandy CLAY (CH), Grey light grey mottled orange brown, moist, hard. High plasticity. Fine grained.   | HW        |                 |                 |                |                                  | Is(50)=0.05 MPa<br>Is(50)=0.19 MPa                 | D (7.44m)<br>A (7.45m)            |    |
| 9         |          |                                       | 100 (68)              |        | SANDSTONE (Je1)<br>MW: Grey, red brown and yellow brown, thickly bedded, medium strength.<br>-Js: 5° (2-4/m), Pl/Sm, TI, Cly Vr<br>-Js: 20°-30° (2-3/m), Pl-Un/Sm, TI, Cly Vr<br>-Js: 45° (2-3/m), Pl/Sm, TI, Cly Ct<br>Numerous tight micro defects 30°-60° every 20mm to 100mm throughout core. Indistinct bedding | MW        |                 |                 |                |                                  | Is(50)=0.30 MPa<br>Is(50)=0.86 MPa                 | D (8.34m)<br>A (8.36m)            |    |
| 9         |          |                                       |                       |        |  | MW        |                 |                 |                |                                  |  |                                   |    |
| 9         |          |                                       |                       |        |  | MW        |                 |                 |                |                                  |  |                                   |    |
| 9         |          |                                       |                       |        |  | MW        |                 |                 |                |                                  |  |                                   |    |
| 9         |          |                                       |                       |        |  | SW        |                 |                 |                |                                  | Is(50)=0.06 MPa<br>Is(50)=0.01 MPa                 | D (9.36m)<br>A (9.38m)            |    |
| 9         |          |                                       |                       |        |  | SW        |                 |                 |                |                                  | Is(50)=0.14 MPa<br>Is(50)=0.22 MPa<br>UCS=9.22 MPa | D (9.70m)<br>A (9.72m)<br>(9.87m) |    |

Continued on next sheet

REMARKS: Je1 - Evergreen Formation.

| LOGGED BY | REVIEWED BY |
|-----------|-------------|
| M. Hayes  | S. Foley    |



