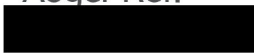




# Site Investigation Report

Auger Ref:



Job Information	
Client	Crawford & Co
Client ref	[Redacted]
Visit date	07/03/2022
Report date	07/03/2022

Job Summary	
✓	CCTV survey undertaken. <a href="#">Read more.</a>
!	Drainage repairs required. <a href="#">Read more.</a>
⚠	1 trial hole undertaken. <a href="#">Read more.</a>
!	Trial Hole 2 Aborted. <a href="#">Read more</a>





## Job Information

Overview	
<b>Brief</b>	Auger were commissioned by Crawford & Co to undertake a site investigation and CCTV inspection of the underground drainage within the area of concern (AOC) at the property. This was the right hand elevation of the property.
Findings	
<b>Trial Hole Findings</b>	<p>TH1 was completed in the requested location and our engineer was able to collect soil and root samples from within this trial hole. Our engineer noted that water was encountered at a depth of 0.95m within this trial hole.</p> <p>We were unable to reach the required depth, probe the footing or collect any samples from within TH2 because the property was underpinned and the foundation extended further than the area we were able to excavate.</p> <p>We completed an excavation and exposed the three brick step out that matches the findings of TH1, however this trial hole had a further concrete footing projection. The customer then informed us that this area of the property has previously been underpinned. We completed a remote borehole 1m back from the front corner of the property and this revealed the same depth of a concrete footing, confirming the underpinning at the front of the property.</p> <p>Due to the tight working conditions (see fig 2.1), our engineer was only able to dig 800mm back from the property wall and within this sized trench, we did not come to the edge of the footing. This therefore means that the projection is over 800mm, and due to the fact this part of the building had previously been underpinned, it is likely that there is an even larger projection of the footing and so we would not be able to expose the edge and find the underside of the foundation.</p>
<b>Visual Inspection</b>	<p>A visual inspection of the site revealed WG1, which was noted to serve foul water, has broken/cracked (see fig 3.3/4.1). The visible defects identified are affecting the function of the system and could be allowing an escape of water.</p> <p>We carried out a water mains listening test whilst on site which revealed that there was no evidence of a leak on the incoming water supply serving the property.</p>
<b>Drain Survey</b>	<p>We carried out a CCTV survey of the below ground drainage system, our findings of which are as follows:</p> <p><b>Line 1 - From MH1 upstream to SVP</b> Our survey of line 1 revealed no significant defects to the pipework on this line which could be allowing an escape of water.</p> <p><b>Line 2 - From WG1 downstream to MH2</b> Our survey of line 2 revealed cracking throughout the line (see fig 3.1-3.2).</p> <p>The above mentioned defects to the below ground drainage system have been caused by ground movement.</p>

Recommendations	
Refer Back to Client	<p>It is recommended that the following repairs are carried out to prevent an escape of water from the system:</p> <p><b>Line 2</b> Excavate and replace WG1 and 1m of 100mm pipework directly downstream of this at a depth no greater than 1.0m through paving slabs. We also propose to install 4m of 100mm liner directly upstream of MH2 to cover areas of cracking.</p> <p>Auger have not allowed or will not be held responsible for any alteration or modification to the above ground drainage following the removal of the existing gully and reinstatement of a new gully. The customer must ensure that the above ground drainage correctly expels into the gully pot and avoids overcrowding the gully with numerous downpipes which could lead to the gully overflowing.</p> <p style="text-align: center;"><b>We will now refer the claim back to the client in order to progress the claim.</b></p>
Repair Caveats	<p><i>Once repairs have been undertaken the customer should ensure the drainage system is periodically inspected in the future for any deterioration and kept free flowing / free of blockages. Any damage noted during future inspections should be repaired immediately in accordance with current Building Regulations.</i></p> <p><i>With any repair process, complications and unforeseen circumstances can arise. These scenarios will be reported whilst on-site and could potentially cause an increase in repair costs and inconvenience.</i></p> <p><i>Where any excavation reinstatement of the surface is required, the reinstatement will always attempt to match the previous surface patterns and colouring, however we cannot guarantee an exact match.</i></p> <p><i>If any of the above lining recommendations fail then excavation and replacement of the pipework would be required. This would severely increase the cost of repairs and would provide greater inconvenience to the residents.</i></p> <p><i>Recommendations have been made to reline or patch reline sections of the drainage system at the property. This process combines a number of chemicals in a resin, which then harden in a fibreglass matting to create a new section of drain within the original. The reaction creates a <b>strong smell which can linger for up to 72 hours</b> once works are completed - this is not harmful. It is recommended that any areas where smells are experienced are kept well ventilated until the odour subsides.</i></p> <p><i>The above recommendations allow for the replacement of gullies &amp; connected underground drainage only. The insured should be made aware that the aesthetic appearance of this gully may be different from what is currently in place.</i></p>

