AMBIENTAL

ENVIRONMENTAL ASSESSMENT

Project:	New Life Church, Salvington Road, Durrington, BN13 2JD
Prepared for:	NLC Durrington Ltd
Reference:	5303
Date:	September 2020
Version:	Draft v1.0

Document Issue Record

Project: New Life Church – Drainage Design

Prepared for: NLC Durrington Ltd

Reference: 5303

Site Location: New Life Church, Salvington Road, Durrington, BN13 2JD

Proposed Development: Proposals are for the demolition of the existing buildings and re-construction to include a proposed residential block of flats and associated car parking.

Consultant		Date	Signature
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Authorisation			

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1. Introduction

1.1 Ambiental Environmental Assessment Limited has been appointed by NLC Durrington Ltd for the production of detailed drainage design drawings to Building Regulations level for foul and storm drainage for the proposed development at New Life Church, Salvington Road, Durrington, BN13 2JD.

1.2 The proposed development is for the demolition of the existing buildings and re-construction to include a proposed residential block of flats and associated car parking.

1.3 This report intends to bring together the calculations for the drainage design including Layout plans, typical construction details and supporting network calculations.

1.4 The design has been based on the Flood Risk and Drainage strategy Document Reference: WIE13316-101-R-1-1-4-FRA by Waterman Group previously undertaken to support development at the site. The Waterman report outlines the flood risk and the outline drainage strategy at the site and therefore information to flood risk and drainage is not included in this report.

1.5 The drainage design has been undertaken in accordance with Building Regulations guidance, The CIRIA SuDS Manual (C753), and West Sussex Sustainable drainage design guidance.

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2. Sewers on site and CCTV review

2.1 An existing Southern Water sewer is shown to be on site as indicated on the Asset plan as extracted below in Figure 1.



Figure 1: Southern Water asset plan extract.

2.2 The client has commissioned a CCTV drain survey and this shows that the foul drain along the east boundary does not run as far as shown. CCTV information is included in Appendix 1. See the CCTV plan in Figure 2 below. It can be seen the surveyed manholes IC3, IC4 and IC5 relate to Southern Water manholes 2102,2103 and 2104 respectively. Therefore Southern Water manhole ref 210d (shown at the head of the run on the east boundary) is likely to be CCTV MH IC2 as this would be the demarcation manhole on site. Southern Water would not normally adopt private drainage serving only a single private curtilage.

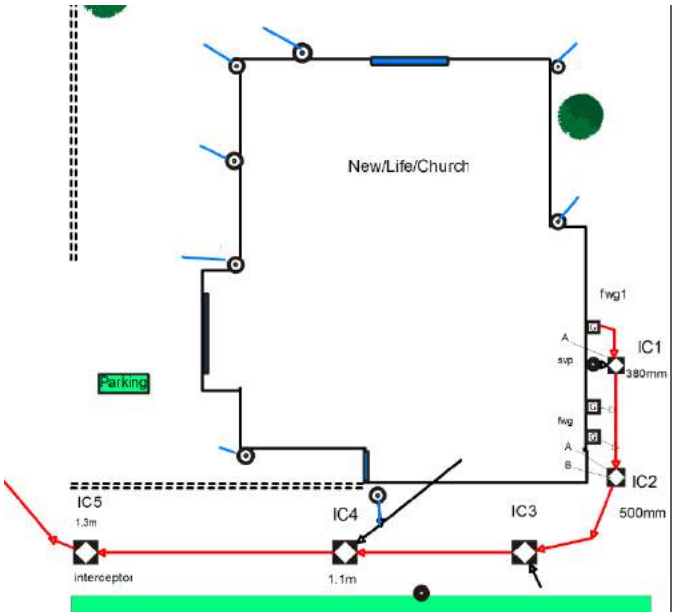

Figure 2: CCTV drain plan extract

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2.3 It can be seen from the CCTV drain survey that this shows that the majority of storm connections drains are not connected to the main drainage on site. It should be noted that one RWP is shown connecting to the existing foul drain at MH ref 2103. It is proposed to remove this storm connection from the foul which would improve the capacity in the local network during rainfall events. Based on the area outlined in blue in Figure 3 the drained area to the RWP connected to the foul is 26sqm. Based on Building Regulations 50mm/hr rainfall this would generate 0.36l/s runoff.



Figure 3:Approximate Roof area drained to FW network

2.4 In addition it can be seen some of the hardsurfacing around the existing church drains uncontrolled into the roads surrounding the site. It is proposed to remove this storm runoff from the highway network which would improve the capacity in the local network during rainfall events. It is assumed that the road gullies in Greenland road and Salvington Road connect to the Southern Water storm drains in the road. Based on the area outlined in green in figure 3 the area would be 72sqm. Based on Building Regulations 50mm/hr rainfall this would generate 1.0l/s runoff.



Figure 4: Photo showing hard surfacing draining off site

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3. Surface Water

3.1 The proposed development is for the demolition of the existing buildings and re-construction to include a proposed residential block of flats and associated car parking.

3.2 Section 4 of the Flood Risk and Drainage strategy Document Reference: WIE13316-101-R-1-1-4-FRA by Waterman Group outlines the drainage strategy proposals for the site. This states *' An infiltration based drainage system is considered unlikely to be feasible, therefore in the absence of a watercourse, discharge to the existing sewer system is proposed. The existing Site is shown to drain to the sewers in the adjacent highways therefore the existing discharge scenario would be maintained, subject to limitations on the flow rate to the sewers'.*

3.3 Regarding a discharge rate the waterman report states the following: '*Discharge from the Site should be limited to pre-development Greenfield 'Qbar' rates, calculated at 0.7l/s (although a 5.0l/s discharge rate is proposed to prevent the risk of blockage to the flow control device). Proposed discharge rates from the Site will need to be confirmed by the LLFA (West Sussex County Council) and Southern Water'*

3.4 This drainage strategy design is based on a 5l/s outflow as outlined in the Waterman report. Final connection approval should be sought from Southern Water prior to commencement on site.

3.5 The proposed design is for collection of roof water and car park areas to main drainage runs around the building. These are routed to an offsite connection located at the northwest corner of the development site to an existing Southern Water manhole ref: 2258 as shown in Figure 1. Proposed layout plans are included in Appendix 2.

3.6 Prior to outfall to the Southern Water sewer flows are controlled by a Hydrobrake with flows limited to 5l/s as stated as required within the Flood Risk and Drainage strategy Document Reference: WIE13316-101-R-1-1-4-FRA by Waterman Group to reduce blockage risk.

3.7 Rainfall events with a range of durations and return periods for storms up to and including the 1in1000yr +40% rainfall event have been run based on FEH-13 rainfall data obtained from the FEH Web Service. The drainage model shows storage of 8.6m^3 is required to be provided within a 1.5x10x0.6m deep geocellular crate storage device. Proposed network calculations are included in Appendix 3.

3.8 Permeable paving has been added for capturing and treating runoff from the car parking areas. Permeable paving offers adequate treatment off runoff from domestic trafficked areas as described in the treatment index method in the Ciria SuDS manual C753.

3.9 Capacity for 5l/s in the offsite sewer and connection approval should be sought from Southern Water prior to commencement on site.

3.10 Any variations to the drained areas may invalidate the design and should be reported to the Engineer prior to installation of any drainage.

3.11 The position, depth and design of the crate storage to be approved by the Building Control officer, and relevant planning officer as required, and Structural Engineer prior to installation.

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4. Foul Water

4.1 Regarding foul water the waterman report states: 'Southern Water's pre-developer enquiry response confirms that there is currently inadequate capacity within the foul sewerage network to accommodate a foul flow for the above development at manhole reference: TQ12051202 (situated at the junction between Salvington Road/Exmoor Drive). To accommodate a foul water connection locally, additional offsite sewers or improvements to existing sewers will be required to provide sufficient capacity to service the new development. '

4.2 Offsite upgrade requirements are outside the scope of this report and should be explored further prior to construction commencing. The proposed development is for 9 flats and using Sewers For Adoption 8 guidance of 4000l/unit/day the runoff generated by 9 flats is 0.41l/s.

4.3 It can be seen from paragraph 2.3 of this report that the removal of the RWP connection to the foul network would offset most of the runoff required to accommodate the foul flows.

4.4 It is not possible to re-use the connection to Southern Water manhole 2102 due to shallow inverts therefore this connection will become redundant. Given there have been no live laterals from third party land found connecting into the drainage on site the simplest option would be to cap off the 100mm dia inlet into IC2 / Southern Water manhole ref 210d and retain the manhole on site as a Southern Water asset but unused.

4.5 Foul drainage has been designed to connect to the most suitable Southern Water foul manhole REF 2104 where a 150mm diameter outlet pipe is present. Any downstream upgrades to facilitate development should be agreed with Southern Water prior to construction. Proposed layout plans are included in Appendix 2.

4.6 Capacity in the offsite sewer and connection approval should be sought from Southern Water prior to commencement on site.

4.7 Any variations to the drained areas may invalidate the design and should be reported to the Engineer prior to installation of any drainage.

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5. Conclusion

5.1 Ambiental Environmental Assessment Limited has been appointed by NLC Durrington Ltd for the production of detailed drainage design drawings to Building Regulations level for foul and storm drainage for the proposed development at New Life Church, Salvington Road, Durrington, BN13 2JD.

5.2 The proposed development is for the demolition of the existing buildings and re-construction to include a proposed residential block of flats and associated car parking.

5.3 This report intends to bring together the calculations for the drainage design including Layout plans, typical construction details and supporting network calculations.

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5.5 The client has commissioned a CCTV drain survey and this shows that the foul drain along the east boundary does not run as far as shown on the Southern Water Asset plan. It can be seen the surveyed manholes IC3, IC4 and IC5 relate to Southern Water manholes 2102,2103 and 2104 respectively. Therefore Southern Water manhole ref 210d (shown at the head of the run on the east boundary) is likely to be CCTV MH IC2 as this would be the demarcation manhole on site. Southern Water would not normally adopt private drainage serving only a single private curtilage.

5.6 It should be noted that one RWP is shown connecting to the existing foul drain at MH ref 2103. It is proposed to remove this storm connection from the foul which would improve the capacity in the local network during rainfall events. Based on the area outlined in blue in Figure 3 the drained area to the RWP connected to the foul is 26sqm. Based on Building Regulations 50mm/hr rainfall this would generate 0.36l/s runoff.

5.7 The proposed design is for collection of roof water and car park areas to main drainage runs around the building routed to an offsite connection located at the northwest corner of the development site to an existing Southern Water manhole ref: 2258. Prior to outfall to the Southern Water sewer flows are controlled by a Hydrobrake with flows limited to 5l/s as stated as required within the Flood Risk and Drainage strategy Document Reference: WIE13316-101-R-1-1-4-FRA by Waterman Group to reduce blockage risk.

