

Drainage Report



Prepared For
Llangollen Museum
Parade Street
Llangollen

LL208PW

Site
Llangollen Museum
Parade Street
Llangollen

LL208PW



TECHFLOW DRAINAGE

Surveyor: Simon Tait

info@techflowdrainage.co.uk

08000487552

Total Defects for Project



Total DRB Grades for Project



Llangollen Museum LL208PW - CCTV Survey Report : 22/05/24

Name :	TECHFLOW DRAINAGE
Contact :	Operations
Location :	Unit 5 Concraft Business Park
Town :	Northwich
Region :	Cheshire
Postcode :	CW96GJ
Email :	info@techflowdrainage.co.uk
Contact Number :	08000487552
Surveyor :	Simon Tait
Valid Certification No :	NADC 604206

Client Information

Name :	Llangollen Museum
Contact :	Dave Crane
Location :	Parade Street
Town :	Llangollen
Region :	
Postcode :	LL208PW
Tel :	
Mobile :	
Email :	
Fax :	

Site Information

Name :	Llangollen Museum
Contact :	Dave Crane
Location :	Parade Street
Town :	Llangollen
Region :	
Postcode :	LL208PW
Tel :	
Mobile :	
Email :	
Fax :	

Total Defects for Project



Total DRB Grades for Project



Report interpretation and Limitations

Each section of the drainage system is allocated a score indicating areas that require attention. These areas are detailed in the Overview section on the following page and also at the bottom right of the first few pages. We use colour coding as an indicator of severity. Additional information concerning rehabilitation options/recomendations is included in the Overview page, which can also be used as an, "at a glance" indication of system condition. More in depth information for each section, including images can be found later in the report. Grade indicators are as follows:

Grade A: Drain is serviceable no recommendations required

Grade B: There is an issue that might require remedial works

Grade C: There is a defect that requires remedial works, the drain is not serviceable.

Observations

Each section of drainage reported on (manhole to manhole for example), contains detailed information about that drain and any observations made concerning condition are detailed below the header section. The observations are colour coded and given a severity score, with more significant defects being given a higher score, using a scale from 1 to 5 as detailed below:

Severity 1 to 2: These defects may require remedial monitoring

Severity 3: These defects probably require some form of remedial works

Severity 4 to 5: Defects that will require remedial repair or replacement

Limitations

The information provided is relevant at the time of survey. The coding system in this report is based on the Manual of Sewer Condition Classification, 5th edition (MSCC5) domestic codes (BS EN 13508-1:2003). This is the official standard for the water industry.

The severity system is based on significant experience in general practice and the 1-5 grades represent the severity of individual defects: 5 representing a more serious defect.

When commissioned to carry out CCTV surveys and identify any major defects it should be appreciated that the exact layout of the drainage system cannot be confirmed without the exposure of inaccessible branches and connections as well as buried manholes etc.

Duty, (foul, surface, combined) canâ€™t always be determined exactly without additional investigation which could include dye testing and sonar tracing.

The CCTV survey should not be classed as a structural survey under no circumstances.

All lines indicate approximate location of actual pipework.

Please refer to the seperate document provided with this report for any site images, additional notes or relevant quotations for remedial repairs.

Total Defects for Project



Total DRB Grades for Project



Overview

Section: 1 From: MH1 To: SVP	Grade A	DRB Grade: A Pipe Size: 100 Material: Polyvinyl Chloride Use: Foul
Section: 2 From: MH1 To: MH2	Grade A	DRB Grade: A Pipe Size: 100 Material: Polyvinyl Chloride Use: Foul
Section: 3 From: MH1 To: Gully	Grade A	DRB Grade: A Pipe Size: 100 Material: Polyvinyl Chloride Use: Foul
Section: 4 From: MH2 To: MH4	Grade B	DRB Grade: B Pipe Size: 100 Material: Vitrified Clay (i.e. all clayware) Use: Foul
Section: 5 From: RWDP To: SA	Grade C	DRB Grade: C Pipe Size: 100 Material: Vitrified Clay (i.e. all clayware) Use: Surface Water

