B2 Logs

Soil Mechanics

BOREHOLE No.DS7377A

Sheet 1 of 2

Equipment & Methods
Hand dug inspection pit to 1.00m. then window sampling to 2.65m.

Location No. 8109

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

Carried out for
Union Railways Limited

Ground Level
24.90 m AOD

Coordinates
529914.93 mE
183654.94 mN

Date
19/06/97

Description	Reduced Level	Legend	Depth (Thick)	Samples/Tests: Depth	Sample Type	Sample No.	Test	Field Records
CONCRETE.	24.90		(0.10)					
(MADE GROUND)	24.80		0.10	0.20	C	1		
				0.30 - 0.60	B	2		
Pale brown grey fine to coarse SAND of ash with some angular to subrounded fine to coarse gravel of ash, brick and flint. (MADE GROUND - SAND)				0.30 - 0.60	C	3		
			(0.80)					
	24.00		0.90					
				1.00 - 1.70	C	4		
Firm orangish brown, rarely mottled blue grey, CLAY. (LONDON CLAY)			(1.75 pen)					
				1.70 - 2.40	D	5		
				2.40 - 2.65	C	6		
BOREHOLE ENDS AT 2.65 m.	22.25		2.65					

Remarks
1. Slotted standpipe installed on completion. see sheet 2.
2. Recovery 100%

Logged by DL

Scale 1:25

Fig. 149

Notes:
Materials are described in accordance with Appendices. For explanation of symbols and abbreviations see Fig. 1.

(c) Soil Mechanics (Ver 5.5)
30/09/97 16:11:44

Soil Mechanics

BOREHOLE No. DS7377A

Sheet 2 of 2

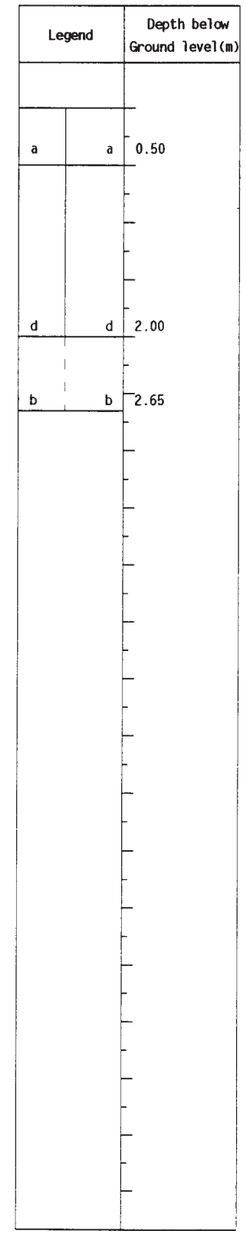
Location No. 8109
Location CONTRACT 2 FOR PHASE 4 (1997) GROUND INVESTIGATIONS IN PROJECT AREA 100

Carried out for Union Railways Limited

Type of installation Standpipe
Date of installation 19/06/97
Internal diameter of tubing 50 mm
Length of filter 0.65 m
Diameter of filter 80 mm

SUMMARY OF INSTALLATION

Depth (m) From	Depth (m) To	
		Surface protection : Open
0.00	0.50	Concrete
0.00	2.00	Plain pipe
0.50	2.00	Bentonite seal
2.00	2.65	Sand filter
2.00	2.65	Slotted section



key

a	Concrete	d	Bentonite seal
b	Sand filter	e	Bentonite/cement grout
c	Gravel filter	f	Backfill

Remarks
1. Ground level and coordinates as sheet 1

(C) Soil Mechanics V2.0 01/10/97 09:40:45

DETAILS OF INSTRUMENTS

PROJECT: UNION RAILWAYS LIMITED CONTRACT L PHASE 3
LOCATION: ST PANCRAS/ KINGS CROSS PACKAGE 3 SITE 75
CONTRACT NO: 3000

METHOD OF EXCAVATION: HAND DUG AND SHORED
SURFACE DIMENSIONS OF PIT: 3.70m x 4.00m
START DATE: 04/12/95... FINISH DATE: 13/12/95

RECORD OF TRIAL PIT NO: DP3782

CO-ORDINATES: E: 529904.7.... N: 183660.5....
Sheet 1 of 3
GROUND LEVEL: 27.63 m.O.D.

