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FOR GEOTECHNICAL TERMS AND SYMBOLS REFER FORM F:GEOT 017/2-2004

| BOREHOLE No | BH101 |
|--------------|----------|
| SHEET | 1_ of4_~ |
| REFERENCE No | H9410 |

D.Dobe & A.Dissanayake

| 1110 | JECT | <u>GAII</u> | FAXAL | שפע | RADE PROJECT GEOTECHNICAL INVEST | <u>IGA</u> | <u>L</u> IÕÑ | | | | |
|--|-------------|---|------------------------------|--------|--|------------|------------------|------------------------------|---------------------------|-------------|-------------------------------------|
| | ATION | | | | MCAO - Ch. 18115.5 - OFFSET 38.4 R | | | | | C | OORDINATES 9788.3 E; 168773.4 N |
| PRO | JECT No | FG53 | <u> 89</u> | - — - | SURFACE R.L3.30 | | C | ATE STARTI | ED <u>4/8/0</u> | 4 | DATUM <u>SETP</u> |
| JOB | No | | | | DATUM <u>AHD</u> | | DAT | E COMPLETS | ED _5/8/0 | 4 | DRILLER R&D Drilling Pty Lt |
| DEPTH (m) | R.L. (m) | AUGEK CASING WASH BORING CORE DRILLING | RQD ()% CORE REC % | SAMPLE | MATERIAL DESCRIPTION | LITHOLOGY | SC /EATHERING | MTACT STRENGTH 猫子ェミッラゴ | DEFECT SPACING (mm) | GRAPHIC LOG | ADDITIONAL DATA AND TEST RESULTS |
| - | 3.30 | 10>0 | REC % | 0) | SANDY GRAVEL - FILL | 3 | j⊃l≥ | <u> </u> | - | 9 | Drilling record only |
| - - - - | 2.70 | | | | Dark brown, dry, medium dense, sizing up to 40mm. | | GP | - | - - - | | Examing record only |
| -1 | | | | | ESTUARINE (??) SILTY CLAY Dark grey, moist, soft to firm. | | | | | | Compain matter |
| - | 4.55 | | | | Highly fissured; high organic content; medium plasticity. | | OL | † † • † | - | | Organic matter 1,2,2 N=4 SPI |
| -2 | 1.55 | | | | ESTUARINE (??) SILTY SAND Pale brown, moist, medium dense. | | | + | | | |
| | 0.55 | | | | Fine to medium sand. | | SM | | - - | | MC=39.6%,WD=1.82t/m3, DD=1.3t/m3 |
| -3 | 0.10 | | | | ESTUARINE (??) SILTY CLAY Grey, moist, soft to mostly firm. Minor organic content. | | OL | | | | PP=25kPa U50 |
| - | | | | | SILTY SAND - ALLUVIUM Pale brown to mottled orange, moist, medium dense. | | | | - | | |
| 4 | | | | | | | | | | | U50 |
| 7,17 | B | | | | | | SM | | - | | Silty clay layer |
| BOREHOLE US 04.6D1 31/8/05 | -2.05 | | | | | | | | - | | Silty clay layer |
| | | | 7 | | SILTY SAND - ALLUVIUM Dark grey to grey, wet, very loose. Fine to medium grained sand; high shell content towards bottom; some clayey silt interlayers. | | | | | | RW,RW.1 N<1 |
| The state of the s | | | | | | | | | - - - - - | | |
| YWAT UT OF U | | | | | | | SM | | | | RW,1,1 N=2 SPI |
| BURETULE WITH LITHOLDEY F69899 GAT LEWAT UPGRADE, 67 J ENGINEER COLOR CO | | | | | | | | | | | |
| 9 | | | | | | | | | | | RW,RW,1 N<1 |
| OKEHOLE WILL | -5.95 | | | | SILTY CLAY - ALLUVIUM Grey to green grey, moist, very stiff. Some MnO2 concretions. | | CL | | | | Some shell fragments |
| | -6.70 | 507 | | | elly clavey sand alluvium can overestimate density | 1/// | 1 | | | | articles. LOGGED BY |



FOR GEOTECHNICAL TERMS AND SYMBOLS REFER FORM F:GEOT 017/2-2004

| BOREHOLE No | BH101 |
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| REFERENCE No | H9410 |