Total Defects for Project



Total DRB Grades for Project



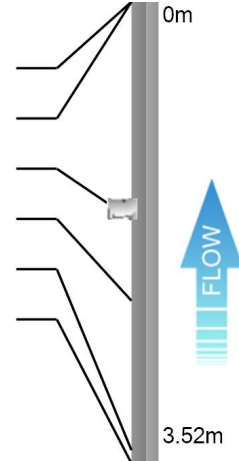
Site: Parade Street, Llangollen

Section 1

Client: Llangollen Museum	Location (Street Name): Parade Street	City/Town/Village Llangollen	Cust Job Ref.	Surveyors Name: Simon Tait	Date: 22/05/2024
Start Node Ref: MH1	Finish Node Ref: SVP	Direction: U	Height/Dia: 100		
Start Node Depth: 0.00	Finish Node Depth: 0.00	Use: F	Shape: C		
Start Node Coordinate:	Finish Node Coordinate:	Material: PVC	Cleaned N		

Node Type	Cover Condition	Benching Condition	1/2 Channel Condition	Node Condition Remarks
MH	Good ✓	Good ✓	Good ✓	

Drain Type	Lining Type	Lining Mat.	Year Const.	Weather	Flow Cont.	Length	General Remarks
A				D	N	3.52	

Position	Code	Description	CD	Pic	Video Ref	
00.00m	MH	Start node type, manhole		0_0		
00.00m	WL	Water level 0%		0_1	0:00:00	
01.66m	JN	Junction 03 : 100mm Diameter		0_2	0:00:21	
02.28m	LRF	Line of drain/sewer deviates right [full]		0_3	0:00:27	
03.42m	MC	Material of drain/sewer changes		0_4	0:00:35	
03.52m	MHF	Finish node type, manhole		0_99		




Total Defects for section

DRB Grade for Section



Descriptive Report with Remarks and Observation Images

Section 1

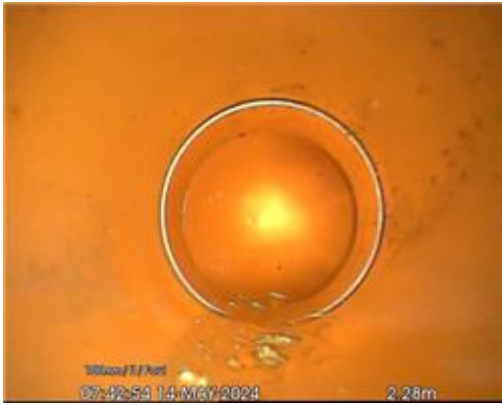


Pos	Video Ref	Code	Description	Image
00.00m		MH	Start node type, manhole MH1	<p>Image Provided - Ref: 0_0</p> 
00.00m	0:00:00	WL	Water level: 0% Height/Diameter	<p>Image Provided - Ref: 0_1</p> 
01.66m	0:00:21	JN	Junction at 03 o'clock: 100mm Diameter WC	<p>Image Provided - Ref: 0_2</p> 

Total Defects for section



DRB Grade for Section



Pos	Video Ref	Code	Description	Image
02.28m	0:00:27	LRF	Line of drain/sewer deviates right [full]	<p>Image Provided - Ref: 0_3</p> 
03.42m	0:00:35	MCVC	Material of pipe changes to Vitrified Clay (i.e. all clayware)	<p>Image Provided - Ref: 0_4</p> 
03.52m		MHF	Finish node type, manhole SVP Rest bend	<p>Image Provided - Ref: 0_9999</p> 

Total Defects for section



DRB Grade for Section



Site: Parade Street, Llangollen

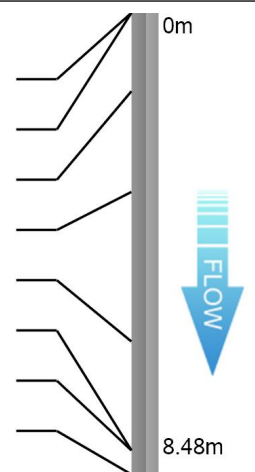
Section 2

Client: Llangollen Museum	Location (Street Name): Parade Street	City/Town/Village Llangollen	Cust Job Ref.	Surveyors Name: Simon Tait	Date: 22/05/2024		
Start Node Ref: MH1	Finish Node Ref: MH2	Direction: D	Height/Dia: 100	Start Node Depth: 0.00	Finish Node Depth: 0.00	Use: F	Shape: C
Start Node Coordinate:	Finish Node Coordinate:	Material: PVC	Cleaned N				

