# Drainage Report

Prepared For

**Metrorod Kent & Sussex**
**Hall Road**
**Aylesford**
**Kent**
**ME20 7QZ**

Site

**Kimberly Clark**
**Northfleet Mill**
**Gravesend**
**Kent**
**DA11 9AD**


**WILLOW PUMPS**
**Surveyor: Grant Martin**
**Jason.Carre@willowpumps.co.uk**
**01634 201111**

Total Defects for Project

| | | | | |
|---|---|---|---|---|
| 2 | 1 | 2 | 2 | 0 |

Total DRB Grades for Project

| | | |
|---|---|---|
| 11 | 2 | 1 |

# A60790 Kimberly Clark Northfleet Mill DA11 9AD - CCTV Survey Report : 28/07/23

| | |
|---|---|
| Name : | WILLOW PUMPS |
| Contact : | Jason Carre |
| Location : | Hall Road |
| Town : | Aylesford |
| Region : | Kent |
| Postcode : | ME20 7QZ |
| Email : | Jason.Carre@willowpumps.co.uk |
| Contact Number : | 01634 201111 |
| Surveyor : | Grant Martin |
| Valid Certification No : | |

**Client Information**

| | |
|---|---|
| Name : | Metrorod Kent & Sussex |
| Contact : | |
| Location : | Hall Road |
| Town : | Aylesford |
| Region : | Kent |
| Postcode : | ME20 7QZ |
| Tel : | |
| Mobile : | |
| Email : | |
| Fax : | |

**Site Information**

| | |
|---|---|
| Name : | Kimberly Clark |
| Contact : | |
| Location : | Northfleet Mill |
| Town : | Gravesend |
| Region : | Kent |
| Postcode : | DA11 9AD |
| Tel : | |
| Mobile : | |
| Email : | |
| Fax : | |

Total Defects for Project

2 1 2 2 0

Total DRB Grades for Project

11 2 1

# Report interpretation.

## Overview:

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

## General:

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.

Please feel free to contact us for further explanation or pricing for remedial works required.

Total Defects for Project

2 1 2 2 0

Total DRB Grades for Project

11 2 1

## Overview

| | | |
|---|---|---|
| **Section:** 1<br>**From: MH65**<br>**To: MH64**<br>**MH** | • Survey abandoned @ 15.75m due to concrete in line.<br>• Line believed to be a redundant overflow no longer in use. Capped off with concrete. | **DRB Grade: B**<br>**Pipe Size: 300**<br>**Material: Vitrified Clay (i.e. all clayware)**<br>**Use: Surface Water** |
| **Section:** 2<br>**From: MH65**<br>**To: MH66**<br>**MH** | • No structural or operational defects found. Line clear & free flowing. | **DRB Grade: A**<br>**Pipe Size: 300**<br>**Material: Vitrified Clay (i.e. all clayware)**<br>**Use: Surface Water** |
| **Section:** 3<br>**From: MH65**<br>**To: ACO**<br>**MH** | • Longitudinal crack at joint observed at 0.00m.<br>• Circumferential crack observed @ 4.67m.<br>• Pipe in extremely poor condition from 5.40m-6.70m with multiple cracks and open fractures observed. Risk of total collapse if line not repaired.<br>• Recommend structural lining of 6.70m 225Ø pipe. | **DRB Grade: C**<br>**Pipe Size: 225**<br>**Material: Vitrified Clay (i.e. all clayware)**<br>**Use: Surface Water** |
| **Section:** 4<br>**From: MH65**<br>**To: G50**<br>**MH** | • No structural or operational defects found. Line clear & free flowing. | **DRB Grade: A**<br>**Pipe Size: 150**<br>**Material: Vitrified Clay (i.e. all clayware)**<br>**Use: Surface Water** |
| **Section:** 5<br>**From: MH65**<br>**To: G49**<br>**MH** | • No structural or operational defects found. Line clear & free flowing. | **DRB Grade: A**<br>**Pipe Size: 150**<br>**Material: Vitrified Clay (i.e. all clayware)**<br>**Use: Surface Water** |
| **Section:** 6<br>**From: MH32**<br>**To: MH33**<br>**MH** | • No structural or operational defects found. Line clear & free flowing. | **DRB Grade: A**<br>**Pipe Size: 375**<br>**Material: Polyvinyl Chloride**<br>**Use: Surface Water** |

