Queensland Government
Department of Main Roads

ENGINEERING BOREHOLE

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

BOREHOLE No BH108
SHEET 1 of 3
REFERENCE No H9417

PROJECT GATEWAY UPGRADE PROJECT GEOTECHNICAL INVESTIGATION - NORTHERN SECTION
LOCATION CONTROL LINE: MCAO - Ch. 19146.8 - OFFSET 8.8 R
COORDINATES 9378.6 E; 169715.0 N
PROJECT No FM2055
SURFACE R.L. 2.53
DATE STARTED 28/7/04
DATUM SETP
JOB No
DATUM AHD
DATE COMPLETED 29/7/04
DRILLER R & D Drilling Pty Ltd

DEPTH (m)	R.L. (m)	MATERIAL DESCRIPTION	USC	ADDITIONAL DATA AND TEST RESULTS	SAMPLES TESTS
0	2.53	**GRAVELLY CLAY - FILL** Grey brown, moist, firm to stiff.	CL	Drilling record only	
	1.83	**ORGANIC CLAY - FILL** Dark grey to black, moist, soft to mainly firm. Highly organic content in the upper area.	OL	1,2,2 N=4	SPT
2	0.53	**CLAYEY SAND - FILL** Pale grey, moist, mainly loose.	SC	Sandy clay pHf=6.04, pHfox=2.93 LL=58.4%, PI=31.6%, LS=16.8% MC=30.4%; WD=1.86t/m3, DD=1.42t/m3	U48
	0.03	**SILTY CLAY - FILL** Pale grey to green grey, moist, mainly soft to firm. Some organic; some stiff layers towards bottom.	OL	Blade bit is used 1,1,2 N=3 MC=40.8%, WD=1.82t/m3, DD=1.30t/m3 pHf=4.94, pHfox=3.16	SPT U48
4	-1.67	**SILTY CLAY - ALLUVIUM** Pale grey green to mottled red, moist, stiff to very stiff. Medium plasticity, minor sand fraction.	CI	5,6,11 N=17 Slickensided joint at 7.0m 3,5,7 N=12	SPT SPT
8	-5.77	**SANDY CLAY - ALLUVIUM** Pale grey to orange, moist, firm. Fine to medium grained sand.	CI	2,2,4 N=6	SPT
10	-7.47				

BOREHOLE WITH LITHOLOGY GATEWAY NORTHERN UPGRADE.GPJ ENG BOREHOLE FINAL.GDT 28/4/05

REMARKS SPT N values in gravelly sandy clay can overestimate consistency due to influence of coarser size gravel particles.
Defect angles have been measured with respect to a horizontal plane.

LOGGED BY
B.Woodgate & A.Dissanayake

Queensland Government
Department of Main Roads

ENGINEERING BOREHOLE

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

BOREHOLE No BH108
SHEET 2 of 3
REFERENCE No H9417

PROJECT GATEWAY UPGRADE PROJECT GEOTECHNICAL INVESTIGATION - NORTHERN SECTION
LOCATION CONTROL LINE: MCAO - Ch. 19146.8 - OFFSET 8.8 R
COORDINATES 9378.6 E; 169715.0 N
PROJECT No FM2055
SURFACE R.L. 2.53
DATE STARTED 28/7/04
DATUM SETP
JOB No
DATUM AHD
DATE COMPLETED 29/7/04
DRILLER R & D Drilling Pty Ltd

DEPTH (m)	R.L. (m)	MATERIAL DESCRIPTION	USC	WEATHERING	ADDITIONAL DATA AND TEST RESULTS	SAMPLES TESTS
10	-7.47	**SANDY CLAY - ALLUVIUM** (As above).	CI		3,4,5 N=9	SPT
11						
12					3,4,5 N=9	SPT
	-9.97	**CLAYEY SAND** Pale grey to orange, moist, medium dense.	SC		Roller bit was used below 13.0m	
13					4,7,13 N=20	SPT
14						
15					11,14,14 N=28	SPT
	-12.97	**GRAVELLY SANDY CLAY - ALLUVIUM** Pale brown to orange brown, moist, mainly hard. Occasional angular to subangular quartzitic and lithic fragments sizing up to 20mm more towards bottom.	CL			
16					30/100,-,- N>50	SPT
17						
18					9,16,14 N=30	SPT
					Large gravel bed at 18.4m	
19					13,25,30/135 N>50	SPT
20	-17.47					