Node Type	Cover Condition	Benching Condition	1/2 Channel Condition	Node Condition Remarks
MH	Good ✓	Good ✓	Good ✓	

Drain Type	Lining Type	Lining Mat.	Year Const.	Weather	Flow Cont.	Length	General Remarks
A				D	N	8.48	

Position	Code	Description	CD	Pic	Video Ref	
00.00m	MH	Start node type, manhole		1_0		
00.00m	WL	Water level 20%		1_1	0:00:00	
01.44m	WL	Water level 5%		1_2	0:00:15	
03.29m	REM	General remark		1_3	0:00:24	
06.04m	REM	General remark		1_4	0:00:33	
08.04m	CC	Crack, circumferential 10-02		1_5	0:00:45	
08.04m	WL	Water level 15%		1_6	0:00:45	
08.48m	MHF	Finish node type, manhole		1_99		



Total Defects for section






DRB Grade for Section



Descriptive Report with Remarks and Observation Images

Section 2



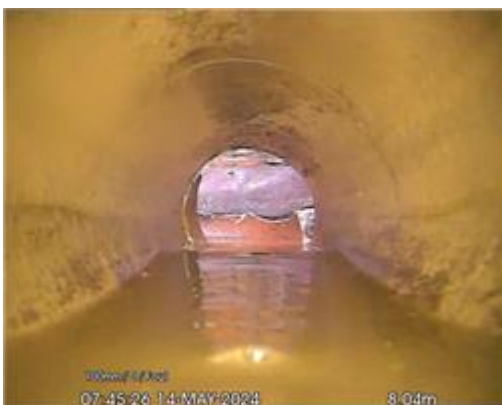
Pos	Video Ref	Code	Description	Image
00.00m		MH	Start node type, manhole MH1	<p>Image Provided - Ref: 1_0</p> 
00.00m	0:00:00	WL	Water level: 20% Height/Diameter	<p>Image Provided - Ref: 1_1</p> 
01.44m	0:00:15	WL	Water level: 5% Height/Diameter	<p>Image Provided - Ref: 1_2</p> 

Total Defects for section



DRB Grade for Section




Pos	Video Ref	Code	Description	Image
03.29m	0:00:24	REM	General remark	<p>Image Provided - Ref: 1_3</p> 
06.04m	0:00:33	REM	General remark	<p>Image Provided - Ref: 1_4</p> 
08.04m	0:00:45	CC	Crack, circumferential from 10 o'clock to 02 o'clock - Severity 1	<p>Image Provided - Ref: 1_5</p> 

Total Defects for section



DRB Grade for Section



Pos	Video Ref	Code	Description	Image
08.04m	0:00:45	WL	Water level: 15% Height/Diameter	<p>Image Provided - Ref: 1_6</p> 
08.48m		MHF	Finish node type, manhole MH2	<p>Image Provided - Ref: 1_9999</p> 

Total Defects for section



DRB Grade for Section



Site: Parade Street, Llangollen

Section 3

Client: Llangollen Museum	Location (Street Name): Parade Street	City/Town/Village Llangollen	Cust Job Ref.	Surveyors Name: Simon Tait	Date: 22/05/2024
Start Node Ref: MH1	Finish Node Ref: Gully	Start Node Depth: 0.00	Finish Node Depth: 0.00	Direction: U	Height/Dia: 100
Start Node Coordinate:	Finish Node Coordinate:	Use: F	Material: PVC	Shape: C	Cleaned N

Node Type	Cover Condition	Benching Condition	1/2 Channel Condition	Node Condition Remarks
MH	Good ✓	Good ✓	Good ✓	

Drain Type	Lining Type	Lining Mat.	Year Const.	Weather	Flow Cont.	Length	General Remarks
A				D	N	3.5	

Position	Code	Description	CD	Pic	Video Ref	
00.00m	MH	Start node type, manhole		2_0		
00.00m	WL	Water level 0%		2_1	0:00:00	
01.65m	JN	Junction 03 : 100mm Diameter		2_2	0:01:12	
02.57m	LRF	Line of drain/sewer deviates right [full]		2_3	0:01:17	
03.46m	MC	Material of drain/sewer changes		2_4	0:01:19	
03.50m	MHF	Finish node type, manhole		2_99		