INSITU TESTING			SAMPLES			DESCRIPTION OF STRATA	Thickness (m)	Depth (m)	Level (m.O.D.)	Strata Symbol
Depth (m)	Type	Result	Depth (m)	Type	No.					
			0.00	VB	9	CONCRETE SLAB. (MADE GROUND) (STRATUM I)	(0.15)	0.15	27.48	
			0.20	K	1	Loose black fine to coarse ASH SAND and angular to rounded fine to coarse CLINKER, COAL AND FLINT GRAVEL. Occasional rootlets. (MADE GROUND) (STRATUM II)				
			0.20	V	2					
			0.50	B	3	Below 0.45m predominantly fine to coarse gravel.	(0.70)			
			0.50	D	4					
			0.50	K	5					
			0.50	KQ	7					
			0.50	V	6					
			0.50	VQ	8			0.85	26.78	
			1.00	B	10	Very stiff (desiccated) orange brown and brown sandy (fine to coarse) CLAY with a little angular and subangular fine to coarse brick and concrete gravel. (MADE GROUND) (STRATUM III)	(0.55)			
			1.00	D	11					
			1.00	K	12					
			1.00	V	13			1.40	26.23	
			1.50	B	14	Very stiff (desiccated) black sandy (fine to locally coarse) CLAY with a little angular and subangular fine to coarse brick, concrete flint, clinker and coal gravel. (MADE GROUND) (STRATUM IV)	(0.50)			
			1.50	D	15					
			2.00	B	16	Very stiff brown CLAY with a little locally some angular fine to coarse brick gravel. (MADE GROUND) (STRATUM V)	(0.85)	1.90	25.73	
			2.00	D	17					
			2.00	K	18					
			2.00	V	19					
2.40	Vn	3 x (>140)								
2.40	Vr	NA	2.50	B	17A					
			2.50	D	18A					
						Loose light grey and brown fine and medium ASH SAND with some angular fine to coarse brick gravel. (MADE GROUND) (STRATUM VI)	(0.25)	2.75	24.88	
2.90	Vn	3 x (>140)								
2.90	Vr	NA	3.00	B	19A			3.00	24.63	
			3.00	D	20					
			3.00	K	21					
			3.00	V	22	Stiff grey brown locally stained dark grey and black slightly sandy (fine to coarse) CLAY with a little subangular to rounded fine to coarse brick and flint gravel. Occasional brick cobbles. Diesel odour. (Continued.....)	(0.90)			
			3.30	K	23					
			3.30	V	24					
			3.30	V#	25					

FOR FACE DETAILS SEE SHEET 3
LOGGED IN SITU

REMARKS:
1) Groundwater was encountered at 3.70m on the 06/12/95 as a slight seepage. The water level in the trial pit stood at 3.90m on the 13/12/95 prior to backfilling of the pit.
2) The sides of the trial pit were unstable above 0.85m.
3) The trial pit was halted at 4.60m depth because of encountering the base of the retaining wall.
4) In situ tests for gas composition and water quality were carried out during trial pit excavation.
5) On completion, the trial pit was backfilled with arisings.
6) # denotes hand penetrometer tests carried out underneath the retaining wall

Scale 1:25

PLAN

Logged by: MEB 13/12
Checked by: SMP 18/12
Approved by:

FOUNDATION & EXPLORATION SERVICES

FIGURE: I78

PROJECT: UNION RAILWAYS LIMITED CONTRACT L PHASE 3
LOCATION: ST PANCRAS/ KINGS CROSS PACKAGE 3 SITE 75
CONTRACT NO: 3000

METHOD OF EXCAVATION: HAND DUG AND SHORED
SURFACE DIMENSIONS OF PIT: 3.70m x 4.00m
START DATE: 04/12/95... FINISH DATE: 13/12/95

RECORD OF TRIAL PIT NO: DP3782

CO-ORDINATES: E: 529904.7.... N: 183660.5....
Sheet 2 of 3
GROUND LEVEL: 27.63 m.O.D.

