Appendix A

Site-specific Ground Conditions

# **A1 Site-Specific Ground Conditions**

Stratum	Approximat e Top of Stratum (mOD)	Approximat e Thickness of Stratum (m)	Description	Field Observations
Area 1: Chai	inage 0m to 12	0m (From Eus	ton Road to start of realignme	ent Area)
Made Ground	+17.0	2.5	Firm, friable, dark brown, fine to coarse sandy, silty clays with some to much angular to rounded fine to coarse gravel of mainly brick with concrete, coal, flint, wood and tile. Occasional rootlets.	No odours or visual contamination observed.
Alluvial Deposits	-	-	-	Not recorded on logs in this area.
London Clay	+14.5	10	Firm, fissured, brown, occasionally mottled, light grey clay.	Soils observed to be dry. No odours or visual contamination
			At depth: firm to stiff, grey- brown, mottled blue, extremely closely fissured clay. Occasional bioturbation and partings (<1mm) of yellow brown fine sand/silt.	observed.
Area 2: Chai	inage 120m to	260m (Realign	ment works area)	
Made Ground	+16.75	2 to 4	Orange-brown, grey-black, silty, soft to firm clay or sand and flint gravel with some clinker, slag and brick fragments. Probably soft to firm.	No odours or visual contamination observed.
Alluvial Deposits	+14.75	1.5	Firm, brown, mottled, slightly sandy clay with a little rounded, fine and medium flint gravel.	No odours or visual contamination observed.
London Clay	+13.25	15	Firm, fissured, brown, occasionally mottled, light grey clay with occasional fine to coarse gravel and fine sand. Fissures are extremely closely spaced and subhorizontal.	No odours or visual contamination observed. Soils observed to be dry.

Stratum	Approximat e Top of Stratum (mOD)	Approximat e Thickness of Stratum (m)	Description	Field Observations
Made Ground	+16.5	2 to 4	Brownish, grey-black, silty clay or sand and gravel with some clinker, slag, glass, shell and brick fragments. Occasional black sand and subangular to subrounded fine gravel of ash.	Hydrocarbon and diesel odours noted in Made Ground to the north of the site area. Ash and slag observed.  Perched groundwater present in places at a depth of 2mbgl.
Alluvial Deposits	+14.5	2	Discontinuous alluvial deposits of silts and clays.	Ash and slag observed.
London Clay	+12.5	15	Firm, fissured, brown, occasionally mottled, light grey clay.  At depth: very soft, grey organic clay with occasional gravel size pockets of black fibrous peat and a little angular, coarse flint gravel.	Occasional fine to coarse gravel sized pockets of black sandy clay with an odour of naphthalene and rare hessian sack fragments.  Dry.

'mbgl' indicates metres below ground level

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v	ľ	μ

### Soil Mechanics

TRIAL PIT No.TP7402

Sheet 1 of 3

Equipment & Methods Hand dug inspection pit to 3.65m. Pit dimensions 0.90m by 2.90m.

Location No. 8109

CONTRACT 2 FOR PHASE 4 (1997) GROUND INVESTIGATIONS IN PROJECT AREA 100 Location

Support used : Shoring Backfill : Arisings and imported granular fill.	Carried			ways Limited	.CI A	KEN II	00	
	Ground			Coordina 530131.0				Date 13/05/97
	16.39	m AUD		183031.54	4 mN		to	15/05/97
Decembed on	Reduced	Legend	Depth	Sam	ples/T	ests		
Description FACE	Level	Legend	(Thick)	Depth	Sam Type	No.	Test	Field Records
Unreinforced CONCRETE. (MADE GROUND)	16.39 16.29		(0.10) 0.10	0.10 0.20		1 2		
rick work in large arch (see sketch). MADE GROUND)			(0.90)	0.50	С	3		
ledium dense brown slightly clayey fine to	15.39		1.00	1.00	С	4		
coarse SAND and fine to medium rounded to subangular GRAVEL comprising flint, brick with a little wood and metal fragments. Locally with some cobbles and rare boulder size masonry fragments.  Below 1.70m, becoming increasingly clayey.  (MADE GROUND - SAND AND GRAVEL)			(1.00)					
	14.39		2.00	2.00	С	5		
irm locally soft to stiff brown sandy CLAY				2.50	W	8		
ith some, locally much fine rounded to angular int and brick gravel with a little wood and etal.  3.20m, horizon of horizontally orientated ricks, no visible cement.			(1.65 pen)	2.65	D	1		
elow 3.20m, with frequent brick fragments. MADE GROUND - CLAY)			-	3.20 3.00 - 3.26	D C	2 6		
TRIAL PIT ENDS AT 3.65 m.	12.74		3.65	3.65	D	3		
			-					-
			-					
			-					
Remarks Stability : All stable				Sketch		A		Logged by

