

#### **Subsidence Investigation Report**

Date: 10/05/2023

**Insurance Company: BVS** 

**Insurer Claim Number**: 0715931 **Catalyst Claim Number**: 119141

#### **Policyholder Name & Risk Address:**

Peter Scott and Christine Scott, The Old School, The Common, Mellis, Eye Suffolk IP23 8EE

#### **Description of Risk address**

**Detached House** 

#### **Description of Drainage System**

100mm Clay Pipe

#### **Circumstances**

We were asked to inspect and report on the cause of potential movement at the property.

#### **Works Completed**

We attended site and completed the following tests, the locations of the trial pits / boreholes are detailed on the site plan.

- Excavated two trial pits and boreholes.
- Completed Shear Vane / Mackintosh Probe testing.
- Tested root samples.
- Performed CCTV survey to accessible drainage.

#### **Further Action**

Drains require rectification and a further survey will need to be carried out to ensure Rain Water Gully 1 and Rain Water Pipes 1-2 are functional.

Excavate and replace RWG1 with up to 1m pipework and further CCTV survey.

Excavate and replace the rest bend of RWP1 & 2 with up to 1m pipework, perform further CCTV survey.



Repairs are also required to S1 and S2, however, it is likely internal excavations will be necessary to complete the repairs. We will assess this whilst on site conducting further investigations and provide recommendations.

S3: Carry out high pressure water jetting / root cutting. Install 9m x 100mm structural liner.

S4: Carry out high pressure water jetting / root cutting. Install structural patch liner at 3.34m.

Live roots noted beneath foundation level in stiff clay subsoil.