Total Defects for section

DRB Grade for Section



Descriptive Report with Remarks and Observation Images

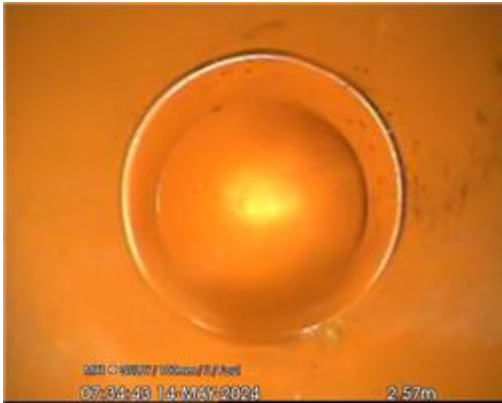

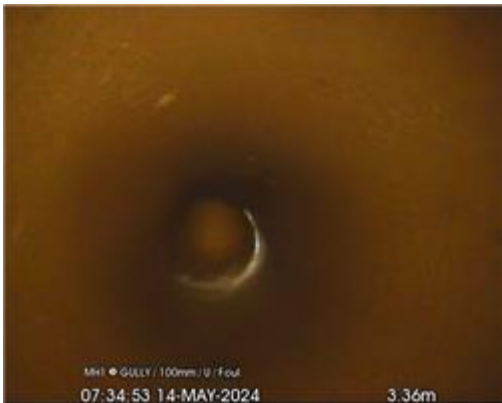
Section 3

Pos	Video Ref	Code	Description	Image
00.00m		MH	Start node type, manhole MH1	<p>Image Provided - Ref: 2_0</p>
00.00m	0:00:00	WL	Water level: 0% Height/Diameter	<p>Image Provided - Ref: 2_1</p>
01.65m	0:01:12	JN	Junction at 03 o'clock: 100mm Diameter	<p>Image Provided - Ref: 2_2</p>

Total Defects for section

DRB Grade for Section



Pos	Video Ref	Code	Description	Image
02.57m	0:01:17	LRF	Line of drain/sewer deviates right [full]	<p>Image Provided - Ref: 2_3</p> 
03.46m	0:01:19	MCVC	Material of pipe changes to Vitrified Clay (i.e. all clayware)	<p>Image Provided - Ref: 2_4</p> 
03.50m		MHF	Finish node type, manhole Gully	<p>Image Provided - Ref: 2_9999</p> 

Total Defects for section



DRB Grade for Section



Site: Parade Street, Llangollen

Section 4

Client: Llangollen Museum	Location (Street Name): Parade Street	City/Town/Village Llangollen	Cust Job Ref.	Surveyors Name: Simon Tait	Date: 22/05/2024
Start Node Ref: MH2	Finish Node Ref: MH4	Direction: D	Height/Dia: 100		
Start Node Depth: 0.00	Finish Node Depth: 0.00	Use: F	Shape: C		
Start Node Coordinate:	Finish Node Coordinate:	Material: VC	Cleaned N		

Node Type	Cover Condition	Benching Condition	1/2 Channel Condition	Node Condition Remarks
MH	Good ✓	Good ✓	Good ✓	

Drain Type	Lining Type	Lining Mat.	Year Const.	Weather	Flow Cont.	Length	General Remarks
A				D	N	17.06	

Position	Code	Description	CD	Pic	Video Ref	
00.00m	MH	Start node type, manhole		3_0		
00.00m	WL	Water level 0%		3_1	0:00:00	
01.91m	REM	General remark		3_2	0:00:31	
04.66m	REM	General remark		3_3	0:00:39	
08.46m	REM	General remark		3_4	0:00:58	
10.30m	CC	Crack, circumferential 12-06		3_5	0:01:04	
12.80m	REM	General remark		3_6	0:01:18	
16.16m	JDM	Joint displaced medium		3_7	0:01:30	
17.06m	MHF	Finish node type, manhole		3_99		