INSITU TESTING			SAMPLES			DESCRIPTION OF STRATA	Thickness (m)	Depth (m)	Level (m.O.D.)	Strata Symbol
Depth (m)	Type	Result	Depth (m)	Type	No.					
			3.50	B	26	CLAY (As Sheet 1) (MADE GROUND) (STRATUM VII)				
			3.50	D	27					
			3.70	W	28	At 3.40m Face Bj 100mm diameter glazed clay pipe partially exposed.				
								3.90	23.73	
4.00	Vn	56,59,60	4.00	B	29	Firm brown locally mottled grey extremely closely fissured CLAY. Fissures random, planar. (LONDON CLAY - GRADE IIIc) (STRATUM VIII)	(0.70)			
4.00	Vr	20,20,21	4.00	D	30					
			4.00	K	31					
			4.00	V	32					
4.50	Vn	54,49,61	4.50	B	33					
4.50	Vr	19,15,20	4.50	D	34					
4.50	Vn	67,53,51#						4.60	23.03	
4.50	Vr	21,21,18				END OF OBSERVATION PIT				
4.50	Vn	49,55,56#								
4.50	Vr	14,21,20								

FOR FACE DETAILS SEE SHEET 3
LOGGED IN SITU

REMARKS: footing.

Scale 1:25

PLAN

Logged by: MEB 13/12
Checked by: SMP 18/12
Approved by:

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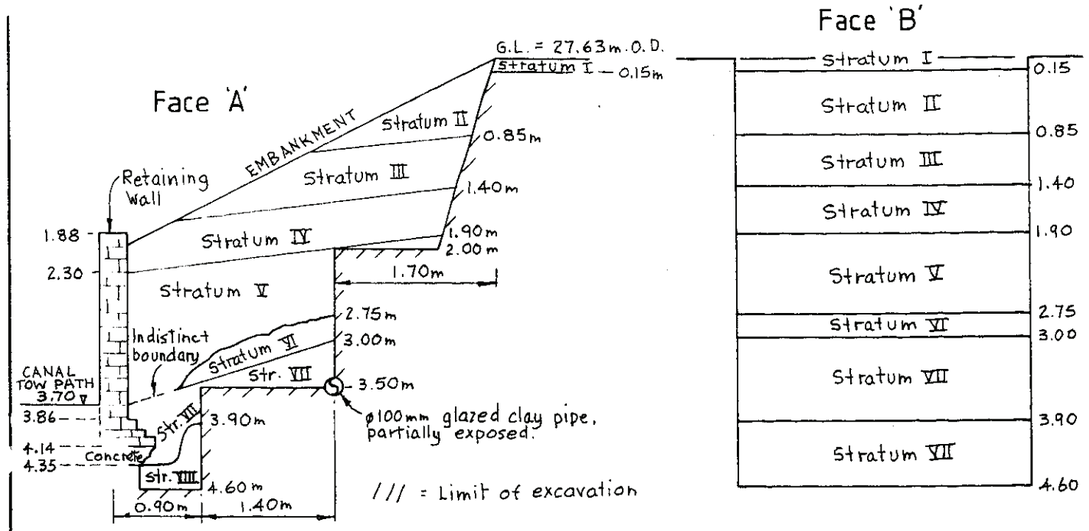
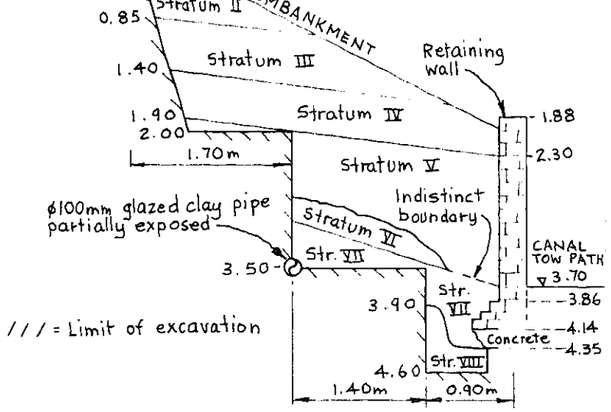
FIGURE: I79

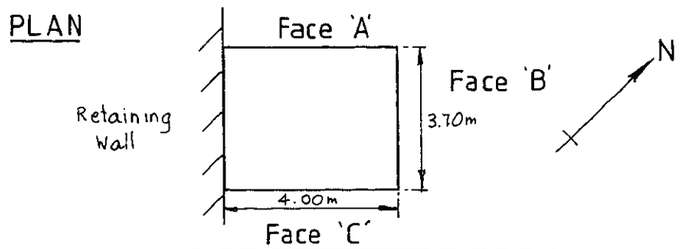
Trial Pit Detail Sheet

Trial Pit Nº __OP3782__
Sheet _3_ of _3_

FACE DRAWINGS:-







Not to scale

Prepared by		Date		Approved by	For Contractor	Date	For Engineer	Date
Checked by		Date						