## Photographs

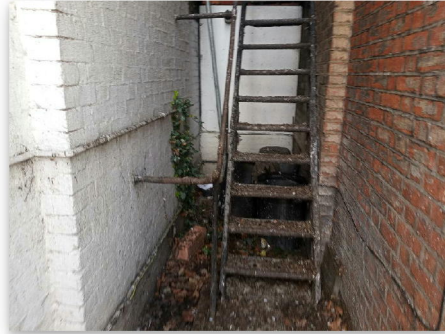
Trial Hole 1	
Fig 1.1: Trial Hole 1 Location	Fig 1.2: Trial Hole 1 Footing
	

**Trial Hole 2**

Fig 2.1: Attempted Trial Hole 2 Location



Fig 2.2: Confined Trial Hole 2 Location



**CCTV Stills**

Fig 3.1: Line 2 Cracking



Fig 3.2: Line 2 Cracking



Fig 3.3 :Cracked Gully Base



Site Photos

Fig 4.1: Damaged Gully



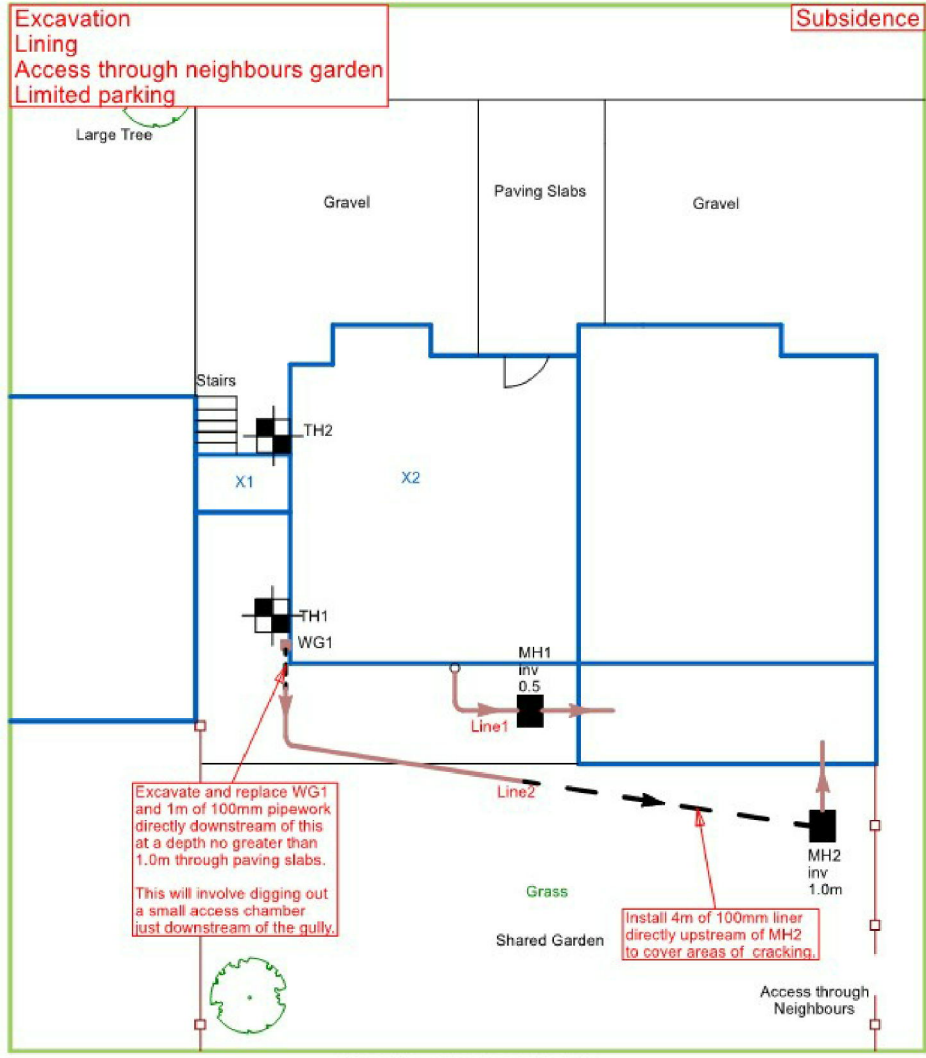
Fig 4.2: Access for Lining



CCTV Survey – Inspection Listings (WRc Guidelines Applied)

L2			
<b>Direction</b>	Downstream	<b>From</b>	WG1
<b>Pipe Size (mm)</b>	100	<b>Depth (m)</b>	1.0m
<b>Pipe Material</b>	VC	<b>To</b>	MH2

0.0m	Start of Survey Length
0.0m	Start of Survey Length
0.2m	Fracture - Longitudinal
0.7m	Line of Sewer Deviates Right
0.9m	Line of Sewer Deviates Up
1.2m	Finish of Survey Length
2.3m	Line of Sewer Deviates Left
6.2m	Fracture - Circumferential
10.0m	Finish of Survey Length



This drawing should be used for diagrammatic purposes only. Auger are not responsible or liable for any 3rd party works undertaken using the details outlined in this drawing. Confirmation of the drainage configuration can only be confirmed by excavation or detailed technical survey.

LEGEND			
= Manhole (MH)	= Blockage / Collapse	= Drains not to be worked on	= Trial hole
= Inspection Chamber (IC)	= Soil Vent Pipe (SVP) / WC	= Drains to be worked on	= Borehole