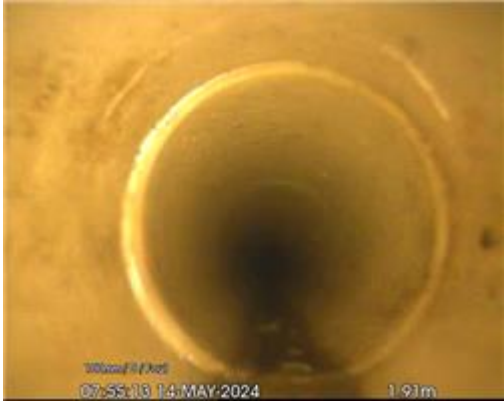
Total Defects for section

DRB Grade for Section



Descriptive Report with Remarks and Observation Images

Section 4



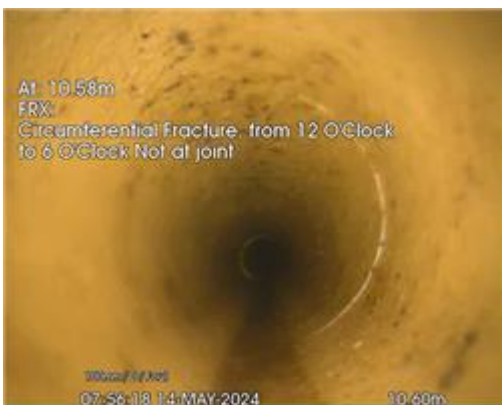
Pos	Video Ref	Code	Description	Image
00.00m		MH	Start node type, manhole MH2	<p>Image Provided - Ref: 3_0</p> 
00.00m	0:00:00	WL	Water level: 0% Height/Diameter	<p>Image Provided - Ref: 3_1</p> 
01.91m	0:00:31	REM	General remark	<p>Image Provided - Ref: 3_2</p> 

Total Defects for section



DRB Grade for Section



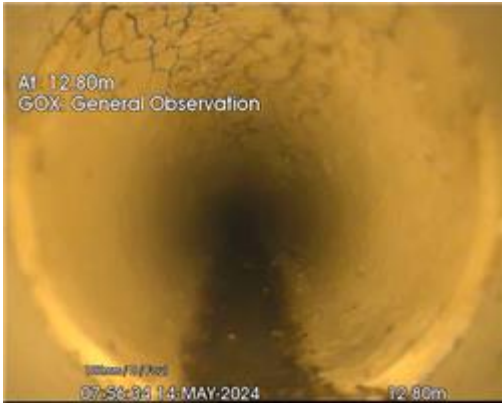
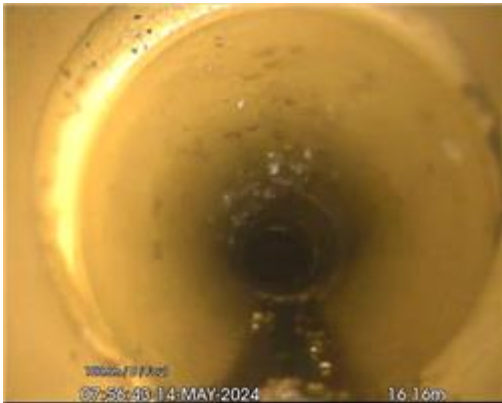

Pos	Video Ref	Code	Description	Image
04.66m	0:00:39	REM	General remark	<p>Image Provided - Ref: 3_3</p> 
08.46m	0:00:58	REM	General remark MH3	<p>Image Provided - Ref: 3_4</p> 
10.30m	0:01:04	CC	Crack, circumferential from 12 o'clock to 06 o'clock - Severity 1	<p>Image Provided - Ref: 3_5</p> 

Total Defects for section



DRB Grade for Section



Pos	Video Ref	Code	Description	Image
12.80m	0:01:18	REM	General remark	<p>Image Provided - Ref: 3_6</p>  <p>At 12.80m GOX- General Observation</p> <p>07:56:39 14 MAY 2024 12.80m</p>
16.16m	0:01:30	JDM	Joint displaced medium - Severity 3	<p>Image Provided - Ref: 3_7</p>  <p>07:56:48 14 MAY 2024 16.16m</p>
17.06m		MHF	Finish node type, manhole MH4 Drop Shaft	<p>Image Provided - Ref: 3_9999</p>  <p>07:56:57 14 MAY 2024 17.06m</p>

Total Defects for section

DRB Grade for Section



Site: Parade Street, Llangollen

Section 5

Client: Llangollen Museum	Location (Street Name): Parade Street	City/Town/Village Llangollen	Cust Job Ref.	Surveyors Name: Simon Tait	Date: 22/05/2024		
Start Node Ref: RWDP	Finish Node Ref: SA	Direction: D	Height/Dia: 100	Start Node Depth: 0.00	Finish Node Depth: 0.00	Use: S	Shape: C
Start Node Coordinate:	Finish Node Coordinate:	Material: VC	Cleaned N				

