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

	OJECT CATION				RADE PROJECT - GATEWAY BRIDGE DU							
					IERN FACE OF PILE CAP-LEFT HAND/UP? SURFACE R.L325						OORDINATES 10202.7 E; 167918.8 N	
	3 No		<u> </u>					ATE STARTE				
JO:	2 (40				DATUM <u>AHD</u>		DAT	E COMPLETE	:D <u>24/04</u>	/ 05	DRILLER CAIRNS DRIL	<u>LING</u> _
DEPTH (m)	R.L. (m)	CASING WASH BORING SORE DRILLING	RQD ()% CORE	SAMPLE	MATERIAL DESCRIPTION	гиногоех	JSC VEATHERING	エネェミッショ THENGTH MITER	DEFECT SPACING (mm)	GRAPHIC LOG	ADDITIONAL DATA AND TEST RESULTS	SAMPLES
PICKADE PROJECTION ENGINEERING BOKERIOLE US US. GUI 31/08/09	-3.25	CASIN WASH	CORE REC %	SAMP	ESTUARINE SILTY CLAY Dark grey to black, mainly moist to slightly wet, very soft to soft. High plasticity, high organic content; occasional partly decomposed shell fragments. Minor sand towards bottom.	TOHUM STATEMENT OF THE PROPERTY OF THE PROPERT	H WEATH	H32 H H H H H H H H H H H H H H H H H H	2000	GRAP	RW, N<1	SAMPL
BOKEFOLE WITH LITHOUGH WEEKA PIEK / BOKEFULS-CATEWAY BRUDGE - CATEWAY U	-8.:25	SPI	N values	in arti	avel can averestimate density due to influence of o						RW, N<1 RW,- N<1	SPT

SPT N values in gravel can experimente density due to influence of coarser size gravel particles. This borelog should be read in conjunction with the appropriate Defect Description Sheets. Defect angles were measured with respect to a horizontal plane.



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

BOREHOLE No	BH16
SHEET	2 of <u>13</u>
REFERENCE No.	H9565

PROJE					RADE PROJECT - GATEWAY BRIDGE DU						TIGATION	
LOCAT					IERN FACE OF PILE CAP-LEFT HAND/UP		<u>AM</u>	SIDE		C	OORDINATES 10202.7 E; 167918.8 N	
		<u>FG5</u>	388		SURFACE R.L3.25		D	ATE START	ED _16/0	4/05	DATUM SETP	
JOB No)				DATUM <u>AHD</u>		DAT	E COMPLET	ED _24/04	4/0 <u>5</u> .	DRILLER CAIRNS DRILL	<u>ING</u>
TH (m)	R.L. (m)	WASH BORING CORE DRILLING	RQD ()% CORE REC%	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	USC	INTACT STRENGTH	DEFECT SPACING (mm)	GRAPHIC LOG	ADDITIONAL DATA AND TEST RESULTS	SAMPLES
ATEWAY BRIDGE - GATEWAY UPGRADE PROJECT.GPJ ENGINEERING BOREHOLE 09 04.GDT 31/08/05	-8.25 ×	WASII WASII CORR		SAME	ESTUARINE CLAYEY SAND Dark grey to black, mainly moist to slightly wet, very soft to soft. As above ESTUARINE CLAYEY SAND Dark grey, moist to mainly wet, very loose to loose. Some silty clay interlayers; occasional shell fragments. ESTUARINE SILTY CLAY Dark grey to black, mainly moist to slightly wet, very soft to soft.		OSU CO		2000 - 1 2000 - 1 2000	GRAP	RW, N<1	SAMPL
BOREHOLE WITH LITHOLOGY MEERA PIER 7 80R	-13.25				wet, very som to som.		ОН				RW,-,- N<1	SPT

REMARKS SPT N values in gravel can everestimate density due to influence of coarser size gravel particles. This borelog should be read in conjunction with the appropriate Defect Description Sheets. Defect angles were measured with respect to a



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

BOREHOLE No	BH16
SHEET	<u>3</u> of1 <u>3</u>
REFERENCE No	<u>H9565</u>

PROJECT		<u> GRADE PROJECT - GATEWAY BRIDGE DUF</u>						TIGATION	
LOCATION	PIER 7 - SOUTH	<u> IERN FACE OF PILE CAP-LEFT HAND/UPS</u>	TRE	<u>AM</u> .	SIDE		C	OORDINATES 10202.7 E; 167918.8 N	1
	_FG5388			D	ATE START	ED _16/04	<u>/05</u>	DATUM SETP	
JOB No		DATUMAHD	ĺ	DAT	E COMPLETI	ED <u>24/04</u>	<u>1/05</u> .	DRILLER CAIRNS DRIL	LI <u>N</u> G_
(E) HLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLLL	COASING CORE DRILLING CORE DRILLING % () MAD WAS AND WAS AND WE SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	VEATHERING	INTACT STRENGTH 파子고로그루다	DEFECT SPACING (mm)	GRAPHIC LOG	ADDITIONAL DATA AND TEST RESULTS	SAMPLES
- 10.20		ESTUARINE SILTY CLAY		- -	<u>_i(</u>		Ĕ		φ <u>F</u>
-		(As above). Some fissuring & dessicated features towards bottom.							
111			***************************************		-			RW,-,- N<1	SPT
-16.25				ОН				RW,-,- N<1	SPT
-16.25		ALLUVIAL SILTY CLAY Pale grey to mottled brown, moist, firm to stiff.							-
1		Frequent dessicated and oxidised zones; incipient lateritic features throughout; medium to high plasticity.		CI- CH				2,5,7 N=12	SPT
		avel con = verestimate density due to influence of co							-

SPT N values in gravel considerestimate density due to influence of coarser size gravel particles. This borelog should be read in conjunction with the appropriate Defect Description Sheets. Defect angles were measured with respect to a horizontal plane.



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

BOREHOLE No	<u>BH16</u>
SHEET	4 of13
REFERENCE No	H9565

	DJECT				RADE PROJECT - GATEWAY BRIDGE DU ERN FACE OF PILE CAP- LEFT HAND/UP						TIGATION 10202.7 E; 167918.8 N	
	DJECT No	FG5	388	2.1.1	SURFACE R.L3.25			ATE START				
JOE					DATI (M. ALID							
					DATOM _AND		DATI	E COMPLETI	EU <u>24/</u> U4	<u> </u>	DRILLER CAIRNS DRIL	<u>LING</u> _
	R.L.	တ္ခ	RQD ()%					INTACT STRENGTH	DEFECT SPACING		ADDITIONAL DATA	
DEPTH (m)	(,	SPIN	\ /		MATERIAL	_ ≿	SING	SIKENGIA	(mm)	5		
EPT		SEE See	CÓDE	SAMPLE	DESCRIPTION	LITHOLOGY	밑		008	GRAPHIC	AND	PLES S
15	(m)	S § § § § §	CORE REC %	SAN		를	USC	다구나 포子ェ롱그숙교	88888	S. A.	TEST RESULTS	SAMPLES TESTS
-					ALLUVIAL SILTY CLAY							Colonial Control
-					Pale grey to mottled brown, moist, firm to stiff.				-		2,5,9	OPT
}					As above			-			N=14	SPT
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-]	_			-
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EWAY UPGRADE PROJECT. GPJ ENGINEERING BOREHOLE 09_04.GDT 31/08/05								-				
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									. :			15.11
NIN-		E.						· : -			2,3,6 N=9	SPT
	. "							. : 4	• []		N=9	
SE _ 17							l	1				
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86								; ` · -	-			-
ADE							CI-	:::				
PGR							CH	.: :]	. :]
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SIDG-	. 1								. :.		1	
AY B								+			1,3,6 N=9	SPT
TEW								-	-		N=9	gri
S-64								<u> </u>				
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S. C.								· · · -	-			-
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ATM-								, _	- :	1		
BOREHOLE WITH LITHOLOGY MEERA PIER 7 BOREHOLES-GATEWAY BRIDGE - GATEWAY BR									, .		1,4,6 N=10	SPT
흵.							ĺ		:		A10	
<u>කි 20</u>	-23.25	38					1			Į	1 1	S CAN