FOUNDATION & EXPLORATION SERVICES

UNION RAILWAYS LIMITED CONTRACT L
PHASE 3 St. PANCRAS/KINGS CROSS
PACKAGE 3 SITE 75

CONTRACT No: 3000

FIGURE: I80

RECORD OF BOREHOLE No: SA3876

START DATE: 02/11/95 END DATE: 07/11/95

DRILLING METHOD: CABLE PERCUSSION

EQUIPMENT: DANDO 175

CASING DIA: 300 mm to 3.00 m; 200 mm to 5.50 m

BOREHOLE DIA: 300 mm to 3.50 m; 200 mm to 35.10 m

SHEET 1 OF 4

NATIONAL GRID CO-ORDINATES: E.529909.7.... N..183690.4....

GROUND LEVEL 25.61 ....m.O.D.

Date & Time	Casing Depth (m)	Depth to Water (m)	SAMPLE Depth (m) At/From	To	Type	No.	U100 Blows Test Length (mm)	U100 Rec.(m) SPT Blows /N	DESCRIPTION OF STRATA	Depth (Thickness) (m)	Level (m.O.D.)	Strata Symbol
2/11			0.10	0.30	B	1			CONCRETE.	0.10	25.51	
			0.20		K	2			(MADE GROUND) 0.10	(0.20)		
			0.20		V	3				0.30	25.31	
			0.30	0.50	B	4				(0.20)		
			0.50	1.20	B	7			Loose, brown slightly clayey silty fine to coarse SAND with much angular and subangular, fine to coarse concrete, flint, brick and glass gravel and occasional subangular concrete cobbles. Occasional roots (up to 10mm). (MADE GROUND) 0.30	0.50	25.11	
			0.50		K	8						
			0.50		V	6						
			1.00		K	9				(1.50)		
			1.00		V	10						
	NIL	1.00	1.00		V	8						
			1.20	2.00	B	11						
	1.20	1.00	1.20	1.65	NR	NR		S 12				
			1.50		K	12			Loose, brown, dark grey and black silty fine to coarse ASH SAND with some angular and subangular, fine to coarse brick, concrete, flint, wood and coal gravel. Occasional fine roots (<1mm). (MADE GROUND) 0.50			
			1.50		V	13						
			2.00		K	17				2.00	23.61	
			2.00		V	18						
	2.10	DRY	2.10	2.55	U	14	30	0.35				
			2.50		K	19			Firm, brown, grey and orange brown mottled locally slightly sandy (fine to coarse) CLAY with rare angular and subangular, fine and medium flint and clinker gravel and occasional subangular concrete cobbles. Strong fuel (diesel) odour from water. (MADE GROUND) 2.00			
			2.50		V	20						
			2.55		D	16				(2.05)		
	2.50	DRY	2.60	3.05	D	15		S 17				
			3.00		K	21						
			3.00		V	22						
			3.50		K	23			Firm to stiff, brown and grey brown extremely closely lensoidally fissured CLAY. Fissures smooth, locally gleyed grey. Occasional partings and fine and medium gravel sized pockets of orange brown slightly clayey silty fine and medium sand. (LONDON CLAY - GRADE III c) 4.05			
			3.50		V	24						
	3.50	DRY	3.60	4.05	U	25	45			4.05	21.56	
			4.00		K	26						
			4.00		V	27						
			4.05		D	28						
	3.50	DRY	4.10	4.55	D	29		S 23				
2/11	3.50	DRY	4.50		K	30			Stiff, brown and grey brown extremely closely fissured CLAY. Fissures randomly orientated, smooth and planar to curviplanar. (LONDON CLAY - GRADE III b)			
3/11	4.60	DRY	4.50		KQ	32						
			4.50		V	31						
			4.50		VQ	33						
			5.00		K	34						
			5.00		V	35						
	5.00	DRY	5.10	5.55	U	36	45					
			5.55		D	37			Below 5.55m with occasional medium and coarse sand sized selenite crystals. Fissures locally iron stained.			
	5.00	DRY	5.60	6.05	D	38		S 22				
			6.00		K	39						
			6.00		V	40						
	5.50	DRY	6.60	7.05	U	41	45			(5.45)		
			7.00		K	44						
			7.00		V	45						
			7.05		D	42						
	5.50	DRY	7.10	7.55	D	43		S 28	Below 7.10m becoming grey brown.			
			8.00		K	46						
			8.00		V	47						
	5.50	DRY	8.10	8.55	U	48	70					
			8.55		D	49			Below 8.55m becoming extremely to very closely fissured with occasional dustings of orange brown silt on fissures			
	5.50	DRY	8.60	9.05	D	50		S 30				
			9.00		K	51						
			9.00		V	52						
	5.50	DRY	9.60	10.05	U	53	75		CLAY (As Sheet 2) (LONDON CLAY - GRADE II b)	9.50	16.11	
	5.50	9.60	9.60		W	78			(Continued.....)			