= Inspection Point (IP)	= Combined Waste Gully (CWG) / Foul Waste Gully (FWG)	= Assumed water mains feed	= Shrubs / Bush
= Rainwater Gully (RWG)	= Rainwater Pipe (RWP)	= Walls	= Hedge
		= Fences	= Tree
		= Building Outline	= Steps
		= Direction of flow	= Gate / Door



# Trial Hole Log No.1

Location: Rear right corner

Depth (m)	Symbolic Log	Strata Description	Insitu Tests		Soil Sample	Root Sample
			SV(19)			
0.0		Ground Level				
		Concrete				
		Brickwork				
0.5		Triple Step				
1.0		Water encountered				
		Brown fine to coarse gravelly silty CLAY	48kpa		Soil @ 1.1m	Root @ 1.1m
1.5		Brown fine to medium gravelly silty CLAY	62kpa		Soil @ 1.6m	
2.0		Brown fine to medium gravelly silty CLAY	74kpa		Soil @ 2.1m	
2.5		Brown fine to medium gravelly silty CLAY	76kpa		Soil @ 2.6m	
3.0		TRIAL HOLE TERMINATED	80kpa			



# 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)*

## Auger Solutions



29/03/2022

Dear Sirs

### Root ID

The samples you sent in relation to the above on 07/03/2022 have been examined. Their structures were referable as follows:

TH1, 1.1m		
3 no.	Examined root: PLATANUS (Plane).	<a href="#">Alive, recently*</a>
1 no.	Although examined microscopically, this was found to be only a section of either twig, stem or sucker - NOT a root. Not identified.	

Click here for more information: [PLATANUS](#)

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.