REMARKS SPT N values in gravel can overestimate density due to influence of coarser size gravel particles. This borelog should be read in conjunction with the appropriate Defect Description Sheets. Defect angles were measured with respect to a horizontal plane.



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

	DJECT	<u>GAT</u>	EWAY	<u>UPG</u>	<u>RADE PROJECT - GATEWAY BRIDGE DU</u>	PLIC	<u>ATIC</u>	<u>1</u> <u>N</u> (<u>OUNDA</u>	<u>NI NOIT</u>	/ <u>E</u> S	TIGATION	
	CATION	PIE	<u>7-50</u>	<u>UTH</u>	<u>ERN FACE OF PILE CAP-LEFT HAND/UP</u>	STR	<u> EAM</u>	<u>S</u> I <u>C</u>				OORDINATES 10202.7 E; 167918.8 N	
PR	DJECT No	_F <u>G</u> 5	<u> 388</u>		SURFACE R.L3.25		0)AT	STARTI	ED _16/04	<u>1/05</u>	DATUM SETP	
JOE	3 No				DATUM <u>AHD</u> .		DAT	EC	OMPLETI	ED <u>24/04</u>	1/05		
DEPTH (m)	R.L. (m)	CASING WASH BORING CORE DRILLING	RQD ()%	SAMPLE	MATERIAL DESCRIPTION	LITHOLOGY	USC WEATHERING	ST	エヌコネヴ RENGTH	DEFECT SPACING (mm)	GRAPHIC LOG	ADDITIONAL DATA AND TEST RESULTS	SAMPLES
_~~	20.20				ALLUVIAL SILTY CLAY	1	12/2	۲		11111	Ť		o μ
DREHOLE 09_04.GDT 31/08/05					(As above).		CI-CH					4,7,11 N=18	SPT
22	25.25				ALL HOMAL CLAVEY CAND				; 				
SE - GATEWAY UPGRADE PROJECT.GR] [ALLUVIAL CLAYEY SAND Grey to pale brown, mainly moist to slightly wet, medium dense becoming dense with depth. Fine sand becoming medium grained with depth; occasional silty clay interlayers up to 20mm.							3,6,10 N=16	SPT
BOREHOLE WITH LITHOLOGY MEERA PIER 7 BONEHOLES-GATEWAY BRIDGE - GATEWAY UPGRADE PROJECTIGN ENGINEERING BONEHOLE 09 04 GDT 31/08/05					•		SC					16,21,27 N=48	Teg
BOREHOLE WITH LI	-28.25												

REMARKS SPT N values in gravel can expressimate density due to influence of coarser size gravel particles. This borelog should be read in conjunction with the appropriate Defect Description Sheets. Defect angles were measured with respect to a



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

GATEWAY UPGRADE PROJECT - GATEWAY BRIDGE DUPLICATION FOUNDATION INVESTIGATION **PROJECT** PIER 7 - SOUTHERN FACE OF PILE CAP-LEFT HAND/UPSTREAM SIDE COORDINATES 10202.7 E; 167918.8 N PROJECT No _FG5388 _ _ _ _ SURFACE R.L. __-3.25 __. DATE STARTED 16/04/05 DATUM SETP JOB No DATUM _AHD __ DRILLER CAIRNS DRILLING DATE COMPLETED 24/04/05 R.L RQD INTACT DEFECT ()% STRENGTH SPACING ADDITIONAL DATA $\widehat{\mathbb{E}}$ ဗ္ဗ MATERIAL (mm) LITHOLOGY DEPTH AND SAMPLE SAMPLES DESCRIPTION 2000 2000 2000 2000 2000 2000 CORE TEST RESULTS REC % 25 SAND AND GRAVEL Orange brown to brown, moist, very dense. Subrounded to subangular rock and quartzitic fragements sizing up to 40mm. 7.27.30/120 SPT BOREHOLE WITH LITHOLOGY. MEERA PIER 7 BOREHOLES-GATEWAY BRIDGE - GATEWAY UPGRADE PROJECT.GPU. ENGINEERING BOREHOLE 09_04.GDT 31/08/05 GP. GM -30.05 LOW GRADE COAL FINE GRAINED MAINLY DULL TO SLIGHTLY VITREOUS THINLY 30/110 LAMINATED FRAGILE SPT N>50 CARBONACEOUS SEDIMENTARY ROCK HW: Dark grey to black, fine grained. moist, very dense gravelly silt gradually grading into very low to low strength with depth. Frequent siltstone interbeds. (0)Coreloss Weathered & broken seam -32.35 MW: Dark grey to black, fine grained thinly laminated, low to medium strength with occasional high strength siltstone/sandstone interbeds. MW Is(50)=0.07 MPa (31) Coreloss LOGGED BY

REMARKS SPT N values in gravel conscients the appropriate density due to influence of coarser size gravel particles. This borelog should be read in conjunction with the appropriate Defect Description Sheets. Defect angles were measured with respect to a

A. DISSANAYAKE (DISS)



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

GATEWAY UPGRADE PROJECT - GATEWAY BRIDGE DUPLICATION FOUNDATION INVESTIGATION PROJECT PIER 7 - SOUTHERN FACE OF PILE CAP- LEFT HAND/UPSTREAM SIDE COORDINATES 10202.7 E; 167918.8 N PROJECT No FG5388 SURFACE R.L. __-3.25 ___ DATUM SETP DATE STARTED 16/04/05 JOB No DATUM _AHD __ DATE COMPLETED _24/04/05 DRILLER CAIRNS DRILLING WASHING CORE DRILLING INTACT DEFECT ()% STRENGTH SPACING ADDITIONAL DATA DEPTH (m) MATERIAL AND DESCRIPTION CORE SAMPL TEST RESULTS REC % 30 LOW GRADE COAL MW: (As above). Coreloss Intermittent waterloss between 29.81m to 31m. Water return above river water level with artesian condition when stop drilling. Weathered & broken seam BOREHOLE WITH LITHOLOGY MEERA PIER 7 BOREHOLES-GATEWAY BRIDGE - GATEWAY UPGRADE PROJECT. GPJ ENGINEERING BOREHOLE 09, 04.GDT 31/08/05 Broken zone -----Broken & weathered zone Is(50)=0.35 MPa o ΜW Cłay seam (29) Coreloss Weathered seam Clay seam Is(50)=0.03 MPa 0 Broken zone ls(50)=0.42 MPa O Fractured zone Fractured zone (23)Coreloss Fractured zone Fractured zone -37.30 SILTSTONE FINE GRAINED THINLY LAMINATED SEDIMENTARY ROCK MW - SW: Pale grey to grey, fine grained, thinly laminated, mainly medium strength. SW Defects: Generally rare with occasional drilling induced lamination partings, Broken zone Clay seam REMARKS

