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## **ENGINEERING BOREHOLE LOG**

\_\_<u>BH11</u>\_\_ BOREHOLE No \_<u>1\_</u> of \_<u>2</u>\_ SHEET <u>\_\_\_\_H10440\_\_</u> **REFERENCE No** 

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

| PROJECT<br>LOCATION  |             |   |            |        | e North (GUN)   |              |  |                   |                                     |   |                  |
|--|-------------|---|------------|--------|---|--------------|--|-------------------|-------------------------------------|---|------------------|
|  |             | <u>At CPTU 11</u> COORDINATE<br><u>P FP5249</u> SURFACE R.L. <u>2.44 m</u> PLUNGE <u>-90</u> °DATE STARTED <u>06/10/08</u> GF |            |        |   |              |  |                   |                                     |   |                  |
| JOB  |             |   |            |        |   |              |  |                   |                                     |   |                  |
|  |             |   |            |        |   |              |  |                   |                                     |   |                  |
| Ê  | R.L.<br>(m) | ŊŊ  | RQD<br>()% |        |   | U            | INTACT<br>STRENGTH                           | DEFECT<br>SPACING | g                                   | ADDITIONAL DATA   |                  |
| DEPTH (m)  |             | NG<br>H BORING  |            | ш      | MATERIAL  | ERIN         | STRENGTH                                     | (mm)              | GRAPHIC LOG                         | AND   | ES               |
| DEP  |             | 出意す   | CORE       | SAMPLE | DESCRIPTION   | USC<br>WEATH | ਜ਼ੑੑੑਸ਼ੑਸ਼ਫ਼੶ਖ਼ਜ਼                            | 0,00000           | APH                                 | TEST RESULTS  | SAMPLES<br>TESTS |
| 0  | 2.44        | ₹0\$<br>  | REC %      | 7S     | GRAVELLY SANDY SILT   | ĭ≥           |  |                   | 5                                   |   | ts ⊒             |
| -  |             |   |            |        | Dark brown, dry. (Drilling records only)  |              | · · · · · · · · · · · ·                      |                   |                                     |   |                  |
| Ē  |             |   |            |        |   | (ML)         |  |                   |                                     |   | -                |
| -  |             |   |            |        |   |              |  |                   |                                     |   |                  |
| -1   | 1.44        |   |            |        | ESTUARINE SILTY CLAY - WEATHERED  |              |  |                   | +                                   | 2,2,2   | -                |
| Ē  |             |   |            | A      | OC CRUST<br>Grey, moist, mainly soft to firm.   |              | <u>+</u>                                     |                   |                                     | N=4   | SPT :            |
| -  |             |   |            |        |   | (CH)         |  |                   |                                     |   | -                |
| Ē  | 0.44        |   |            |        | High plasticity; slightly organic zones.  |              |  |                   |                                     |   |                  |
| -2   |             |   |            | -      | ESTUARINE SANDY CLAY  |              |  | - : : : : :       | +                                   | + — — — — — — — — — — — — — — — — — — —   | SPT              |
| -  |             |   |            | В      | Brown, moist, very soft.  |              |  |                   |                                     | Water table not visible above N=1   | 5PT .            |
| -  |             | 41  |            |        | High plasticity; prominent fine grained sand fraction; shell fragments throughout.                | (CH)         |  |                   |                                     | <ul> <li>2.5m whilst augering (drilling records only)</li> </ul>                          | -                |
| -3   | -0.56       |   |            |        |   |              |  |                   |                                     | Testing from 2.2.2.4m   |                  |
|  |             |   |            | с      | <b>ESTUARINE SILTY CLAY</b><br>Grey, moist, soft, insensitive to sensitive.                       |              |  |                   |                                     | + — — — — — — <del>Testing from 3:3-3:4m</del><br>MC=80%, WD=1.54(t/m³),<br>DD=0.86(t/m³) | U100 -           |
| /2009 (  |             |   |            |        |   |              |  |                   |                                     | PP(Su)=23kPa  | -                |
| 1 16/09  |             |   |            |        | Slightly organic; high plasticity.  |              |  |                   |                                     | Sand lens from approximately  | :                |
| < <creative -="" 2010="" and="" cpt="" section="" section<="" td=""><td></td><td></td><td></td><td></td><td></td><td></td><td>3.5-4m (CPTu logs only)</td><td></td></creative>   |             |   |            |        |   |              |  |                   |                                     | 3.5-4m (CPTu logs only)   |                  |
| olgINt   |             |   |            | D      |   |              | · · · · · · · · ·                            |                   |                                     | Peak(Su)=34kPa<br>Res(Su)=20kPa   | FSV -            |
|  |             |   |            |        |   |              |  |                   |                                     |   |                  |
| atgel (  |             |   |            |        |   |              |  |                   | MC=78%, WD=1.58(t/m <sup>3</sup> ), |   |                  |
| °a<br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>10   |             |   |            |        |   | СН           |  | +                 |                                     | DD=0.88(t/m <sup>3</sup> )<br>OC=10.4%  |                  |
| wingFi   |             |   |            | Е      | Sample E contains moderately decomposed plant material throughout and partially                   | 0            |  |                   |                                     | LL=66%, PI=38%, LS=16%<br>UU:GS08-556 (See remarks)                                       | U100             |
| <pre><pre>Control control cont</pre></pre> |             |   |            |        | decomposed shell fragments  |              |  |                   |                                     | Oed:GS08-556 (See remarks)  | -                |
| I.GPJ  |             |   |            |        |   |              |  |                   |                                     | PP(Su)=44kPa  |                  |
|  |             |   |            |        |   |              |  |                   |                                     |   | -                |
| HTH PF   |             |   |            | F      |   |              |  |                   |                                     | Peak(Su)=41kPa<br>Res(Su)=10kPa   | FSV :            |
| Y NOR  |             |   |            |        |   |              |  |                   |                                     |   | -                |
| TEWA   |             |   |            |        |   |              |  |                   |                                     |   |                  |
| 7-0°   | -4.66       | 6   |            |        |   |              |  |                   | <u> </u>                            | MC=41%, WD=1.82(t/m <sup>3</sup> ),<br>DD=1_28(t/m <sup>3</sup> ).                        |                  |
| S FPS  |             |   |            | G      | ALLUVIAL CLAY<br>Light grey, moist, firm.   |              |  |                   |                                     | OC=7.35%<br>LL=70%, PI=38%, LS=19%  | U100 ·           |
|  |             |   |            |        | Medium to high plasticity.  | CI-<br>CH    |  |                   |                                     | UU:GS08-557 (See remarks)<br>Oed:GS08-557 (See remarks)                                   | -                |
| REF  | -5.56       |   |            |        |   |              |  |                   |                                     | PP(Su)=41kPa  |                  |
| A_ENGINEERING BOREHOLE LOG FP5249 GATEWAY NORTH PROJECT.GPJ  | 0.00        |   |            |        |   |              |  |                   | † — -                               | 4,7,12  | CDT -            |
| NEERI  | -6.56       |   |            | Н      | Dark grey, moist, very stiff.   | (CL-         | · · · · · · · · - =<br>  · · · · · · · · - = |                   |                                     | N=19  | SPT :            |
|  |             |   |            |        | Low to medium plasticity; fine grained mainly<br>guartzitic sand fraction; occasional ironstained | CI)          |  |                   |                                     |   |                  |
| ∀<br>-<br>-9   |             |   |            |        |   |              |  |                   |                                     | <b></b>   |                  |
| - I- I-  |             |   |            | J      | ALLUVIAL SILTY CLAY<br>Grey, moist, mainly stiff with occasional very                             |              |  |                   |                                     | 5,7,11  | SPT              |
|  |             |   |            |        | stiff zones.  | (CI)         |  |                   |                                     | N=18  |                  |
| 0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0  |             |   |            |        | Medium plasticity; occasional ironstained zones   |              |  |                   |                                     |   | :                |
|  | -7.56       |   |            |        | and carbonaceous zones.   |              |  |                   | L                                   | <u> </u>  |                  |
| R  | EMARK       |   |            |        | dation testing - Q183/ AS1289.6.6.1 : Specimen number   |              |  |                   | or res                              |   | _                |
| = Unconsolidated undrained triaxial test Q173B : Specimen number provided, see test report for results AS/ SAB   |             |   |            |        |   |              |  |                   |                                     |   |                  |