REMARKS:
1) Prior to boring an inspection pit was excavated by hand to 1.20m depth.
2) Groundwater was encountered as a slight seepage at 1.00m which was sealed off at 2.10m and as a standing level of 9.60m over the weekend when the borehole was at 23.50m.
3) Arrangements for Aquifer Protection were implemented.
4) On completion of boring, two 50mm standpipe piezometers were installed with the terram wrapped slotted sections from 14.50m to 11.50m, and 1.80m to 0.80m depth and the following detail: From 35.10m to 16.00m, cement/bentonite grout; from 16.00m to 15.00m, bentonite seal; from 15.00m to 10.00m, pea gravel filter response zone; from 10.00m to 9.00m, bentonite seal;

SCALE 1:50

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SRJ	6/11
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SMP	14/11
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FOUNDATION & EXPLORATION SERVICES

UNION RAILWAYS LIMITED
CONTRACT L PHASE 3 (1995)
ST PANCRAS/ KINGS CROSS
PACKAGE 2 SITE 66

CONTRACT No. 3000

FIGURE: C206

RECORD OF BOREHOLE No: SA3876

START DATE: 02/11/95 END DATE: 07/11/95 SHEET 2 OF 4

DRILLING METHOD: CABLE PERCUSSION

EQUIPMENT: DANDO 175

CASING DIA: 300 mm to 3.00 m; 200 mm to 5.50 m; mm to m

BOREHOLE DIA: 300 mm to 3.50 m; 200 mm to 35.10 m; mm to m

NATIONAL GRID CO-ORDINATES: E.529909.7 ..... N..183690.4 .....

GROUND LEVEL 25.61 .....m.O.D.

Date & Time	Casing Depth (m)	Depth to Water (m)	SAMPLE Depth (m) At/From	To	Type	No.	U100 Blows Test Length (mm)	U100 Rec.(m) SPT Blows /N	DESCRIPTION OF STRATA	Depth (Thickness) (m)	Level (m.O.D.)	Strata Symbol
			10.00		K	56			Stiff, brown and grey very closely fissured CLAY. Fissures randomly orientated, smooth and planar to curviplanar and undulose. Occasional partings and thick laminae (<1mm) of orange brown, dark grey and light brown silty fine sand, locally as dustings on fissures, and occasional coarse sand and fine gravel sized shell fragments. Locally bioturbated. (LONDON CLAY - GRADE II) Below 10.00m; becoming stiff to very stiff.			
			10.00		V	57						
			10.05		D	54						
	5.50	DRY	10.10	10.55	D	55		S 35				
	5.50	DRY	11.10	11.55	U	58	55					
			11.55		D	59						
	5.50	DRY	11.60	12.05	D	60		S 29				
	5.50	DRY	12.10	12.55	U	61	60		Below 12.10m; becoming grey brown.			
			12.55		D	62				(6.10)		
	5.50	DRY	12.60	13.05	D	63		S 30				
	5.50	DRY	13.10	13.55	U	64	50					
			13.55		D	65						
	5.50	DRY	13.60	14.05	D	66		S 28				
	5.50	DRY	14.10	14.55	U	67	55					
			14.55		D	68						
	5.50	DRY	14.60	15.05	D	69		S 34				
			15.00		K	70						
			15.00		V	71						
	5.50	DRY	15.10	15.55	U	72	75					
			15.55		D	73						
	5.50	DRY	15.60	16.05	D	74		S 39	Very stiff, grey very closely to closely fissured CLAY. Fissures generally subhorizontal (0-20 degrees), smooth, locally slightly polished, planar to curviplanar. Locally with dustings of grey, brown and light brown silty fine sand on fissures. (LONDON CLAY - GRADE Ib) At 15.60m grey brown.	15.60	10.01	
	5.50	DRY	16.10	16.55	U	75	75	0.40				
3/11	5.50	DRY	16.55		D	76						
6/11	5.50	DRY	16.60	17.05	D	77		S 41				
	5.50	DRY	17.10	17.55	U	79	70					
			17.55		D	80						
	5.50	DRY	17.60	18.05	D	81		S 38				
	5.50	DRY	18.10	18.55	U	82	80			(5.40)		
			18.55		D	83						
	5.50	DRY	18.60	19.05	D	84		S 42				
	5.50	DRY	19.10	19.55	U	85	80					
			19.55		D	86						
	5.50	DRY	19.60	20.05	D	87		S 38				

(Continued.....)