**Queensland  
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**GEOTECHNICAL  
BOREHOLE LOG**

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

BOREHOLE No **BH15**

Sheet 2 of 3

REFERENCE No **H12972**

|            |                                |                                     |                             |
|------------|--------------------------------|-------------------------------------|-----------------------------|
| PROJECT    | Boyne River Bridge Repalcement |                                     |                             |
| LOCATION   | Pier 7, LHS                    | COORDINATES 323408.9 E; 7159826.0 N |                             |
| PROJECT No | FG6482                         | SURFACE RL 117.34m                  | PLUNGE 90°                  |
|            |                                |                                     | DATE STARTED 30/08/2017     |
|            |                                |                                     | GRID DATUM MGA Z56          |
| JOB No     | 249/435/375550                 | HEIGHT DATUM AHD                    | BEARING °                   |
|            |                                |                                     | DATE COMPLETED 31/08/2017   |
|            |                                |                                     | DRILLER NorthCoast 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                       |
|           |          |  |          |            |        | at 60° SANDSTONE (Je1)<br>MW: Cont'd.  | SW        |                 |                 |                | 10.10m-10.50m: XW Clay seam        |                                    |                          |
|           |          |  |          |            |        |  | SW        |                 |                 |                | 10.30m-10.70m: XW Cly Seam         |                                    |                          |
|           |          |  | 95 (63)  |            |        |  | MW        |                 |                 |                |                                    | Is(50)=0.12 MPa<br>Is(50)=0.06 MPa | D (10.65m)<br>A (10.67m) |
|           |          |  |          |            |        |  | SW        |                 |                 |                |                                    |                                    |                          |
|           |          |  |          |            |        |  | MW        |                 |                 |                |                                    | Is(50)=0.01 MPa<br>Is(50)=0.15 MPa | D (11.53m)<br>A (11.54m) |
|           | 105.34   |  |          |            |        | SANDSTONE (Je1)<br>SW: Light grey and purple, fine grained, medium bedded, medium to high strength.<br>-Js: 10°-20° (5-10/m), Pl-Un/Ro, FeSt<br>-Js: 30°-45° (5-10/m), Pl/Ro, FeSt             | SW        |                 |                 |                | 12.40m-12.60m: BZ                  | Is(50)=0.34 MPa<br>Is(50)=1.60 MPa | D (12.20m)<br>A (12.22m) |
|           |          |  | 100 (0)  |            |        |  | HW        |                 |                 |                |                                    |                                    |                          |
|           |          |  |          |            |        |  | SW        |                 |                 |                |                                    | Is(50)=0.07 MPa<br>Is(50)=0.10 MPa | D (12.74m)<br>A (12.75m) |
|           | 103.94   |  | 100 (62) |            |        | SANDSTONE (Je1)<br>MW: Pale grey and yellow brown purple grey, medium grained, medium bedded, low to medium strength.<br>-Js: 30°-45° (3-5/m), Pl-Un/Ro, Ti, Cly Vr                            | HW        |                 |                 |                | 13.25m-13.40m: BZ                  |                                    |                          |
|           |          |  |          |            |        |  | MW        |                 |                 |                |                                    | Is(50)=0.11 MPa<br>Is(50)=0.07 MPa | D (13.62m)<br>A (13.64m) |
|           |          |  |          |            |        |  | SW        |                 |                 |                |                                    |                                    |                          |
|           |          |  | 92 (27)  |            |        |  | MW        |                 |                 |                |                                    |                                    |                          |
|           | 102.29   |  |          |            |        | SANDSTONE (Je1)<br>XW: Recovered as Clayey SAND: Purple grey and grey, moist, dense. Medium to coarse grained sand. Trace fine to medium grained gravel.                                       | XW        |                 |                 |                | 15.05m-15.85m: Possible Fault Zone |                                    |                          |
|           |          |  |          |            |        |  | SW        |                 |                 |                |                                    | Is(50)=0.29 MPa<br>Is(50)=0.64 MPa | D (15.90m)<br>A (15.93m) |
|           | 101.49   |  | 100 (85) |            |        | SANDSTONE (Je1)<br>SW: Pale grey and orange brown, medium to coarse grained, indistinct bedding at 30°-45°, medium strength.<br>-Js: 20°-30° (4/m), Pl/Ro, FeSt<br>-Js: 10° (3/m), Pl/Ro, FeSt | SW        |                 |                 |                |                                    | UCS=19.10 MPa                      | (16.53m)                 |
|           |          |  |          |            |        |  | SW        |                 |                 |                |                                    | Is(50)=0.54 MPa<br>Is(50)=0.93 MPa | D (16.84m)<br>A (16.86m) |
|           |          |  |          |            |        |  | SW        |                 |                 |                |                                    | Is(50)=0.55 MPa<br>Is(50)=0.36 MPa | D (17.17m)<br>A (17.19m) |
|           |          |  |          |            |        |  | SW        |                 |                 |                |                                    |                                    |                          |
|           |          |  | 100 (77) |            |        |  | SW        |                 |                 |                |                                    | Is(50)=0.41 MPa<br>Is(50)=0.27 MPa | D (18.17m)<br>A (18.18m) |
|           |          |  |          |            |        |  | HE        |                 |                 |                |                                    |                                    |                          |
|           |          |  |          |            |        |  | SW        |                 |                 |                |                                    |                                    |                          |
|           | 97.34    |  |          |            |        |  | SW        |                 |                 |                |                                    | Is(50)=0.08 MPa<br>Is(50)=0.48 MPa | D (19.90m)<br>A (19.91m) |

Continued on next sheet

REMARKS: Je1 - Evergreen Formation.

| LOGGED BY | REVIEWED BY |
|-----------|-------------|
| M. Hayes  | S. Foley    |