5.8 Rainfall events with a range of durations and return periods for storms up to and including the 1in1000yr +40% rainfall event have been run based on FEH-13 rainfall data obtained from the FEH Web Service. The drainage model shows storage of 8.6m^3 is required to be provided within a 1.5x10x0.6m deep geocellular crate storage device. Permeable paving has been added for capturing and treating runoff from the car parking areas. Permeable paving offers adequate treatment off runoff from domestic trafficked areas as described in the treatment index method in the Ciria SuDS manual C753.

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5.9 Foul drainage has been designed to connect to the most suitable Southern Water foul manhole REF 2104 where a 150mm diameter outlet pipe is present. Any downstream upgrades to facilitate development should be agreed with Southern Water prior to construction.

5.10 Capacity in the offsite sewer and connection approval should be sought from Southern Water prior to commencement on site.

5.11 Any variations to the drained areas may invalidate the design and should be reported to the Engineer prior to installation of any drainage.

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Appendix 1 – CCTV Information

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Aquatech Drains Ltd

New Life Church, Salvington Road

Worthing

24 August 2020



WinCan Europe Ltd, 10 Woking Business park, Albertdrive, Woking, GU21 5JY
Telephone 01483762222 Facsimile 01483 762226
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GRADE 3,4 & 5 Summary

STRUCTURAL DEFECTS

Structural defects			
Section	PLR	Grade	Fault description
4	IC2 rear access	3	Fracture, circumferential, from 12 to 12 o'clock
11	IC5 driveway	5	Hole in drain/sewer, from 12 to 4 o'clock

Grade 3; Best practice suggests consideration be given to repair in the medium term
Grade 4; Best practice suggests consideration be given to a repair to avoid potential collapse
Grade 5; Best practice suggests this pipe is at risk of collapse at any time; urgent consideration should be given to a repair to avoid collapse

SERVICE / OPERATIONAL DEFECTS

Service defects			
Section	PLR	Grade	Fault description
9	IC4 Driveway	4	Settled deposits, coarse, 20% cross-sectional area loss

Grade 3; Best practice suggests consideration be given to maintenance activities in the medium term
Grade 4; Best practice suggests consideration be given to maintenance activity to avoid potential blockage
Grade 5; Best practice suggests this pipe is at immediate risk of backing up / causing flooding

Abandoned Surveys

Camera no access		
Section	PLR	Fault description
4	IC2 rear access	Attached deposits, other at joint, from 12 to 12 o'clock, 30% cross
7	IC2 driveway	Attached deposits, other at joint, from 12 to 12 o'clock, 30% cross
10	A Driveway	General photograph taken at this point

Information

These summaries are based on the SRM grading from the WRC

Aquatech Drains Ltd
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New Life Church, Salvington		24/08/2020		

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Place :

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/ Main sections

Project name :	Project number :	Contact :	Date :
New Life Church, Salvington Road			**24/08/2020**

Nr.	US MH	DS MH	Date	Road	Tape No.	Material	m	(m)
1	FWG1	IC1	24/08/2020	Salvington Rd		Vitrified clay	0.90	0.90
2	A	IC1	24/08/2020	Salvington Rd		Vitrified clay	1.10	1.10
3	IC1	IC2	24/08/2020	Salvington Rd		Vitrified clay	4.30	4.30
5	A	IC2	24/08/2020	Salvington Rd		Vitrified clay	1.50	1.50
6	B	IC2	24/08/2020	Salvington Rd		Vitrified clay	1.50	1.50
8	IC3	IC4	24/08/2020	Salvington Rd		Vitrified clay	7.20	7.20

Pipe size: CIRCULAR 100/100 = 16.5 m (16.5 m)

Nr.	US MH	DS MH	Date	Road	Tape No.	Material	m	(m)
9	IC4	IC5	24/08/2020	Salvington Rd		Vitrified clay	11.30	11.30
11	IC5	Main sewer	24/08/2020	Salvington Rd		Vitrified clay	8.50	8.50

Pipe size: CIRCULAR 150/150 = 19.8 m (19.8 m)

All sections = 36.3 m (36.3 m)

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Inspection Summary

Project Name:	Project number:	Contact:	Date:	
New Life Church, Salvington Road Worthing			24/08/2020	

Total Length of sewer network	**36.30 m**
Inspected Length of sewer network	**36.30 m**
Not inspected Length of sewer network	**0.00 m**
Total Length of sewer network (abandoned)	**7.40 m**
Inspected Length of Sewer network (abandoned)	**7.40 m**
Not inspected Length of sewer network (abandoned)	**0.00 m**
Total Length of house connections (satellite)	**0.00 m**
Inspected Length of house connections (satellite)	**0.00 m**
Not inspected Length of house connections (satellite)	**0.00 m**
Number of Sections	**8**
Number of sections (abandoned)	**3**
Number of house connections	**0**
Number of Photos	**53**

Inspection Summary

Project Name:	Project Number:	Contact:	Date:	
New Life Church, Salvington Road Worthing			24/08/2020	

Place:	Worthing	Section length:	0.90 m
Road:	Salvington Rd	Pipe length:	100 mm
U/S MH:	FWG1	Material:	Vitrified clay
D/S MH:	IC1	Shape:	Circular

IC1	0.00	MH	Start node type, manhole, reference number : IC1	0
	0.00	WL	Water level, 0% of the vertical dimension	0
	0.00	GP	General photograph taken at this point	0
	0.70	LL	Line deviates left	0
FWG1	0.90	MHF	Finish node type, manhole reference number: FWG1	0

Place:	Worthing	Section length:	1.10 m
Road:	Salvington Rd	Pipe length:	100 mm
U/S MH:	A	Material:	Vitrified clay
D/S MH:	IC1	Shape:	Circular

IC1	0.00	MH	Start node type, manhole, reference number : IC1	0
	0.00	WL	Water level, 0% of the vertical dimension	0
	0.70	LU	Line deviates up	0
A	1.10	MHF	Finish node type, manhole reference number: A	0

Inspection Summary

Project Name:	Project Number:	Contact:	Date:	
New Life Church, Salvington Road Worthing			24/08/2020	

Place:	Worthing	Section length:	4.30 m
Road:	Salvington Rd	Pipe length:	100 mm
U/S MH:	IC1	Material:	Vitrified clay
D/S MH:	IC2	Shape:	Circular

IC1	0.00	JN	Junction, at 3 o'clock, diameter 100mm	0
	0.00	WL	Water level, 0% of the vertical dimension	0
	0.90	MH	Start node type, manhole, reference number : IC1	0
	2.80	JN	Junction, at 3 o'clock, diameter 100mm	0
IC2	4.30	MHF	Finish node type, manhole reference number: IC2	0

Place:	Worthing	Section length:	1.50 m
Road:	Salvington Rd	Pipe length:	100 mm
U/S MH:	A	Material:	Vitrified clay
D/S MH:	IC2	Shape:	Circular

IC2	0.00	MH	Start node type, manhole, reference number : IC2	0
	0.00	WL	Water level, 0% of the vertical dimension	0
	0.70	LU	Line deviates up	0
	1.40	MC	Material changes, cast iron	0
A	1.50	MHF	Finish node type, manhole reference number: A	0

Inspection Summary

Project Name:	Project Number:	Contact:	Date:	
New Life Church, Salvington Road Worthing			24/08/2020	

Place:	Worthing	Section length:	1.50 m
Road:	Salvington Rd	Pipe length:	100 mm
U/S MH:	B	Material:	Vitrified clay
D/S MH:	IC2	Shape:	Circular

IC2	0.00	MH	Start node type, manhole, reference number : IC2	0
	0.00	WL	Water level, 0% of the vertical dimension	0
	0.30	LU	Line deviates up	0
	0.90	MC	Material changes, cast iron	0
B	1.50	MHF	Finish node type, manhole reference number: B	0

Place:	Worthing	Section length:	7.20 m
Road:	Salvington Rd	Pipe length:	100 mm
U/S MH:	IC3	Material:	Vitrified clay
D/S MH:	IC4	Shape:	Circular

IC3	0.00	MH	Start node type, manhole, reference number : IC3	0
	0.00	WL	Water level, 0% of the vertical dimension	0
	0.70	CC	Crack, circumferential, from 12 to 12 o'clock	2
	4.30	WL	Water level, 25% of the vertical dimension	0
	5.10	JN	Junction, at 9 o'clock, diameter 100mm	0
	5.70	WL	Water level, 50% of the vertical dimension	0
	6.80	WL	Water level, 0% of the vertical dimension	0
IC4	7.20	MHF	Finish node type, manhole reference number: IC4	0

Inspection Summary

Project Name:	Project Number:	Contact:	Date:	
New Life Church, Salvington Road Worthing			24/08/2020	

Place:	Worthing	Section length:	11.30 m
Road:	Salvington Rd	Pipe length:	150 mm
U/S MH:	IC4	Material:	Vitrified clay
D/S MH:	IC5	Shape:	Circular

IC4	0.00	MH	Start node type, manhole, reference number : IC4	0
	0.00	WL	Water level, 10% of the vertical dimension	0
	0.20	CCJ	Crack, circumferential at joint, from 10 to 2 o'clock	2
	7.00	DER	Settled deposits, coarse, 20% cross-sectional area loss	4
	7.90	CN	Connection other than junction, at 3 o'clock, diameter 100mm	0
IC5	11.30	MHF	Finish node type, manhole reference number: IC5	0

Place:	Worthing	Section length:	8.50 m
Road:	Salvington Rd	Pipe length:	150 mm
U/S MH:	IC5	Material:	Vitrified clay
D/S MH:	Main sewer	Shape:	Circular

IC5	0.00	MH	Start node type, manhole, reference number : IC5	0
	0.00	WL	Water level, 0% of the vertical dimension	0
	0.30	REM	General remark	0
	1.20	LR	Line deviates right	0
	6.80	H	Hole in drain/sewer, from 12 to 4 o'clock	5
Main sewer	8.50	MHF	Finish node type, manhole reference number: Main sewer	0

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Service / Operational Defects (SRM 4)

Project name :	Project Number :	Contact :	Date :
New Life Church, Salvington Road			**24/08/2020**