Node Type	Cover Condition	Benching Condition	1/2 Channel Condition	Node Condition Remarks
MH				

Drain Type	Lining Type	Lining Mat.	Year Const.	Weather	Flow Cont.	Length	General Remarks
A				D	N	2.01	

Position	Code	Description	CD	Pic	Video Ref	
00.00m	MH	Start node type, manhole		4_0		
00.00m	WL	Water level 0%		4_1	0:00:00	
01.38m	JDL	Joint displaced large		4_2	0:00:28	
02.01m	OB	Other obstacles 95%		4_3	0:00:35	
02.01m	SA	Survey abandoned		4_99		


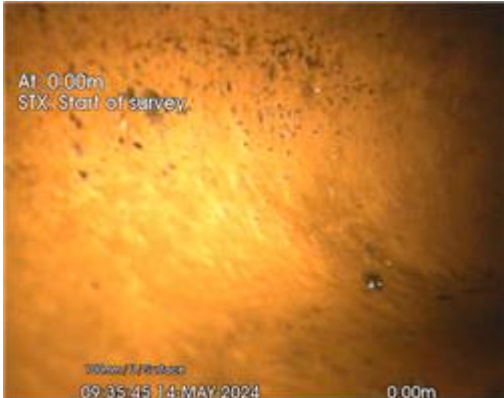

Total Defects for section

DRB Grade for Section



Descriptive Report with Remarks and Observation Images



Section 5

Pos	Video Ref	Code	Description	Image
00.00m		MH	Start node type, manhole RWDP	<p>Image Provided - Ref: 4_0</p> 
00.00m	0:00:00	WL	Water level: 0% Height/Diameter	<p>Image Provided - Ref: 4_1</p> 
01.38m	0:00:28	JDL	Joint displaced large - Severity 4	<p>Image Provided - Ref: 4_2</p> 

Total Defects for section

DRB Grade for Section



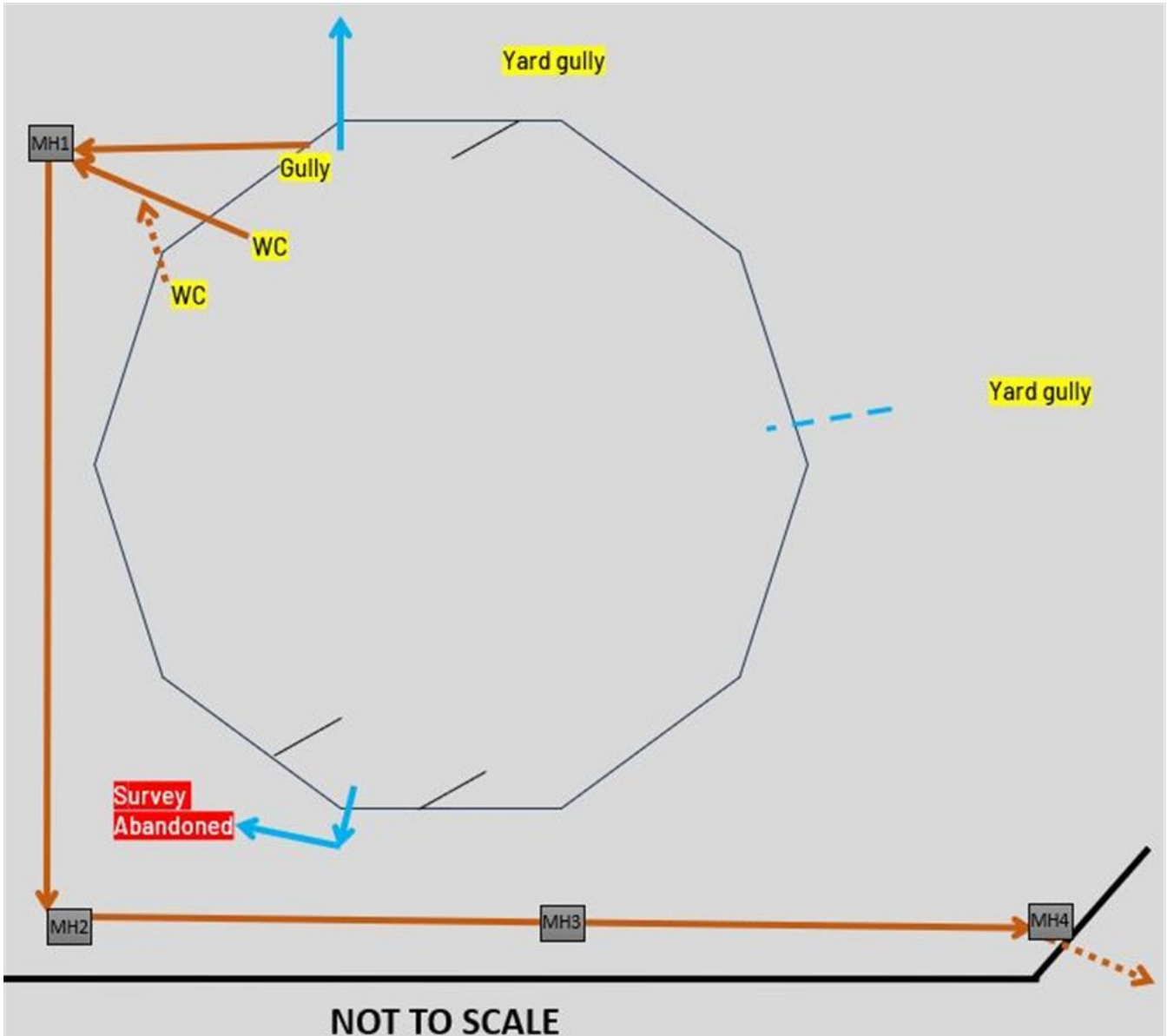
Pos	Video Ref	Code	Description	Image
02.01m	0:00:35	OB	Other obstacles: 95% Cross sectional area loss - Severity 3 Drinks bottle	Image Provided - Ref: 4_3 
02.01m		SA	Survey abandoned Unable to pass bottle	Image Provided - Ref: 4_9999 