BOREHOLE WITH LITHOLOGY GATEWAY NORTHERN UPGRADE.GPJ ENG BOREHOLE FINAL.GDT 28/4/05

REMARKS SPT N values in gravelly sandy clay can overestimate consistency due to influence of coarser size gravel particles.
Defect angles have been measured with respect to a horizontal plane.

LOGGED BY
B.Woodgate & A.Dissanayake

Queensland Government
Department of Main Roads

ENGINEERING BOREHOLE

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

BOREHOLE No BH108
SHEET 3 of 3
REFERENCE No H9417

PROJECT GATEWAY UPGRADE PROJECT GEOTECHNICAL INVESTIGATION - NORTHERN SECTION
LOCATION CONTROL LINE: MCAO - Ch. 19146.8 - OFFSET 8.8 R
COORDINATES 9378.6 E, 169715.0 N
PROJECT No FM2055
SURFACE R.L. 2.53
DATE STARTED 28/7/04
DATUM SETP
JOB No
DATUM AHD
DATE COMPLETED 29/7/04
DRILLER R & D Drilling Pty Ltd

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) (20 60 200 600 2000)	GRAPHIC LOG	ADDITIONAL DATA AND TEST RESULTS	SAMPLES	TESTS
20	-17.47													
	-17.67				**GRAVELLY SANDY CLAY - ALLUVIUM** (As above).		CL							
					SANDSTONE FINE TO MEDIUM GRAINED, LAMINATED, POORLY CEMENTED SEDIMENTARY ROCK. XW : Generally exhibits engineering properties of orange, moist to wet, hard sandy clay, medium plasticity.		XW					16,21,25 N=46		SPT
21														
22	-19.47		(100)		**MW :** Grey brown to orange brown, thinly laminated to slightly massive with depth, mainly very low to low strength. Defects - Generally rare. - Occasional drilling induced lamination partings <30deg (1/2m).		MW					Is(50)=0.09 MPa Is(50)=0.09 MPa Is(50)=0.02 MPa Is(50)=0.06 MPa Is(50)=0.04 MPa Is(50)=0.12 MPa Is(50)=0.01 MPa Is(50)=0.01 MPa Is(50)=0.01 MPa Is(50)=0.01 MPa Is(50)=0.02 MPa Is(50)=0.04 MPa		o x o x o x o x o x o x
23														
24			100											
25			(100)											
	-22.85				**MW - SW MUDSTONE (See Remarks)** Dark grey to black, thinly laminated to slightly massive, very low to low strength. Defects - Generally rare. - Drilling induced lamination partings 35deg (2-4/m). Rockmass is brittle when dry, fissile when wet.		MW SW MW					Is(50)=0.15 MPa Is(50)=0.13 MPa Is(50)=0.15 MPa Is(50)=0.22 MPa Is(50)=0.13 MPa Is(50)=0.28 MPa Is(50)=0.26 MPa		o o x o x x o
26														
27	-24.47		90									Core lost in the hole		
					Borehole terminated at 27m									
28														
29														
30														

BOREHOLE WITH LITHOLOGY GATEWAY NORTHERN UPGRADE.GPJ ENG BOREHOLE FINAL.GDT 28/4/05

REMARKS SPT N values in gravelly sandy clay can overestimate consistency due to influence of coarser size gravel particles.
Defect angles have been measured with respect to a horizontal plane.

LOGGED BY
B.Woodgate & A.Dissanayake

Project: **Gateway Upgrade Project Geotechnical Investigation**

Borehole No: **BH 108**

Start Depth: 22.00m
Finish Depth: 27.00
Project No: FM2055
H No: 9417