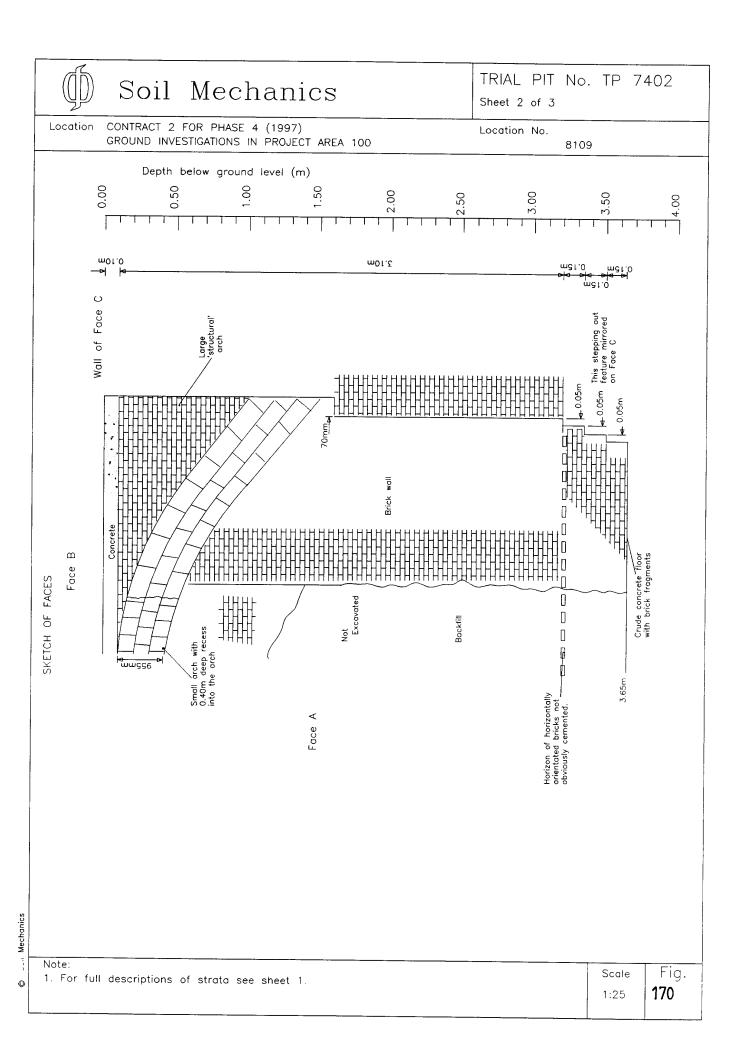
Similarity of faces : See sheet 2.

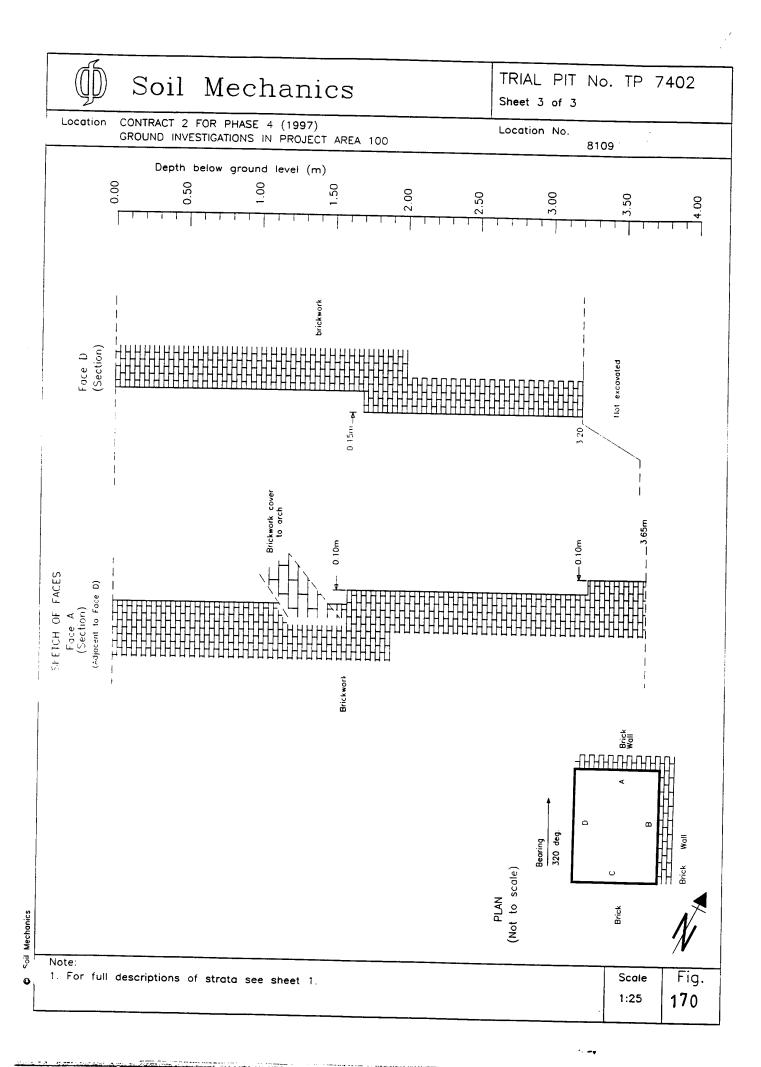
3. Pumped and bailed out until backfilled.

Seepage at 2.10m.
 Strike at 3.50m, approx.