SPT N values in gravel can overestimate density due to influence of coarser size gravel particles. This borelog should be read in conjunction with the appropriate Defect Description Sheets. Defect angles were measured with respect to a



FOR GEOTECHNICAL TERMS AND SYMBOLS REFER FORM F:GEOT 017/2-2004 BOREHOLE No BH16 SHEET __8__ of __13__ REFERENCE No __H9565

LOGGED BY

A. DISSANAYAKE (DISS)

GATEWAY UPGRADE PROJECT - GATEWAY BRIDGE DUPLICATION FOUNDATION INVESTIGATION PROJECT PIER 7 - SOUTHERN FACE OF PILE CAP-LEFT HAND/UPSTREAM SIDE LOCATION COORDINATES 10202.7 E; 167918.8 N PROJECT No FG5388 SURFACE R.L. __-3,25 __. DATE STARTED 16/04/05 DATUM SETP JOB No DATUM _ AHD _ DATE COMPLETED 24/04/05 DRILLER CAIRNS DRILLING R.L RQD INTACT DEFECT BORING (m) ()% STRENGTH SPACING ADDITIONAL DATA ε 200 MATERIAL DEPTH (LITHOLOGY AND GRAPHIC SAMPLES DESCRIPTION CASIN WASH CORE SAMPL TESTS CORE TEST RESULTS REC % 35 -38.25 11111 4444 SILTSTONE, FINE GRAINED THINLY XXXXXXXXXXXX LAMINATED SEDIMENTARY ROCK MW - SW : As above is(50)=0.37 MPa Is(50)=1.04 MPa 0 SW (s(50)=0.30 MPa Is(50)=0.41 MPa 0 -39.00 (30) SANDSTONE 31/08/05 Clay seam FINE TO MEDIUM GRAINED MAINLY MΜ Broken zone LAMINATED TO SLIGHTLY MASSIVE SEDIMENTARY ROCK 04.GDT MW - SW : Pale grey to white, fine to SW Is(50)=0.32 MPa medium grained, mainly massive to slightly Is(50)=1.44 MPa 0 laminated, mainly medium strength. Fractured & altered Is(50)=0.47 MPa ENGINEERING BOREHOLE 09 Is(50)=0.31 MPa 0 Occasional mudstone & carbonaceous laminations; frequent irregular fractures throughout; some shearing and faulting ls(50)=0.50 MPa features; core appears to be slightly Is(50)=0.44 MPa 0 erodable. Weathered & altered band Erodable seam Clay seam with subvertical dip of 80°-90° BOREHOLE WITH LITHOLOGY MEERA PIER 7 BOREHOLES-GATEWAY BRIDGE - GATEWAY UPGRADE PROJECT.GPJ ΜW Clay seam Clay seam Clay seam Coreloss 90 (42) Clay seam 38 SW Is(50)=1.96 MPa Is(50)=1.39 MPa ٥ Clay seam MW SW ls(50)=0.10 MPa Is(50)=0.23 MPa 0 ls(50)=0.47 MPa ls(50)=1.50 MPa 0 SW ls(50)=0.08 MPa Is(50)=0.59 MPa (92)-43.25REMARKS SPT N values in gravel cam everestimate density due to influence of coarser size gravel particles. This borelog should

be read in conjunction with the appropriate Defect Description Sheets. Defect angles were measured with respect to a



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

BOREHOLE No	BH16
SHEET	_ 9 of13
REFERENCE No	H9565

GATEWAY UPGRADE PROJECT - GATEWAY BRIDGE DUPLICATION FOUNDATION INVESTIGATION PROJECT PIER 7 - SOUTHERN FACE OF PILE CAP-LEFT HAND/UPSTREAM SIDE LOCATION COORDINATES 10202.7 E; 167918.8 N PROJECT No FG5388 SURFACE R.L. __-3.25 ___ DATE STARTED _16/04/05 DATUM SETP _____ JOB No DATUM _AHD _. DATE COMPLETED 24/04/05 DRILLER CAIRNS DRILLING R,L ROD INTACT DEFECT NG H BORING E DRILLING (m) ()% STRENGTH SPACING ADDITIONAL DATA $\widehat{\mathbb{E}}$ 8 MATERIAL DEPTH AND SAMPLE DESCRIPTION USC | KEA | TESTS SAMPL CORE TEST RESULTS REC % 40 -43.2511111 11111 SANDSTONE SW: (As above) Rockmass becoming less erodable and better quality with depth; some faulting & shearing features between 41.4m to 41.74m. ENGINEERING BOREHOLE 09_04,GDT 31/08/05 Is(50)=0.13 MPa 0 Pressuremeter Test 5 @41.05m SW ls(50)=0.06 MPa Is(50)=0.11 MPa PIER 7 BOREHOLES-GATEWAY BRIDGE - GATEWAY UPGRADE PROJECT.GPJ -45.76 MUDSTONE 100 (61) FINE GRAINED THINLY LAMINATED SEDIMENTARY ROCK SW: Dark grey to black, fine grained, thinly laminated, mainly medium strength. SW Highly fractured and broken along the profile. is(50)=0.74 MPa 0 -46.48 SANDSTONE FINE TO MEDIUM GRAINED MAINLY Is(50)=3.20 MPa Is(50)=2.67 MPa Clay infilled weathered band LAMINATED TO SLIGHTLY MASSIVE 0 SEDIMENTARY ROCK SW: Pale grey to white, fine to medium grained, mainly massive to slightly Is(50)=0.28 MPa х laminated, mainly medium strength Core appears to be slightly erodable. Is(50)=0.65 MPa MEERA SW WITH LITHOLOGY Is(50)=0.80 MPa Х BOREHOLE (100)

REMARKS SPT N values in gravel can exerestimate density due to influence of coarser size gravel particles. This borelog should be read in conjunction with the appropriate Defect Description Sheets. Defect angles were measured with respect to a