Total Defects for Project


Total DRB Grades for Project

| | | |
|---|---|---|
| **Section:** 7<br>**From: MH33**<br>**To: MH34**<br>**MH** | • No structural or operational defects found. Line clear & free flowing. | **DRB Grade: A**<br>**Pipe Size: 300**<br>**Material: Concrete**<br>**Use: Surface Water** |
| **Section:** 8<br>**From: MH34**<br>**To: MH66**<br>**MH** | • No structural or operational defects found. Line clear & free flowing. | **DRB Grade: A**<br>**Pipe Size: 300**<br>**Material: Concrete**<br>**Use: Surface Water** |
| **Section:** 9<br>**From: MH32**<br>**To: MH31**<br>**MH** | • No structural or operational defects found. Line clear & free flowing. | **DRB Grade: A**<br>**Pipe Size: 375**<br>**Material: Polyvinyl Chloride**<br>**Use: Surface Water** |
| **Section:** 10<br>**From: MH31**<br>**To: MH30**<br>**MH** | • No structural or operational defects found. Line clear & free flowing. | **DRB Grade: A**<br>**Pipe Size: 375**<br>**Material: Polyvinyl Chloride**<br>**Use: Surface Water** |
| **Section:** 11<br>**From: MH64**<br>**To: MH62**<br>**MH** | • No structural or operational defects found. Line clear & free flowing. | **DRB Grade: A**<br>**Pipe Size: 225**<br>**Material: Vitrified Clay (i.e. all clayware)**<br>**Use: Surface Water** |
| **Section:** 12<br>**From: MH62**<br>**To: MH61**<br>**MH** | • No structural or operational defects found. Line clear & free flowing. | **DRB Grade: A**<br>**Pipe Size: 225**<br>**Material: Vitrified Clay (i.e. all clayware)**<br>**Use: Surface Water** |
| **Section:** 13<br>**From: MH64**<br>**To: MH51**<br>**MH** | • Possible redundant line. | **DRB Grade: A**<br>**Pipe Size: 300**<br>**Material: Vitrified Clay (i.e. all clayware)**<br>**Use: Surface Water** |

Total Defects for Project

2 1 2 2 0

Total DRB Grades for Project

11 2 1

| | | |
|---|---|---|
| **Section:** 14<br><br>**From: MH64**<br>**To: MH65**<br><br>**MH** | • Survey abandoned @ 10.22m due to rubble/debris.<br>• Line believed to be a redundant overflow no longer in use. Capped off further D/S. | **DRB Grade: B**<br>**Pipe Size: 300**<br>**Material: Vitrified Clay (i.e. all clayware)**<br>**Use: Surface Water** |

Total Defects for Project

2 1 2 2 0

Total DRB Grades for Project

11 2 1

## Site: Northfleet Mill, Gravesend

## Section 1

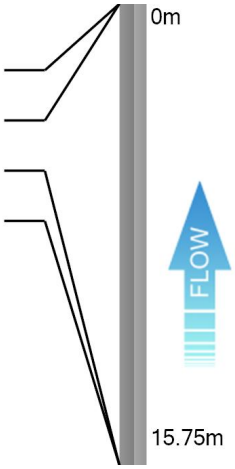
| Client: | Location (Street Name): | City/Town/Village | Cust Job Ref. | Surveyors Name: | Date: |
|---|---|---|---|---|---|
| Metrorod Kent & Sussex | Northfleet Mill | Gravesend | A60790 | Grant Martin | 28/07/2023 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Start Node Ref: | MH65 | Finish Node Ref: | MH64 | Direction: | U | Height/Dia: | 300 |
| Start Node Depth: | 0.00 | Finish Node Depth: | 0.00 | Use: | S | Shape: | C |
| Start Node Coordinate: | | Finish Node Coordinate: | | Material: | VC | Cleaned | Y |

| 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 | | | Z | D | N | 15.75 | |

| Position | Code | Description | CD | Pic | Video Ref |
|---|---|---|---|---|---|
| 00.00m | MH | Start node type, manhole | | | |
| 00.00m | WL | Water level 5% | | | 0:00:00 |
| 15.75m | OB | Other obstacles 100% | | 0_2 | 0:01:07 |
| 15.75m | SA | Survey abandoned | | 0_99 | |




Total Defects for section

| 0 | 0 | 1 | 0 | 0 |
|---|---|---|---|---|

DRB Grade for Section

B

## Descriptive Report with Remarks and Observation Images — Section 1

| Pos | Video Ref | Code | Description | Image |
|---|---|---|---|---|
| 00.00m | | MH | Start node type, manhole MH65 | |
| 00.00m | 0:00:00 | WL | Water level: 5% Height/Diameter | |
| 15.75m | 0:01:07 | OB | Other obstacles: 100% Cross sectional area loss - Severity 3 Concrete. | Image Provided - Ref: 0_2   |
| 15.75m | | SA | Survey abandoned Survey abandoned due to concrete in line. | Image Provided - Ref: 0_9999   |

## Site: Northfleet Mill, Gravesend

## Section 2

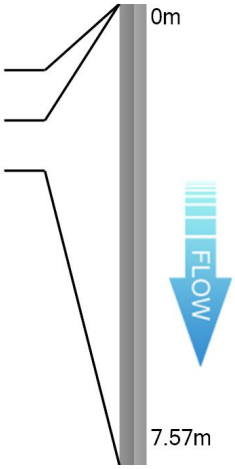
| Client: | Location (Street Name): | City/Town/Village | Cust Job Ref. | Surveyors Name: | Date: |
|---|---|---|---|---|---|
| Metrorod Kent & Sussex | Northfleet Mill | Gravesend | A60790 | Grant Martin | 28/07/2023 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Start Node Ref: | MH65 | Finish Node Ref: | MH66 | Direction: | D | Height/Dia: | 300 |
| Start Node Depth: | 0.00 | Finish Node Depth: | 0.00 | Use: | S | Shape: | C |
| Start Node Coordinate: | | Finish Node Coordinate: | | Material: | VC | Cleaned | Y |

| 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 | | | Z | D | N | 7.57 | |

| Position | Code | Description | CD | Pic | Video Ref |
|---|---|---|---|---|---|
| 00.00m | MH | Start node type, manhole | | | |
| 00.00m | WL | Water level 0% | | | 0:00:00 |
| 07.57m | MHF | Finish node type, manhole | | 1_99 | |