#### Reserves

Investigations: £540.00 + VAT Root Cost: £160.00 + VAT

**Total Investigation Cost:** £700.00 + VAT

#### **Further Work:**

Further Investigations to RWG1, RWP1, RWP2: £1486.73 + VAT

S1 & S2: TBC

S3 Repairs: £808.07 + VAT S4 Repairs: £420.18 + VAT



# Site Investigation and **Drainage Report**



Site The Old School

The Common

Mellis

Eye

Suffolk

IP23 8EE

Ref: 119141

Peter Scott and Christine Scott

**Client** Catalyst Services UK

**Date** 28/03/23

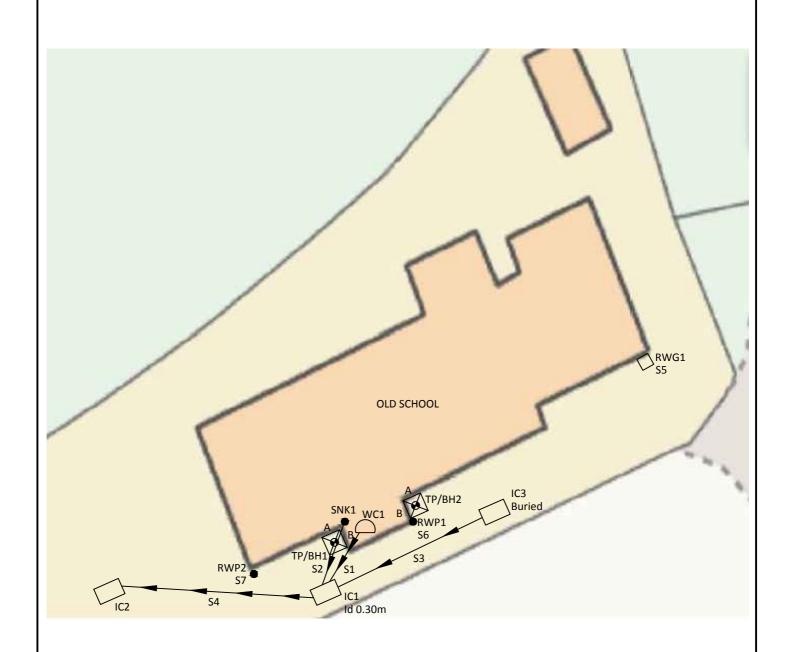
**Our Ref** | 13137

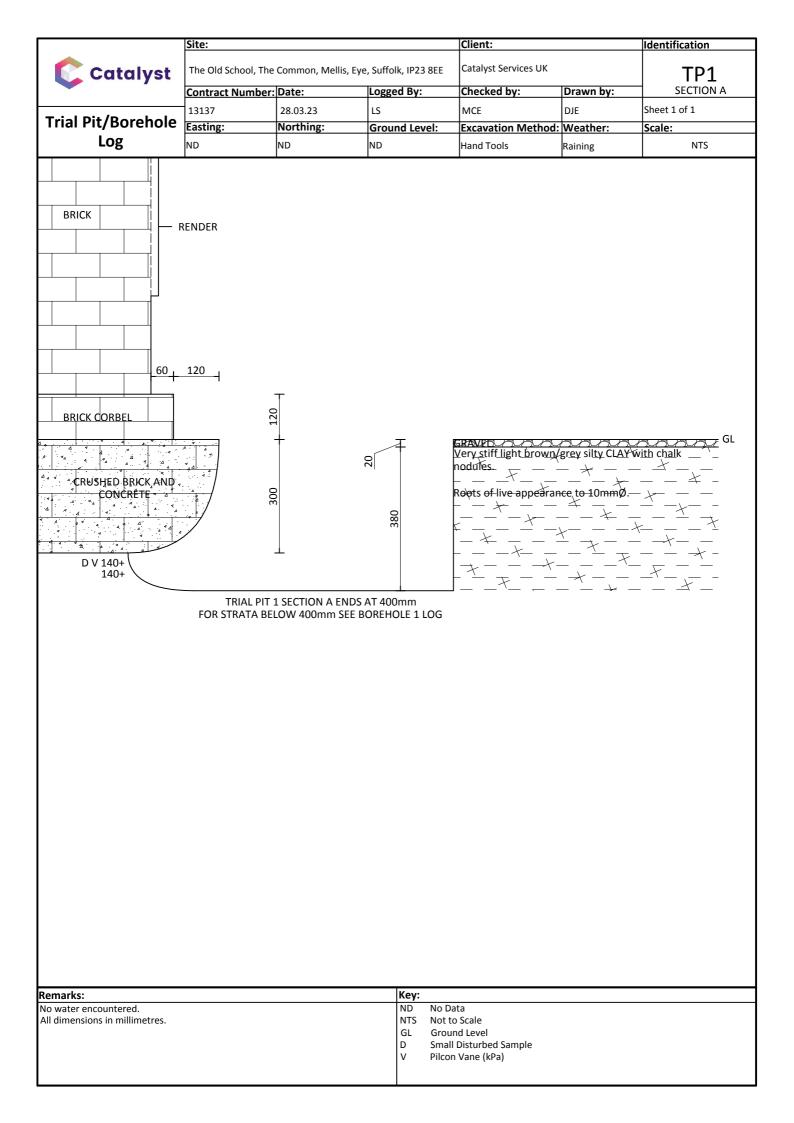


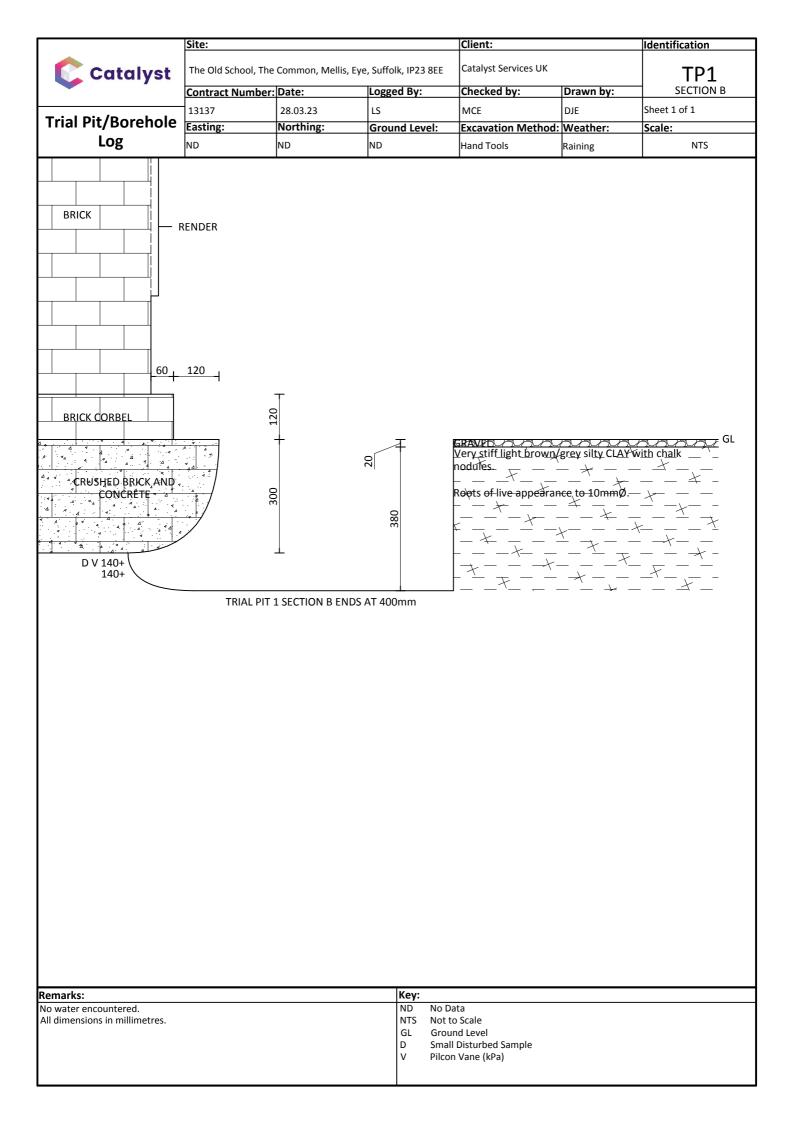
### **SITE INVESTIGATION AND DRAINAGE REPORT CONTENT**

1.0	SITE PLAN
2.0	TRIAL PIT SECTION DRAWINGS
3.0	BOREHOLE LOGS
4.0	TRIAL PIT PHOTOGRAPHS
5.0	ROOT IDENTIFICATION
6.0	CCTV DRAINAGE SURVEY
7.0	REPORT NOTES