Scale

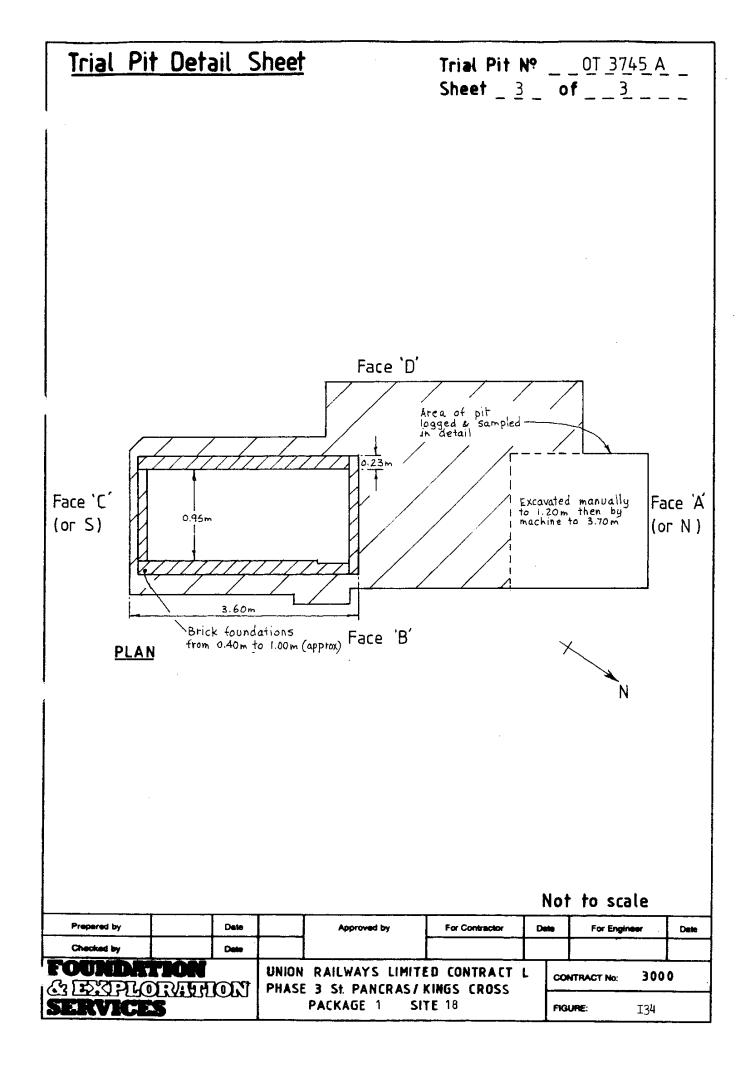
(c) Soil Mechanics (Ver 5.5) Fig. 13/11/97 14:09:07 170





CONTRACT NO: 300 INSITU TESTING Depth (m) Type		KINGS CRDSS	PACKA	L			PIT: 4.00m × 2.00m					
울) [토]			:    - 	- J	SITE 18	SURFACE DIMENSIONS OF P		х Р.U.	£	Ś	Sheet	1 of 3
<u>  E</u>	O: 3000					START DATE::09/10/95	FINISH	DATE:	FINISH DATE:: 24/10/95	E: 530135,3 N: 183133.7	GROUND	LEVEL: 17.07 m.O.D.
Ê	TESTING	7S	SAMPLES				Pictores	Depth	Level			
	Result	Depth (r	(m) Type	2	DESCRIPTION	IPTION OF STRATA	(w)	Ē	(m.o.o.) Symbol			
	!				TARMACADAM (MADE GROUND)	Ö	(0.15)	0.15	× 26.91	FUR FACE DETAILS SEE SHEET	_ 	
		0.0 0.0 0.0 0.0 0.0 0.0	×>	<b>-</b> ℃	CONCRETE.		(0.20)		52.91	LUGGED IN SITU		
		0.50	~>	M <b>4</b>	Firm, dark grey CL fine to Coarse br (MADE GRŒUND)	CLAY with much angular, brick and concrete gravel.	(0.15)		16.57			
0.75 Vp	55,52,48	0.70 0.75 0.75	>∞□	25 26 26 26	<u>, , , , , , , , , , , , , , , , , , , </u>	brown slightly LAY with a little fint gravel.	(6.45)		9			
		00000	<u>₩</u> ₽⊻>	∞∠N•	- Dense, brown clayey to v subrounded and rounded, fint GRAVEL. (ALLUVIUM)	ey to very clayey sandy ounded fine to coarse	(0.55)	(1.32)	100000000 100000000 100000000000000000			
1.50	72.50.66	1.50	<u></u>	====			<del></del>	6	00000 00000 00000 00000			
		1.50	na <u>-</u>	66		Firm, brown occasionally mottled light grey CLAY with occasional fine gravel sized firm lithorelicts and occasional cobble sized pockets of orange brown sit. (LDNDDN CLAY - GRADE IVO)	, , , ,					
2.00 Vp	52,58,60	8888 0000	<b>≈</b> ∩⊻>	GTI 25				-				
2.50 Vp	68,68,72	000 000 000 000	m <u>n</u>	4 <u>6</u>	l odoo le de		· r · r · r · · · · · · · · · · · · · ·		<u>                                     </u>			
3.00 < \	78,88,82	\$200 6000	<b>∞</b> ⇔×>	న్యా కృష్ణ	<del></del>	Stiff, brown occasionally nottled light gray CLAY with occasional nediun gravel sized lithorelicts. (Landon CLAY - GRADE IVa)	, , , , , , , , , , , , , , , , , , ,	Ş V	<u>                                     </u>			
REMARKS:	1) Prior to m	nechanical ex	Covatk	참	top 1.20m was excav	nually.			I I NA IQ	Logged by:	. Dote:	POTABATTON
	2) Groundwat 3) The sides 4) In situ te	ter was enco of the trio ists for gas	ountere il pit r i compo	td at emaine osition	2) Groundwater was encountered at 0.70m as a slight seepage. 3) The sides of the trial pit remained stable during excavation. 4) In situ tests for gas composition and water quality were Carr	page. .vation. ere Carried out during trial				KNL/SM KNL/SM	м 24/16	SERVICES
	pit excavatic 5) On comple: tarmacadam	on. tion, the tri	ol pit,	was be	pit excavation. 5) In completion, the trial pit was backfilled with arisings and reinstated with tarmacadan.	and reinstated with				SAMP SHIP	3/11	FIGURE:
						Sco	Scale 1:25	<u></u>		Approved by:	<u></u>	132