No.	PLR	Dir.	Use	Shape / Size	Date	Mat.	Total Length	Insp. Length	Peak HWG	Peak Score	Grade	Mean Score	Total Score
1	FWG1rear access	U	C	C 100/100	24/08/2020	VC	0.90	0.90	3	0	1	0	0
2	Aaccess	U	F	C 100/100	24/08/2020	VC	1.10	1.10	-	0	1	0	0
3	IC1rear access	D	F	C 100/100	24/08/2020	VC	4.30	4.30	-	0	1	0	0
4	IC2rear access	D	C	C 100/100	24/08/2020	VC	1.90	1.90	-	0	1	0	0
5	Arear access	U	C	C 100/100	24/08/2020	VC	1.50	1.50	-	0	1	0	0
6	BX	U	C	C 100/100	24/08/2020	VC	1.50	1.50	-	0	1	0	0
7	IC2driveway	U	C	C 100/100	24/08/2020	VC	1.80	1.80	3	0	1	0	0
8	IC3Driveway	D	C	C 100/100	24/08/2020	VC	7.20	7.20	-	0	1	0	0
9	IC4Driveway	D	C	C 150/150	24/08/2020	VC	11.30	11.30	3	5	4	0.44	5
10	ADriveway	U	C	C 100/100	24/08/2020	VC	3.70	3.70	-	0	1	0	0
11	IC5driveway	D	C	C 150/150	24/08/2020	VC	8.50	8.50	-	0	1	0	0

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Structural Defects (SRM 4)

Project name :	Project Number :	Contact :	Date :
New Life Church, Salvington Road			**24/08/2020**

No.	PLR	Dir.	Use	Shape / Size	Date	Mat.	Total Length	Insp. Length	Peak HWG	Peak Score	Grade	Mean Score	Total Score
1	FWG1rear access	U	C	C 100/100	24/08/2020	VC	0.90	0.90	-	0	1	0	0
2	Aaccess	U	F	C 100/100	24/08/2020	VC	1.10	1.10	-	0	1	0	0
3	IC1rear access	D	F	C 100/100	24/08/2020	VC	4.30	4.30	-	0	1	0	0
4	IC2rear access	D	C	C 100/100	24/08/2020	VC	1.90	1.90	3	40	3	21.05	40
5	Arear access	U	C	C 100/100	24/08/2020	VC	1.50	1.50	-	0	1	0	0
6	BX	U	C	C 100/100	24/08/2020	VC	1.50	1.50	-	0	1	0	0
7	IC2driveway	U	C	C 100/100	24/08/2020	VC	1.80	1.80	-	0	1	0	0
8	IC3Driveway	D	C	C 100/100	24/08/2020	VC	7.20	7.20	2	10	2	1.39	10
9	IC4Driveway	D	C	C 150/150	24/08/2020	VC	11.30	11.30	2	0	1	0	0
10	ADriveway	U	C	C 100/100	24/08/2020	VC	3.70	3.70	-	0	1	0	0
11	IC5driveway	D	C	C 150/150	24/08/2020	VC	8.50	8.50	4	165	5	19.41	165

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Project-information

Project name :	Project Number :	Contact :	Date :
New Life Church, Salvington Road			**24/08/2020**

Client:
Contact Name:
Department:
Road:
Town:
County:
Telephone:
Fax:
Mobile:
E-mail:

Site: **New Life Church**
Contact Name: **Tracy Ryder**
Department: **Ryder Richardson Ltd**
Road: **Salvington Road**
Town: **Worthing**
County: **West Sussex**
Telephone:
Fax:
Mobile:
E-mail:

Contractor **Aquatech Drains Ltd**
Contact Name: **Jason Scrase**
Department:
Road: **Solway Ave**
Town: **Brighton**
County: **East Sussex**
Telephone: **01273 933705**
Fax:
Mobile: **07801 023201**
E-mail: **Jason@aquatechdrains.co.uk**

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Legend of Drawing:


WATER FLOW 1


Tree_Summer



SOAKAWAY: FOUL WATER


SURFACE WATER


PETROL INTERCEPTOR


RAINWATER PIPE


RODDING EYE


SOIL & VENT PIPE



SOAKAWAY: SURFACE WATER


W.C.


FOUL WATER


Tree_Winter


CESS PIT


GNDFLWC



SYPHON INTERCEPTOR


PIPE RUN


ROAD GULLY


SEPTIC TANK


COMBINED



GULLY


PUMP CH

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Inspection report

Date :	Job number :	Weather :	Operator :	Section number :	PLR SUFFIX:
24/08/2020		**no rain or snow**	**Jason**	**1**	**rear access**
Weather	Vehicle :	Camera :	Preset :	Cleaned :	Operator :
no rain or snow				**yes**	**Jason**

Place :	**Worthing**	Location details:		U/S MH :	**FWG1**
Road :	**Salvington Rd**	Catchment:		U/S Depth :	
Location	**Property with buildings**	Tape number :		D/S MH :	**IC1**
Inspection	**IC1 (U/S) FWG1**	Pipe Length		D/S Depth :	

Use:	**Combined**	Pipe shape :	**Circular**
Year laid :	**1920**	Pipe size :	**100 mm**
Purpose :	**Sample survey to determine asset condition**	Pipe material :	**Vitrified clay**
Total length :	**0.90 m**	Lining :	**Vitrified clay**

Comment :

1:50	Position	Observation
IC1	0.00	Start node type, manhole, reference number : IC1
	0.00	Water level, 0% of the vertical dimension
	0.00	General photograph taken at this point
FWG1	0.70	Line deviates left
	0.90	Finish node type, manhole reference number: FWG1



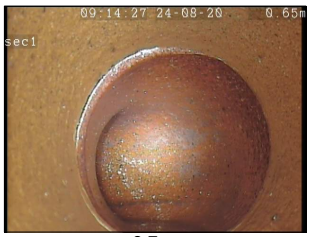
0 m



0 m



0 m



0.7 m



0.9 m

STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
0	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**

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Inspection pictures

Place :	Road :	Date :	Section number :	PLR Suffix :
Worthing	**Salvington Rd**	**24/08/2020**	**1**	**rear access**



Photo: 1_1_1_A.jpg
0m, Start node type, manhole, reference number : IC1



Photo: 1_1_3_A.jpg
0m, Water level, 0% of the vertical dimension

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Inspection pictures

Place :	Road :	Date :	Section number :	PLR Suffix :
Worthing	**Salvington Rd**	**24/08/2020**	**1**	**rear access**



Photo: 1_1_4_A.jpg
0m, General photograph taken at this point

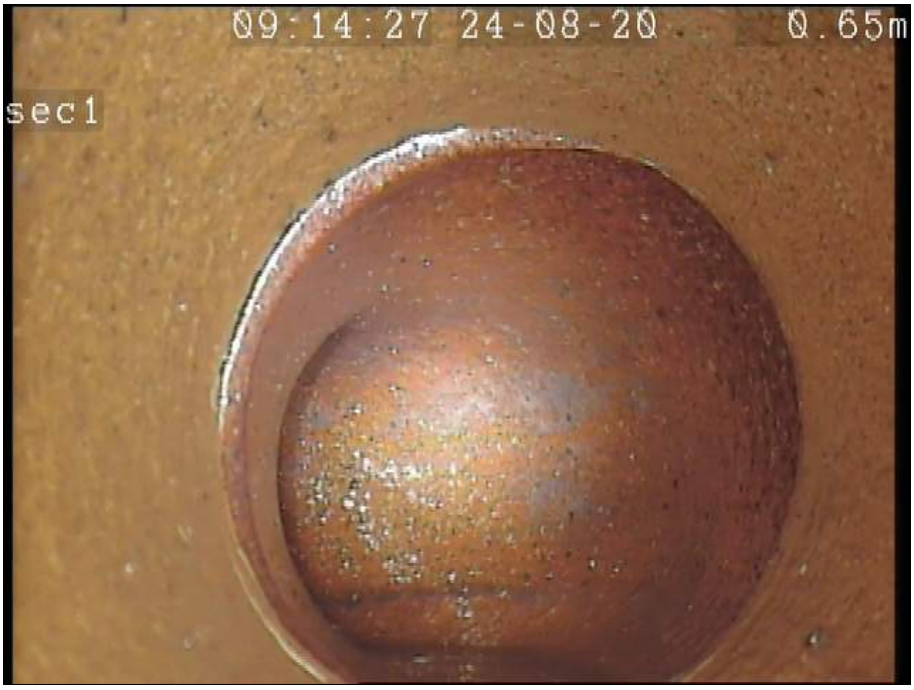

Photo: 1_1_5_A.jpg
0.7m, Line deviates left

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Inspection pictures

Place :	Road :	Date :	Section number :	PLR Suffix :
Worthing	**Salvington Rd**	**24/08/2020**	**1**	**rear access**



Photo: 1_1_6_A.jpg
0.9m, Finish node type, manhole reference number: FWG1

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Inspection report

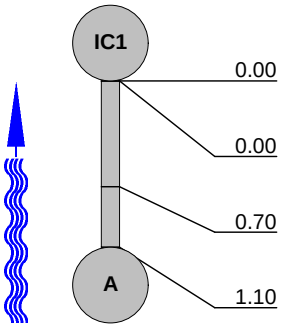
Date :	Job number :	Weather :	Operator :	Section number :	PLR SUFFIX:
24/08/2020		**no rain or snow**	**Jason**	**2**	**access**
Weather	Vehicle :	Camera :	Preset :	Cleaned :	Operator :
no rain or snow				**yes**	**Jason**

Place :	**Worthing**	Location details:		U/S MH :	**A**
Road :	**Salvington Rd**	Catchment:		U/S Depth :	
Location	**Property with buildings**	Tape number :		D/S MH :	**IC1**
Inspection	**IC1 (U/S) A**	Pipe Length		D/S Depth :	

Use:	**Foul**	Pipe shape :	**Circular**
Year laid :	**1920**	Pipe size :	**100 mm**
Purpose :	**Sample survey to determine asset condition**	Pipe material :	**Vitrified clay**
Total length :	**1.10 m**	Lining :	**Vitrified clay**

Comment : **redundant section**

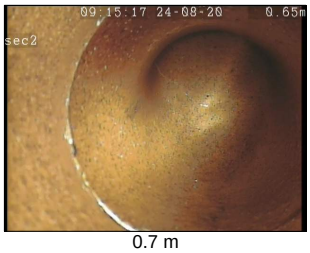
1:50 **Position** **Observation**



Position	Observation
0.00	Start node type, manhole, reference number : IC1
0.00	Water level, 0% of the vertical dimension
0.70	Line deviates up
1.10	Finish node type, manhole reference number: A



0 m



0.7 m



1.1 m

STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
0	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**

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Inspection pictures

Place :	Road :	Date :	Section number :	PLR Suffix :
Worthing	**Salvington Rd**	**24/08/2020**	**2**	**access**