Total Defects for section

0 0 0 0 0

DRB Grade for Section

A

## Descriptive Report with Remarks and Observation Images — Section 2

| Pos | Video Ref | Code | Description | Image |
|---|---|---|---|---|
| 00.00m | | MH | Start node type, manhole MH65 | |
| 00.00m | 0:00:00 | WL | Water level: 0% Height/Diameter | |
| 07.57m | | MHF | Finish node type, manhole MH66 | Image Provided - Ref: 1_9999   |

Total Defects for section

0 0 0 0 0

DRB Grade for Section

A

## Site: Northfleet Mill, Gravesend

## Section 3

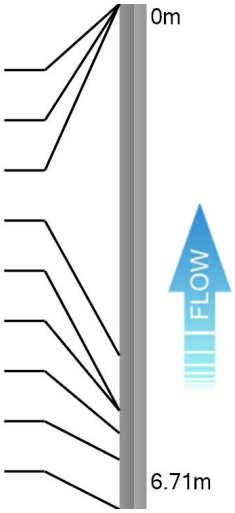
| Client: | Location (Street Name): | City/Town/Village | Cust Job Ref. | Surveyors Name: | Date: |
|---|---|---|---|---|---|
| Metrorod Kent & Sussex | Northfleet Mill | Gravesend | A60790 | Grant Martin | 28/07/2023 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Start Node Ref: | MH65 | Finish Node Ref: | ACO | Direction: | U | Height/Dia: | 225 |
| Start Node Depth: | 0.00 | Finish Node Depth: | 0.00 | Use: | S | Shape: | C |
| Start Node Coordinate: | | Finish Node Coordinate: | | Material: | VC | Cleaned | Y |

| 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 | | | Z | D | N | 6.71 | |

| Position | Code | Description | CD | Pic | Video Ref |
|---|---|---|---|---|---|
| 00.00m | MH | Start node type, manhole | | | |
| 00.00m | WL | Water level 0% | | | 0:00:00 |
| 00.00m | CLJ | Crack, longitudinal 05 at joint | | 2_2 | 0:00:07 |
| 04.67m | CC | Crack, circumferential 12-12 | | 2_3 | 0:00:37 |
| 05.40m | CMJ | Cracks, multiple 12-12 at joint | | 2_4 | 0:00:43 |
| 05.40m | B | Broken pipe 12-12 | | 2_5 | 0:00:49 |
| 05.70m | REM | General remark | | 2_6 | 0:00:51 |
| 06.05m | B | Broken pipe 12-12 | | 2_7 | 0:00:57 |
| 06.71m | GYF | Finish node type Gully | | 2_99 | |




Total Defects for section

| 2 | 1 | 0 | 2 | 0 |
|---|---|---|---|---|

DRB Grade for Section

C

## Descriptive Report with Remarks and Observation Images — Section 3

| Pos | Video Ref | Code | Description | Image |
|---|---|---|---|---|
| 00.00m | | MH | Start node type, manhole MH65 | |
| 00.00m | 0:00:00 | WL | Water level: 0% Height/Diameter | |
| 00.00m | 0:00:07 | CLJ | Crack, longitudinal at 05 o'clock at joint - Severity 1 | Image Provided - Ref: 2_2   |
| 04.67m | 0:00:37 | CC | Crack, circumferential from 12 o'clock to 12 o'clock - Severity 1 | Image Provided - Ref: 2_3   |
| 05.40m | 0:00:43 | CMJ | Cracks, multiple from 12 o'clock to 12 o'clock at joint - Severity 2 | Image Provided - Ref: 2_4   |

Total Defects for section

| 2 | 1 | 0 | 2 | 0 |
|---|---|---|---|---|

DRB Grade for Section

C

| Pos | Video Ref | Code | Description | Image |
|---|---|---|---|---|
| 05.40m | 0:00:49 | B | Broken pipe from 12 o'clock to 12 o'clock - Severity 4 | Image Provided - Ref: 2_5   |
| 05.70m | 0:00:51 | REM | General remark<br>Open fracture in crown of pipe. | Image Provided - Ref: 2_6   |
| 06.05m | 0:00:57 | B | Broken pipe from 12 o'clock to 12 o'clock - Severity 4 | Image Provided - Ref: 2_7   |

Total Defects for section

| 2 | 1 | 0 | 2 | 0 |
|---|---|---|---|---|

DRB Grade for Section

C

| Pos | Video Ref | Code | Description | Image |
|---|---|---|---|---|
| 06.71m | | GYF | Finish node type Gully ACO | Image Provided - Ref: 2_9999  |