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

BOREHOLE No <u>BH16</u>

SHEET <u>10</u> of <u>13</u>

REFERENCE NO <u>H9565</u>

GATEWAY UPGRADE PROJECT - GATEWAY BRIDGE DUPLICATION FOUNDATION INVESTIGATION PROJECT PIER 7 - SOUTHERN FACE OF PILE CAP-LEFT HAND/UPSTREAM SIDE LOCATION COORDINATES 10202.7 E; 167918.8 N PROJECT No _FG5388 _____ SURFACE R.L. __-3.25 __. DATE STARTED _16/4/05__ DATUM SETP JOB No DATUM __AHD __. DATE COMPLETED 24/4/05 DRILLER CAIRNS DRILLING R.L (NTACT DEFECT ING TH BORING E DRILLING (m) ()% SPACING STRENGTH ADDITIONAL DATA Ê MATERIAL DEPTH (AND SAMPLE DESCRIPTION SAMPLES WASH CORE TEST RESULTS REC % -48 25 45 SANDSTONE, FINE TO MEDIUM **GRAINED MAINLY LAMINATED TO** SLIGHTLY MASSIVE SEDIMENTARY ROCK Is(50)=0.31 MPa x o SW: As above Is(50)=0.09 MPa SW UCS=11MPa MC=3 74% WD=2470N/m² Is(50)=0.81 MPa ls(50)=0.49 MPa Pressuremeter 0 -49.08 Test 4 @ 45.6m ENGINEERING BOREHOLE 09_04.GDT 31/8/05 INTERBEDDED SANDSTONE AND (s(50)=1.30 MPa o MUDSTONE. SANDSTONE DOMINANT FINE TO MEDIUM GRAINED ls(50)=0.31 MPa ls(50)=0.05 MPa INTERBEDDED /LAMINATED 0 SEDIMENTARY ROCK SW: Pale grey to black banded, fine grained, interbedded/laminated medium to high strength. Some healed faulting features below SW Pressuremeter 46.65m. Test 3 @ 46.6m ls(50)=0.57 MPa (s(50)=1.45 MPa Rehealed fault zones PIER 7 BOREHOLES-GATEWAY BRIDGE - GATEWAY UPGRADE PROJECT.GPJ -50.60 ls(50)=0.44 MPa SANDSTONE 0 (94) Is(50)=0.89 MPa FINE TO MEDIUM GRAINED MAINLY LAMINATED TO SLIGHTLY MASSIVE Is(50)=0.03 MPa SEDIMENTARY ROCK 0 Rehealed fault zones SW: Pale grey to white, fine to medium grained, mainly massive to slightly laminated, mainly medium to high strength. UCS=26MPa MC=3.82% WD=2530N/m² Is(50)=1.10 MPa х SW Pressuremeter Test 2 @ 48.2m Rehealed fault zones . ls(50)=0.82 MPa Is(50)=0.41 MPa 0 -52.20 ls(50)=0.72 MPa ls(50)=0.50 MPa INTERBEDDED SANDSTONE AND 0 BOREHOLE WITH LITHOLOGY MEERA MUDSTONE. MUDSTONE DOMINANT ls(50)=0.07 MPa Rehealed fault zonesls(50)=0.06 MPa X SW: Pale grey to black banded, fine 0 grained, interbedded/laminated, medium to high strength. Some healed faulting features in the upper area. SW Is(50)=0.28 MPa (s(50)=1.39 MPa -53.10 MUDSTONE SW: (see next page). SW REMARKS

SFT N values in gravel can overestimate density due to influence of coarser size gravel particles. This borelog should be read in conjunction with the appropriate Defect Description Sheets. Defect angles were measured with respect to a horizontal plane.



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

BOREHOLE No	BH16
SHEET	_11 of _13 _
REFERENCE No	H9565

GATEWAY UPGRADE PROJECT - GATEWAY BRIDGE DUPLICATION FOUNDATION INVESTIGATION **PROJECT** LOCATION PIER 7 - SOUTHERN FACE OF PILE CAP-LEFT HAND/UPSTREAM SIDE COORDINATES 10202.7 E; 167918.8 N PROJECT No FG5388 _ _ _ SURFACE R.L. _-3.25 __. DATE STARTED 16/4/05 DATUM SETP _ JOB No DATUM _AHD _. DATE COMPLETED _24/4/05_ DRILLER CAIRNS DRILLING R.L ROD INTACT DEFECT BORING (m) ()% STRENGTH SPACING ADDITIONAL DATA DEPTH (m) 8 MATERIAL (mm) LITHOLOGY AND CRAPHIC DESCRIPTION SAMPI SAMPLI TESTS CORE WEA 프子프로그국의 성용성용성 TEST RESULTS SS REC % 50 -53.25 MUDSTONE FINE GRAINED THINLY LAMINATED SEDIMENTARY ROCK Brecciated zone @ 60° - Rock SW: Dark grey to black, fine grained thinly MW fragments in clayey mater)=0.07 MPa laminated medium to high strength. SW Is(50)=0.12 MPa 0 Sheared zone (60) Frequent brecciated and sheared zones up to 600mm; some areas were healed with Is(50)=1.03 MPa o cemented matrix and the other areas were infilled with high plastic silty clay exhibiting rockfill properties. Clay seam with subvertical dip of -51 100 04.GDT (50)BOREHOLE 09 Is(50)=0.34 MPa х SW Is(50)=0.36 MPa x Pressuremeter Test 1 @ 51.55m ENGINEERING Is(50)=0.22 MPa Calcite vein UCS≃12MPa <u>9</u> MC=3.96% WD=2540N/m2 ls(50)=0.28 MPa GATEWAY UPGRADE PROJECT ls(50)=0.01 MPa 0 Brecciated zone- rock fragments in нν clayey matrix. Brecciated zone- rock fragments in clayey matrix MEERA PIER 7 BOREHOLES-GATEWAY BRIDGE ΜW SW Broken zone Clay infilled broken zone 100 Is(50)=0.16 MPa х HW-MW Is(50)=0.22 MPa BOREHOLE WITH LITHOLOGY MW SW Clay seam Brecciated zonels(50)=0.13 MPa НΝ rock fragments in alayey matrix. LOGGED BY

REMARKS SPT N values in gravel can overestimate density due to influence of coarser size gravel particles. This borelog should be read in conjunction with the appropriate Defect Description Sheets. Defect angles were measured with respect to a horizontal plane.

A. DISSANAYAKE (DISS)



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

GATEWAY UPGRADE PROJECT - GATEWAY BRIDGE DUPLICATION FOUNDATION INVESTIGATION PROJECT PIER 7 - SOUTHERN FACE OF PILE CAP-LEFT HAND/UPSTREAM SIDE LOCATION COORDINATES 10202.7 E; 167918.8 N SURFACE R.L. __-3.25 ___ PROJECT № FG5388 DATE STARTED _16/04/05 DATUM SETP DATUM _AHD _. JOB No DATE COMPLETED 24/04/05 DRILLER CAIRNS DRILLING RΙ 800 INTACT DEFECT ()% STRENGTH SPACING ADDITIONAL DATA DEPTH (m) ဗို MATERIAL LITHOLOGY AND GRAPHIC SAMPLE SAMPLES DESCRIPTION CASING WASH I NEAL KEAL SECTION OF S CORE TEST RESULTS -58.25 REC % 55 MUDSTONE HW -SW : As above ls(50)=0.18 MPa ls(50)=0.10 MPa ls(50)=0.08 MPa HW 0 ls(50)=0.13 MPa MW ENGINEERING BOREHOLE 09_04.GDT 31/08/05 (17)Brecciated zone мw Clay infilled broken zone GATEWAY UPGRADE PROJECT.GPJ -60.35 SILTSTONE FINE GRAINED THINLY LAMINATED SEDIMENTARY ROCK SW SW: Pale grey to grey, fine grained thinly laminated, medium to high strength. Defects: Generally rare -60.85 MUDSTONE HW - SW: Dark grey to black, highly Broken zone fractured, brecciated in most places, MW medium to mainly high strength. Rehealed brecciated rock fragments, some Brecciated zone- rock fragments in BRIDGE. areas, matrix is high plastic clay and some clayey matrix. feldspathic matrix MEERA PIER 7 BOREHOLES-GATEWAY HW Is(50)=0.03 MPa SW НΜ BOREHOLE WITH LITHOLOGY MW SW REMARKS SPT N values in gravel can everestimate density due to influence of coarser size gravel particles. This borelog should LOGGED BY

SPT N values in gravel can everestimate density due to influence of coarser size gravel particles. This borelog should be read in conjunction with the appropriate Defect Description Sheets. Defect angles were measured with respect to a horizontal plane.

