

# GEOCORE

*Site Investigations Ltd.*

## SITE INVESTIGATION FACTUAL REPORT

**CLIENT:** B & Maule Co Ltd  
**NAME:** Rowley  
**ADDRESS:** 18 Third Avenue, Frinton on Sea, CO13 9EG  
**CLIENT REF:** 36/20206386  
**OUR REF:** HH/20/65916

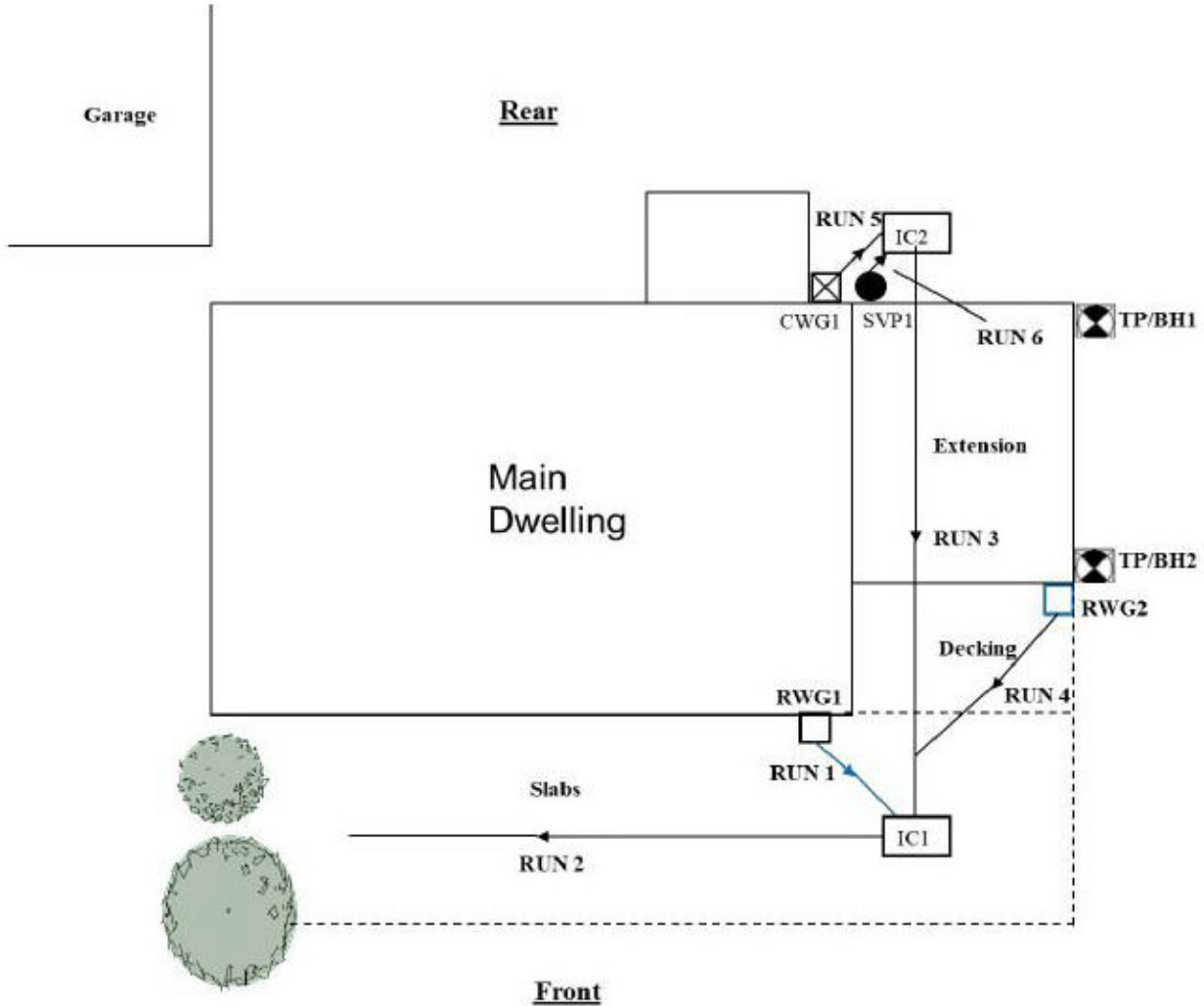


Tel: 01642 481144 F: 01642 498419 M: 07778 010555 E: [geocore@geocore.co.uk](mailto:geocore@geocore.co.uk) W: [www.geocore.co.uk](http://www.geocore.co.uk)