REMARKS: from 9.00m to 3.00m, cement/bentonite grout; from 3.00m to 2.00m, cement/bentonite grout; from 2.00m to 0.50m, pea gravel filter response zone; from 0.50m to 0.30m, cement/bentonite grout; and from 0.30m to ground level concrete and a double flush stopcock cover.

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SRJ	6/11
Checked by	
SMP	14/11
Approved by	

SCALE 1:50

FOUNDATION & EXPLORATION SERVICES

UNION RAILWAYS LIMITED
CONTRACT L PHASE 3 (1995)
ST PANCRAS/ KINGS CROSS
PACKAGE 2 SITE 66

CONTRACT No. 3000

FIGURE: C207

RECORD OF BOREHOLE No: SA3876

START DATE: 02/11/95 END DATE: 07/11/95 SHEET 3 OF 4

DRILLING METHOD: CABLE PERCUSSION

EQUIPMENT: DANDO 175

CASING DIA: 300 mm to 3.00 m; 200 mm to 5.50 m; mm to m

BOREHOLE DIA: 300 mm to 3.50 m; 200 mm to 35.10 m; mm to m

NATIONAL GRID CO-ORDINATES: E.529909.7 ..... N..183690.4 .....

GROUND LEVEL 25.61 .....m.O.D.

Date & Time	Casing Depth (m)	Depth to Water (m)	SAMPLE Depth (m) At/From	To	Type	No.	U100 Blows Test Length (mm)	U100 Rec.(m) SPT Blows /N	DESCRIPTION OF STRATA	Depth (Thickness) (m)	Level (m.O.D.)	Strata Symbol
			20.00		K	92			CLAY (As Sheet 2) (LONDON CLAY - GRADE II/I) At 20.10m; very thin bed/lens of grey moderately weathered claystone, moderately weak. Below 20.60m; fissures very closely spaced, randomly orientated.			
			20.00		V	93						
			20.10	20.60	B	88						
	5.50	DRY	20.10	20.55	U	NR	150	NR				
	5.50	DRY	20.60	21.05	U	89	100	0.35				
			21.05		D	90				21.00	4.61	
	5.50	DRY	21.10	21.55	D	91		S 47	Very stiff, dark grey very closely fissured CLAY. Fissures generally subhorizontal (0-10 degrees), smooth and planar to undulose, locally with a dusting of light brown silty fine sand. Occasional thin laminae and partings of light grey silt and silty fine sand. (LONDON CLAY - GRADE I)			
	5.50	DRY	21.60	22.05	U	94	70					
			22.05		D	95						
	5.50	DRY	22.10	22.55	D	96		S 44				
	5.50	DRY	23.10	23.55	U	97	95		Below 23.00m; locally slightly sandy (fine).			
			23.55		D	98						
	5.50	DRY	23.60	24.05	D	99	295	S >50				
	5.50	DRY	24.60	25.05	U	100	120					
			25.00		K	103						
			25.00		V	104						
			25.05		D	101						
	5.50	DRY	25.10	25.55	D	102	285	S >50				
	5.50	DRY	26.10	26.55	U	105	110					
			26.55		D	106						
	5.50	DRY	26.60	27.05	D	107	285	S >50		(12.80)		
	5.50	DRY	27.60	28.05	U	108	95					
			28.05		D	109						
	5.50	DRY	28.10	28.55	D	110	295	S >50				
	5.50	DRY	29.10	29.55	U	111	90					
			29.55		D	112						
	5.50	DRY	29.60	30.00	D	113	285	S >50				

(Continued.....)