Total Defects for section

| 2 | 1 | 0 | 2 | 0 |
|---|---|---|---|---|

DRB Grade for Section

C

## Site: Northfleet Mill, Gravesend

## Section 4

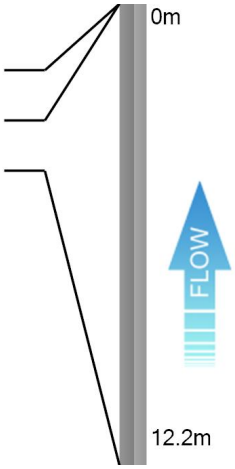
| Client: | Location (Street Name): | City/Town/Village | Cust Job Ref. | Surveyors Name: | Date: |
|---|---|---|---|---|---|
| Metrorod Kent & Sussex | Northfleet Mill | Gravesend | A60790 | Grant Martin | 28/07/2023 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Start Node Ref: | MH65 | Finish Node Ref: | G50 | Direction: | U | Height/Dia: | 150 |
| Start Node Depth: | 0.00 | Finish Node Depth: | 0.00 | Use: | S | Shape: | C |
| Start Node Coordinate: | | Finish Node Coordinate: | | Material: | VC | Cleaned | Y |

| 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 | | | Z | D | N | 12.2 | |

| Position | Code | Description | CD | Pic | Video Ref |
|---|---|---|---|---|---|
| 00.00m | MH | Start node type, manhole | | | |
| 00.00m | WL | Water level 0% | | | 0:00:00 |
| 12.20m | GYF | Finish node type Gully | | 3_99 | |




Total Defects for section

0 0 0 0 0

DRB Grade for Section

A

## Descriptive Report with Remarks and Observation Images — Section 4

| Pos | Video Ref | Code | Description | Image |
|---|---|---|---|---|
| 00.00m | | MH | Start node type, manhole MH65 | |
| 00.00m | 0:00:00 | WL | Water level: 0% Height/Diameter | |
| 12.20m | | GYF | Finish node type Gully G50 | Image Provided - Ref: 3_9999   |

Total Defects for section

0 0 0 0 0

DRB Grade for Section

A

## Site: Northfleet Mill, Gravesend

## Section 5

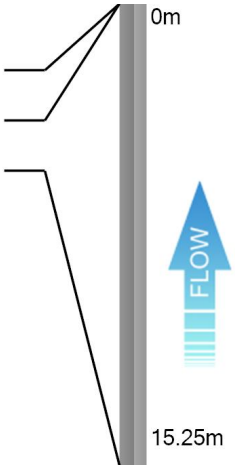
| Client: | Location (Street Name): | City/Town/Village | Cust Job Ref. | Surveyors Name: | Date: |
|---|---|---|---|---|---|
| Metrorod Kent & Sussex | Northfleet Mill | Gravesend | A60790 | Grant Martin | 28/07/2023 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Start Node Ref: | MH65 | Finish Node Ref: | G49 | Direction: | U | Height/Dia: | 150 |
| Start Node Depth: | 0.00 | Finish Node Depth: | 0.00 | Use: | S | Shape: | C |
| Start Node Coordinate: | | Finish Node Coordinate: | | Material: | VC | Cleaned | Y |

| 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 | | | Z | D | N | 15.25 | |

| Position | Code | Description | CD | Pic | Video Ref |
|---|---|---|---|---|---|
| 00.00m | MH | Start node type, manhole | | | |
| 00.00m | WL | Water level 0% | | | 0:00:00 |
| 15.25m | GYF | Finish node type Gully | | 4_99 | |




Total Defects for section

0 0 0 0 0

DRB Grade for Section

A

## Descriptive Report with Remarks and Observation Images

**Section 5**

| Pos | Video Ref | Code | Description | Image |
|---|---|---|---|---|
| 00.00m | | MH | Start node type, manhole<br>MH65 | |
| 00.00m | 0:00:00 | WL | Water level: 0%<br>Height/Diameter | |
| 15.25m | | GYF | Finish node type Gully<br>G49 | Image Provided - Ref: 4_9999   |

Total Defects for section

| | | | | |
|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 |

DRB Grade for Section

A

## Site: Northfleet Mill, Gravesend

## Section 6

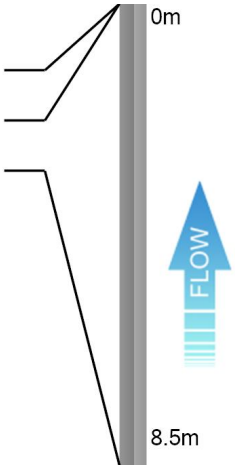
| Client: | Location (Street Name): | City/Town/Village | Cust Job Ref. | Surveyors Name: | Date: |
|---|---|---|---|---|---|
| Metrorod Kent & Sussex | Northfleet Mill | Gravesend | A60790 | Grant Martin | 28/07/2023 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Start Node Ref: | MH32 | Finish Node Ref: | MH33 | Direction: | U | Height/Dia: | 375 |
| Start Node Depth: | 0.00 | Finish Node Depth: | 0.00 | Use: | S | Shape: | C |
| Start Node Coordinate: | | Finish Node Coordinate: | | Material: | PVC | Cleaned | Y |

| 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 | | | Z | D | N | 8.5 | |

| Position | Code | Description | CD | Pic | Video Ref |
|---|---|---|---|---|---|
| 00.00m | MH | Start node type, manhole | | | |
| 00.00m | WL | Water level 0% | | | 0:00:00 |
| 08.50m | MHF | Finish node type, manhole | | 5_99 | |