A. DISSANAYAKE (DISS)

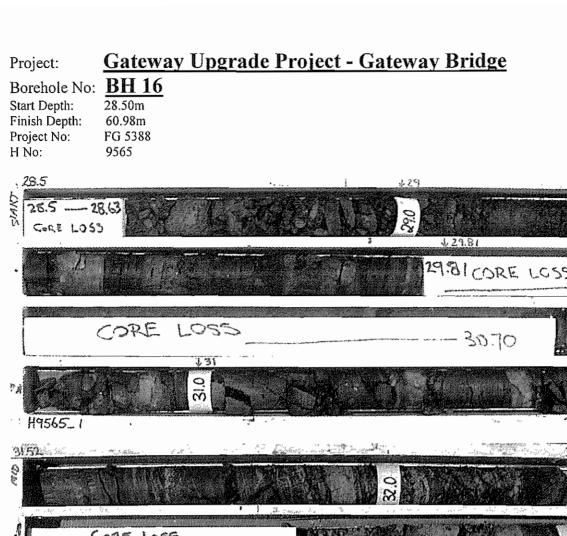


FOR GEOTECHNICAL TERMS AND SYMBOLS REFER FORM F:GEOT 017/2-2004

BOREHOLE No	BH16
SHEET	_1 <u>3</u> _ of _1 <u>3</u> _
REFERENCE No	H9565

PROJECT GATEWAY UPGRADE PROJECT - GATEWAY BRIDGE DUPLICATION FOUNDATION INVESTIGATION LOCATION PIER 7 - SOUTHERN FACE OF PILE CAP-LEFT HAND/UPSTREAM SIDE 10202.7 E; 167918.8 N COORDINATES PROJECT No _FG5388 _ _ _ _ SURFACE R.L. __-3,25 __. DATE STARTED _16/04/05 DATUM SETP JOR No DATUM _AHD _. DATE COMPLETED 24/04/05 DRILLER CAIRNS DRILLING R.L 800 INTACT DEFECT BORING (m) ()% ADDITIONAL DATA SPACING STRENGTH DEPTH (m) ဗ္ပ MATERIAL (mm) AND SAMPLES DESCRIPTION -63.25 -63.25 SAMPL TESTS CORE TEST RESULTS REC % 60 MUDSTONE SW: (As above). SW HW Brecciated zone- rock fragments in 31/08/05 clayey matrix SW -64.23 100 Borehole terminated at 60.98m ENGINEERING BOREHOLE 09_04.GDT BOREHOLE WITH LITHOLOGY MEERA PIER 7 BOREHOLES-GATEWAY BRIDGE - GATEWAY UPGRADE PROJECT.GPJ

REMARKS SPT N values in gravel can overestimate density due to influence of coarser size gravel particles. This borelog should be read in conjunction with the appropriate Defect Description Sheets. Defect angles were measured with respect to a horizontal plane.



Gateway Upgrade Project - Gateway Bridge Project:

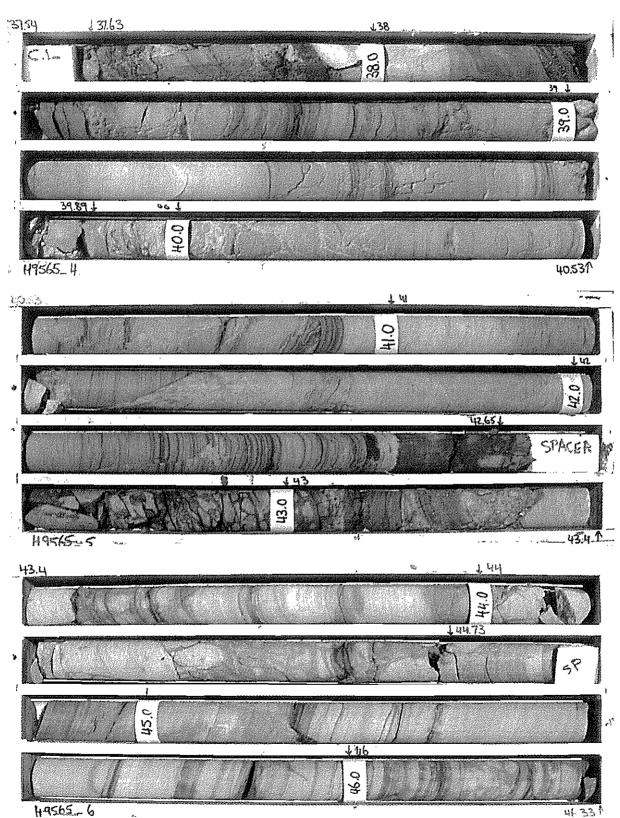
Borehole No: BH 16 28.50m Start Depth:

Finish Depth: Project No:

60.98m FG 5388

H No:

9565



Project: Gateway Upgrade Project - Gateway Bridge

Borehole No: BH 16
Start Depth: 28.50m
Finish Depth: 60.98m

Project No: FG 5388
H No: 9565

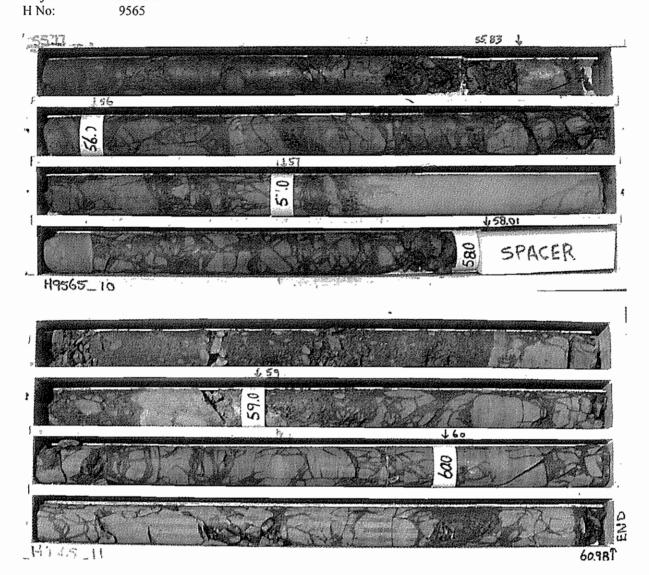


Gateway Upgrade Project - Gateway Bridge Project:

Borehole No: BH 16Start Depth: 28.50m Finish Depth: 60.98m

Project No:

FG 5388 9565



ROAD SYSTEM AND ENGINEERING

Geotechnical Branch

35 Butterfield Street HERSTON Q 4006 Phone: (07) 38343035 Fux: (07) 38343011



DEFECT DESCRIPTIONS OF ENGINEERING BORELOGS

(CHARACTERISATION OF DEFECTS ARE IN ACCORDANCE WITH ISRM SUGGESTED METHODS (1981) BOREHOLE NO: BH 16

SHEET: 1 of 6

REFERENCE NO: H9565

PROJECT

GATEWAY UPGRADE PROJECT - GATEWAY BRIDGE DUPLICATION FOUNDATION

INVESTIGATION

LOCATION : PIER 7 – SOUTHERN FACE OF PILE CAP – LEFT HAND /UPSTREAM SIDE

PROJECT NO: FG5388 SURFUCE RL -3.25 DRILLER CAIRNS DRILLING

JOB NO : DATUM AHD DATE DRILLED 16-24/4/05

DEPTH	DEFECT TYPE	DIP	PLANARITY	ROUGHNESS	APERTURE	WALL ALTERATION	OTHER
28.13-29.10	WS/BZ	CONT.	-		0	W	
30.76-31.03	WS/BZ		-5	-	О	W	
31.12-31.18	WS/BZ	-	2	-	0	W	
31.22-31.32	WS/BZ	-	-	H. H.	0	W	
31.60	LP	15°	P	S	C	Cn	DI
31.62	LP	15°	P	S	С	Cn	DI
31.74	LP	15°	P	S	С	Cn	DI
31.78	LP	15°	P	S	С	Cn	DI
32.08-32.18	WS	<10°	Р	_	0	W	Parallel to LP
32.18-32.22	СВ						
32.64-32.77	BZ/WS		-	-	0	WS	
32.84-32.89	WS			-	О	W	Parallel to LP
33.15-33.21	BZ/WS	-	-	-	C	W	
33.29-33.36	BZ	-	-	-	0		
33.48-33.54	BZ/WS	-	-	_	O	W	
33.62-3.72	BZ/WS	-	-	-	0	W	
33.90-34.05	BZ/WS		-	-	С	W	CI
34.25	Fr		Cu		Т		DI
34.33	LP	40°	ST	R	С		DI
34.45	J	40° & 90°	CM	R	С		DI
34.50-34.56	FZ	20°	Р		С		DI
34.62	LP	20°	Р	-	С	_	CI
34.65	J	50°	P	S	С		CI

Abbreviations

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	ROUGHNESS		WALL ALTERATIONS		ТУРЕ		OTHER
R	Rough	FeSt	Iron Stained	J	Joint	P	Partly
S	Smooth	W	Weathered	В	Bedding	CL	Carbonaceous lamination
SL	Slickensided	SM	Secondary Mineralisation	CB	Clay Band	Co	Coal seam
				Fu	Fault	Ľn	Incipient
	PLANARITY		APERTURE		Lamination Parting	SI	Sand Infill
P1	Planar	С	Closed	SZ	Sheared Zone	Н	Horizontal
St	Stepped	0	Open	CZ	Crushed Zone	V	Vertical
Un	Undulating	F	Filled	ws	Weathered Seam	CI	Clay Infill
Cu	Curved	T	Tight	BZ	Broken Zone	Cn	Clean
Ir	Irregular			HFZ	Highly Fractured Zone	CS	Clay Seam
				Fr	Fracture	DI	Drilling Induced

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

F:GEOT533/4

ROAD SYSTEM AND ENGINEERING Geotechnical Branch

35 Butterfield Street HERSTON Q 4006 Phone: (07) 38343035 Fux: (07) 38343011



DEFECT DESCRIPTIONS OF ENGINEERING BORELOGS

[CHARACTERISATION OF DEFECTS ARE IN ACCORDANCE WITH ISRM SUGGESTED METHODS (1981)]

BOREHOLE NO: BH 16

SHEET: 2 of 6

REFERENCE NO: H9565

PROJECT

GATEWAY UPGRADE PROJECT - GATEWAY BRIDGE DUPLICATION FOUNDATION

INVESTIGATION

LOCATION : PIER 7 – SOUTHERN FACE OF PILE CAP – LEFT HAND /UPSTREAM SIDE

PROJECT NO: FG5388 SURFUCE RL -3.25 DRILLER CAIRNS DRILLING

JOB NO : DATUM AHD DATE DRILLED 16-24/4/05

DEPTH	DEFECT TYPE	DIP	PLANARITY	ROUGHNESS	APERTURE	WALL ALTERATION	OTHER
34.66-35.05	BZ	-	Ir	-	С	-	Slightly
35.05	J	50°	Cu	<u> </u>	С		CI
35.12	J	30°	St	S	С	DI	DI
35.52	J	65°	Ir	-	С	-	CI
35.58	LP	30°	P	S	С	DI	DI
35.65	Fr	-	Ir	-			DI
35.75-35.80	CS						CI
35.85	J	70°	P		Т		CI, 5mm
35.73-35.95	WS	-	-	-	С	W	
36.20-36.30	SZ	20°	P	-		w	CI
36.30-36.40	BZ		P		С		DI, Parallel to LP
36.50	LP	30°	P	S	С		DI
36.68-38.71	WS	_	-		0	W	-
36.80	J	70°	P	R	C	Cn	DI
37.00	CS	80°-90°	Un	-	С		CI, Parallel to LP
37.10-37.15	CS	30°					CI, Parallel to LP
37.40-37.47	CS	10°	-	-	С		Parallel to LP
37.54-37.63							Coreloss
37.90-37.93							Coreloss
37.93-37.95							Coreloss
37.95	BP	30°	P	S	С		DI
38.22	BP	30°	P	R	C		DI, Parallel to LP
38.35-38.29	CB						

Abbreviations

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	ROUGHNESS		WALL ALTERATIONS		TYPE		OTHER	
R	Rough	FeSt	Iron Stained	J	Joint	P	Partly	
S	Smooth	W	Weathered	В	Bedding	CL	Carbonaceous lamination	
SL	Slickensided	SM	Secondary Mineralisation	CB	Clay Band	Co	Coal seam	
				Fu	Fault	In	Incipient	
	PLANARITY		APERTURE	LP	Lamination Parting	SI	Sand Infill	
P1	Planar	С	Closed	SZ	Sheared Zone	Н	Horizontal	
St	Stepped	0	Open	CZ	Crushed Zone	V	Vertical	
Un	Undulating	F	Filled	WS	Weathered Seam	CI	Clay Infill	
Cu	Curved	T	Tight	BZ	Broken Zone	Cn	Clean	
ŀ	Irregular			HFZ	Highly Fractured Zone	CS	Clay Seam	
				Fr	Fracture	DI	Drilling Induced	