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Gateway Upgrade North (GUN)

PROJECT

## **ENGINEERING BOREHOLE LOG**

\_\_<u>BH11</u>\_\_ BOREHOLE No \_2\_ of \_2\_ SHEET **REFERENCE No** \_\_<u>H10440</u>\_\_

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

| LOCATION  | At CPTU 11  |        |                               |   |                   |            | _                                     | COORI                   | DINATES 509415.6 E; 6971178            | . <u>6 N</u>     |
|---|---|--------|-------------------------------|---|-------------------|------------|---------------------------------------|-------------------------|--|------------------|
| PROJECT N   | ROJECT No <u>FP5249</u> SURFACE R.L. <u>2.44 m</u> PLUNGE <u>-90 °</u> DATE STARTED <u>06/10/08</u> |        |                               |   |                   |            | 06/10/08                              | 8 GRID DATUM MGA94 Zone |  |                  |
| JOB No  |   |        | HEIGHT DATUM <u>AHD</u>       |   |                   | DATE COMPL | ETED _                                | 07/10/08                | DRILLER <u>Drillsure Pty</u>           | <u>Ltd</u>       |
| (m)<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>E<br>I<br>I<br>0<br>-7.56 | RQD<br>901200<br>901200<br>901200<br>CORE<br>REC %  | SAMPLE | MATERIAL                      |   | USC<br>WEATHERING |            | DEFECT<br>PACING<br>(mm)              | GRAPHIC LOG             | ADDITIONAL DATA<br>AND<br>TEST RESULTS | SAMPLES<br>TESTS |
| -   |   |        | ALLUVIAL SILTY CLAY (Cont)    |   |                   |            |                                       |                         | 4,5,8<br>N=13                          |                  |
| -<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-  |   |        |                               |   |                   |            |                                       |                         |  |                  |
|   |   | L      |                               |   |                   |            |                                       |                         | 4,4,6<br>N=10                          | SPT              |
| - 13<br>  |   | М      |                               |   |                   |            | · · · · · · · · · · · · · · · · · · · |                         | 3,5,6<br>N=11                          | SPT              |
| PT Tool gint Add-In 16/05   |   |        |                               |   |                   |            |                                       |                         |  |                  |
| 0<br>   |   | N      |                               |   |                   |            |                                       |                         | 3,5,6<br>N=11                          | SPT              |
| OLD_DMR_LIB_O1.GL8 Log_A_ENGINEERING BOREHOLE LOG FPS249 GATEWAY NORTH PROJECT.GPJ      |   |        | Borehole terminated at 14.95m | 1 |                   |            |                                       |                         |  |                  |

REMARKS Oedometer consolidation testing - Q183/ AS1289.6.6.1 : Specimen number provided, refer to test report for results. UU = Unconsolidated undrained triaxial test Q173B : Specimen number provided, see test report for results.

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