Total Defects for section

0 0 0 0 0

DRB Grade for Section

A

## Descriptive Report with Remarks and Observation Images — Section 6

| Pos | Video Ref | Code | Description | Image |
|---|---|---|---|---|
| 00.00m | | MH | Start node type, manhole MH32 | |
| 00.00m | 0:00:00 | WL | Water level: 0% Height/Diameter | |
| 08.50m | | MHF | Finish node type, manhole MH33 | Image Provided - Ref: 5_9999   |

## Site: Northfleet Mill, Gravesend

## Section 7

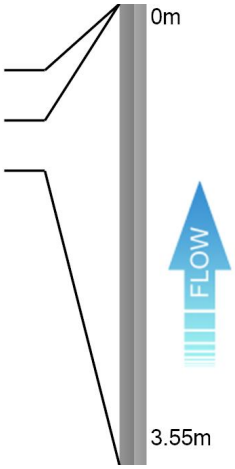
| Client: | Location (Street Name): | City/Town/Village | Cust Job Ref. | Surveyors Name: | Date: |
|---|---|---|---|---|---|
| Metrorod Kent & Sussex | Northfleet Mill | Gravesend | A60790 | Grant Martin | 28/07/2023 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Start Node Ref: | MH33 | Finish Node Ref: | MH34 | Direction: | U | Height/Dia: | 300 |
| Start Node Depth: | 0.00 | Finish Node Depth: | 0.00 | Use: | S | Shape: | C |
| Start Node Coordinate: | | Finish Node Coordinate: | | Material: | CO | Cleaned | Y |

| 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 | | | Z | D | N | 3.55 | |

| Position | Code | Description | CD | Pic | Video Ref |
|---|---|---|---|---|---|
| 00.00m | MH | Start node type, manhole | | | |
| 00.00m | WL | Water level 0% | | | 0:00:00 |
| 03.55m | MHF | Finish node type, manhole | | 6_99 | |




Total Defects for section

0 0 0 0 0

DRB Grade for Section

A

## Descriptive Report with Remarks and Observation Images

**Section 7**

| Pos | Video Ref | Code | Description | Image |
|---|---|---|---|---|
| 00.00m | | MH | Start node type, manhole MH33 | |
| 00.00m | 0:00:00 | WL | Water level: 0% Height/Diameter | |
| 03.55m | | MHF | Finish node type, manhole MH34 | Image Provided - Ref: 6_9999   |

## Site: Northfleet Mill, Gravesend

## Section 8

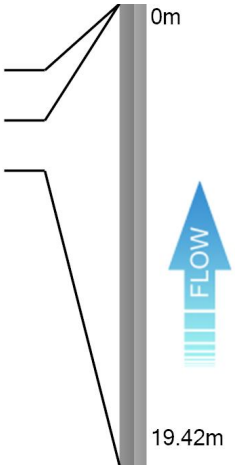
| Client: | Location (Street Name): | City/Town/Village | Cust Job Ref. | Surveyors Name: | Date: |
|---|---|---|---|---|---|
| Metrorod Kent & Sussex | Northfleet Mill | Gravesend | A60790 | Grant Martin | 28/07/2023 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Start Node Ref: | MH34 | Finish Node Ref: | MH66 | Direction: | U | Height/Dia: | 300 |
| Start Node Depth: | 0.00 | Finish Node Depth: | 0.00 | Use: | S | Shape: | C |
| Start Node Coordinate: | | Finish Node Coordinate: | | Material: | CO | Cleaned | Y |

| 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 | | | Z | D | N | 19.42 | |

| Position | Code | Description | CD | Pic | Video Ref |
|---|---|---|---|---|---|
| 00.00m | MH | Start node type, manhole | | | |
| 00.00m | WL | Water level 0% | | | 0:00:00 |
| 19.42m | MHF | Finish node type, manhole | | 7_99 | |




Total Defects for section

0 0 0 0 0

DRB Grade for Section

A

## Descriptive Report with Remarks and Observation Images

**Section 8**

| Pos | Video Ref | Code | Description | Image |
|---|---|---|---|---|
| 00.00m | | MH | Start node type, manhole MH34 | |
| 00.00m | 0:00:00 | WL | Water level: 0% Height/Diameter | |
| 19.42m | | MHF | Finish node type, manhole MH66 | Image Provided - Ref: 7_9999   |

Total Defects for section

0 0 0 0 0

DRB Grade for Section

A

## Site: Northfleet Mill, Gravesend

## Section 9

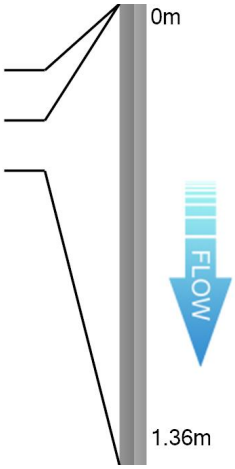
| Client: | Location (Street Name): | City/Town/Village | Cust Job Ref. | Surveyors Name: | Date: |
|---|---|---|---|---|---|
| Metrorod Kent & Sussex | Northfleet Mill | Gravesend | A60790 | Grant Martin | 28/07/2023 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Start Node Ref: | MH32 | Finish Node Ref: | MH31 | Direction: | D | Height/Dia: | 375 |
| Start Node Depth: | 0.00 | Finish Node Depth: | 0.00 | Use: | S | Shape: | C |
| Start Node Coordinate: | | Finish Node Coordinate: | | Material: | PVC | Cleaned | Y |

| 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 | | | Z | D | N | 1.36 | |

| Position | Code | Description | CD | Pic | Video Ref |
|---|---|---|---|---|---|
| 00.00m | MH | Start node type, manhole | | | |
| 00.00m | WL | Water level 0% | | | 0:00:00 |
| 01.36m | MHF | Finish node type, manhole | | 8_99 | |