Managing Director: Adam Woodhead MBA, BSc (Hons) FGS  
Company Registration No: 4042825 VAT Registration No: 708 0825 05

# SITE AND DRAINAGE LAYOUT

Site Crew:	T Allan & P Dowson	Date:	14th October 2020
Address:	18 Third Avenue, Frinton on Sea, CO13 9EG		
Geocore Ref:	HH/20/65916	Client Ref:	36/20206386

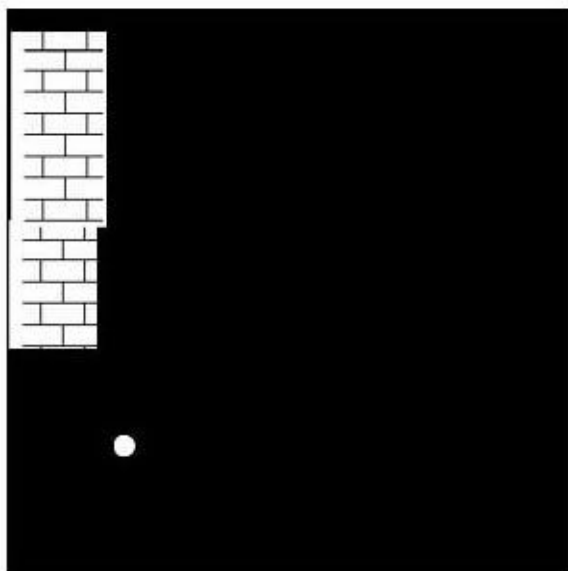


General Comments:

Key:	=RW Gully	=RW Pipe	=FW Gully	=W/C or S/V pipe	=Inspection Chamber
	=Rodding Eye	=Surveyed pipe indicating fall	=Unsurveyed pipe		
	=E/H=Exploratory Hole (hand dug pit and/or window sample)				
	=Hedge or Shrub	=Tree	=Boundary line		

# FOUNDATION PIT RECORD

<b>Site Crew:</b>	T Allan & P Dowson	<b>Date:</b>	14th October 2020
<b>Address:</b>	18 Third Avenue, Frinton on Sea, CO13 9EG		
<b>Geocore Ref:</b>	HH/20/65916	<b>Client Ref:</b>	36/20206386
<b>Trial Pit No: 1</b>			



# BOREHOLE LOG RECORD

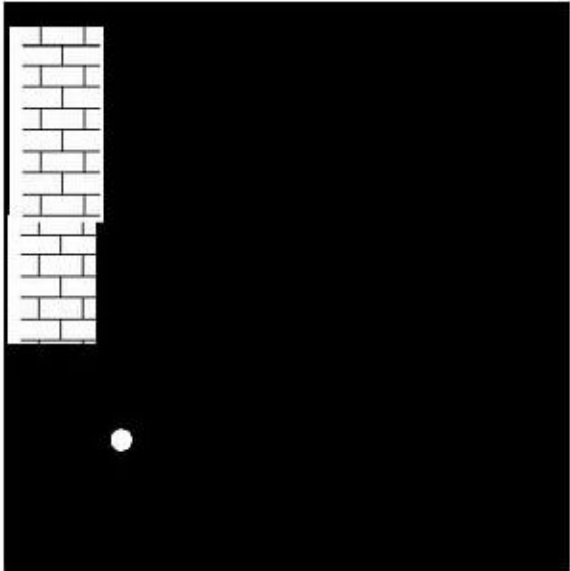
Site Crew:	T Allan & P Dowson	Date:	14th October 2020
Address:	18 Third Avenue, Frinton on Sea, CO13 9EG		
Geocore Ref:	HH/20/65916	Client Ref:	3B/20206386
Borehole No: 1			