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

ROAD SYSTEM AND ENGINEERING

Geotechnical Branch

35 Butterfield Street HERSTON Q 4006 Phone: (07) 38343035 Fux: (07) 38343011



DEFECT DESCRIPTIONS OF ENGINEERING BORELOGS

[CHARACTERISATION OF DEFECTS ARE IN ACCORDANCE WITH ISRM SUGGESTED METHODS (1981)]

BOREHOLE NO: BH 16
SHEET: 3 of 6
REFERENCE NO: H9565

PROJECT

GATEWAY UPGRADE PROJECT - GATEWAY BRIDGE DUPLICATION FOUNDATION

INVESTIGATION

LOCATION : PIER 7 - SOUTHERN FACE OF PILE CAP - LEFT HAND /UPSTREAM SIDE

PROJECT NO: FG5388 SURFUCE RL -3.25 DRILLER CAIRNS DRILLING

JOB NO : DATUM AHD DATE DRILLED 16-24/4/05

					_		
DEPTH	DEFECT TYPE	DIP	PLANARITY	ROUGHNESS	APERTURE	WALL ALTERATION	OTHER
38.45	LP	<10°	Ir	R	С	Cn	
38.50	LP	<15°	Ir	R	С	Cn	
38.65	LP	25°	P	S	С		DI
38.71	BP	25°	P	5	С		DI
38.83-38.87	WS	-	-	-		W	
39.20	J	70°	P	R	С		
39.37	LP	15°	P	S	С		
39.45-39.65	BZ	-	~	*	С		Irregular cracking
39.90	LP	5°	P	S	С		CL
40.0	J	45°	P	R	C		-
40.20	J	60°	P	-	T		
40.40	J	60°	P	-	С		DI
40.42	LP	20°	P	R	С		DI
40.78	J	50°	Ir	R	С		
40.90	BP	30°	P	S	С		CI
41.35-41.60	Fu	65°	P	-	Т		
41.90	J	60°	P	S	С		CI
41.90	J	70°	P	S	С		CI
42.13	BP	30°	P	S	Т		DI
42.21	BP	30°	P	S	T		DI
42.35	BP	30°	P	S	T		DI
42.47	BP	30°	P	S	T		DI, Co
42.60-42.62	70°-90°						CI

Abbreviations

	ROUGHNESS	'	WALL ALTERATIONS		TYPE		OTHER
R	Rough	FeSt	Iron Stained	3	Joint	P	Partly
S	Smooth	W	Weathered	В	Bedding	CL	Carbonaceous lamination
SL	Slickensided	SM	Secondary Mineralisation	СВ	Clay Band	Co	Coal seam
				Fu	Fault	<u>I</u> n	Incipient
PLANARITY			APERTURE		Lamination Parting	SI	Sand Infill
Pl	Planar	С	Closed	SZ	Sheared Zone	Н	Horizontal
St	Stepped	0	Open	CZ	Crushed Zone	V	Vertical
Un	Undulating	F	Filled	WS	Weathered Seam	Cĩ	Clay Infill
Cu	Curved	T	Tight	BZ	Broken Zone	Cn	Clean
Ir	Irregular			BrZ	Brecciated Zone	CS	Clay Seam
				Fr	Fracture	DI	Drilling Induced

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

ROAD SYSTEM AND ENGINEERING Geotechnical Branch

35 Butterfield Street HERSTON Q 4006 Phone: (07) 38343035 Fux: (07) 38343011



BOREHOLE NO

BH 16

4 of 6

H9565

DEFECT DESCRIPTIONS OF ENGINEERING BORELOGS

FENCIFERING BORELOS

[CHARACTERISATION OF DEFECTS ARE IN ACCORDANCE WITH
ISRM SUGGESTED METHODS (1981)]

REFERENCE NO:

PROJECT GATEWAY UPGRADE PROJECT – GATEWAY BRIDGE DUPLICATION FOUNDATION

INVESTIGATION

LOCATION : PIER 7 – SOUTHERN FACE OF PILE CAP – LEFT HAND /UPSTREAM SIDE

PROJECT NO: FG5388 SURFUCE RL -3.25 DRILLER CAIRNS DRILLING

JOB NO : DATUM AHD DATE DRILLED 16-24/4/05

DEPTH	DEFECT TYPE	DIP	PLANARITY	ROUGHNESS	APERTURE	WALL ALTERATION	OTHER
42.55-42.95	HFZ	5°	-	-	0		CI, Parallel to LP
43.05-43.10	BZ		-	-	0		CI, Parallel to LP
43.15-43.17	CS						CI
43.23-43.30	BrZ	-	-	-	С		CI
43.56	J	60°	P	-	С		
43.60	LP	20°	P	S	C		
43.82	LP	20°	P	S	T		
44.02	LP	20°	P	S	С		CI
44.02	J	60°	P	S	С		CI
44.36	J	80°	P	-	С		
44.37	LP	30°	Р	S	С		
44.73	Fr	î					DI
44.95	LP	30°	P	S	С		DI
45.20	BP		St	S	С		Faulted
45.33	Bb	30°	P	S	С		DI
45.70	BP	30°	Р	S	С		DI
45.85	BP	30°	P	S	С		DI
46.05	BP	30°	P	S	С		DI
46.55	LP	15°	P	S	Т		DI
46.70-46.95	Fu	60°	P		T		
46.95-47.05	Fu	70°-80°	y)	12.0	Т		
47.36	LP	20°	P	S	С		DI
47.53-47.70	Fu	50°	P	R	T		

Abbreviations

			Autre	1				
	ROUGHNESS		WALL ALTERATIONS		TYPE		OTHER	
R	Rough	FeSt	Iron Stained	J	Joint	P	Partly	
S	Smooth	W	Weathered	В	Bedding	CL	Carbonaceous lamination	
SL	Slickensided	SM	Secondary Mineralisation	СВ	Clay Band	Co	Coal seam	
	7			Fu	Fault	In	Incipient	
PLANARITY			APERTURE	LP	Lamination Parting	SI	Sand Infill	
Pì	Planar	С	Closed	SZ	Sheared Zone	Н	Horizontal	
St	Stepped	0	Open	CZ	Crushed Zone	V	Vertical	
Un	Undulating	F	Filled	ws	Weathered Seam	CI	Clay Infill	
Сп	Curved	Т	Tight	BZ	Broken Zone	Cn	Clean	
Ŀ	Irregular			HFZ	Highly Fractured Zone	CS	Clay Seam	
				BrZ	Brecciated Zone	IQ	Drilling Induced	

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

F:GEOT533/4

ROAD SYSTEM AND ENGINEERING

Geotechnical Branch

35 Butterfield Street HERSTON Q 4006 Phone: (07) 38343035 Fux: (07) 38343011



DEFECT DESCRIPTIONS OF ENGINEERING BORELOGS

[CHARACTERISATION OF DEFECTS ARB IN ACCORDANCE WITH ISRM SUGGESTED METHODS (1981)] BOREHOLE NO: BH 16

SHEET: 5 of 6

REFERENCE NO: H9565

PROJECT

GATEWAY UPGRADE PROJECT - GATEWAY BRIDGE DUPLICATION FOUNDATION

INVESTIGATION

LOCATION

PIER 7 - SOUTHERN FACE OF PILE CAP - LEFT HAND /UPSTREAM SIDE

PROJECT NO:

FG5388

SURFUCE RL

DATUM

-3.25 DRILLER

CAIRNS DRILLING

JOB NO

FQ3300

AHD

DATE DRILLED

16-24/4/05

DEPTH	DEFECT TYPE	DIP	PLANARITY	ROUGHNESS	APERTURE	WALL ALTERATION	OTHER
47.70	J	70°	P	-	Т	Cn	
47.85	J	50°	P	Р	Т	Cn	DI
47.85	J	60°	P	R	Т	Cn	DI
48.15	J	45°	Un	-	Т		DI
48.45	J	45°	P	-	Τ		Healed
48.65-49.70	Fu	45°	-	-	T		Healed
48.95-49.25	Fu	35°	-	-	-		Healed
49.37	LP	25°	P	S	С	-	DI
49.43	F	70°	Un	-	С	-	
49.50	F	60°	P	- 3	С		
49.66	LP	30°	P	S	С	-	DI
50.01-50.21	BrZ	60°		-	С	-	Healed
50.35	Fr		St	R	T		DI
50.40-50.43	SZ	70°		-	С		CI
50.56	LP	35°	St	R	0	Cn	
50.60	LP	35°	P	S	T		DI
50.66	J	60°	P	-	T		
50.85-51.00	BrZ	70°-90°	Cu	_	T	-	Healed, CI
51.03	Fr	-	-	-			DI
51.05	LP	30°	P	-	0		DI
51.20	LP	5°	P	S	С		DI
51.35	LP	20°	P	S	С		DI
51.38	LP	20°	Р	S	С		DI

Abbreviations

			7100161	enterono			
	ROUGHNESS		WALL ALTERATIONS		ТҮРЕ		OTHER
R	Rough	FeSt	Iron Stained	J	Joint	P	Partly
S	Smooth	W	Weathered	В	Bedding	CL	Carbonaceous lamination
SL	Slickensided	SM	Secondary Mineralisation	CB	Clay Band	Со	Coal seam
				Fu	Fault	In	Incipient
	PLANARITY APERTURE		LP	Lamination Parting	SI	Sand Infill	
Ρĺ	Planar	С	Closed	SZ	Sheared Zone	Н	Horizontal
St	Stepped	0	Open	CZ	Crushed Zone	V	Vertical
Ųn	Undulating	F	Filled	Ws	Weathered Seam	CI	Clay Infill
Cu	Curved	T	Tight	BZ	Broken Zone	Cn	Clean
Ĭr	Irregular			BrZ	Brecciated Zone	CS	Clay Seam
				Fr	Fracture	DI	Drilling Induced

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

ROAD SYSTEM AND ENGINEERING

Geotechnical Branch

35 Butterfield Street HERSTON Q 4006 Phone: (07) 38343035 Fux: (07) 38343011



DEFECT DESCRIPTIONS OF ENGINEERING BORELOGS

[CHARACTERISATION OF DEFECTS ARE IN ACCORDANCE WITH ISRM SUGGESTED METHODS (1981)]

BOREHOLE NO : BH 16

SHEET : 6 of 6

REFERENCE NO : H9565

PROJECT

GATEWAY UPGRADE PROJECT - GATEWAY BRIDGE DUPLICATION FOUNDATION

INVESTIGATION

LOCATION : PIER 7 – SOUTHERN FACE OF PILE CAP – LEFT HAND /UPSTREAM SIDE

PROJECT NO: FG5388 SURFUCE RL -3.25 DRILLER CAIRNS DRILLING

JOB NO : DATUM AHD DATE DRILLED 16-24/4/05

DEPTH	DEFECT TYPE	DIP	PLANARITY	ROUGHNESS	APERTURE	WALL ALTERATION	OTHER
51.45	J	60°	P	-	Т		
51.90	J	70°	Р	-	Т		CV
52.05	Fr	70°	Cu		T		CV
52.00	LP	10°	Un	S	Т		DI
52.15	LP	5°	P	S	Т		DI
52.35-52.95	BrZ	-	-	-	C		CI
52.95-53.53	HFZ	-5.0	-		O		ĆĪ
52.46-52.51	BrZ	-	-		О		CI, Healed
52.57-52.64	BZ		Ir		0	W	CI
52.57-52.85	BrZ				С	W	CI, Healed
52.95-54.65	HFZ		Īr		0	W	CI
54.65-55.85	BrZ				C	W	CI, Healed
56.02-57.15	HFZ	_	Ir		0	W	CI
57.90-59.25	BrZ				Ō-C	W	CI
59.25-60.75	BZ		Ir		0		CI
60.75-60.80	BZ		Ir		О	W	CI

Abbreviations

		TADOTO	**********			
ROUGHNESS		WALL ALTERATIONS		ТҮРЕ	OTHER	
Rough	FeSt	Iron Stained	ĭ	Joint	P	Partly
Smooth	W	Weathered	BrZ	Brecciated Zone	CL	Carbonaceous lamination
Slickensided	SM	Secondary Mineralisation	СВ	Clay Band	Co	Coal seam
			Fu	Fault	In	Incipient
PLANARITY		APERTURE	LP	Lamination Parting	St	Sand Infill
Planar	C	Closed	SZ	Sheared Zone	Н	Horizontal
Stepped	0	Open	CZ	Crushed Zone	CV	Calcite Vein
Undulating	F	Filled	ws	Weathered Seam	CI	Clay Infill
Curved	T	Tight	BZ	Broken Zone	Cn	Clean
Irregular			HFZ	Highly Fractured Zone	CS	Clay Seam
			Fr	Fracture	DI	Drilling Induced
_	Rough Smooth Slickensided PLANARITY Planar Stepped Undulating Curved	Rough FeSt Smooth W Slickensided SM PLANARITY Planar C Stepped O Undulating F Curved T	ROUGHNESS Rough FeSt Iron Stained Smooth W Weathered Slickensided SM Secondary Mineralisation PLANARITY Planar C Closed Stepped O Open Undulating F Filled Curved T Tight	ROUGHNESS Rough FeSt Iron Stained I Smooth W Weathered BrZ Slickensided SM Secondary Mineralisation CB Fu PLANARITY APERTURE LP Planar C Closed SZ Stepped O Open CZ Undulating F Filled WS Curved T Tight BZ Irregular	Rough FeSt Iron Stained I Joint Smooth W Weathered BrZ Brecciated Zone Slickensided SM Secondary Mineralisation CB Clay Band Fu Fault PLANARITY APERTURE LP Lamination Parting Planar C Closed SZ Sheared Zone Stepped O Open CZ Crushed Zone Undulating F Filled WS Weathered Seam Curved T Tight BZ Broken Zone Irregular HFZ Highly Fractured Zone	ROUGHNESS Rough FeSt Iron Stained I Joint P Smooth W Weathered BrZ Brecciated Zone CL Slickensided SM Secondary Mineralisation CB Clay Band Co Fu Fault In PLANARITY APERTURE LP Lamination Parting SI Planar C Closed SZ Sheared Zone H Stepped O Open CZ Crushed Zone CV Undulating F Filled WS Weathered Seam CI Curved T Tight BZ Broken Zone CS

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