Total Defects for section

0 0 0 0 0

DRB Grade for Section

A

## Descriptive Report with Remarks and Observation Images

**Section 9**

| Pos | Video Ref | Code | Description | Image |
|---|---|---|---|---|
| 00.00m | | MH | Start node type, manhole MH32 | |
| 00.00m | 0:00:00 | WL | Water level: 0% Height/Diameter | |
| 01.36m | | MHF | Finish node type, manhole MH31 | Image Provided - Ref: 8_9999   |

Total Defects for section

0 0 0 0 0

DRB Grade for Section

A

## Site: Northfleet Mill, Gravesend

## Section 10

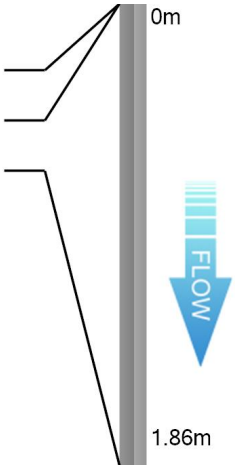
| Client: | Location (Street Name): | City/Town/Village | Cust Job Ref. | Surveyors Name: | Date: |
|---|---|---|---|---|---|
| Metrorod Kent & Sussex | Northfleet Mill | Gravesend | A60790 | Grant Martin | 28/07/2023 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Start Node Ref: | MH31 | Finish Node Ref: | MH30 | Direction: | D | Height/Dia: | 375 |
| Start Node Depth: | 0.00 | Finish Node Depth: | 0.00 | Use: | S | Shape: | C |
| Start Node Coordinate: | | Finish Node Coordinate: | | Material: | PVC | Cleaned | Y |

| 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 | | | Z | D | N | 1.86 | |

| Position | Code | Description | CD | Pic | Video Ref |
|---|---|---|---|---|---|
| 00.00m | MH | Start node type, manhole | | | |
| 00.00m | WL | Water level 0% | | | 0:00:00 |
| 01.86m | MHF | Finish node type, manhole | | 9_99 | |




Total Defects for section

0 0 0 0 0

DRB Grade for Section

A

## Descriptive Report with Remarks and Observation Images

**Section 10**

| Pos | Video Ref | Code | Description | Image |
|---|---|---|---|---|
| 00.00m | | MH | Start node type, manhole MH31 | |
| 00.00m | 0:00:00 | WL | Water level: 0% Height/Diameter | |
| 01.86m | | MHF | Finish node type, manhole MH30 | Image Provided - Ref: 9_9999   |

## Site: Northfleet Mill, Gravesend

## Section 11

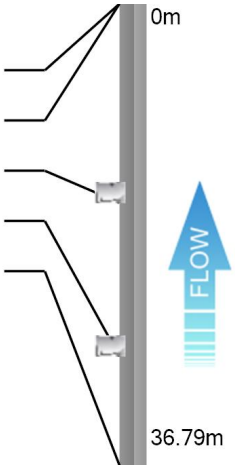
| Client: | Location (Street Name): | City/Town/Village | Cust Job Ref. | Surveyors Name: | Date: |
|---|---|---|---|---|---|
| Metrorod Kent & Sussex | Northfleet Mill | Gravesend | A60790 | Grant Martin | 28/07/2023 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Start Node Ref: | MH64 | Finish Node Ref: | MH62 | Direction: | U | Height/Dia: | 225 |
| Start Node Depth: | 0.00 | Finish Node Depth: | 0.00 | Use: | S | Shape: | C |
| Start Node Coordinate: | | Finish Node Coordinate: | | Material: | VC | Cleaned | Y |

| 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 | | | Z | D | N | 36.79 | |

| Position | Code | Description | CD | Pic | Video Ref |
|---|---|---|---|---|---|
| 00.00m | MH | Start node type, manhole | | | |
| 00.00m | WL | Water level 5% | | | 0:00:00 |
| 15.86m | JN | Junction 03 : 150mm Diameter | | 10_2 | 0:01:25 |
| 28.11m | JN | Junction 03 : 150mm Diameter | | 10_3 | 0:02:22 |
| 36.79m | MHF | Finish node type, manhole | | 10_9 | |




Total Defects for section

0 0 0 0 0

DRB Grade for Section

A

## Descriptive Report with Remarks and Observation Images — Section 11

| Pos | Video Ref | Code | Description | Image |
|---|---|---|---|---|
| 00.00m | | MH | Start node type, manhole MH64 | |
| 00.00m | 0:00:00 | WL | Water level: 5% Height/Diameter | |
| 15.86m | 0:01:25 | JN | Junction at 03 o'clock: 150mm Diameter | Image Provided - Ref: 10_2   |
| 28.11m | 0:02:22 | JN | Junction at 03 o'clock: 150mm Diameter | Image Provided - Ref: 10_3   |
| 36.79m | | MHF | Finish node type, manhole MH62 | Image Provided - Ref: 10_9999  |