10   200	PLAN  PLAN  KNL/SM 24/10  RNL/SM 24/10  RNL/SM 24/10  RNL/SM 24/10	3/11 FIGURE	;
	REMARKS:		



### PROJECT AREA TOO	Soil Mechanics								No.T	P7395
15.80 m A/O	Hand dug inspection pit to 1.00m.	Locatio	n (	CONTRACT INVESTIGA	2 FOR PATIONS II	HASE 4 N PROJ			OUND OO	
Reduced   Level   Chick   Depth   Type   Mo.					5	30121.7	0 mE	·		
15.80   16.07   16.0	·	1	Legend	1 1	Dep		San	nple	Test	Field Reco
ingular to subrounded fine to medium GRAVEL of Tint, chalk and brick rubble.  MADE GROUND - GRAVEL)  IRIAL PIT ENDS AT 1.00 m.  15.80  0.50 C 3  (0.85 pen)  1.00	CONCRETE. (MADE GROUND)	16.80 16.72 16.65		(0.07)	0.08 -	0.15	T			
ngular to subrounded fine to medium GRAVEL of Init, chalk and brick rubble.  MADE GROUND - GRAVEL)  IS.80  1.00  1.00	Grey black fine to medium SAND of ash. (MADE GROUND - SAND)			- (0.05	0.20 -		-			
RIAL PII BRUS AI 1.00 m.	Ingular to subrounded fine to medium GRAVEL of Flint, chalk and brick rubble. MADE GROUND - GRAVEL)			(0.85 pen)						
Remarks	TRIAL PIT ENDS AT 1.00 m.	15.80	<b>****</b>	1.00						
Pemarks										
Vemarks							!			
Remarks										
Nemarks										
Remarks										
Remarks										
Remarks				-						
				-						İ
Remarks				-						
Remarks										-
Remarks				-						
Remarks				-						
	Remarks Stability : All stable			-						Logged by

(c) Soil Mechanics (Ver 5.5) Fig. 13/11/97 13:57:33

Water: None

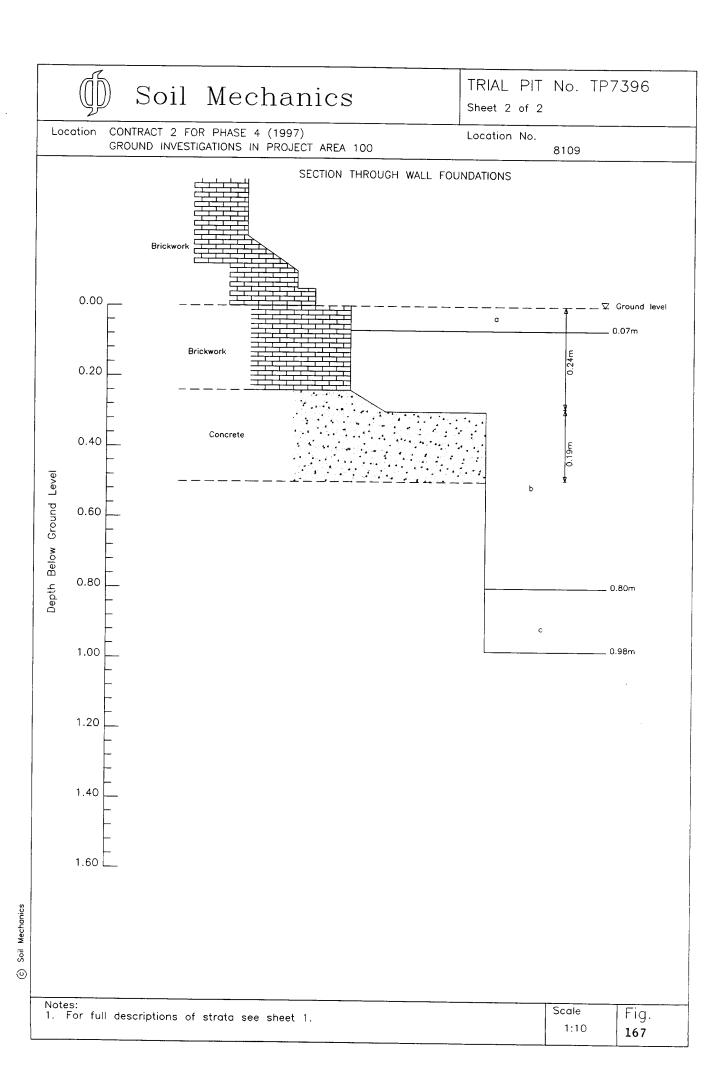
1. Trial pit terminated due to services.