D.Dobe & A.Dissanayake

| PRO | JECT | | | | RADE PROJECT GEOTECHNICAL INVEST | | | | | | | |
|---|------------------|--|----------------------------|------------|---|-----------|-------------------|-------------------------------|---------------------------|-------------|------------------------------------|---------|
| LQC | ATION | <u>CON</u> | TROL L | <u>INE</u> | : MCAO - Ch. 18115.5 - OFFSET 38.4 R | | | | | C | OORDINATES 9788.3 E; 168773.4 N | |
| PRO | JECT No | _F <u>G</u> 53 | <u> </u> | | SURFACE R.L3_30 | | E | ATE START | ED _4/8/0 | <u> </u> | DATUM <u>SETP</u> | |
| JOB | No | | | | DATUM <u>AHD</u> | | DAT | E COMPLET | ED <u>5/8/0</u> | <u> 1</u> | | |
| OEPTH (m) | R.L. (m) | AUGER CASING WASH BORING CORE DRILLING | RQD ()% CORE REC% | SAMPLE | MATERIAL DESCRIPTION | LITHOLOGY | ISC VEATHERING | INTACT STRENGTH ボチェミュラヴ | DEFECT SPACING (mm) | GRAPHIC LOG | ADDITIONAL DATA AND TEST RESULTS | SAMPLES |
| 10 | -0.70 | | NEO /s | | SILTY CLAY - ALLUVIUM Grey to green grey, moist, very stiff. Some MnO2 concretions. | | Cr | | - | 0 | 5,7,10 N=17 | SPT |
| - 11 - 11 | -8.00 | The state of the s | | | SAND - ALLUVIUM | | | | - | | | |
| 12 | | | | | Pale brown to orange brown, wet, medium dense. Fine grained sand, minor silt fraction in the upper area. | | | - | | | 6,8,11 N=19 | SPT |
| - - - - - - - - | 2 | | | | | | | - | | | | 1 |
| | | | | | | | | - | | | 10,13,15 N=28 | SPT |
| LE 09_04.GDT 31/8/05 | | | | | | | SP | | | | 4,9,7 N=16 | SPT |
| GPU ENGINEERING BOREHO | | | | | | | | | | | 5,6,11 N≃17 | SPT |
| 80REHOLE WITH LITHOLOGY FGS389 - GATEWAY UPGRADE.GPJ ENGINEERING BOREHOLE 09, 04, 05T 3/18/05 | -14.10 | | | | SILTY CLAY - ALLUVIUM Pale grey to grey, moist, stiff to very stiff. | | | | | | 6,9,12 N=21 | SPT |
| REHOLE WITH LITHOLOGY | | | | | Becoming fine sandy below 19.30m. | | CI | | | | 4,6,8 N=14 | SPT |
| | -16.70 EMARKS | SPT | values in | grav | elly clayey sand alluvium can overestimate density | due t | o influ | ence of coan | ser size gra | vel pa | articles. LOGGED BY | 1 |



FOR GEOTECHNICAL TERMS AND SYMBOLS REFER FORM F:GEOT 017/2-2004

| BOREHOLE No | BH101 |
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| SHEET | _3_ of _4_ |
| REFERENCE No | H9410 |