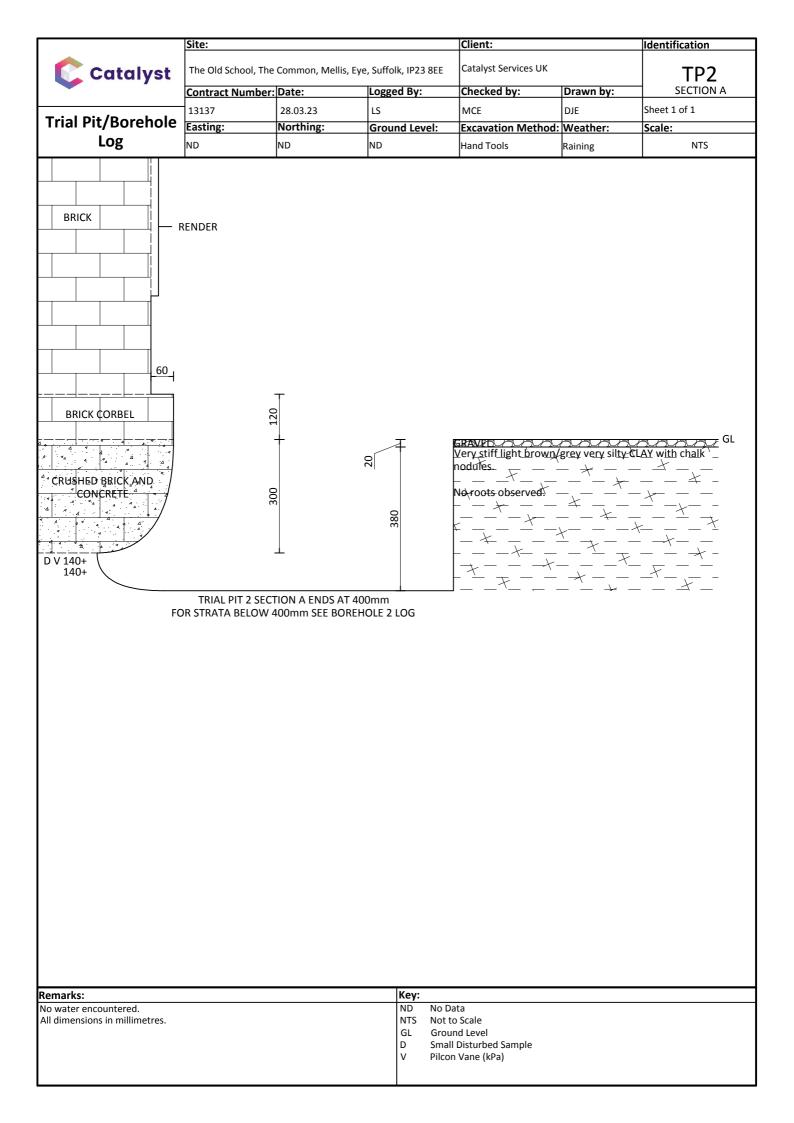
	Site:					Identification:	
<b>Catalyst</b>	The Old School, The (IP23 8EE	Suffolk,	Catalyst Services UK			SP	
	Contract Number:	Date:	Logged B	y:	Checked by:	Drawn by:	
	13137	28.03.23	LS		МСЕ	DJE	Sheet 1 of 1
Sketch Site Plan	Easting:	Northing:	Ground L	.evel:	Plan:	Weather:	Scale:
	ND	ND	ND		ND	Raining	NTS