TRIAL PIT No. TP7395 Soil Mechanics Sheet 2 of 2 Location CONTRACT 2 FOR PHASE 4 (1997) Location No. GROUND INVESTIGATIONS IN PROJECT AREA 100 8109 PLAN VIEW OF SERVICES GERMAN GYM Concrete encountered at 0.35m approx. \_Clay drain pipe 150mm dia. Cables in ducts (shallow) 0.90m Section Wellers Court German Gym Footpoth Brickwork face 0.90m 0.50m Notes: Fig. Not to Scale 166

Soil Mechanics					TRI.			No.T	P7396
Equipment & Methods Hand dug inspection pit to 0.98m. Pit dimensions: 2.25m x 1.50m Backfilled with arisings	Location Location Carried	ո ( ]	3109 CONTRACT INVESTIGA Union Raily	2 FOR PHATIONS IN	ASE 4 PROJE	(199 ECT A	97) GR( NREA 10	DUND DO	
	Ground 17.06			53	ordina 0074.3 3190.5	B mE			Date 16/06/97
Description	Reduced	Legend	Depth		Sam	ples/	Tests		5: 11 8
FACE	Level		(Thick)	Depti	ו	Sa:	No.	Test	Field Reco
a) CONCRETE. (MADE GROUND)	17.06 16.99		- (0.07) - 0.07 -	0.10 -	0.15		1		
d) Reddish brown subangular to subrounded fine to coarse GRAVEL and occasional cobbles of brick, glass and shell fragments. (MADE GROUND - GRAVEL)			(0.73)	0.20 -	0.90	8	2		
c) Firm brown mottled reddish brown CLAY.  (MADE GROUND - CLAY)  TRIAL PIT ENDS AT 0.98 m.	16.26 16.08		- 0.80 - (0.18p - 0.98	0.90 -	0.98	С	3		
	İ								-

(c) Soil Mechanics (Ver 5.5) 13/11/97 13:57:45

Water: None



LOCATION: ST PA	PANCRAS/ KINGS	CROSS	PACKAGE	a	SITE 96 SURFACE DIMENSIONS OF	PIT: 1.80m x 1.00	× 1.00		Ś		Sheet		of 1
CONTRACT NO: 3	3000				START DATE: 307.107.95	FINISH	DATE:	DATE: 30/18/35	5 E:5300784 N:183219.4	:	GROUND LE	LEVEL: 18.21	m.0.D.
INSITU TESTING	SP	SAMPLES	LES .			Thickn	St Depth	Level	Irota				
Depth (m) Type	Result	Depth (m)	Type	ó	DESCRIPTION OF STRATA	(w)	(m)	(m.0.0.)	Symbol	-			
		0000 00100 01505	<b>⊼&gt;</b> ⊼>	-0×4		(0.10)	0.10	18.01	ALL FOUR FACES WERE IDENTICAL LOGGED IN SITU TO 1.20M THEN FROM ARISINGS.	IDENTICAL IM THEN FR	OM ARIST	NGS.	
	-	00000 00000 00000	∞⊖×>	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	I I	0.20	0.70						
0.80 0.80 Vr	65,65,62 40,45,40	1.00	pr.			0.70		~~~~					
1.20 Vp / 24	43,45,43 25,20,20	2888	id⊼>	:52°5	Soft, grey and black sandy (fine to coarse, ash) very clayey SILT with a little angular to rounded, fine and nedium brick and flint gravel. Sight organic adour. (MADE GROUND)	<del>(1.8</del>							
1881		1.50	MD.	£4.		<del>, , , , , , , , , , , , , , , , , , , </del>	9	×××××					
		8888 2000	₩ <b>0</b> ¥>	<u> </u>	Firm, brown nottled grey CLAY with some partings of grey silty fine sand and sone partings of yellow brown silty fine sand. Rare gravel sized stiff lithorelicts. (LDNDDN CLAY - GRADE IV)	(1.06)							
		25.50 5.50	WC .	202		1	2.70	15.51					
				<u></u>	END OF TRIAL PIT								
REMARKS: 1) Gr	city tests	was encount the trial p	tered (	at 2.2 lained	1) Groundwater was encountered at 2.25m as a very slight seepage. 2) The sides of the triel pit remained stable during excovation. 3) In situ tests for an a commonstrain ware former from the excounter.	-		- NS		Logged by: JPH	Date:	POUN MAIN	FOUNDATION & INJURAL CONTROL OF THE STATE OF
	n completion	t, the trial	pit wo	s back	Kfilled with arisings.				<u> </u>	Checked by:	<del>-  </del> -l-	177	MCES
					Š	Scale 1:25	<u></u>		J.	SMP Approved by:	3/11	FIGURE: I161	

RECORD OF BOREHOLE No: SA5009 SHEET 1 OF START DATE: 21/11/95 END DATE: 21/11/95 DRILLING METHOD: CABLE PERCUSSION BOREHOLE DIA: 150 mm to mm to 8.50 m DANDE 175 EQUIPMENT: Casing Depth (m) Depth to Water (m) U100 U100 Blows Rec.(m) SAMPLE & Time DESCRIPTION OF STRATA Туре (m.O.D.) 21/11 B ∨B Concrete. (MADE GROUND) (0.25) 0.30 0.50 0.50 0.50 17.35 0.25 Soft dark grey and brown sandy (fine to coarse) CLAY with a little angular to subrounded fine to coarse flint, brick and concrete gravel. Decasional gravel size glass fragments.