Total Defects for section

0 0 0 0 0

DRB Grade for Section

A

## Site: Northfleet Mill, Gravesend

## Section 12

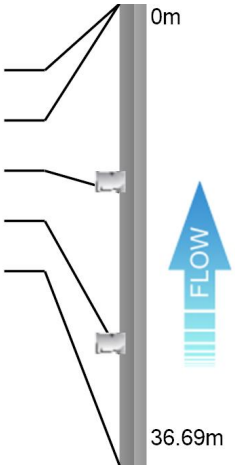
| Client: | Location (Street Name): | City/Town/Village | Cust Job Ref. | Surveyors Name: | Date: |
|---|---|---|---|---|---|
| Metrorod Kent & Sussex | Northfleet Mill | Gravesend | A60790 | Grant Martin | 28/07/2023 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Start Node Ref: | MH62 | Finish Node Ref: | MH61 | Direction: | U | Height/Dia: | 225 |
| Start Node Depth: | 0.00 | Finish Node Depth: | 0.00 | Use: | S | Shape: | C |
| Start Node Coordinate: | | Finish Node Coordinate: | | Material: | VC | Cleaned | Y |

| 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 | | | Z | D | N | 36.69 | |

| Position | Code | Description | CD | Pic | Video Ref |
|---|---|---|---|---|---|
| 00.00m | MH | Start node type, manhole | | | |
| 00.00m | WL | Water level 5% | | | 0:00:00 |
| 14.97m | JN | Junction 03 : 150mm Diameter | | 11_2 | 0:01:17 |
| 27.84m | JN | Junction 03 : 150mm Diameter | | 11_3 | 0:02:15 |
| 36.69m | MHF | Finish node type, manhole | | 11_9 | |




Total Defects for section

0 0 0 0 0

DRB Grade for Section

A

## Descriptive Report with Remarks and Observation Images — Section 12

| Pos | Video Ref | Code | Description | Image |
|---|---|---|---|---|
| 00.00m | | MH | Start node type, manhole MH62 | |
| 00.00m | 0:00:00 | WL | Water level: 5% Height/Diameter | |
| 14.97m | 0:01:17 | JN | Junction at 03 o'clock: 150mm Diameter | Image Provided - Ref: 11_2   |
| 27.84m | 0:02:15 | JN | Junction at 03 o'clock: 150mm Diameter | Image Provided - Ref: 11_3   |
| 36.69m | | MHF | Finish node type, manhole MH61 | Image Provided - Ref: 11_9999   |

Total Defects for section

0 0 0 0 0

DRB Grade for Section

A

## Site: Northfleet Mill, Gravesend

## Section 13

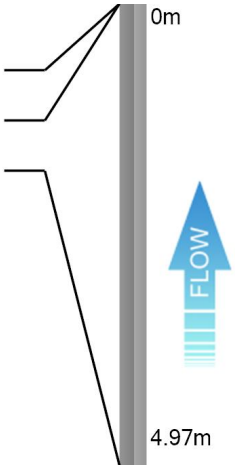
| Client: | Location (Street Name): | City/Town/Village | Cust Job Ref. | Surveyors Name: | Date: |
|---|---|---|---|---|---|
| Metrorod Kent & Sussex | Northfleet Mill | Gravesend | A60790 | Grant Martin | 28/07/2023 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Start Node Ref: | MH64 | Finish Node Ref: | MH51 | Direction: | U | Height/Dia: | 300 |
| Start Node Depth: | 0.00 | Finish Node Depth: | 0.00 | Use: | S | Shape: | C |
| Start Node Coordinate: | | Finish Node Coordinate: | | Material: | VC | Cleaned | Y |

| 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 | | | Z | D | N | 4.97 | |

| Position | Code | Description | CD | Pic | Video Ref |
|---|---|---|---|---|---|
| 00.00m | MH | Start node type, manhole | | | |
| 00.00m | WL | Water level 0% | | | 0:00:00 |
| 04.97m | SA | Survey abandoned | | 12_9 | |




Total Defects for section

0 0 0 0 0

DRB Grade for Section

A

## Descriptive Report with Remarks and Observation Images

## Section 13

| Pos | Video Ref | Code | Description | Image |
|---|---|---|---|---|
| 00.00m | | MH | Start node type, manhole MH64 | |
| 00.00m | 0:00:00 | WL | Water level: 0% Height/Diameter | |
| 04.97m | | SA | Survey abandoned Possible redundant line. | Image Provided - Ref: 12_9999   |