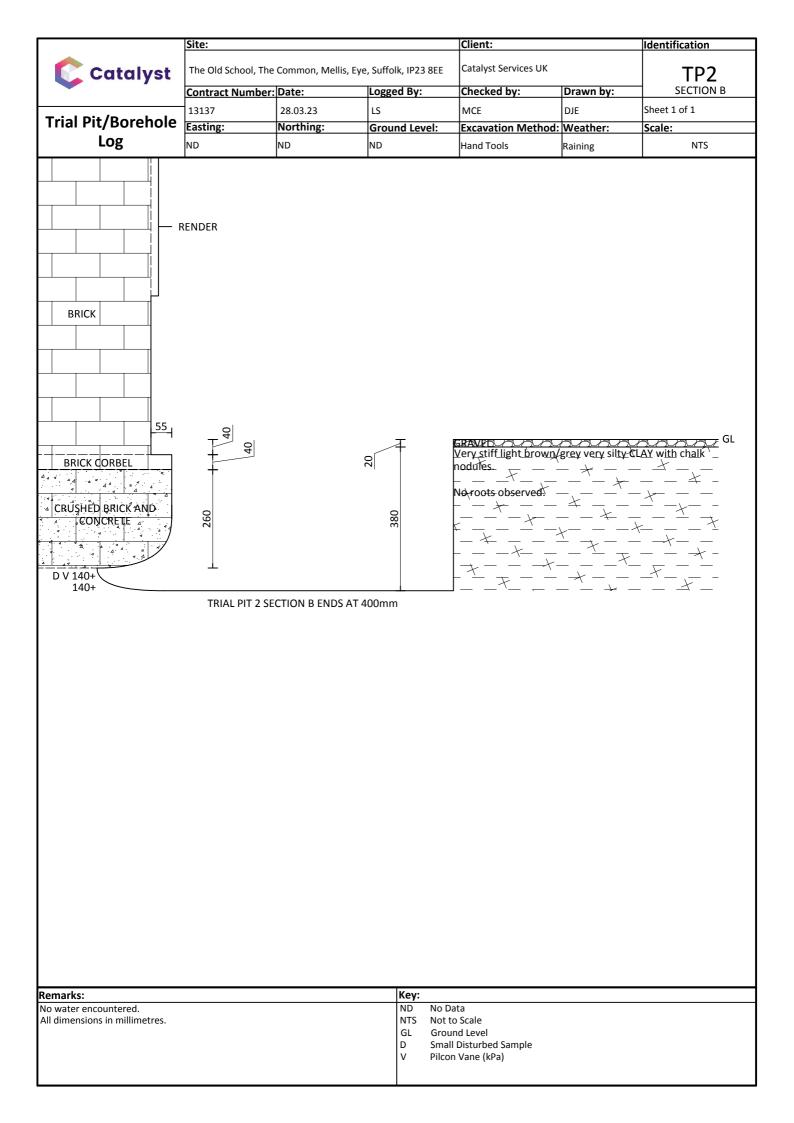






			Site:	e: Client: Identificatio			on						
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	Cu	taryst	Contract				Logged By:	Checked by	<i>r</i> :	Drawn by	v:	Di	'-
			13137		28.03.2	3	LS	MCE		DJE		Sheet 1 of 1	
D.	roho	le Log	Easting:		Northir		Ground Level:	Plant Used		Weather	- 1	Scale:	
Ъ	JI EIIO	ie Log	ND		ND		ND	Hand Auger		Raining			TS
	les & In Si	tu Testing	_				Strata Details			_	F	Roots and Gro	undwater
Depth (m)	Sample	Test Result	Depth (m)	Thickness (m)	Legend		Strata	Description			Roots	Information	Groundwater (m)
- GL			GL										
:			0.40	0.40			AS TI	1 SECTION A					
0.50	D	V 140+ 140+	0.40		\     _	Very stiff ligh	nt brown/grey chalky ve	ry silty CLAY wit	h chalk nodules			ots of live bearance to	
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- - 1.00	D	V 140+ 140+											
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DOI GUOIG	open on	completion.						NTS GL	<b>Ground Level</b>		M TDTI	Mackintosh D Too Dense t	
								D	Small Disturbe	a Sample			

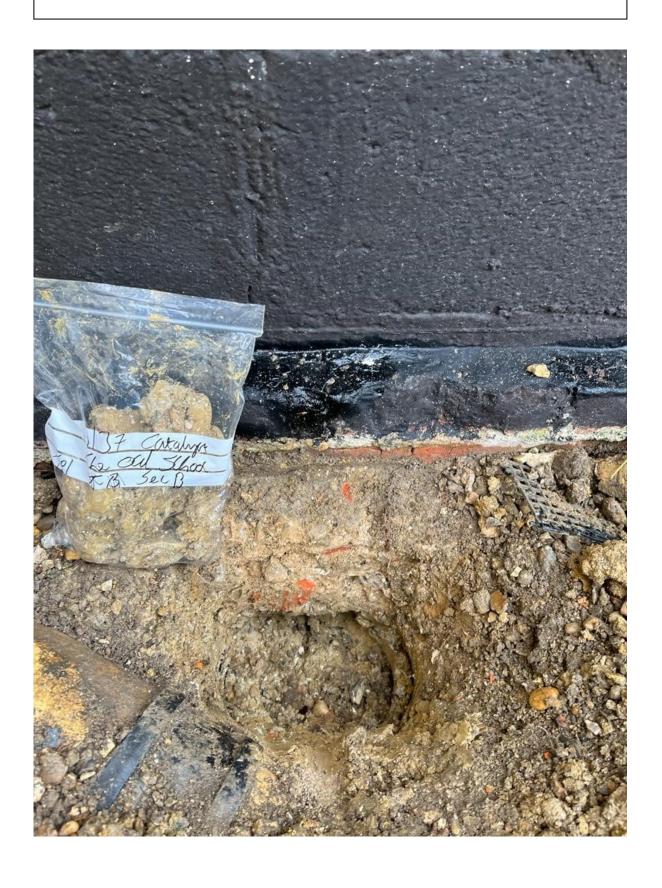




			Site:					Client:			Identificati	on
	Cal	talyst	The Old So	chool, The	Commoi	n, Mellis, Ev	ye, Suffolk, IP23 8EE	Catalyst :	Services UK		DL	<del>1</del> 2
	Cu	turyst					Logged By:	Checker	Checked by: Drawn			12
			Contract Number:		28.03.23		LS	MCE	· ~ y ·	DJE	Sheet 1 of 1	
n.	arak -	la Lac	Easting:		Northir		Ground Level:	Plant Us	ed:	Weather		
B	reno	le Log	ND		ND	·o'	ND	Hand Aug		Raining	1	TS
Samp	oles & In Sit	tu Testing	1111			Strata Details Roots and Groundwate						
Depth (m)	Sample	Test Result	Depth (m)	Thickness (m)	Legend			ta Description	ı		Roots Information	Groundwater (m)
GL			GL	(111)								()
				0.40			AS	TP2 SECTION	A			
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		140+		0.80	  -							
1.00	D	V 140+										
		140+	1.20		- 4		BOREHO	DLE ENDS AT 1.20n	n			
							TOO DEN	ISE TO HAND AUGI	ER			
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•												
								J.	•			
Remarl Borehole	<b>(S:</b> 'dry' on co	mpletion.			All dimen	sions in metr	es.		<b>(ey:</b> ND No Data		V Pilcon Vane	(KPa)
Borehole	'open' on o	completion.			2			N	NTS Not to Scale		. I IICOII VAIIE	, uj
									GL Ground Leve Small Distur			



#### Photograph 1 - Trial Pit 1





#### Photograph 2 - Trial Pit 2



JCA Ref: 20672/TT

To whom it may concern,

#### Re: The Old School, The Common Mellis, Eye, Suffolk, IP23 8EE.

Please find overleaf, details of our analysis of root material recovered during the ground investigation at the above site and an explanation of the results and methods used.