Total Defects for section

DRB Grade for Section



Plan of Site



Total Defects for section

DRB Grade for Section



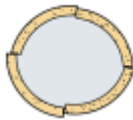


A guide to defects and other observations in drainage systems

More detailed information can be found in the National Standard (BS EN 13508-1:2003) and in the Manual of Sewer Condition Classification (MSCC) 5th Edition, written by the Water Research Centre (WRc).

Use	
Code	Description
C	Combined
F	Foul
S	Surface Water
T	Trade Effluent
W	Culverted Watercourse
Z	Other

Common Materials	
Code	Description
VC	Vitrified Clay
PVC	Polyvinyl Chloride
CO	Concrete
CI	Cast Iron
PF	Pitch Fibre
PE	Polyethylene
DI	Ductile Iron



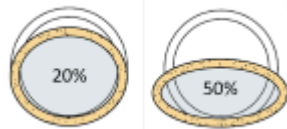







Start Node	Description	Finish Node
MH	Manhole	MHF
IC	Inspection Chamber	ICF
GY	Gulley	GYF
RE	Rodding Eye	REF
SK	Soakaway	SKF
BN	Buchan Trap	BNF
BR	Major Connection without Ref	BRF
CP	Catch Pit	CPF
OC	Other Special Chamber	OCF
OF	Outfall	OFF
OS	Oil Seperator	OSF
WR	Major Connection without mh	WRF
LH	Lamphole	LHF

Code	Observation	Description	Attributes	
B	Broken	Pieces pipe have visibly moved	Defined by clock references. Associated with deformity in rigid pipe	
CC CL CM CR	Cracks	Cracks are break lines that are not visibly open	Defined by clock reference position/s. Longitudinal and radiating cracks attract only one clock reference	
CN	Connection	Lateral pipe has been connected after original construction	Described by clock reference position and diameter	

Total Defects for section

DRB Grade for Section





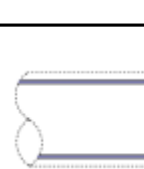
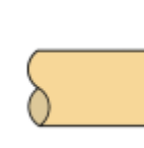
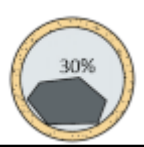
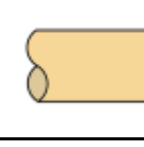
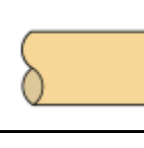