(MADE GROUND) (0.25) - 0.50 1.20 17.10 ĶΩ , Va 1.00 NIL 10 12 0.50 DRY Soft to firm brown, grey and orange brown, locally slightly sandy (fine to coarse) CLAY, locally SILT, with a little angular to rounded fine to coarse flint and siltstone 1.65 (1.50) 42 1.65 1.70 NIL D DRY 2.15 S 10 gravel, (MADE GROUND) 2.00 2.00 15.60 At 1.20m; locally clayey sand and gravel. Below 1.70m; becoming firm. 2.20 DRY 2.50 2.00 / 2.95 ប 17 32 Firm, brown and grey brown, extremely closely fissured CLAY. Fissures randomly orientated, smooth and planar to curviplanar, locally 2.20 DRY gleyed grey. Occasional medium and coarse sand size selenite crystals, concentrated on fissures. 3.45 \$ 15 (LDNDON CLAY - GRADE III)
At 2.95m; thin lamination (2mm) of orange brown silty fine and medium sand. 22 24 23 35 2.50 DRY 4.45 (4.00 ک Below 4.45m; becoming stiff, fissures occasionally iron stained. (GRADE III/II) 4.45 4.50 2.50 DRY D 25 4.95 S 19 5.00 5.00 K V 27 28 3.00 DRY 5.50 5.95 U 29 At 5.95m; medium gravel sized fragment of 3.00 DRY pyritized wood. 6.45 23

Stiff, grey extremely closely fissured locally slightly sandy (fine) CLAY. Fissures randomly orientated, smooth, locally slightly polished, planar to curviplanar. Locally bioturbated. Occasional partings of light brown silty fine sand

END OF BOREHOLE

brown silty fine sand. (LONDON CLAY ~ GRADE II)

REMARKS: D Prior to boring an inspection pit was excavated by hand to 120m depth.

37 34 38

35 36

39 41 40

42

D D

D

1) Prior to boring an inspection pit was excavated by hand to 120m depth.

2) Groundwater was not encountered.

3) On completion of boring, a 50m standpipe piezometer was installed with the slotted section from 3.00m to 0.20m and the following detail: From 8.50m to 3.20m, cement/bentonite grout; from 3.20m to 0.50m, gravel filter response zone; from 0.50m to 0.25m, bentonite seal; and from 0.25m to ground level concrete and a double flush stopcock cover.

S 24

Logged by Date SRJ 21/11 Checked by SMP 1/12 Approved by

6.00

(2.50)

8.50

9.10

11.60



7.00 7.00 7.00

7.45 7.50

8.45

7.45

7.95

8.45

DRY

DRY

DRY

3.00

3.00

3.00

3.00

21/11

SCALE 1:50

UNION RAILWAYS LIMITED CONTRACT L PHASE 3 (1995) ST PANCRAS/ KINGS CROSS PACKAGE 2 SITE 96

CONTRACT No. 3000

C217 FIGURE:

Soil Mechanics					ORE		LE I	No.DS	57324
Equipment & Methods Hand dug inspection pit to $1.10\mathrm{m}$ . then window sampling 80mm dia to $3.60\mathrm{m}$ .	Location	n	109 ONTRACT NVESTIGA	2 FOR PHA		-	7) GR( REA 10	OUND 00	
Carried out for Union Railways Limited	Ground 20.00			530	rdinat 029.39 273.07	mE			Date 09/06/97
Description	Reduced Level	Legend	Depth (Thick)	Depth	Samç	oles/T Sam	ple	Test	Field Recor
Brown Subangular fine to coarse very clayey GRAVEL of flint ash and brick. (MADE GROUND - GRAVEL)  Black SAND and subangular to subrounded fine	20.00 19.82 19.73 19.61 19.55		0.18) - 0.18 - (0.09) - 0.27 - (0.12) - (0.39) - (0.06) - 0.45		0.10 0.10 0.30	Type C D C	No. 1 2 3		
GRAVEL of ash. (MADE GROUND - SAND AND GRAVEL)  Red brown and black subangular to subrounded fine to coarse GRAVEL of brick, rubble, ash and quartzite. (MADE GROUND - GRAVEL)	19.18		0.37)		0.70	C D	<b>4</b> 6		
Black SAND AND fine GRAVEL of ash.  (MADE GROUND - SAND AND GRAVEL)  Fine to coarse GRAVEL of flint and brick fragments.  (MADE GROUND - GRAVEL)  Brown and orange brown mottled CLAY with rare angular fine to medium gravel of slag and brick.  (MADE GROUND - CLAY)			(2.13)	2.10 - 2.10 - 2.50 -	2.50 2.50 3.00	C D C	8 9		
Soft locally firm grey green CLAY with black staining of organic material. Odour of hydrocarbon. (RLE engineer reports clinker). (MADE GROUND - CLAY)	17.05 16.80	 	2.95 (0.25) 3.20	2.50 - 3.00 - 3.00 -	3.50 3.50	D C D	11 12 13		
(REWORKED LONDON CĽAY) BOREHOLE ENDS AT 3.60 m.	16.40		- pen)						
Remarks  1. Sample number 5 not used.  2. Slotted Standpipe installed on completion, see sh  3. Recovery 74%	neet 2.		-						Logged by DL Scale 1:25 Fig.