GEOCORE		BOREHOLE LOG		Geocore Site Investigations Ltd Tralee Close, Kirkcaldy Bus Pk, Redcar, TS10 6SG Telephone: 01642 481144		
Location 18 Third Avenue, Frinton on Sea, CO13 9EG				BOREHOLE No TP/BH01		
Job No HH/20/65916	Date 14-10-20	Ground Level (m)	Co-Ordinates ( )			
Client Maule				Sheet 1 of 1		
SAMPLES & TESTS			STRATA			
Depth	Type No	Test Result	Water Reduced Level	Legend	Depth (Thickness)	DESCRIPTION
0.30	ITV	46 kPa @ 0.3m			0.30	MAD. GROUND dark brown slightly gravelly medium sand (topsoil). Gravel is of sub angular to sub rounded fine to medium red brick, concrete.
0.50	ITV	46 kPa @ 0.5m			0.50	MAD. GROUND brown slightly sandy slightly gravelly clay with occasional roots. Gravel is of sub angular to sub rounded fine to medium red brick, flint.
0.70-2.00	ROD18 D1				0.60	BASE OF FOUNDATION AT 0.7m
0.70	ITV	72 kPa @ 1.0m			0.90	Firm becoming stiff with depth slightly sandy CLAY with occasional roots.
1.00	ITV	98 kPa @ 1.5m			(2.10)	
1.50	ITV	98 kPa @ 1.5m				
1.70	D2					
2.00	ITV	96 kPa @ 2.0m				
2.50	ITV	90 kPa @ 2.5m				
2.70	D3					
3.00	ITV	106 kPa @ 3.0m			3.00	
Boring Progress and Water Observations			Chiselling		Water Added	
Date	Time	Depth (m)	Coring Dia. mm	Water Opt	From	To
All dimensions in metres Scale 1:25					Client Engineer Peter Footitt	
Method/ Plant Used					III	
Logged By Tom Allan					GENERAL REMARKS Borehole terminated at 3.0m. Excavation remained open and dry on completion.	



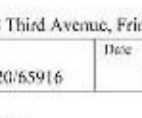
FOUNDATION PIT RECORD

Site Crew:		T Allan & P Dowson	Date:	14th October 2020
Address:	18 Third Avenue, Frinton on Sea, CO13 9EG			
Geocore Ref:	HH/20/65916		Client Ref:	36/20206386
Trial Pit No: 2				



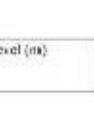
# BOREHOLE LOG RECORD

<b>Site Crew:</b>	T Allan & P Dowson	<b>Date:</b>	14th October 2020
<b>Address:</b>	18 Third Avenue, Frinton on Sea, CO13 9EG		
<b>Geocore Ref:</b>	HH/20/65916	<b>Client Ref:</b>	36/20206386
<b>Borehole No: 2</b>			



**GEOCORE**  
Soil Investigation Ltd

**BOREHOLE LOG**



**AGS**  
AGS

Geocore Site Investigations Ltd  
Tralee Close, Kirkcubbin Bus Pk  
Rosedale, T51D 5SG  
Telephone: 01642 481144

Location 18 Third Avenue, Frinton on Sea, C013 9EG				BOREHOLE No  <b>TP/BH02</b>			
Job No 111120/65916		Date 14-10-20				Ground Level (m) Co-Ordinates (i)	
Client Maule						Sheet 1 of 1	

SAMPLES & TESTS			STRATA				
Depth	Type No.	Test Result	Water	Reduced Level	Legend	Depth (Thickness)	DESCRIPTION
						0.20 0.20	MADE GROUND dark brown slightly gravelly medium sand (topsoil). Gravel is of sub angular to sub rounded fine to medium red brick, concrete
0.50	HV	40 kPa @ 0.5m				0.60	MADE GROUND brown slightly sandy slightly gravelly clay with occasional roots. Gravel is of sub angular to sub rounded fine to medium red brick, flint.
0.70-2.00	ROOTS BT					0.80	BASE OF FOUNDATION AT 0.7m
1.00	HV	72 kPa @ 1.0m					First becoming stiff with depth slightly sandy CLAY with occasional roots
1.50	ITV	104 kPa @ 1.5m					
1.70	B2					2.30	
2.00	ITV	92 kPa @ 2.0m					
2.50	HV	88 kPa @ 2.5m					
2.70	B3						
3.00	ITV	104 kPa @ 3.0m				3.00	

Boring Progress and Water Observations					Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Water Bpt	From	To	Hours	From	To	
										Borehole terminated at 3.0m. Excavation terminated open and dry on completion.