CX(I)	Defective Connection (Intruding)	Defective by intrusion or damage due to factors including: cracks, fractures, obstruction, position etc	Described by clock reference position and diameter (+ % intrusion)	
CU	Loss of Vision	Lens of camera is obscured by debris, water etc. Operator is unable to see drain clearly	'W' can be added if loss of vision is due to water	
D	Deformed	Pipe has lost its structure	Described by percentage loss of height or width. Recorded in 5% increments	
DEE	Deposits Encrustation	Eg. Attached scale deposits evident	Described by clock referenced position and percentage loss of cross-sectional area (5% increments)	
DEG	Deposits Grease	Attached grease deposits evident	Described by clock referenced position and percentage loss of cross-sectional area (5% increments)	
DER DES	Deposits Coarse/Fine	Settled deposits on the invert of the pipe.	Described by percentage loss of height or diameter. Recorded in 5% increments.	
FC FL FM FR	Fractures	Fractures are visibly open. Pieces of pipe have not moved	Defined by clock reference position/s. Longitudinal and radiating fractures attract only one clock reference	
H	Holes	Section of pipe fabric is missing	Defined by clock reference location. Normally two clock references	
I	Infiltration	Water is infiltrating the pipe, normally via a joint but could be via another defect	Can be described in Remarks using terms such as Seeper, Dripper and Runner	
JDL	Joint Displaced Large	Pipe has moved at joint, perpendicular to axis of pipe	More than 1.5 times the pipe wall thickness must be visible	

Total Defects for section

DRB Grade for Section






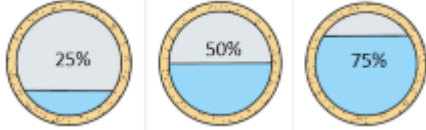



JDM	Joint Displaced Medium	Pipe has moved at joint, perpendicular to axis of pipe	Between 1 and 1.5 times the pipe wall thickness must be visible	
JN	Junction	Lateral pipe was installed at construction	Described by clock reference position and diameter	
JX	Defective Junction	Lateral pipe was installed at construction but is defective in some way	Joint can be defective due to factors including: cracks, fractures, obstruction, position etc	
LD LU LL LR	Line Deviation	LD = Line Down, LU = Line Up, LL = Line Left, LR = Line Right. Not related to CIPP lining.	Additional modifiers are added: Q = Quarter (22.5), H = Half (45), F = Full (90). In degrees.	
LC	Lining Changes	If the drain is lined, the lining material has changed	Position of lining material change	
MC	Material Change	The pipe material has changed	Position of change is noted. Type of material change can be defined	
OB	Obstruction/Obstacle	An obstruction or obstacle is affecting the flow through the pipe	Described in percentage loss of cross-sectional area	
OJL	Open Joint Large	Pipe has moved at joint, along the axis of pipe	More than 1.5 times the pipe wall thickness must be visible	
OJM	Open Joint Medium	Pipe has moved at joint, along the axis of pipe	Between 1 and 1.5 times the pipe wall thickness must be visible	
PC	Pipe Length Changes	Length of individual pipe changes	New length described at this position	

Total Defects for section

DRB Grade for Section



R	Roots	Evidence of root ingress	Roots will normally infiltrate via bad joints, cracks, fractures, breaks etc	
REM	Remark	General remark	Used for additional information	
S	Surface Damage	This might include corrosion, spalling and chemical attack	Position only. Additional information can be added in Remarks	
SA	Survey Abandoned	Used when a survey cannot continue for any reason	The reason for abandoning a survey should be noted in the remarks area	
SC	Shape Changes	Dimension of drain changes	Diameter dimension change recorded. Second dimension is recorded for no circular pipe changes	
SR	Sealing Ring	Sealing ring intrudes into pipe at joint	Described by clock reference position	
V	Vermin	Evidence of Vermin in pipe	Can also be used for evidence within manhole etc	
WL	Water Level	Used to record changes in water level. Always shown at the beginning of every survey, if dry noted as 00.	Described by percentage of height or diameter. Recorded in 5% increments	
XP	Collapsed	Drain is suffering from complete loss of structural integrity. Always followed by SA - Survey Abandoned	Percentage loss of cross-sectional area is recorded. Other related structural defects are not recorded	

Surveyor Certificate