We hope that this report meets your requirements.

Assuring you of our best attention at all times.

Yours sincerely,

#### T. Thwaites

Toby Thwaites BSc (Hons) HND (Arboriculture), MArborA.

### **Tree Root Identification Report**

at: The Old School, The Common Mellis, Eye, Suffolk, IP23 8EE.

JCA Ref: 20672/TT

28th April 2023

#### 1. Microscopic Analysis

Trial Pit/ Borehole	Sample Depth (mm)	Family	Genus	Diameter (mm)	Starch Test
TP1	U/S Foundation 400 (A and B)	Salicaceae (x4)	Salix or Populus (x4)	2 to 15	Positive
ВН1	400 – 1200	Salicaceae (x1)	Salix or Populus (x1)	1	Positive

Salicaceae includes Willows and Osier (Salix spp.) and Poplar and Aspen (Populus spp.).

#### 2. MICROSCOPIC ANALYSIS

- 2.1 Microscopic examination generally enables the genus of roots recovered during the ground investigation to be established. However, it rarely identifies individuals to species level.
- 2.2 Certain species, for instance Willows and Poplars, are indistinguishable by these methods and identification can only be made at family level.
- 2.3 The diameter of the root and the direction in which it is growing can be an indication of its significance. In addition, the depth at which it is found is critical.
- 2.4 To establish whether the root is alive, iodine is used to test for starch, which is stored in some cells of living tree roots. Starch is broken down by micro-organisms upon the death of a root in the soil.

#### 3. METHOD

- 3.1 Freshly collected sample material is washed to remove any soil from the root surface.
- 3.2 Root samples are then boiled in water to prepare them for sectioning.
- 3.3 Sectioning is carried out using a Reichert OME sliding microtome or a surgical blade to produce transverse and tangential longitudinal root sections of 15µm and 30µm (micrometres) in thickness.
- 3.4 The sliced root sample is then placed on a glass microscope slide and stained with Chlor-zinc-iodine (Schulze's solution).
- 3.5 The slide is then observed under a high-power microscope and compared to known root samples.



## **Drainage Report**



Site The Old School

The Common

Mellis

Eye

Suffolk

IP23 8EE

Ref: 119141

Peter Scott and Christine Scott

**Client** Catalyst Services UK

**Date** 28.03.23



#### **REPORT CONTENTS**

1.0	Drainage investigation summary
2.0	Drainage layout plan
3.0	CCTV survey recommendations
4.0	Detail and condition survey
5.0	CCTV survey report



#### 1.0 DRAINAGE INVESTIGATION SUMMARY

A CCTV survey was instructed to establish the structural and operational condition of the drainage system, as part of a subsidence claim.

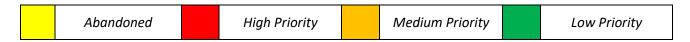
The fine detail of this CCTV survey is given together with a summary of the findings and relevant recommendations where appropriate (recommendations based solely on *visual* condition of pipework). The following CCTV survey was limited to what was instructed by the engineer and accessible on site.

#### SUMMARY OF CCTV SURVEY

CCTV Section No:	Section of drainage	Duty	Pipe diamete r (mm)	Material		Structural Condition Grade	Serviceable? Y/N	Repair Item Y/N
1	IC1 U S WC1	Foul	100	Clay	0.3	С	Υ	Υ
2	IC1 U S SNK1	Foul	100	Clay	0.3	В	Υ	Υ
3	IC1 D S IC2	Combined	100	Clay	0.3	В	Y	Υ
4	IC1 U S IC3	Combined	100	Clay	0.3	А	Υ	Υ
5	RWG1 D S U1	Surface	ND	ND	ND	TBC	N	Υ
6	RWP1 D S U2	Surface	ND	ND	ND	TBC	N	Υ
7	RWP2 D S U3	Surface	ND	ND	ND	ТВС	N	Υ

А	Structurally sound with no leakage evident. Slight cracks/defects permitted.
В	Cracks and/or fractures observed but pipe provides sufficient arching support. Some leakage may be evident.
С	Structurally unsound with insufficient arching support. Total collapse/blockage likely in the future.