All dimensions in metres  
Scale 1:25

Client Engineer  
**Peter Footitt**

Method/  
Plant Used

HH

Logged By  
**Tom Allan**



## TESTING

<b>Site Crew:</b>	T Allan & P Dowson	<b>Date:</b>	14th October 2020
<b>Address:</b>	18 Third Avenue, Frinton on Sea, CO13 9EG		
<b>Geocore Ref:</b>	HH/20/65916	<b>Client Ref:</b>	36/20206386

## SUMMARY OF SOIL CLASSIFICATION TESTS

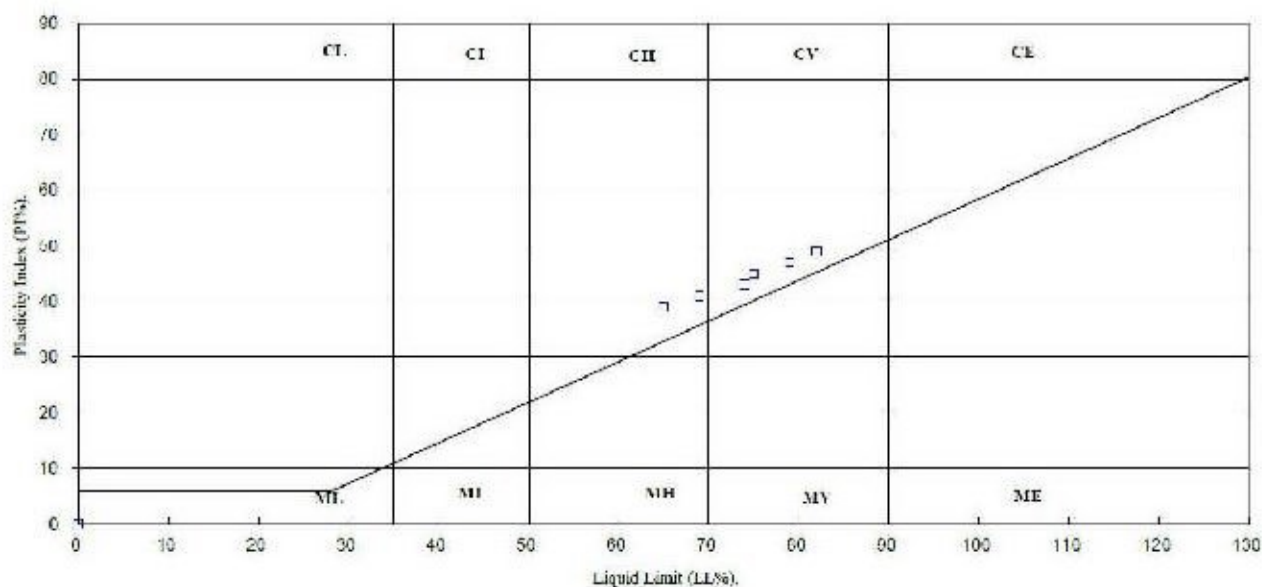
(CS1377 : PART 2 : 1990)

[illegible]

SYMBOLS: NP: Non Plastic

\* : Liquid Limit and Plastic Limit Wet Sieved.

### PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



## ROOT ANALYSIS

Site Crew:	T Allan & P Dowson	Date:	14th October 2020
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Geocore Ref:	HH/20/65916	Client Ref:	36/20206386

## Richardson's Botanical Identifications

Root identification  
Vegetation surveys  
Tree/Building investigations  
Plant taxonomy

Dr Ian B K Richardson  
BSc, MSc, PhD, MRSB, FLS

James Richardson  
BSc (Hons. Biology)

Enterprise House  
49-51 Whiteknights Road  
Reading  
RG6 7BB

**Geocore Site Investigations Limited**

**Tralee Close  
Kirkleatham Business Park  
REDCAR**

**Cleveland TS10 5SG**

02/11/2020

Your ref: 65916  
Our ref: 80/8204

Dear Sirs

**18 Third Avenue Frinton-on-Sea CO13 9EG**

The samples you sent in relation to the above have been examined. Their structures were referable as follows:

### TP/BH1, 0.7-2.0m

1 root: FRAXINUS (Ash). 2 further samples, not examined in detail appeared similar under low magnification. Alive, recently\*.

1 root: similar in many ways to the family Rosaceae, subfamily ROSEOIDEAE (shrubs including Roses, Brambles, Raspberries, Kerria and Potentilla). Alive, recently\*.

7 samples: unfortunately insufficient cells for identification.

### TP/BH2, 0.7-1.8m

1 root: the family LEGUMINOSAE (a group of closely related trees: Robinia (False Acacia), Laburnum, Sophora (Pagoda tree), Gleditsia (Honey Locust), Cercis (Judas tree/Redbud), Albizia (Silk tree), Acacia (Mimosa), as well as such shrubs as Wisteria, Lupins, Gorse and Brooms). Alive, recently\*.

1 root: BETULA (Birch). 3 further samples, not examined in detail appeared similar under low magnification. Alive, recently\*.

2 sections of either twig, stem or sucker only - NOT roots. Although both were examined in our laboratory, neither were identifiable.

8 samples: unfortunately insufficient cells for identification.

I trust this is of help. Please call us if you have any queries; our Invoice is enclosed.

Yours faithfully

Dr Ian B K Richardson

\* Based mainly on the Iodine test for starch. Starch is present in some cells of a living woody root, but is more or less rapidly broken down by soil micro-organisms on death of the root, sometimes before decay is evident. This result need not reflect the state of the parent tree.



# CCTV SURVEY DETAILS

Site Crew:	T Allan & P Dowson	Date:	14th October 2020
Address:	18 Third Avenue, Frinton on Sea, CO13 9EG		
Geocore Ref:	HH/20/65916	Client Ref:	36/20206386

Run: 1	Dir: U/S	Pipe Dia(mm):	100	System:	S/W	Made Of:	V/C
From:	I/C 1	Inv(m):	0.5	To:	RWG 1	Inv(m):	0.2
Metres	Faults/Defects					Internal Condition Grade (ICG)	Remarks
	D ST						
	D WL: 0%						
	0.41 FH					Grade 1	Passed Hydrostatic water test.
Run: 2	Dir: D/S	Pipe Dia(mm):	100	System:	C/W	Made Of:	V/C
From:	I/C 1	Inv(m):	0.5	To:	LSR	Inv(m):	N/A
Metres	Faults/Defects					Internal Condition Grade (ICG)	Remarks
	D ST						
	D WL: 0%						
	0.3 RF						
	0.9 RF						
	1.74 RF						
	2.54 CC: 12 o'clock to 12 o'clock					Grade 2	With fine roots
	3.67 RF						
	4.24 CC: 5 o'clock to 7 o'clock					Grade 2	With fine roots
	4.68 RF						
	5.2 RM: 10%						
	5.5 FH: At Limit of survey requirement						
Run: 3	Dir: U/S	Pipe Dia(mm):	100	System:	F/W	Made Of:	V/C
From:	I/C 1	Inv(m):	0.5	To:	I/C 2	Inv(m):	0.45
Metres	Faults/Defects					Internal Condition Grade (ICG)	Remarks
	D ST						
	D WL: 0%						
	0.66 CC: 12 o'clock to 12 o'clock					Grade 2	
	2.04 RM: 10%						
	2.47 RF						
	3.15 JN: At 3 o'clock						Run 4 (RWG 2)
	3.47 CC: 12 o'clock to 12 o'clock					Grade 2	
	3.74 CC: 1 o'clock to 4 o'clock						With roots
	7.53 CC: 12 o'clock to 12 o'clock					Grade 2	With fine roots
	7.78 CC: 3 o'clock to 8 o'clock					Grade 2	With fine roots
	7.85 FH						