Photo: 3_3_8_A.jpg
0m, Water level, 0% of the vertical dimension



Photo: 3_3_9_A.jpg
0.7m, Line deviates up

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Inspection pictures

Place :	Road :	Date :	Section number :	PLR Suffix :
Worthing	**Salvington Rd**	**24/08/2020**	**2**	**access**



Photo: 3_3_10_A.jpg
1.1m, Finish node type, manhole reference number: A

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Inspection report

Date :	Job number :	Weather :	Operator :	Section number :	PLR SUFFIX:
24/08/2020		**no rain or snow**	**Jason**	**3**	**rear access**
Weather	Vehicle :	Camera :	Preset :	Cleaned :	Operator :
no rain or snow				**yes**	**Jason**

Place :	**Worthing**	Location details:		U/S MH :	**IC1**
Road :	**Salvington Rd**	Catchment:		U/S Depth :	
Location	**Property with buildings**	Tape number :		D/S MH :	**IC2**
Inspection	**IC1 (D/S) IC2**	Pipe Length		D/S Depth :	

Use:	**Foul**	Pipe shape :	**Circular**
Year laid :	**1920**	Pipe size :	**100 mm**
Purpose :	**Sample survey to determine asset condition**	Pipe material :	**Vitrified clay**
Total length :	**4.30 m**	Lining :	**Vitrified clay**

Comment :

1:50	Position	Observation
IC1		
	0.00	Junction, at 3 o'clock, diameter 100mm
	0.00	Water level, 0% of the vertical dimension
	0.90	Start node type, manhole, reference number : IC1
	2.80	Junction, at 3 o'clock, diameter 100mm
	4.30	Finish node type, manhole reference number: IC2
IC2		



0 m



0.9 m



2.8 m



4.3 m

STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
0	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**

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Inspection pictures

Place :	Road :	Date :	Section number :	PLR Suffix :
Worthing	**Salvington Rd**	**24/08/2020**	**3**	**rear access**



Photo: 4_4_12_A.jpg
0m, Water level, 0% of the vertical dimension



Photo: 4_4_11_A.jpg
0.9m, Start node type, manhole, reference number : IC1

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Inspection pictures

Place :	Road :	Date :	Section number :	PLR Suffix :
Worthing	**Salvington Rd**	**24/08/2020**	**3**	**rear access**



Photo: 4_4_15_A.jpg
2.8m, Junction, at 3 o'clock, diameter 100mm

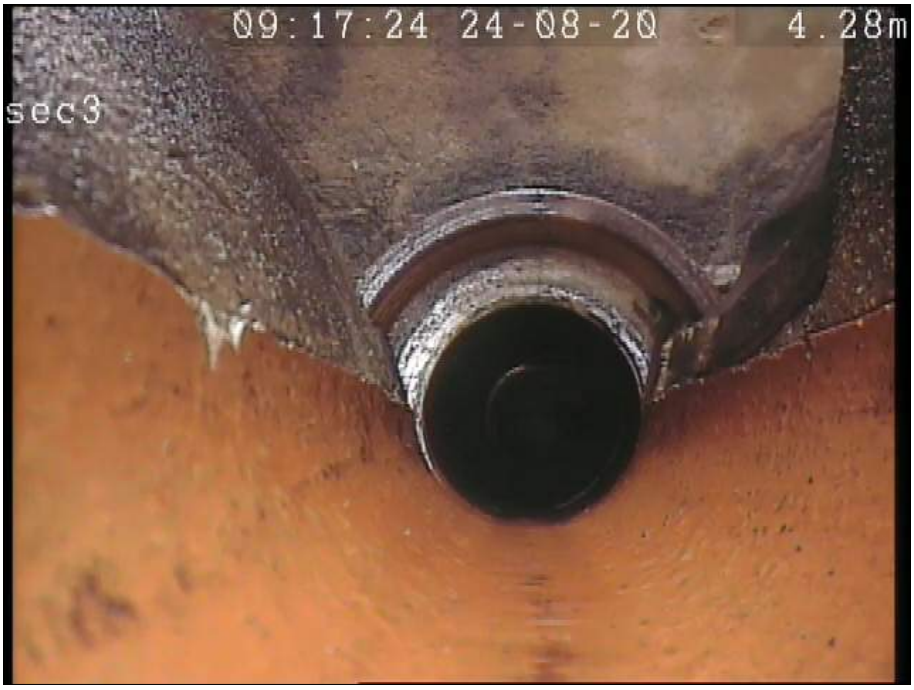

Photo: 4_4_16_A.jpg
4.3m, Finish node type, manhole reference number: IC2

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Inspection report

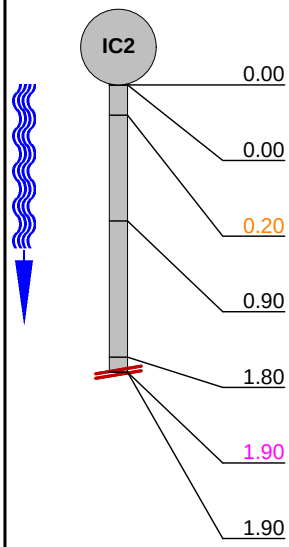
Date :	Job number :	Weather :	Operator :	Section number :	PLR SUFFIX:
24/08/2020		**no rain or snow**	**Jason**	**4**	**rear access**
Weather	Vehicle :	Camera :	Preset :	Cleaned :	Operator :
no rain or snow				**yes**	**Jason**

Place :	**Worthing**	Location details:		U/S MH :	**IC2**
Road :	**Salvington Rd**	Catchment:		U/S Depth :	
Location	**Property with buildings**	Tape number :		D/S MH :	**IC3**
Inspection	**IC2 (D/S) IC3**	Pipe Length		D/S Depth :	

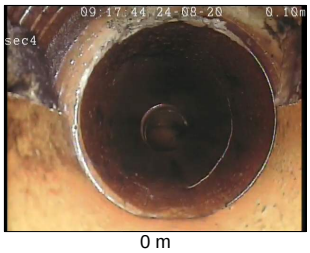
Use:	**Combined**	Pipe shape :	**Circular**
Year laid :	**1920**	Pipe size :	**100 mm**
Purpose :	**Sample survey to determine asset condition**	Pipe material :	**Vitrified clay**
Total length :	**1.90 m**	Lining :	**Vitrified clay**

Comment : **cement obstruction @ joint 1.9 metres downstream**

1:50 **Position** **Observation**



Position	Observation
0.00	Start node type, manhole, reference number : IC2
0.00	Water level, 0% of the vertical dimension
0.20	Fracture, circumferential, from 12 to 12 o'clock
0.90	Line deviates right
1.80	Water level, 25% of the vertical dimension
1.90	Attached deposits, other at joint, from 12 to 12 o'clock, 30% cross-sectional area loss
1.90	Survey abandoned



0 m



0.2 m



0.9 m



1.8 m



1.9 m

STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
1	**40**	**21.05**	**40**	**3**	**0**	**0**	**0**	**0**	**1**

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Inspection pictures

Place :	Road :	Date :	Section number :	PLR Suffix :
Worthing	**Salvington Rd**	**24/08/2020**	**4**	**rear access**

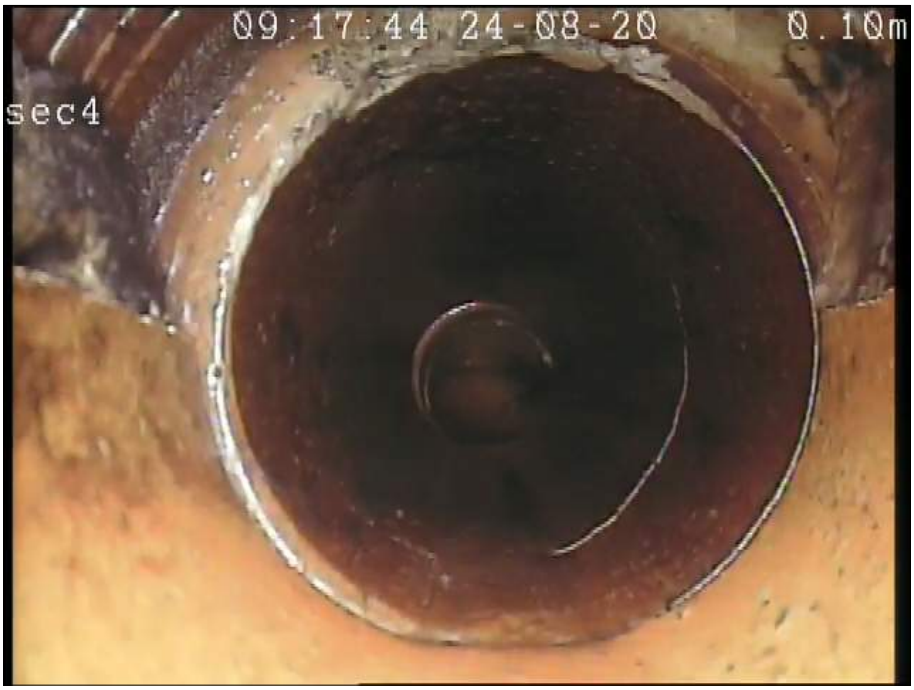

Photo: 5_5_18_A.jpg
0m, Water level, 0% of the vertical dimension



Photo: 5_5_19_A.jpg
0.2m, Fracture, circumferential, from 12 to 12 o'clock

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Inspection pictures

Place :	Road :	Date :	Section number :	PLR Suffix :
Worthing	**Salvington Rd**	**24/08/2020**	**4**	**rear access**



Photo: 5_5_20_A.jpg
0.9m, Line deviates right



Photo: 5_5_21_A.jpg
1.8m, Water level, 25% of the vertical dimension

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Inspection pictures

Place :	Road :	Date :	Section number :	PLR Suffix :
Worthing	**Salvington Rd**	**24/08/2020**	**4**	**rear access**



Photo: 5_5_22_A.jpg
1.9m, Attached deposits, other at joint, from 12 to 12 o'clock, 30% cross-sectional area loss



Photo: 5_5_23_A.jpg
1.9m, Survey abandoned

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Inspection report

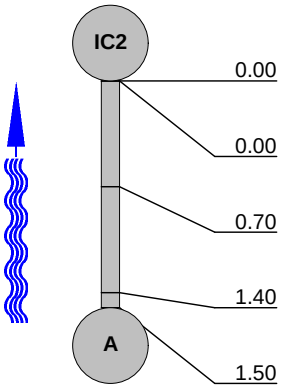
Date :	Job number :	Weather :	Operator :	Section number :	PLR SUFFIX:
24/08/2020		**no rain or snow**	**Jason**	**5**	**rear access**
Weather	Vehicle :	Camera :	Preset :	Cleaned :	Operator :
no rain or snow				**yes**	**Jason**