D.Dobe & A.Dissanayake

GATEWAY UPGRADE PROJECT GEOTECHNICAL INVESTIGATION **PROJECT** CONTROL LINE: MCAO - Ch. 18115.5 - OFFSET 38.4 R LOCATION COORDINATES 9788.3 E; 168773.4 N PROJECT No FG5389 SURFACE R.L. __3.30_ __. DATE STARTED 4/8/04 DATUM SETP _____ JOB No DATUM _AHD __. DATE COMPLETED 5/8/04 DRILLER R&D Drilling Pty Ltd_ INTACT DEFECT ()% (m) ADDITIONAL DATA STRENGTH SPACING Ξ 8 MATERIAL DEPTH AND SAMPLES DESCRIPTION GRAPH TESTS CORE TEST RESULTS 20 REC % -16.70 SILTY CLAY - ALLUVIUM (As above) СН -16.90 GRAVELLY CLAYEY SAND - ALLUVIUM Pale brown to orange brown, moist, dense 30/115,-SPT to very dense. N>50 Gravels are mainly subangular to subrounded quartizitic particles sizing up to 40mm. 14 21 20 SPT SP 23 16,19,30/115 SPT N>50 24 GPT -21.50 INTERBEDDED SANDSTONE AND 8 - 25 30/100,-,-MUDSTONE SPT BOREHOLE 09 N>50 FINE TO MEDIUM GRAINED, POORLY CEMENTED, THINLY LAMINATED / HW BEDDED SEDIMENTARY ROCK. HW: Generally exhibits engineering properties of dark grey, moist, hard sandy ENGINEERING -22.70silt grading to very low strength rock. L 26 (100)SW Pale grey to dark grey, thinly laminated and ls(50)=0.96 MPa ls(50)=0.55 MPa thinly bedded, mainly medium strength with some low and high strength bands. Mudstone bed Is(50)=0.29 MPa 0 Is(50)=0.16 MPa Defects - Generally rare. UPGRADE - Occasional drilling included lamination /bedding partings (<30deg). -27 Joints @ 45deg (1/3m). GATEWAY ls(50)=0.89 MPa Defect Index : ls(50)=0.20 MPa In sandstone - (1/m) In sandstone - (3-5/m) - 28 SW 100 (76)ls(50)=0.59 MPa 0 Sandstone bed is(50)=0.44 MPa -29 BOREHOLE WITH XW mudstone bed Is(50)=0.31 MPa Is(50)=0.71 MPa Sandstone bed REMARKS SPT values in gravelly clayey sand alluvium can overestimate density due to influence of coarser size gravel particles LOGGED BY



FOR GEOTECHNICAL TERMS AND SYMBOLS REFER FORM F:GEOT 017/2-2004

| BOREHOLE No | BH101 |
|--------------|------------|
| SHEET | _4_ of _4_ |
| REFERENCE No | H9410_ |

D.Dobe & A.Dissanayake

| PRC |)JECT | GAT | <u>EWAY</u> | <u>UPG</u> | RADE PROJECT GEOTECHNICAL INVEST | <u>IGA</u> | TION | | | | |
|-------------------------------------|-----------------------|---|----------------------------|-----------------|--|------------|-------------------|---|--------|--|----------|
| | ATION | <u>_COM</u> | TROL I | TIVE | : MCAO - Ch. 18115.5 - OFFSET 38.4 R | | | | | OORDINATES 9788.3 E; 168773.4 N | |
| | | _F <u>G</u> 53 | <u> </u> | - - | SURFACE R.L. <u>3.30</u> | | | ATE STARTED 4/8/ | 04_ | DATUM SETP | |
| JOB | No | | | | DATUM AHD | | DAT | E COMPLETED _5/8/ | 04 | DRILLER R&D Drilling | Pty Ltd |
| S DEPTH (m) | R.L. (m) -26.70 | AUGER CASING WASH BORING CORE DRILLING | RQD ()% CORE REC% | SAMPLE | MATERIAL DESCRIPTION | LITHOLOGY | USC WEATHERING | INTACT DEFECT STRENGTH SPACING (mm) ボデェミュラボ 8888 | HC LOG | ADDITIONAL DATA AND TEST RESULTS | SAMPLES |
| -31 | | | 99 (73) | × | SW (As above) | | sw | | | Mudstone bed Mudstone bed Sandstone bed Is(50)=1.19 MPa Is(50)=1.87 MPa Is(50)=1.30 MPa Is(50)=0.50 MPa | 0 - x |
| 33 | -29.70 | 13 | 99 | \geq | Borehole terminated at 33m | | | | | Core lost in the hole | |
| 36 35 35 36 37 37 38 39 39 39 39 39 | | | | | | | | | | | |
| 40 | | | | | | | | : + | | | |
| RE | MARKS | SPT v | alues in | orave | elly clayey sand alluvium can overestimate density | tuo to | iofice | noo of opposite the | | articles. LOGGED BY | |

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Project: Gateway Upgrade Project Geotechnical Investigation

Borehole No: BH 101
Start Depth: 26,00m

Start Depth: Finish Depth: Project No:

32.86m FM2055

H No:

9410