**Key:** IC=Inspection Chamber, Inv=Invert, RWG=Rainwater Gully, F/WG=Foul Water Gully, C/WG=Combined Water Gully




## CCTV SURVEY DETAILS

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Geocore Ref:	HH/20/65916	Client Ref:	36/20206386

Run: 4	Dir: U/S	Pipe Dia(mm):	100	System:	S/W	Made Of:	V/C
From:	Run 3	Inv(m):	0.4	To:	RWG 2	Inv(m):	N/A
Metres	Faults/Defects					Internal Condition Grade (ICG)	Remarks
0	ST						
0	WL: 0%						
0.3	RM: 25%						
1.48	DES: 10%						
2.23	9 o'clock to 4 o'clock					Grade 2	
2.25	RF						
2.4	DES: 25%						
3	DES: 75%						
3.59	FH						
Run 5	Dir: U/S	Pipe Dia(mm):	100	System:	F/W	Made Of:	V/C
From:	I/C 2	Inv(m):	0.45	To:	CWG 1	Inv(m):	0.1
Metres	Faults/Defects					Internal Condition Grade (ICG)	Remarks
0	ST						
0	WL: 0%						
0.14	LL: 30°						
0.4	LR: 45°						
0.6	FH					Grade 1	
Run: 6	Dir: U/S	Pipe Dia(mm):	100	System:	Foul	Made Of:	V/C
From:	I/C 2	Inv(m):	0.45	To:	SVP	Inv(m):	0.1
Metres	Faults/Defects					Internal Condition Grade (ICG)	Remarks
0	ST						
0	WL: 0%						
0.2	LL: 45°						
0.8	FH					Grade 1	

Key: I/C=Inspection Chamber, Inv=Invert, RWG=Rainwater Gully, FWG=Foul Water Gully, CWG = Combined Water Gully

	<b>SURVEY NOTES</b>		
<b>Site Crew:</b>	T Allan & P Dowson	<b>Date:</b>	14th October 2020
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The property is served by a combined foul and surface water system.

Run 1: I/C 1 upstream to RWG: No defects identified.

Run 2: I/C 1 downstream to the limit of the survey requirement: Defects and root infiltration has been identified.

Run 3: I/C 1 upstream to I/C 2: Defects and root infiltration has been identified.

Run 4: Junction with run 3 upstream to RWG 2: Roots and debris identified.

Run 5: I/C 2 upstream to CWG 1: No defects identified.

Run 6: I/C 2 upstream to the SVP: No defects identified.

## RECOMMENDATIONS

<b>Site Crew:</b>	T Allan & P Dowson	<b>Date:</b>	14th October 2020
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<b>Geocore Ref:</b>	HH/20/65916	<b>Client Ref:</b>	36/20206386

Item 1: Run 2: I/C 1 downstream for 6 metres: Root cut and reline.

Item 2: Run 3: I/C 2 downstream to I/C 1: Root cut, clean and reline. Lateral cut on junction to re-open junction for run 4 (RWG 2).

Item 3: Run 4: RWG 2: Excavate within the first metre downstream of the gully for lining access. Clean drain run and install a 3.5 metre lining.

## QUOTATION

<b>Site Crew:</b>		T Allan & P Dowson		<b>Date:</b>	14th October 2020
<b>Address:</b>		18 Third Avenue, Frinton on Sea, CO13 9EG			
<b>Geocore Ref:</b>		HH/20/65916		<b>Client Ref:</b>	36/20206386
Item	Description	No	Unit	Rate	Total
Item 1	Run 2: I/C 1 downstream				
	Root cut				£140.00
	Reline for 6 metres				£684.00
				TOTAL	£824.00
Item 2	Run 3: I/C 2 downstream to I/C 1				
	High pressure water clean				£140.00
	Root cut (Price included within item 1)				
	Reline 0-5 metres include set up costs				£572.00
	Lateral cut				£100.00
	Reline an additional 3 metres				£342.00
				TOTAL	£1,154.00
Item 3	Run 4: RWG 2 downstream to the intersection with run 3				
	Excavate and replace up to 1 metre of pipe downstream of the gully				£93.00
	E.O for band seals x 2				£50.00
	Clean and root cut (Price included)				
	Reline for 3.5 metres				£399.00
	Reinstatement				£25.00
				TOTAL	£567.00
NOTES:			Sub Contract Value		£2,545.00
			Minimum Charge		£685.00
			VAT at 20%		£509.00
			Grand Total		£3,054.00