Place :	**Worthing**	Location details:		U/S MH :	**A**
Road :	**Salvington Rd**	Catchment:		U/S Depth :	
Location	**Property with buildings**	Tape number :		D/S MH :	**IC2**
Inspection	**IC2 (U/S) A**	Pipe Length		D/S Depth :	

Use:	**Combined**	Pipe shape :	**Circular**
Year laid :	**1920**	Pipe size :	**100 mm**
Purpose :	**Sample survey to determine asset condition**	Pipe material :	**Vitrified clay**
Total length :	**1.50 m**	Lining :	**Vitrified clay**

Comment : **redundant section**

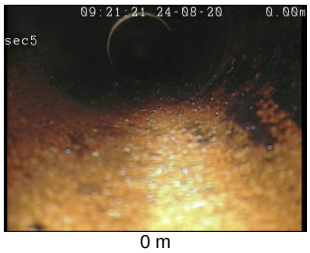
1:50 **Position** **Observation**



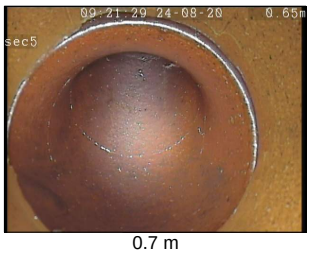
Position	Observation
0.00	Start node type, manhole, reference number : IC2
0.00	Water level, 0% of the vertical dimension
0.70	Line deviates up
1.40	Material changes, cast iron
1.50	Finish node type, manhole reference number: A



0 m



0 m



0.7 m



1.4 m



1.5 m

STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
0	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**

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Inspection pictures

Place :	Road :	Date :	Section number :	PLR Suffix :
Worthing	**Salvington Rd**	**24/08/2020**	**5**	**rear access**



Photo: 6_6_24_A.jpg
0m, Start node type, manhole, reference number : IC2

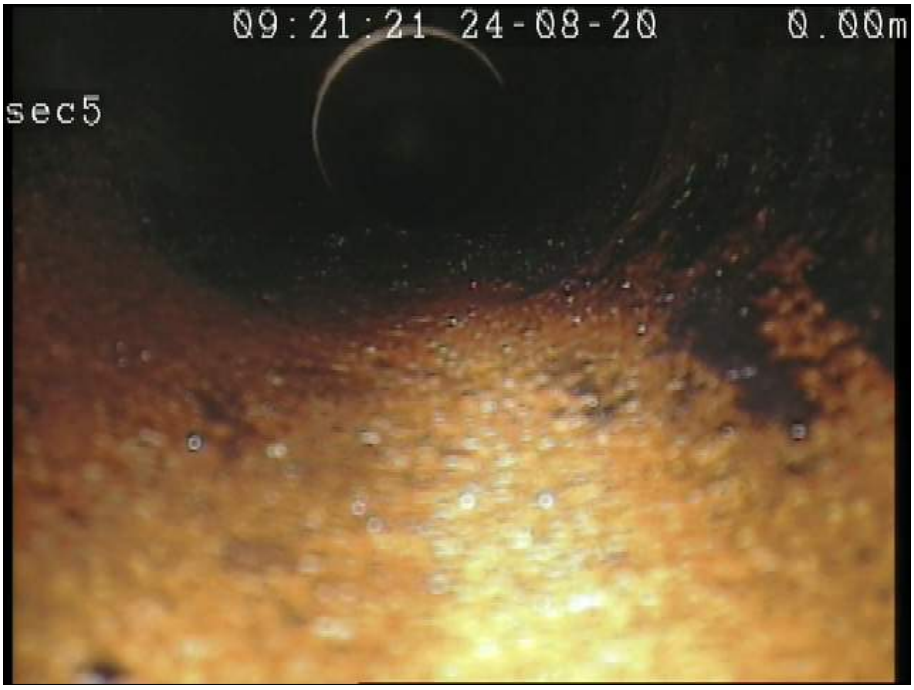

Photo: 6_6_25_A.jpg
0m, Water level, 0% of the vertical dimension

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Inspection pictures

Place :	Road :	Date :	Section number :	PLR Suffix :
Worthing	**Salvington Rd**	**24/08/2020**	**5**	**rear access**



Photo: 6_6_26_A.jpg
0.7m, Line deviates up

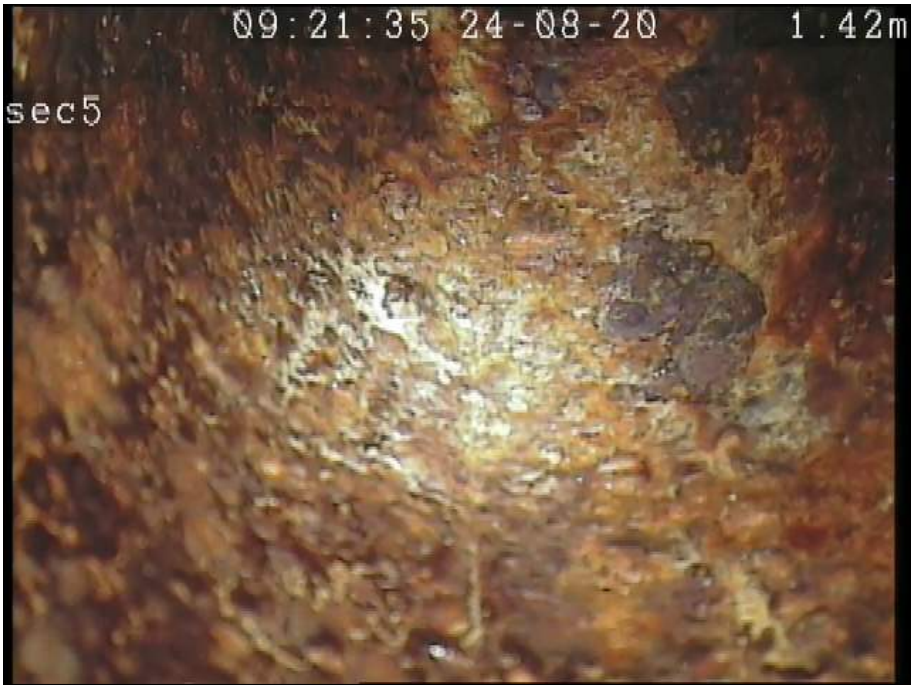

Photo: 6_6_27_A.jpg
1.4m, Material changes, cast iron

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Inspection pictures

Place :	Road :	Date :	Section number :	PLR Suffix :
Worthing	**Salvington Rd**	**24/08/2020**	**5**	**rear access**



Photo: 6_6_28_A.jpg
1.5m, Finish node type, manhole reference number: A

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Inspection report

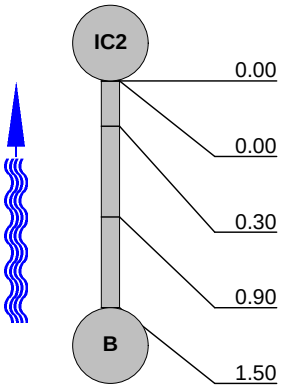
Date :	Job number :	Weather :	Operator :	Section number :	PLR SUFFIX:
24/08/2020		**no rain or snow**	**Jason**	**6**	**X**
Weather	Vehicle :	Camera :	Preset :	Cleaned :	Operator :
no rain or snow				**yes**	**Jason**

Place :	**Worthing**	Location details:		U/S MH :	**B**
Road :	**Salvington Rd**	Catchment:		U/S Depth :	
Location	**Property with buildings**	Tape number :		D/S MH :	**IC2**
Inspection	**IC2 (U/S) B**	Pipe Length		D/S Depth :	

Use:	**Combined**	Pipe shape :	**Circular**
Year laid :	**1920**	Pipe size :	**100 mm**
Purpose :	**Sample survey to determine asset condition**	Pipe material :	**Vitrified clay**
Total length :	**1.50 m**	Lining :	**Vitrified clay**

Comment : **redundant section**

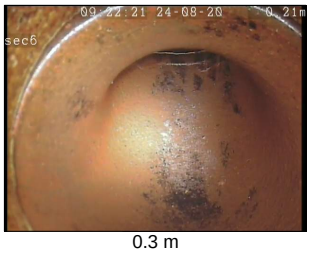
1:50 **Position** **Observation**



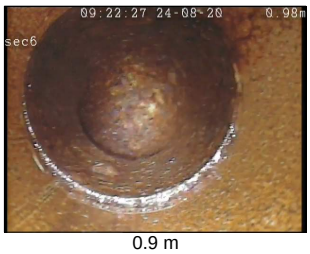
Position	Observation
0.00	Start node type, manhole, reference number : IC2
0.00	Water level, 0% of the vertical dimension
0.30	Line deviates up
0.90	Material changes, cast iron
1.50	Finish node type, manhole reference number: B



0 m



0.3 m



0.9 m



1.5 m

STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
0	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**

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Inspection pictures

Place :	Road :	Date :	Section number :	PLR Suffix :
Worthing	**Salvington Rd**	**24/08/2020**	**6**	**X**



Photo: 7_7_30_A.jpg
0m, Water level, 0% of the vertical dimension



Photo: 7_7_31_A.jpg
0.3m, Line deviates up

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Inspection pictures

Place :	Road :	Date :	Section number :	PLR Suffix :
Worthing	**Salvington Rd**	**24/08/2020**	**6**	**X**



Photo: 7_7_32_A.jpg
0.9m, Material changes, cast iron

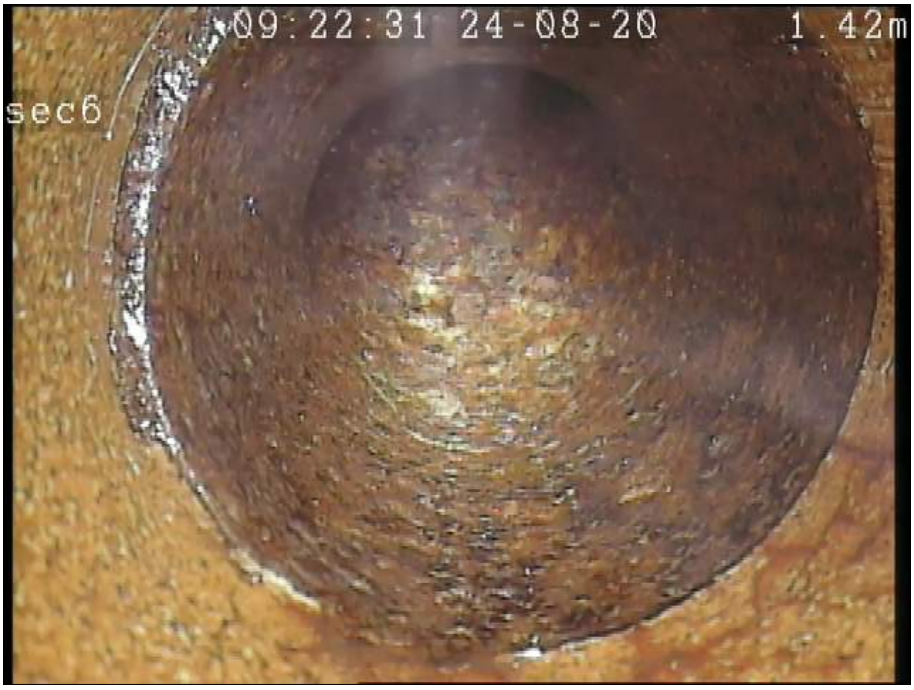

Photo: 7_7_33_A.jpg
1.5m, Finish node type, manhole reference number: B

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Inspection report

Date :	Job number :	Weather :	Operator :	Section number :	PLR SUFFIX:
24/08/2020		**no rain or snow**	**Jason**	**7**	**driveway**
Weather	Vehicle :	Camera :	Preset :	Cleaned :	Operator :
no rain or snow				**yes**	**Jason**