**Queensland Government**

**GEOTECHNICAL BOREHOLE LOG**

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

BOREHOLE No **BH15**  
 Sheet 3 of 3  
 REFERENCE No **H12972**

PROJECT Boyne River Bridge Repalcement  
 LOCATION Pier 7, LHS COORDINATES 323408.9 E; 7159826.0 N  
 PROJECT No FG6482 SURFACE RL 117.34m PLUNGE 90° DATE STARTED 30/08/2017 GRID DATUM MGA Z56  
 JOB No 249/435/375550 HEIGHT DATUM AHD BEARING ° DATE COMPLETED 31/08/2017 DRILLER NorthCoast 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 | L | VL | EL | EC | VC | C | M                     | W                     | VW | EW |  |  |  |  |  |  |  |  |  |               |
| 97.04     |          |  |         |            |  | SANDSTONE (Je1)<br>SW: Cont'd. | ...       | SW              | [Strength Data] |    |   |   |   |    |    |    |    |   |                       | [Defect Spacing Data] |    |    |  |  |  |  |  |  |  |  | 20.25m-20.30m: XW Clayey sand zone<br><br>Is(50)=0.21 MPa<br>Is(50)=0.04 MPa<br><br>D (21.17m)<br>A (21.19m) |               |
| 96.79     |          |  |         | 92         | Core Loss  |                                | HW        | [Strength Data] |                 |    |   |   |   |    |    |    |    |   | [Defect Spacing Data] |                       |    |    |  |  |  |  |  |  |  |  |  |               |
| 95.84     |          |  |         | 100        | SANDSTONE (Je1)<br>SW: Grey and yellow brown, fine grained, medium bedded, medium strength.<br>-Js: 30°-45° (3-4/m), Pl/Ro, Tl, Cn<br>-BP: 5°-15° (2/m), Pl/Sm, Tl, Cn<br>Borehole completed at 21.50m | ...                            | SW        | [Strength Data] |                 |    |   |   |   |    |    |    |    |   | [Defect Spacing Data] |                       |    |    |  |  |  |  |  |  |  |  |  |               |

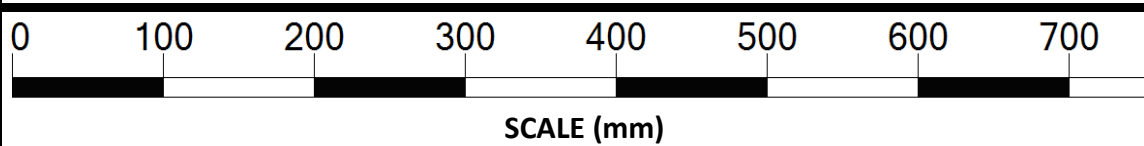
REMARKS: Je1 - Evergreen Formation.

|                  |                    |
|------------------|--------------------|
| <b>LOGGED BY</b> | <b>REVIEWED BY</b> |
| M. Hayes         | S. Foley           |

**CORE PHOTO LOG**  
 DEPARTMENT OF TRANSPORT AND MAIN ROADS  
 GEOTECHNICAL SECTION



|              |                                       |                  |            |
|--------------|---------------------------------------|------------------|------------|
| Project Name | <b>Boyne River Bridge Replacement</b> |                  |            |
| Project No.  | FG6482                                | Date             | 30/08/2017 |
| Borehole No. | BH15                                  | Reference No.    | H12972     |
| Location     | Pier 7, LHS                           | Start Depth (m)  | 6.66       |
| Submitted By | M. de Gee                             | Finish Depth (m) | 21.50      |
| Remarks      |                                       |                  |            |





**CORE PHOTO LOG**  
 DEPARTMENT OF TRANSPORT AND MAIN ROADS  
 GEOTECHNICAL SECTION



|              |                                       |                  |            |
|--------------|---------------------------------------|------------------|------------|
| Project Name | <b>Boyne River Bridge Replacement</b> |                  |            |
| Project No.  | FG6482                                | Date             | 30/08/2017 |
| Borehole No. | BH15                                  | Reference No.    | H12972     |
| Location     | Pier 7, LHS                           | Start Depth (m)  | 6.66       |
| Submitted By | M. de Gee                             | Finish Depth (m) | 21.50      |
| Remarks      |                                       |                  |            |