Condition Grades for Clayware, Concrete and Plastic Sewer Pipes	
Internal Condition Grade (ICG)	Typical Defect Descriptions
5	Already collapsed Deformation >10% and broken Extensive areas of fabric missing Fracture with deformation >10%
4	Broken Deformation >10% and broken Fracture with deformation 6-10% Multiple fracture Serious loss of level Serious joint defects with voids or soil visible (open joint with >50mm soil or void visible or joint displacement >25% of diameter) Surface damage - spalling large (entire surface of brick missing) Surface damage - wear large (entire surface of brick missing)
3	Fracture with no deformation or deformation <5% Longitudinal cracking with or multiple cracking Minor loss of level Severe joint defects, ie open joint (large) or displaced joint (large) Surface damage - spalling medium (large areas of chipped brick) Surface damage - wear medium (entire surface of brick missing)
2	Circumferential crack Moderate joint defects, ie open joint (medium) or displace joint (medium) Surface damage - spalling slight (small fragments breaking away from surface) Surface damage - wear slight (increased roughness)
1	No or slight structural defects
Note	Deformed sewers that have subsequently been relined with a structural lining can normally be considered to have no deformation

DRAINAGE CODES			
Code	Description	Code	Description
B	Broken pipe at ..... (or from ..... to ..... ) o'clock	JN	Junction at ..... o'clock, diameter ..... mm
CC	Crack circumferential from ..... to ..... o'clock	JX	Junction defective at ..... o'clock, diameter ..... mm
CL	Crack longitudinal @ ..... o'clock	LC	Lining of sewer changes/starts/finishes at this point
CM	Cracks multiple from ..... to ..... o'clock	LD	Line of sewer deviates down
CN	Connection at ..... o'clock, diameter ..... mm	LL	Line of sewer deviates left
CNI	Connection at ..... o'clock, diameter ..... mm, intrusion ..... mm	LR	Line of sewer deviates right
CU	Camera under water	LU	Line of sewer deviates up
CX	Connection defective at ..... o'clock	MC	Material of sewer changes at this point
D	Deformed sewer ..... %	MH	Manhole/node
DC	Dimension of sewer changes at this point	OB	Obstruction ..... % height/diameter loss
DE	Debris (non silt/grease) ..... % cross-sectional loss	OJL	Open joint large
DEG	Debris grease ..... % cross sectional area loss	OJM	Open joint medium
DES	Debris silt ..... % cross-sectional area loss	RFJ	Roots fine (at joint)
FC	Fracture circumferential from ..... to ..... o'clock	RMJ	Roots mass ..... % cross-sectional area loss (at joint)
FL	Fracture longitudinal at ..... o'clock	RTJ	Roots tap (at joint)
FM	Fractures multiple from ..... to ..... o'clock	SA	Survey abandoned
GO	General observation at this point	WL	Water level % height/diameter
H	Hole in sewer at ..... o'clock	X	Sewer collapsed ..... % cross-sectional area loss
JDM	Joint displaced medium	FH	End of survey
JDL	Joint displaced large		



# GEOCORE

*Site Investigations Ltd.*



WINDOW  
SAMPLING



CHAPTER 1

DOMESTIC  
SUBSIDENCE  
INVESTIGATIONS



CHAPTER 2

WINDOWLESS  
SAMPLING



CHAPTER 3

## THE HOLE STORY

CABLE  
PERCUSSION  
DRILLING



CHAPTER 4

ROTARY  
DRILLING



CHAPTER 5

GROUND  
SOURCE  
DRILLING



CHAPTER 6

CCTV DRAIN  
SURVEYS



CHAPTER 7