Place :	**Worthing**	Location details:		U/S MH :	**IC2**
Road :	**Salvington Rd**	Catchment:		U/S Depth :	
Location	**Property with buildings**	Tape number :		D/S MH :	**IC3**
Inspection	**IC3 (U/S) IC2**	Pipe Length		D/S Depth :	

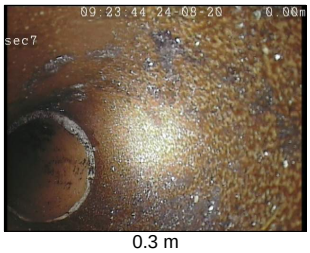
Use:	**Combined**	Pipe shape :	**Circular**
Year laid :	**1920**	Pipe size :	**100 mm**
Purpose :	**Sample survey to determine asset condition**	Pipe material :	**Vitrified clay**
Total length :	**1.80 m**	Lining :	**Vitrified clay**

Comment :

1:50	Position	Observation
IC3	0.00	Start node type, manhole, reference number : IC3
	0.00	Water level, 0% of the vertical dimension
	0.30	Line deviates left
	1.80	Attached deposits, other at joint, from 12 to 12 o'clock, 30% cross-sectional area loss
	1.80	Survey abandoned



0 m



0.3 m



1.8 m



1.8 m

STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
0	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**

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Inspection pictures

Place :	Road :	Date :	Section number :	PLR Suffix :
Worthing	**Salvington Rd**	**24/08/2020**	**7**	**driveway**



Photo: 8_8_34_A.jpg
0m, Start node type, manhole, reference number : IC3



Photo: 8_8_36_A.jpg
0.3m, Line deviates left

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Inspection pictures

Place :	Road :	Date :	Section number :	PLR Suffix :
Worthing	**Salvington Rd**	**24/08/2020**	**7**	**driveway**



Photo: 8_8_37_A.jpg
1.8m, Attached deposits, other at joint, from 12 to 12 o'clock, 30% cross-sectional area loss



Photo: 8_8_38_A.jpg
1.8m, Survey abandoned

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Inspection report

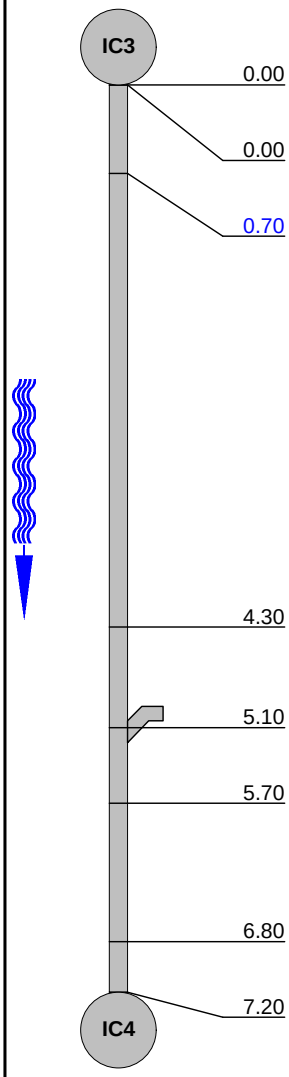
Date :	Job number :	Weather :	Operator :	Section number :	PLR SUFFIX:
24/08/2020		**no rain or snow**	**Jason**	**8**	**Driveway**
Weather	Vehicle :	Camera :	Preset :	Cleaned :	Operator :
no rain or snow				**yes**	**Jason**

Place :	**Worthing**	Location details:		U/S MH :	**IC3**
Road :	**Salvington Rd**	Catchment:		U/S Depth :	
Location	**Property with buildings**	Tape number :		D/S MH :	**IC4**
Inspection	**IC3 (D/S) IC4**	Pipe Length		D/S Depth :	

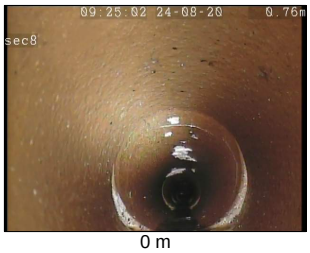
Use:	**Combined**	Pipe shape :	**Circular**
Year laid :	**1920**	Pipe size :	**100 mm**
Purpose :	**Sample survey to determine asset condition**	Pipe material :	**Vitrified clay**
Total length :	**7.20 m**	Lining :	**Vitrified clay**

Comment : **Southern Water sewer**

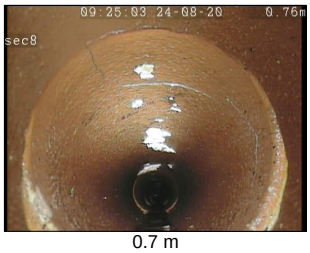
1:60 **Position** **Observation**



Position	Observation
0.00	Start node type, manhole, reference number : IC3
0.00	Water level, 0% of the vertical dimension
0.70	Crack, circumferential, from 12 to 12 o'clock
4.30	Water level, 25% of the vertical dimension
5.10	Junction, at 9 o'clock, diameter 100mm
5.70	Water level, 50% of the vertical dimension
6.80	Water level, 0% of the vertical dimension
7.20	Finish node type, manhole reference number: IC4



0 m



0.7 m



4.3 m



5.1 m



5.7 m

STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
1	**10**	**1.39**	**10**	**2**	**0**	**0**	**0**	**0**	**1**

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Inspection pictures

Place :	Road :	Date :	Section number :	PLR Suffix :
Worthing	**Salvington Rd**	**24/08/2020**	**8**	**Driveway**

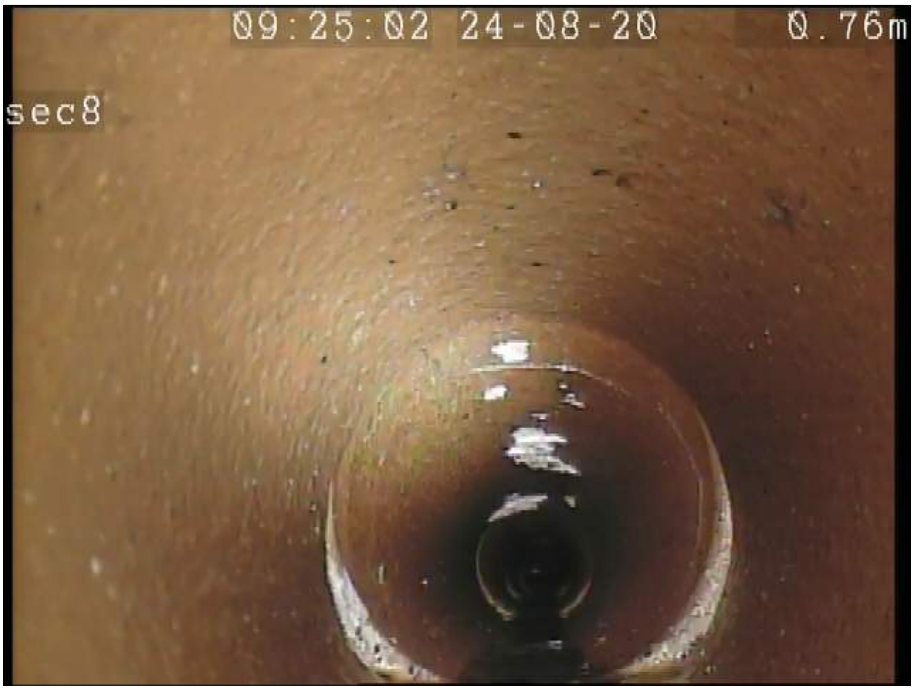

Photo: 9_9_40_A.jpg
0m, Water level, 0% of the vertical dimension

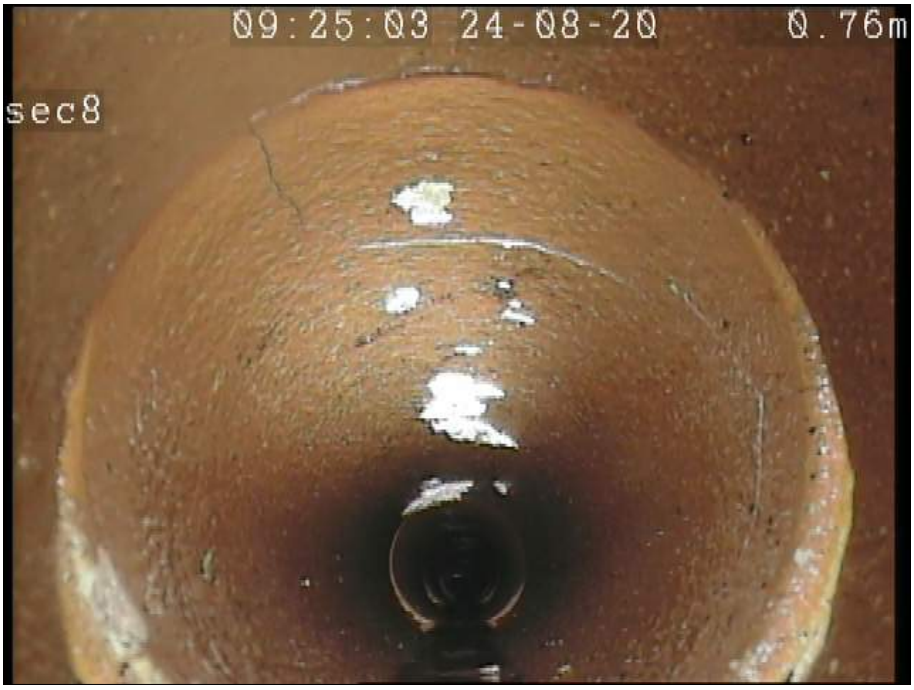

Photo: 9_9_41_A.jpg
0.7m, Crack, circumferential, from 12 to 12 o'clock

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Inspection pictures

Place :	Road :	Date :	Section number :	PLR Suffix :
Worthing	**Salvington Rd**	**24/08/2020**	**8**	**Driveway**