# Soil Mechanics

BOREHOLE No. SA7323

طريه				S	heet 1	of 3				
Equipment & Methods Hand dug inspection pit to 1.20m. Cable tool boring, 150mm	Location		3109							
dia to 3.60m.	Location		CONTRACT NVESTIGA	2 FOR PHA ATIONS IN	SE 4 PROJE	(199 CT A	7) GR REA 1	OUND 00		
Carried out for	Ground	Level		Coc	rdinat	tes			Date	e
Union Railways Limited	17.95	n AOD			0059.71 3240.63				26/06	/97
Decement	Reduced	Legend	Depth		Samp	oles/T	ests		] _	/ - <b>3 1 D</b> 1
Description	Level	Legend	(Thick)	Depth		Sam Type	ple No.	Test	F	ield Records
CONCRETE. (MADE GROUND)	17.95 17.75		- (0.20) - 0.20 - (0.35)	0.20 - 0.20 -	0.40 0.40	C B	1 2			
Dark grey subangular fine to coarse GRAVEL and	17.40		0.55	0.55 - 0.55 -	0.75 0.75	C D	3			
COBBLES of slag, brick and clinker with some fine to coarse sand of ash.  (MADE GROUND - GRAVEL AND COBBLES)	16.85	<b>∞</b>	1.10	1.00 - 1.00 -	1.20 1.20	C D	5 6			
(PADE GROUND - GRAVEE AND CODDEES)			- - -		1.40	С	7			
Orangish brown mottled brown and dark grey CLAY with a little coarse sand and angular fine gravel of slag.			-		1.90	c ·	8			
(MADE GROUND - CLAY)			(2.50 pen)		2.60	D	9			
Stiff orangish brown mottled bluish grey CLAY. Rare rounded fine gravel of flint.										
(LONDON CLAY)			- -	3.00 -	3.60	С	10			
BOREHOLE ENDS AT 3.60 m.	14.35		3.60							
		:	-							
			-							
			- -							
			- -							
			- - -							
			-							
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			- - -							
			<u> </u>							
Remarks			-							l age d
Slotted standpipe installed on completion, see sl	neet 3.									Logged by TWB

Materials are described in accordance with Appendices. For explanation of symbols and abbreviations see Fig. 1. 30/09/97 16:35:17

Soil Mechanics			BOREHOLE No. Sheet 2 of 3	SA7323
Equipment & Methods	Location No.	8109		
	Location			
As sheet 1		CONTRACT 2 FOR FINVESTIGATIONS 1	PHASE 4 (1997) GROUND IN PROJECT AREA 100	
Carried out for	Ground Level		Coordinates	Date
Union Railways Limited		Δ	s sheet 1	

Water Level Observations During Boring						
Date Time		Depth of Hole (m)	Depth of Casing (m)	Depth to Water (m)	Remarks	
26/06/97		3.60	2.60	DRY	End of hole	

	Hole Diameter by Depth Table								
Depth of Hole (m)	Diameter of Hole (mm)	Diameter of Casing (mm)	Depth of Casing (m)						
3.60	150	150	2.60						

Remarks	ogged by
	TWB
Science	cale
	1:50
Notes:  (c) Soil Mechanics (Ver 5.5)  Materials are described in accordance with Appendices. For explanation of symbols and abbreviations see Fig. 1. 30/09/97 16:35:20	ig.
Materials are described in accordance with Appendices. For explanation of symbols and abbreviations see Fig. 1. 30/09/97 16:35:20	93

	DODELIOLE No. CA7222
Soil Mechanics	BOREHOLE No. SA7323
	Sheet 3 of 3
Location No. 8109	Type of installation Standpipe
Location CONTRACT 2 FOR PHASE 4 (1997) GROUND INVESTIGATIONS IN	Date of installation 26/06/97
PROJECT AREA 100	Internal diameter of tubing 50 mm
Carried out for Union Railways Limited	Length of filter 2.40 m

Dept	h (m)	SUMMARY OF INSTALLATION	Le	egend	Depth below
From	То	30111/1(1 01 11\01/1\LE\11\10\1	_		Ground level(
	<del></del>	Surface protection : Stopcock Cover			L
0.00	0.70	Concrete			-
0.70	1.20	Bentonite seal	a	a	0.70
0.00	1.20	Plain pipe			1
1.20	3.60	Sand filter	4_	d	1.20
1.20	3.60	Slotted section		 	-
					_
				 	-
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				i I	-
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a	Concrete	d Bentonite seal			
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b	Sand filt	e Bentonite/cement grout			-
с	Gravel fi	ilter f Backfill			_
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arks					-
Ground le	evel and coo	ordinates as sheet 1			-
		01/10/97 09:05:41			

Soil Mechanics	BOREHOLE No. DS7324  Sheet 2 of 2
Location No. 8109 Location CONTRACT 2 FOR PHASE 4 (1997) GROUND INVESTIGATIONS IN PROJECT AREA 100  Carried out for Union Railways Limited	Type of installation Standpipe  Date of installation 09/06/97  Internal diameter of tubing 50 mm  Length of filter 1.60 m  Diameter of filter 80 mm