REMARKS:

Logged by	Date
SRJ	6/11
Checked by	
SMP	14/11
Approved by	

SCALE 1:50

FOUNDATION & EXPLORATION SERVICES

UNION RAILWAYS LIMITED
CONTRACT L PHASE 3 (1995)
ST PANCRAS/ KINGS CROSS
PACKAGE 2 SITE 66

CONTRACT No. 3000

FIGURE: C208

Soil Mechanics

BOREHOLE No. SA7344

Sheet 1 of 3

Equipment & Methods
Hand dug inspection pit to 1.00m. Cable tool boring, 150mm dia to 6.90m.

Location No. 8109

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

Carried out for
Union Railways Limited

Ground Level
24.57 m AOD

Coordinates
529952.61 mE
183640.80 mN

Date
06/06/97

Description	Reduced Level	Legend	Depth (Thick)	Samples/Tests: Depth	Sample Type	Sample No.	Test	Field Records
COBBLESTONES (250 x 150 x 70mm) set in well bonded mortar. (MADE GROUND)	24.57		(0.15)					
	24.42		0.15	0.25 - 0.29	C	1		
	24.32		(0.10)					
	24.28		0.25					
Pale grey CONCRETE, moderately strong <50 - 60% fine to medium rounded flint gravel aggregate, 20 - 30% fine to medium sand. Unreinforced. (MADE GROUND)	24.02		(0.04)					
			0.29	0.60 - 1.00	C	2		
			(0.26)					
			0.55					
				1.20 - 1.40	B	3		
			(1.75)					
Black slightly clayey fine to medium SAND with some fine subrounded ash gravel. (MADE GROUND - SAND)								
	22.27		2.30	2.40 - 2.50	D	4		
Reddish brown weakly cemented fine to coarse angular to subrounded brick GRAVEL / COBBLES with some mortar. (MADE GROUND - GRAVEL AND COBBLES)				2.70 - 3.00	C	5		
			(1.50)					
Medium dense dark grey to black slightly clayey fine to coarse SAND with some to much fine to medium subangular to subrounded gravel of ash, flint, brick and rare glass. (MADE GROUND - SAND)	20.77		3.80	3.80 - 3.90	D	6		
	20.67		(0.10)					
	20.57		3.90					
			(0.10)	4.50	D	8		
			4.00	4.00 - 4.70	C	7		
			(0.70)					
Soft brown sandy CLAY with some fine to medium subangular to subrounded gravel of flint, brick, clinker, coal and wood. (MADE GROUND - CLAY)	19.87		4.70	4.70	W	9		
			(1.70)	5.50 - 5.80	B	10		
Red slightly clayey SAND AND fine to medium angular GRAVEL of brick fragments. (MADE GROUND - SAND AND GRAVEL)								
	18.17		6.40					
Soft brown CLAY with much sand and angular fine to medium gravel of brick fragments. (MADE GROUND - CLAY)			(0.50 pen)	6.40 - 6.90	C	11		
				6.40 - 6.90	B	12		
	17.67		6.90					
Firm, greenish and bluish grey very silty CLAY with frequent black organic silt pockets (<100mm) and rare wood and fine rounded flint gravel. (MADE GROUND - CLAY)								
Loose brown clayey SAND AND fine to medium subangular GRAVEL of brick and flint. Locally very clayey. (MADE GROUND - SAND AND GRAVEL)								
Stiff brown with bluish grey mottling, very closely fissured CLAY. (LONDON CLAY)								
BOREHOLE ENDS AT 6.90 m.								

Remarks
1. Slotted standpipe installed on completion, see sheet 3.

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Scale 1:50

Notes:
Materials are described in accordance with Appendices. For explanation of symbols and abbreviations see Fig. 1.

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Fig. 115

Soil Mechanics

BOREHOLE No. SA7344

Sheet 2 of 3

Equipment & Methods
As sheet 1

Location No. 8109

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

Carried out for
Union Railways Limited

Ground Level | Coordinates | Date
As sheet 1

Water Level Observations During Boring

Date	Time	Depth of Hole (m)	Depth of Casing (m)	Depth to Water (m)	Remarks
06/06/97	12:45	6.90	6.20	5.15	End of hole

Hole Diameter by Depth Table

Depth of Hole (m)	Diameter of Hole (mm)	Diameter of Casing (mm)	Depth of Casing (m)
6.90	150	150	6.20

Water Strike Table

Depth of Strike (m)	Casing Depth (m)	Date	Time	Post Strike Depth (m)	Minutes After Strike	Sealed at (m)	Remarks
4.70	-	06/06/97	:	-	-	-	
4.70	-	06/06/97	:	4.10	5	-	
4.70	-	06/06/97	:	4.05	10	-	
4.70	-	06/06/97	:	3.95	15	-	
4.70	-	06/06/97	:	3.90	20	-	

Remarks

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Scale 1:50

Notes:
Materials are described in accordance with Appendices. For explanation of symbols and abbreviations see Fig. 1.