Photo: 9_9_42_A.jpg
4.3m, Water level, 25% of the vertical dimension



Photo: 9_9_43_A.jpg
5.1m, Junction, at 9 o'clock, diameter 100mm

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Inspection pictures

Place :	Road :	Date :	Section number :	PLR Suffix :
Worthing	**Salvington Rd**	**24/08/2020**	**8**	**Driveway**



Photo: 9_9_44_A.jpg
5.7m, Water level, 50% of the vertical dimension

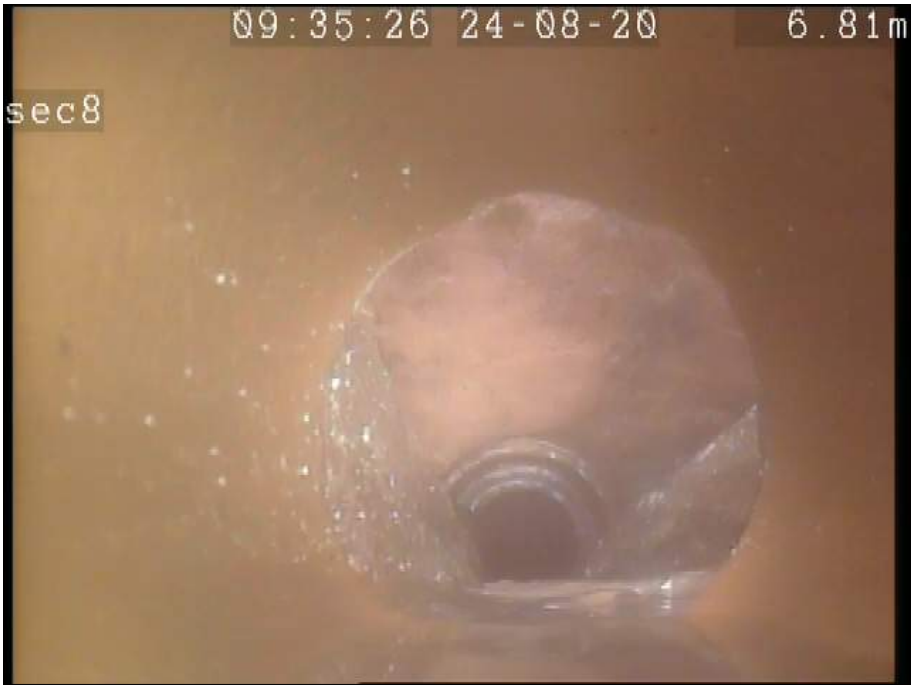

Photo: 9_9_45_A.jpg
6.8m, Water level, 0% of the vertical dimension

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Inspection pictures

Place :	Road :	Date :	Section number :	PLR Suffix :
Worthing	**Salvington Rd**	**24/08/2020**	**8**	**Driveway**



Photo: 9_9_46_A.jpg
7.2m, Finish node type, manhole reference number: IC4

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Inspection report

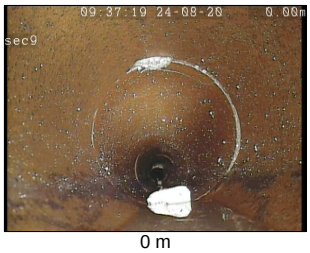
Date :	Job number :	Weather :	Operator :	Section number :	PLR SUFFIX:
24/08/2020		**no rain or snow**	**Jason**	**9**	**Driveway**
Weather	Vehicle :	Camera :	Preset :	Cleaned :	Operator :
no rain or snow				**yes**	**Jason**

Place :	**Worthing**	Location details:		U/S MH :	**IC4**
Road :	**Salvington Rd**	Catchment:		U/S Depth :	
Location	**Property with buildings**	Tape number :		D/S MH :	**IC5**
Inspection	**IC4 (D/S) IC5**	Pipe Length		D/S Depth :	

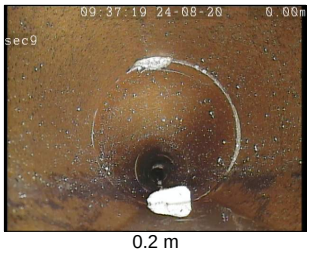
Use:	**Combined**	Pipe shape :	**Circular**
Year laid :	**1920**	Pipe size :	**150 mm**
Purpose :	**Sample survey to determine asset condition**	Pipe material :	**Vitrified clay**
Total length :	**11.30 m**	Lining :	**Vitrified clay**

Comment :

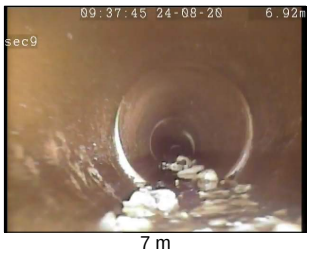
1:90	Position	Observation
IC4	0.00	Start node type, manhole, reference number : IC4
	0.00	Water level, 10% of the vertical dimension
	0.20	Crack, circumferential at joint, from 10 to 2 o'clock
	7.00	Settled deposits, coarse, 20% cross-sectional area loss
	7.90	Connection other than junction, at 3 o'clock, diameter 100mm
IC5	11.30	Finish node type, manhole reference number: IC5



0 m



0.2 m



7 m



7.9 m



11.3 m

STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
0	**0**	**0**	**0**	**1**	**1**	**5**	**0.44**	**5**	**4**

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Inspection pictures

Place :	Road :	Date :	Section number :	PLR Suffix :
Worthing	**Salvington Rd**	**24/08/2020**	**9**	**Driveway**



Photo: 10_10_48_A.jpg
0m, Water level, 10% of the vertical dimension



Photo: 10_10_49_A.jpg
0.2m, Crack, circumferential at joint, from 10 to 2 o'clock

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Inspection pictures

Place :	Road :	Date :	Section number :	PLR Suffix :
Worthing	**Salvington Rd**	**24/08/2020**	**9**	**Driveway**



Photo: 10_10_50_A.jpg
7m, Settled deposits, coarse, 20% cross-sectional area loss



Photo: 10_10_51_A.jpg
7.9m, Connection other than junction, at 3 o'clock, diameter 100mm

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Inspection pictures

Place :	Road :	Date :	Section number :	PLR Suffix :
Worthing	**Salvington Rd**	**24/08/2020**	**9**	**Driveway**



Photo: 10_10_52_A.jpg
11.3m, Finish node type, manhole reference number: IC5

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Inspection report

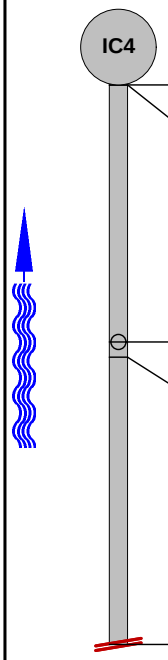
Date :	Job number :	Weather :	Operator :	Section number :	PLR SUFFIX:
24/08/2020		**no rain or snow**	**Jason**	**10**	**Driveway**
Weather	Vehicle :	Camera :	Preset :	Cleaned :	Operator :
no rain or snow				**yes**	**Jason**

Place :	**Worthing**	Location details:		U/S MH :	**A**
Road :	**Salvington Rd**	Catchment:		U/S Depth :	
Location	**Property with buildings**	Tape number :		D/S MH :	**IC4**
Inspection	**IC4 (U/S) A**	Pipe Length		D/S Depth :	

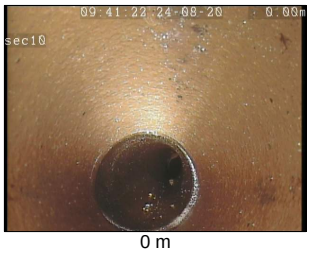
Use:	**Combined**	Pipe shape :	**Circular**
Year laid :	**1920**	Pipe size :	**100 mm**
Purpose :	**Sample survey to determine asset condition**	Pipe material :	**Vitrified clay**
Total length :	**3.70 m**	Lining :	**Vitrified clay**

Comment :

1:50 **Position** **Observation**



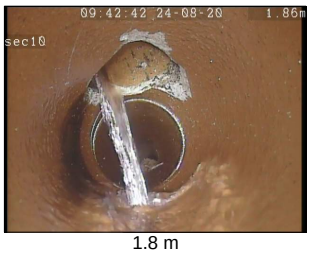
Position	Observation
0.00	Start node type, manhole, reference number : IC4
0.00	Water level, 0% of the vertical dimension
1.70	Connection defective, connecting pipe is damaged, at 12 o'clock, diameter 100mm
1.80	General photograph taken at this point
3.70	Survey abandoned



0 m



1.7 m



1.8 m



3.7 m

STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
0	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**

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Inspection pictures

Place :	Road :	Date :	Section number :	PLR Suffix :
Worthing	**Salvington Rd**	**24/08/2020**	**10**	**Driveway**



Photo: 11_11_54_A.jpg
0m, Water level, 0% of the vertical dimension



Photo: 11_11_56_A.jpg
1.7m, Connection defective, connecting pipe is damaged, at 12 o'clock, diameter 100mm

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Inspection pictures

Place :	Road :	Date :	Section number :	PLR Suffix :
Worthing	**Salvington Rd**	**24/08/2020**	**10**	**Driveway**



Photo: 11_11_57_A.jpg
1.8m, General photograph taken at this point



Photo: 11_11_58_A.jpg
3.7m, Survey abandoned

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Inspection report

Date :	Job number :	Weather :	Operator :	Section number :	PLR SUFFIX:
24/08/2020		**no rain or snow**	**Jason**	**11**	**driveway**
Weather	Vehicle :	Camera :	Preset :	Cleaned :	Operator :
no rain or snow				**yes**	**Jason**

Place :	**Worthing**	Location details:		U/S MH :	**IC5**
Road :	**Salvington Rd**	Catchment:		U/S Depth :	
Location	**Property with buildings**	Tape number :		D/S MH :	**Main sewer**
Inspection	**IC5 (D/S) Main sewer**	Pipe Length		D/S Depth :	

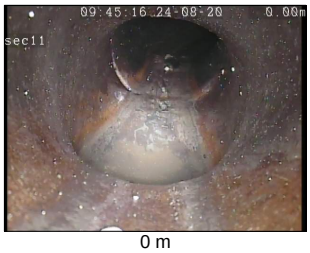
Use:	**Combined**	Pipe shape :	**Circular**
Year laid :	**1920**	Pipe size :	**150 mm**
Purpose :	**Sample survey to determine asset condition**	Pipe material :	**Vitrified clay**
Total length :	**8.50 m**	Lining :	**Vitrified clay**