Total Defects for section

0 0 0 0 0

DRB Grade for Section

A

## Site: Northfleet Mill, Gravesend

## Section 14

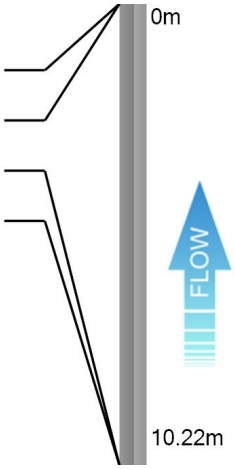
| Client: | Location (Street Name): | City/Town/Village | Cust Job Ref. | Surveyors Name: | Date: |
|---|---|---|---|---|---|
| Metrorod Kent & Sussex | Northfleet Mill | Gravesend | A60790 | Grant Martin | 28/07/2023 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Start Node Ref: | MH64 | Finish Node Ref: | MH65 | Direction: | U | Height/Dia: | 300 |
| Start Node Depth: | 0.00 | Finish Node Depth: | 0.00 | Use: | S | Shape: | C |
| Start Node Coordinate: | | Finish Node Coordinate: | | Material: | VC | Cleaned | Y |

| 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 | | | Z | D | N | 10.22 | |

| Position | Code | Description | CD | Pic | Video Ref |
|---|---|---|---|---|---|
| 00.00m | MH | Start node type, manhole | | | |
| 00.00m | WL | Water level 10% | | | 0:00:00 |
| 10.22m | DER | Settled deposits coarse 25% | | 13_2 | 0:00:51 |
| 10.22m | SA | Survey abandoned | | 13_9 | |




Total Defects for section

| 0 | 0 | 1 | 0 | 0 |
|---|---|---|---|---|

DRB Grade for Section

B

## Descriptive Report with Remarks and Observation Images — Section 14

| Pos | Video Ref | Code | Description | Image |
|---|---|---|---|---|
| 00.00m | | MH | Start node type, manhole MH64 | |
| 00.00m | 0:00:00 | WL | Water level: 10% Height/Diameter | |
| 10.22m | 0:00:51 | DER | Settled deposits coarse: 25% Cross sectional area loss - Severity 3 | Image Provided - Ref: 13_2   |
| 10.22m | | SA | Survey abandoned Unable to complete survey due to rubble/debris. | Image Provided - Ref: 13_9999   |

Total Defects for section

| 0 | 0 | 1 | 0 | 0 |
|---|---|---|---|---|

DRB Grade for Section

B

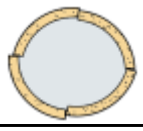
**A guide to defects and other observations in drainage systems**

**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 Effulent |
| 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 | Cacth Pit | CPF |
| OC | Other Special Chamber | OCF |
| OF | Outfall | OFF |
| OS | Oil Seperator | OSF |
| WR | Winser Trap | WRF |
| LH | Lamphole | LHF |

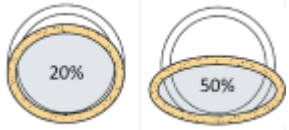
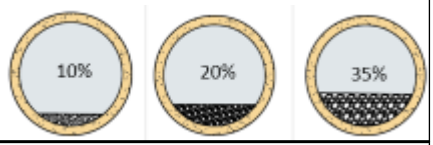
| Code | Observation | Description | Attributes | |
|---|---|---|---|---|
| **B** | Broken | Pieces pipe have visibly moved | Defined by clock references. Associated with deformity in rigid pipe |  |
| **CC CL CM CR** | Cracks | Cracks are break lines that are not visibly open | Defined by clock reference 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

| 0 | 0 | 1 | 0 | 0 |
|---|---|---|---|---|

DRB Grade for Section

B

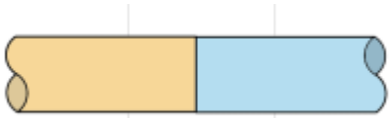
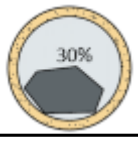
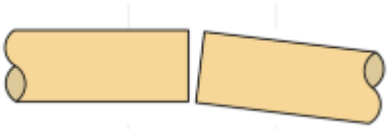
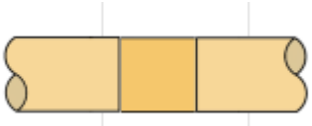
| | | | | |
|---|---|---|---|---|
| **CX(I)** | Defective Connection (Intruding) | Defective by intrusion or damage due to factors including: cracks, fractures, obstruction, position etc | Described by clock reference position and diameter (+ % intrusion) |  |
| **CU** | Loss of Vision | Lens of camera 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 |  |

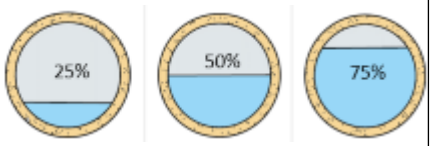
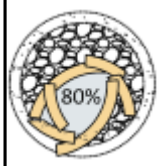
Total Defects for section

| | | | | |
|---|---|---|---|---|
| 0 | 0 | 1 | 0 | 0 |

DRB Grade for Section

B

| | | | | |
|---|---|---|---|---|
| **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**<br>**LU**<br>**LL**<br>**LR** | Line Deviation | LD = Line Down,<br>LU = Line Up,<br>LL = Line Left,<br>LR = Line Right.<br>Not related to CIPP lining. | Additional modifiers are added:<br>Q = Quarter (22.5),<br>H = Half (45),<br>F = Full (90).<br>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 |  |

| | | | | |
|---|---|---|---|---|
| **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 |  |