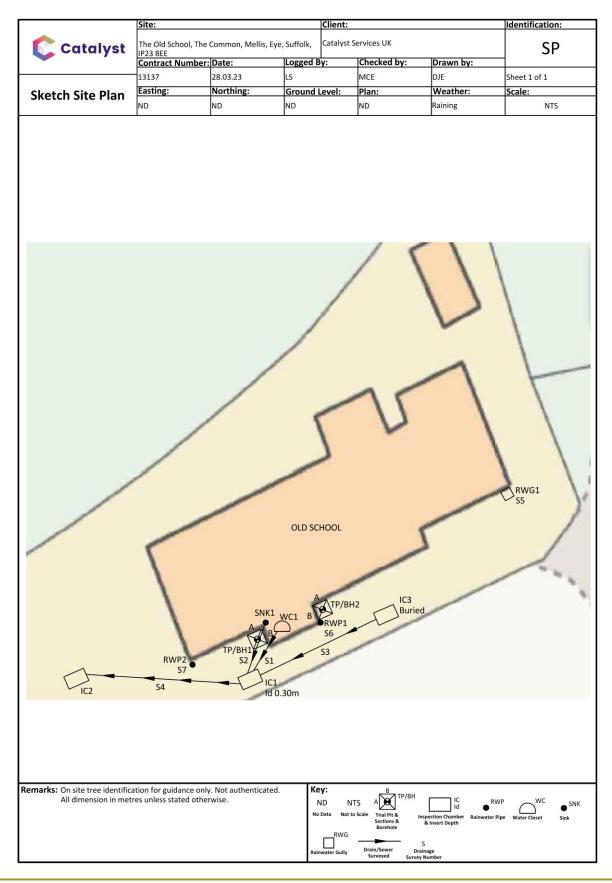
A drain is considered to be serviceable if it is functioning correctly (i.e. carrying away wastewater) at the time of the site inspection and it is judged that it will continue to function correctly for the foreseeable future.



Site Address: The Old School, The Common, Mellis, Eye, Suffolk, IP23 8EE Date: 28.03.23



#### 2.0 DRAINAGE LAYOUT PLAN



Site Address: The Old School, The Common, Mellis, Eye, Suffolk, IP23 8EE Date: 28.03.23



#### 4.0 DETAIL AND CONDITION SUMMARY

**Key**: IC Inspection Chamber, m metres, NA Not Applicable, ND No Data, RWP Rainwater Pipe, Rainwater Gully



#### IC1

Invert depth: 0.3m
Construction: Brick
Condition: Satisfactory



#### IC2

Invert depth: ND Construction: ND

**Condition:** Satisfactory



#### IC3

Invert depth: ND
Construction: ND
Condition: Buried



#### RWP1

Invert depth: NA Construction: ND

Condition: Satisfactory condition



#### RWP2

Invert depth: NA Construction: ND

**Condition:** Satisfactory condition





#### RWG1

Invert depth: NA Construction: ND

**Condition:** Satisfactory condition



Site Address: The Old School, The Common, Mellis, Eye, Suffolk, IP23 8EE Date: 28.03.23

	Section Inspection - 28/03/2023 - WC1X								
Section	Inspection	Date	Client's Ref	Contractor's Ref	Surface Type	PLR			
1	1 1	28. March 2023	01			WC1X			
Operator		Vehicle	Camera	Temperature	Pre Cleaned	Weather			
CF			Above freezing	No	No rain or snow				

Town or Village:	Eye	Inspection Direction:	Upstream	US MH:	WC1
Road:	The Old School, The Common, Mellis Roa	Use:	Foul	US Depth:	0.00 m
Location:	Under a building	Total Length:	3.23 m	DS MH:	IC1
Post Code:				DS Depth:	0.30 m
Inspection Purpos	61		Pipe Shape:	Circular	
Surface Defects:			Height / Width:	100 / 0mm	
Lining Type:	None		Pipe Material:	Vitrified Clay	
Lining Material:	None		Standard:	BS EN 13508-2:200	03

Comments: Recommendations:

Scale:	1:50	Position [m]	Code	Observation	MPEG	Photo	Grade
	Depth: 0.30	)					
	IC1						
		0.00	IC	Start inspection chamber	00:00:02	20230328- 092631-sn ap0000.jpg	
		0.00	WL	Water level, 0% of the height	00:00:04	20230328- 092631-sn ap0001.jpg	Α
		0.24	DES	Fine settled deposits, 20% area loss	00:02:58	20230328- 092631-sn ap0002.jpg	В
<b>†</b>		1.29	OJL	Large open joint	00:03:27		С
		2.20	OJM	Medium open joint	00:03:51	20230328- 092631-sn ap0004.jpg	
		2.85	OJM	Medium open joint	00:04:02	20230328- 092631-sn ap0005.jpg	
		2.93	LUF	Line deviates up, full	00:04:07	20230328- 092631-sn ap0006.jpg	
	WC1	3.15	OJM	Medium open joint	00:04:21	20230328- 092631-sn ap0007.jpg	
	Depth: 0.00	3.23	BRF	Finish connection without manhole	00:05:02	20230328- 092631-sn ap0008.jpg	

Structural Defects	Construction Features
Service & Operational Observations	Miscellaneous Features

#### Section Pictures - 28/03/2023 - WC1X

Item No.	Inspection Direction	PLR	Client's Job Ref	Contractor's Job Ref
1	Unetream	WC1X	01	



20230328-092631-snap0000.jpg, 00:00:02, 0.00 m Start inspection chamber



20230328-092631-snap0001.jpg, 00:00:04, 0.00 m Water level, 0% of the height



20230328-092631-snap0002.jpg, 00:02:58, 0.24 m Fine settled deposits, 20% area loss



20230328-092631-snap0003.jpg, 00:03:27, 1.29 m Large open joint

#### Section Pictures - 28/03/2023 - WC1X

Item No.	Inspection Direction	PLR	Client's Job Ref	Contractor's Job Ref
1	Unstream	WC1X	01	