\*\* Try out our web site on [www.botanical.net](http://www.botanical.net) \*\*





**Geotechnical Testing Analysis Report**



environmental +  
claims mgmt +  
subsidence +  
drainage +

**\*The testing results contained within this report have been performed by GSTL a UKAS accredited laboratory on behalf of Auger.**

**Summary Of Claim Details**

<b>Policy Holder</b>	Unknown
<b>Risk Address</b>	Unknown
<b>SI Date</b>	07/03/2022
<b>Issue Date</b>	07/03/2022
<b>Report Date</b>	19/03/2022
<b>Auger Reference</b>	
<b>Insurance Company</b>	Allianz
<b>LA Claim Reference</b>	
<b>LA Co. Reference</b>	Crawford & Co

This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

	Checked	19/03/2022	Wayne Honey	
	Approved	19/03/2022	Paul Evans	





### LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX ( BS 1377:1990 - Part 2 : 4.4 & 5.3 ) DESCRIPTIONS



environmental +  
claims mgmt +  
subsidence +  
drainage +

GSTL Contract Number	
Risk Address	
Auger Reference	

TH Trial Hole	Sample Type	Depth (m)	Sample Description
TH1	D	1.10	Brown fine to coarse gravelly silty CLAY
TH1	D	1.60	Brown fine to medium gravelly silty CLAY
TH1	D	2.10	Brown fine to medium gravelly silty CLAY
TH1	D	2.60	Brown fine to medium gravelly silty CLAY

Test Operator	Checked	19/03/2022	Wayne Honey	
Luke Williams	Approved	19/03/2022	Paul Evans	





**LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX**  
( BS 1377:1990 - Part 2 : 4.4 & 5.3 )



GSTL Contract Number	
Risk Address	
Auger Reference	
Remarks	

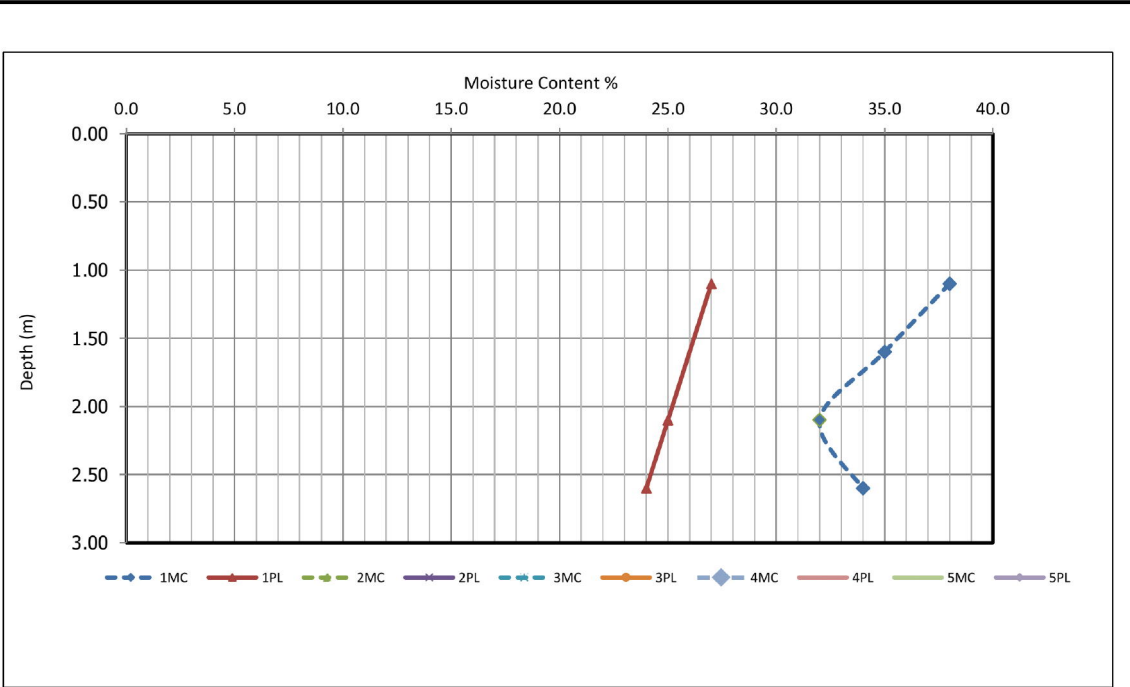
TH Trial Hole	Sample Type	Depth (m)	Moisture Content %	Liquid Limit %	Plastic Limit %	Plasticity index %	Passing ,425mm %	NHBC Chapter 4.2	Remarks
TH1	D	1.10	38	75	27	48	75	HIGH VCP	CV Very High Plasticity
TH1	D	1.60	35						
TH1	D	2.10	32	72	25	47	99	HIGH VCP	CV Very High Plasticity
TH1	D	2.60	34	71	24	47	98	HIGH VCP	CV Very High Plasticity