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Fig. 115

Soil Mechanics

BOREHOLE No. SA7344

Sheet 3 of 3

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 06/06/97
Internal diameter of tubing 50 mm
Length of filter 4.90 m
Diameter of filter 150 mm

SUMMARY OF INSTALLATION

Depth (m) From	Depth (m) To	
		Surface protection : Stopcock Cover
0.00	1.00	Concrete
1.00	2.00	Bentonite seal
0.00	2.00	Plain pipe
2.00	6.90	Sand filter
2.00	6.90	Slotted section

Legend		Depth below Ground level(m)
a	a	1.00
d	d	2.00
b	b	6.90

key

a	Concrete	d	Bentonite seal
b	Sand filter	e	Bentonite/cement grout
c	Gravel filter	f	Backfill

Remarks

1. Ground level and coordinates as sheet 1

DETAILS OF INSTRUMENTS

Soil Mechanics

BOREHOLE No. SA7368

Sheet 1 of 3

Equipment & Methods
Hand dug inspection pit to 1.00m. Cable tool boring, 150mm dia to 4.80m.

Location No. 8109
Location CONTRACT 2 FOR PHASE 4 (1997) GROUND INVESTIGATIONS IN PROJECT AREA 100

Carried out for Union Railways Limited

Ground Level 27.41 m AOD
Coordinates 529895.61 mE 183682.43 mN
Date 09/06/97

Description	Reduced Level	Legend	Depth (Thick)	Samples/Tests Depth	Sample Type	Sample No.	Test	Field Records
Loose black fine to coarse ash SAND with some to much subangular fine ash, clinker gravel with rare brick, plastic, glass and metal fragments. (MADE GROUND - SAND) 0.10-0.19m. horizon with frequent rootlets and some to much medium subangular limestone and granite gravel	27.41		(0.38)	0.25	C	1		
	27.03		0.38	0.50	C	2		
			(0.27)					
	26.76		0.65					
			(0.35)					
	26.41		1.00	1.10 - 1.50	B	3		
				1.10 - 1.50	C	4		
			(0.90)					
Soft to firm orange brown, grey and black slightly sandy CLAY with some to much subrounded fine brick and coal gravel and rare flint and glass fragments. (MADE GROUND - CLAY)	25.51		1.90	1.90 - 2.00	C	5		
			(0.90)					
				2.50 - 2.70	C	6		
Medium dense to dense orange and dark grey very clayey crushed brick and 'burnt' clay GRAVEL with some sand and rare coaly fragments. (MADE GROUND - GRAVEL)	24.61		2.80	2.90	W	5		
			(0.30)					
	24.31		3.10					
			(0.70)					
				3.50 - 3.80	C	7		
Soft to firm brown with pale grey mottling, locally closely fissured, slightly sandy CLAY with some fine to rounded medium brick, flint and rare ash and clinker gravel. Moderate hydrocarbon odour. (MADE GROUND - CLAY) 3.80-4.30m. slight hydrocarbon odour	23.61		3.80					
			(1.00 pen)					
				4.60 - 4.80	C	8		
	22.61		4.80					
Soft to firm dark greenish and bluish grey slightly sandy CLAY with some rounded to subrounded fine to medium gravel of brick, ash clinker and rare flint. Strong hydrocarbon odour. (MADE GROUND - CLAY)								
Firm to stiff dark grey CLAY with some to much rounded fine to medium gravel of brick. Moderate hydrocarbon odour. (MADE GROUND - CLAY)								
Firm to stiff greenish grey with orange brown mottling CLAY with some subangular fine to medium gravel of flint. Occasional pockets of sand. Faint hydrocarbon odour. (MADE GROUND - CLAY)								
Stiff orange with some grey mottling, very closely fissured CLAY. Below 4.50m, light orange brown, very silty. (LONDON CLAY)								
BOREHOLE ENDS AT 4.80 m.								

Remarks

1. Slotted standpipe installed on completion, see sheet 3.

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Scale 1:50

Notes:
Materials are described in accordance with Appendices. For explanation of symbols and abbreviations see Fig. 1.

Fig. 132