20230328-092631-snap0004.jpg, 00:03:51, 2.20 m Medium open joint



20230328-092631-snap0005.jpg, 00:04:02, 2.85 m Medium open joint



20230328-092631-snap0006.jpg, 00:04:07, 2.93 m Line deviates up, full



20230328-092631-snap0007.jpg, 00:04:21, 3.15 m Medium open joint

# Section Pictures - 28/03/2023 - WC1X Item No. Inspection Direction PLR Client's Job Ref Upstream WC1X 01 Contractor's Job Ref



20230328-092631-snap0008.jpg, 00:05:02, 3.23 m Finish connection without manhole

Section Inspection - 28/03/2023 - SNK1X							
Section	Inspection	Date	Client's Ref	Contractor's Ref	Surface Type	PLR	
2	2	28. March 2023	01			SNK1X	
Ope	rator	Vehicle	Camera	Temperature	Pre Cleaned	Weather	
C	E			Above freezing	No	No rain or snow	

Town or Village:	Eye	Inspection Direction:	Upstream	l	JS MH:	SNK1
Road:	The Old School, The Common, Mellis Roa	Use:	Foul	ι	JS Depth:	0.00 m
Location:	Property or buildings	Total Length:	2.01 m	0	OS MH:	IC1
Post Code:				[	OS Depth:	0.30 m
Inspection Purpos	6		Pipe Shape:	Circu	ılar	
Surface Defects:			Height / Width:	100 /	/ 0mm	
Lining Type:	None		Pipe Material:	Vitrifi	ied Clay	
Lining Material:	None		Standard:	BS E	N 13508-2:200	3

#### Comments: Recommendations:

Depth: 0.00

Scale:	1:50	Position [m]	Code	Observation	MPEG	Photo	Grade
	Depth: 0.30	)					
		0.00	IC	Start inspection chamber	00:00:04	20230328- 093329-sn ap0000.jpg	
		0.00	WL	Water level, 0% of the height	00:00:06	20230328- 093329-sn	Α
T		0.46	DES	Fine settled deposits, 5% area loss	00:00:29	ap0001.jpg 20230328- 093329-sn ap0002.jpg	В
		1.79	OJM	Medium open joint	00:00:54	20230328- 093329-sn ap0003.jpg	
	SNK1	2.01	BRF	Finish connection without manhole	00:01:30	20230328- 093329-sn ap0004.jpg	

Structural Defects	Construction Features
Service & Operational Observations	Miscellaneous Features

#### Section Pictures - 28/03/2023 - SNK1X

Item No.	Inspection Direction	PLR	Client's Job Ref	Contractor's Job Ref
2	Unstream	SNK1X	01	



20230328-093329-snap0000.jpg, 00:00:04, 0.00 m Start inspection chamber



20230328-093329-snap0001.jpg, 00:00:06, 0.00 m Water level, 0% of the height



20230328-093329-snap0002.jpg, 00:00:29, 0.46 m Fine settled deposits, 5% area loss



20230328-093329-snap0003.jpg, 00:00:54, 1.79 m Medium open joint

# Section Pictures - 28/03/2023 - SNK1X Item No. Inspection Direction PLR Client's Job Ref Contractor's Job Ref 2 Upstream SNK1X 01



20230328-093329-snap0004.jpg, 00:01:30, 2.01 m Finish connection without manhole

#### Section Inspection - 28/03/2023 - IC1X **Date** 28. March 2023 Client's Ref Contractor's Ref Inspection Surface Type PLR Section IC1X Weather 01 3 Operator Pre Cleaned Vehicle Camera Temperature CE Above freezing No rain or snow No

Town or Village:	Eye	Inspection Direction:	Downstream		US MH:	IC1
Road:	The Old School, The Common, Mellis Roa	Use:	Combined		US Depth:	0.30 m
Location:	Property or buildings	Total Length:	8.89 m		DS MH:	IC2
Post Code:					DS Depth:	0.00 m
Inspection Purpos	<b>3</b> 1		Pipe Shape:	Circ	cular	
Surface Defects:			Height / Width:	100	) / 0mm	
Lining Type:	None		Pipe Material:	Vitr	ified Clay	
Lining Material:	None		Standard:	BS	EN 13508-2:200	3

Comments: Recommendations:

Scale: 1:75 Position [m] Code Observation  Depth: 0.30  IC1	MPEG	Photo	Grade
•			
IC1			
0.00 IC Start inspection chamber	00:00:03	20230328- 094135-sn ap0000.jpg	
0.00 WL Water level, 0% of the height	00:00:06	20230328- 094135-sn ap0001.jpg	Α
0.68 WL Water level, 5% of the height	00:00:21	IC1X_a20c 8c4d-f1f0- 4193-a962	Α
1.82 R Roots	00:00:32	20230328- 094135-sn ap0002.jpg	В
3.08 R Roots	00:00:47	20230328- 094135-sn ap0003.jpg	В
3.15 DES Fine settled deposits, 20% area loss	00:01:02	20230328- 094135-sn ap0004.jpg	В
4.29 R Roots	00:02:32	20230328- 094135-sn ap0005.jpg	В
4.33 DES Fine settled deposits, 30% area loss	00:02:37	IC1X_254 35ae2-dce b-4ab0-8d	В
5.24 R Roots	00:02:46	20230328- 094135-sn ap0006.jpg	В
6.76 WL Water level, 25% of the height	00:03:37	20230328- 094135-sn ap0007.jpg	Α
8.89 ICF Finish inspection chamber IC2	00:05:04	20230328- 094135-sn ap0008.jpg	
Depth: 0.00			
Structural Defects	Construction Features		
Service & Operational Observations	Miscellaneous Features		