SUMMARY OF INSTALLATION		Legend		Depth below	
From	То	SOMMAN OF THISTALLATION			Ground level(
		Surface protection : Stopcock Cover			
0.00	0.50	Concrete			
0.50	2.00	Bentonite seal	a	a	0.50
0.00	2.00	Plain pipe	1		
2.00	3.60	Sand filter	1		
2.00	3.60	Slotted section	1		_
			d	d	2.00
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a	Concrete	d Bentonite seal			_
		<u> </u>			-
b	Sand filt	e Bentonite/cement grout			
с	Gravel fi	lter f Backfill			
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iround lev	el and coor	rdinates as sheet 1			-
		01/10/97 09:05:02			Ì

Notes:

### Soil Mechanics

BOREHOLE No. SA7324A

1:50 Fig. **95** 

(c) Soil Mechanics (Ver 5.5)

Sheet 1 of 3

Equipment & Methods Hand dug inspection pit to 1.20m. Cable tool boring, 150mm  $\,$ Location No. 8109 Location dia to 6.10m. CONTRACT 2 FOR PHASE 4 (1997) GROUND INVESTIGATIONS IN PROJECT AREA 100 Carried out for Ground Level Coordinates Date 530038.30 mE 25/06/97 Union Railways Limited 19.57 m AOD 183288.91 mN Samples/Tests Reduced Depth Legend Field Records Description Sample Level (Thick) Depth Test Type No. 19.57 (0.40)С 0.25 - 0.30 Very dark grey fine to coarse SAND of ash with 19.17 some subangular fine to medium gravel of ash. 0.40 Rare pockets (<15mm) of clay. 0.50 - 0.80 С (0.50)(MADE GROUND - SAND) 18.67 0.90 1.00 - 1.30 1.00 - 1.30 C B Orangish brown sandy CLAY with some subangular fine to coarse gravel of flint, brick and clinker (MADE GROUND - CLAY) (1.90) Orangish brown and dark grey subangular to subrounded fine to coarse GRAVEL and COBBLES of slag, clinker and flint with some sandy clay. (MADE GROUND - GRAVEL AND COBBLES) 2.80 16.77 2.80 3.00 - 3.20 C Brown mottled orangish brown CLAY with a little subangular fine gravel of slag and clinker. -(1.40)Strong diesel odour. (MADE GROUND - CLAY) 15.37 4.20 4.20 - 4.50 С Orangish brown mottled bluish grey CLAY. 5.00 D Fissures randomly orientated, smooth and D 5.40 (LONDON CLAY) 6.10 C 10 13.47 BOREHOLE ENDS AT 6.10 m. Remarks Logged by 1. Slotted standpipe installed on completion, see sheet 3. Scale

Materials are described in accordance with Appendices. For explanation of symbols and abbreviations see Fig. 1. 30/09/97 16:35:26

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## Soil Mechanics

BOREHOLE No.SA7324A

Sheet 2 of 3

As sheet 1

Equipment & Methods	Location No.	8109	
A	Location		
As sheet 1		CONTRACT 2 FOR PHASE 4 (1997) GROU INVESTIGATIONS IN PROJECT AREA 100	IND )
Carried out for	Ground Level	Coordi <b>nat</b> es	Date
Union Railways Limited		Δs sheet 1	

Water Level Observations During Boring							
Date Time		Depth of Hole (m)	Depth of Casing (m)	Depth to Water (m)	Remarks		
25/06/97		6.10	3.00	DRY	End of hole		

Hole Diameter by Depth Table									
Depth of Hole (m)	Diameter of Hole (mm)	Diameter of Casing (mm)	Depth of Casing (m)						
6.10	150	150	3.00						

Water Strike Table								
Depth of Strike (m)	Casing Depth (m)	Date	Time	Post Strike Depth (m)	Minutes After Strike	Sealed at (m)	Remarks	
2.00	0.00	25/06/97		2.00	-	3.00		

	1
Remarks	Logged by
	TWB
	Scale
	1:50
Notes: (c) Soil Mechanics (Ver 5.5) Materials are described in accordance with Appendices. For explanation of symbols and abbreviations see Fig. 1. 30/09/97 16:35:30	Fig.
Materials are described in accordance with Appendices. For explanation of symbols and abbreviations see Fig. 1. 30/09/97 16:35:30	30

Soil Mechanics	BOREHOLE No. SA7324A
Location No. 8109 Location CONTRACT 2 FOR PHASE 4 (1997) GROUND INVESTIGATIONS IN PROJECT AREA 100	Type of installation Standpipe  Date of installation 25/06/97  Internal diameter of tubing 50 mm
Carried out for Union Railways Limited	Length of filter 4.30 m

Diameter of filter 150 mm

Depth (m) SUMMARY OF INSTALLATION				Depth below	
From	То	SUMMART OF INSTALLATION		egenu	Ground level(m
		Surface protection : Stopcock Cover			
0.00	0.80	Concrete			t
0.80	1.80	Bentonite seal			_
0.00	1.80	Plain pipe	_a	a	- 0.80
1.80	6.10	Sand filter			
1.80	6.10	Slotted seaction	d	d	1.80
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			_b	b	6.10
					_
a	Concrete	d Bentonite seal			
b	Sand filt	e Bentonite/cement grout			_
С	Gravel fi	lter f Backfill			-
					_
					-
rks	. د د د د د د	disks a sector 1			-
ir ound lev	ver and coor	rdinates as sheet 1			

DETAILS OF INSTRUMENTS