Modified Plasticity Index (PI) <10 : Non Classified  
 Modified PI = 10 to <20 : Low volume change potential (LOW VCP)  
 Modified PI = 20 to <40 : Medium volume change potential (Med VCP)  
 Modified PI = 40 or greater : High volume change potential (HIGH VCP)

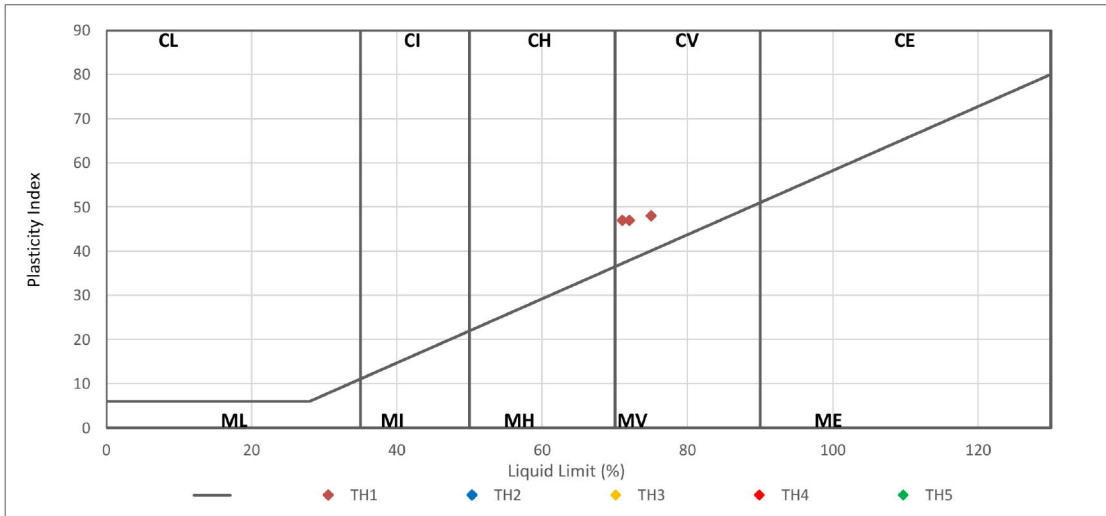
The Atterberg Limits May also be used to classify the volume change potential of fine soils using the National House building system, as given in the NHBC's Standards Chapter 4.2 (2003) "Building Near Trees"

Test Operator	Checked	19/03/2022	Wayne Honey	
Luke Williams	Approved	19/03/2022	Paul Evans	





PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION  
BS 5930:1999+A2:2010



Modified Plasticity Index (PI) <10 : Non Classified  
 Modified PI = 10 to <20 : Low volume change potential (LOW VCP)  
 Modified PI = 20 to <40 : Medium volume change potential (Med VCP)  
 Modified PI = 40 or greater : High volume change potential (HIGH VCP)

The Atterberg Limits May also be used to classify the volume change potential of fine soils using the National House building system, as given in the NHBC's Standards Chapter 4.2 (2003) "Building Near Trees"

Test Operator	Checked	19/03/2022	Wayne Honey
Luke Williams	Approved	19/03/2022	Paul Evans