#### Section Pictures - 28/03/2023 - IC1X

Item No.	Inspection Direction	PLR	Client's Job Ref	Contractor's Job Ref
3	Downstream	IC1X	01	



20230328-094135-snap0000.jpg, 00:00:03, 0.00 m Start inspection chamber



20230328-094135-snap0001.jpg, 00:00:06, 0.00 m Water level, 0% of the height



IC1X\_a20c8c4d-f1f0-4193-a962-74e9b010f8c6\_20230403\_09 5800\_412.jpg, 00:00:21, 0.68 m Water level, 5% of the height



20230328-094135-snap0002.jpg, 00:00:32, 1.82 m Roots

#### Section Pictures - 28/03/2023 - IC1X

Item No.	Inspection Direction	PLR	Client's Job Ref	Contractor's Job Ref
3	Downstream	IC1X	01	



20230328-094135-snap0003.jpg, 00:00:47, 3.08 m Roots



20230328-094135-snap0004.jpg, 00:01:02, 3.15 m Fine settled deposits, 20% area loss



20230328-094135-snap0005.jpg, 00:02:32, 4.29 m Roots



IC1X\_25435ae2-dceb-4ab0-8dd4-7d4206f49c7d\_20230403\_1 00133\_106.jpg, 00:02:37, 4.33 m Fine settled deposits, 30% area loss

#### Section Pictures - 28/03/2023 - IC1X

Item No.	Inspection Direction	PLR	Client's Job Ref	Contractor's Job Ref
3	Downstream	IC1X	01	



20230328-094135-snap0006.jpg, 00:02:46, 5.24 m Roots



20230328-094135-snap0007.jpg, 00:03:37, 6.76 m Water level, 25% of the height



20230328-094135-snap0008.jpg, 00:05:04, 8.89 m Finish inspection chamber

#### Section Inspection - 28/03/2023 - IC3X **Date** 28. March 2023 Client's Ref Contractor's Ref Inspection Surface Type PLR Section 01 IC3X Operator Vehicle Pre Cleaned Weather Camera Temperature CE Above freezing No rain or snow No

Town or Village:	Eye	Inspection Direction:	Upstream	- 1	JS MH:	IC3
Road:	The Old School, The Common, Mellis Roa	Use:	Combined	Į.	JS Depth:	0.00 m
Location:	Property or buildings	Total Length:	8.25 m		DS MH:	IC1
Post Code:					DS Depth:	0.30 m
Inspection Purpos			Pipe Shape:	Circular		
Surface Defects:			Height / Width:	100	/ 0mm	
Lining Type:	None		Pipe Material:	Vitrified Clay		
Lining Material:	None		Standard:	BS E	EN 13508-2:20	03

Comments: Recommendations:

	mendations								
Scale:		Position [m]	Code	Observation		MPEG	Photo	Grade	
	Depth: 0.30								
		0.00	IC	Start inspection chambe	er	00:00:06	20230328- 095032-sn ap0000.jpg		
		0.00	WL	Water level, 0% of the h	neight	00:00:10	20230328- 095032-sn ap0001.jpg	A	
†		3.34	R	Roots		00:00:34	20230328- 095032-sn ap0002.jpg	В	
	IC3 Depth: 0.00	8.25	ICF	Finish inspection chaml	per	00:04:05	20230328- 095032-sn ap0003.jpg		
Structural Defects					Construction Features				
	S	ervice & Operation	nal Observ	ations	Miscellaneo	ous Features			

#### Section Pictures - 28/03/2023 - IC3X

Item No.	Inspection Direction	PLR	Client's Job Ref	Contractor's Job Ref
4	Unstream	IC3X	01	



20230328-095032-snap0000.jpg, 00:00:06, 0.00 m Start inspection chamber



20230328-095032-snap0001.jpg, 00:00:10, 0.00 m Water level, 0% of the height



20230328-095032-snap0002.jpg, 00:00:34, 3.34 m Roots



20230328-095032-snap0003.jpg, 00:04:05, 8.25 m Finish inspection chamber



#### **REPORT NOTES**

#### **Equipment Used**

Hand tools, Mechanical Concrete Breaker and Spade, Hand Augers, 100mm/150mm diameter Mechanical Flight Auger Rig, GEO205 Flight Auger Rig, Window Sampling Rig, and Large or Limited Access Shell & Auger Rig upon request and/or access permitting.

#### **On Site Tests**

By Pilcon Shear-Vane Tester (kN/m) in clay soils, and/or Mackintosh Probe in granular soils or made ground and/or upon request Continuous Dynamic Probe Testing and Standard Penetration Testing.

#### Note:

Details reported in trial-pits and boreholes relate to positions investigated only as instructed by the client or engineer on the date shown. We are therefore unable to accept any responsibility for changes in soil conditions not investigated i.e. variations due to climate, season, vegetation and varying ground water levels.

Full terms and conditions are available upon request.