Comment :

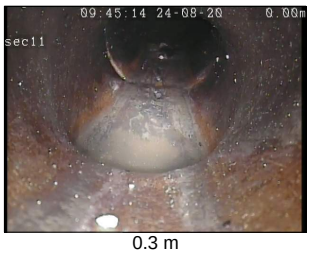
1:75	Position	Observation
IC5	0.00	Start node type, manhole, reference number : IC5
	0.00	Water level, 0% of the vertical dimension
	0.30	General remark
	1.20	Line deviates right
	6.80	Hole in drain/sewer, from 12 to 4 o'clock
	8.50	Finish node type, manhole reference number: Main sewer
Main sewer		



0 m



0 m



0.3 m



1.2 m



6.8 m

STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
1	**165**	**19.41**	**165**	**5**	**0**	**0**	**0**	**0**	**1**

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Inspection pictures

Place :	Road :	Date :	Section number :	PLR Suffix :
Worthing	**Salvington Rd**	**24/08/2020**	**11**	**driveway**



Photo: 12_12_59_A.jpg
0m, Start node type, manhole, reference number : IC5



Photo: 12_12_60_A.jpg
0m, Water level, 0% of the vertical dimension

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Inspection pictures

Place :	Road :	Date :	Section number :	PLR Suffix :
Worthing	**Salvington Rd**	**24/08/2020**	**11**	**driveway**



Photo: 12_12_61_A.jpg
0.3m, General remark



Photo: 12_12_64_A.jpg
1.2m, Line deviates right

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Inspection pictures

Place :	Road :	Date :	Section number :	PLR Suffix :
Worthing	**Salvington Rd**	**24/08/2020**	**11**	**driveway**



Photo: 12_12_63_A.jpg
6.8m, Hole in drain/sewer, from 12 to 4 o'clock



Photo: 12_12_62_A.jpg
8.5m, Finish node type, manhole reference number: Main sewer

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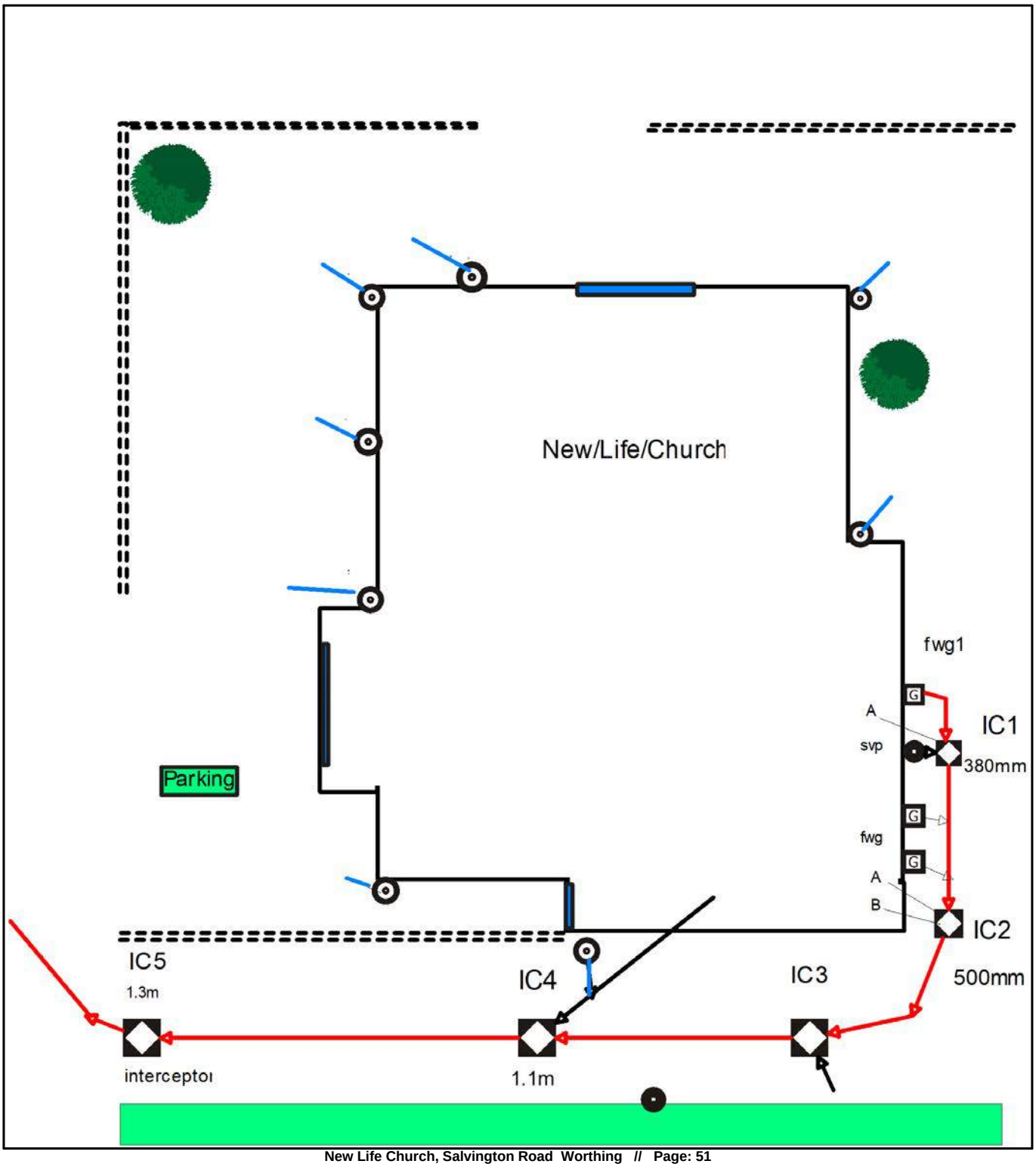
Date:	Job # :	Weather : **no rain or snow**	Operator : **Jason**	Section # : **11**	Section name :
Present :	Vehicle :	Camera :	Preset :	Cleaned : **yes**	Rate :

Street 1 : **Salvington Rd**	City : **Worthing**	Section type :
Street 2 :	Map # 1 :	Map # 2 :
VCR # :	Media # :	US MH : **IC5**
DS MH : **Main sewer**	Section length : **8.50 m**	Joint length :
Remark :		



Report Information

This page can be edited to contain any information you feel is necessary.

A disclaimer.

Any terms and conditions

Appendix 2 – Design Drawings

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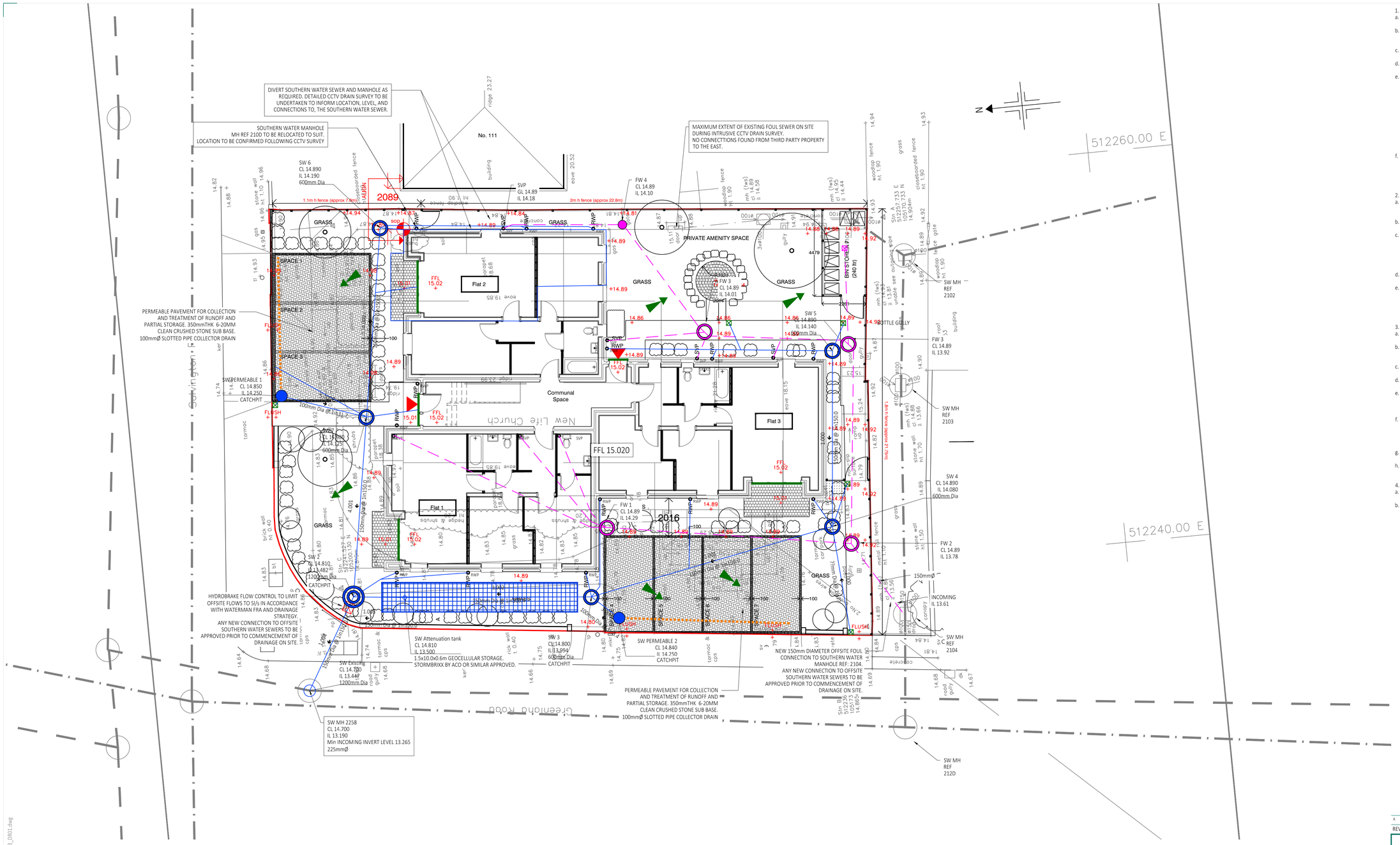
Commercial In Confidence



1. GENERAL
a. THIS DRAWING IS NOT TO BE SCALED, WORK TO FIGURED DIMENSIONS ONLY, CONFIRMED ON SITE.
b. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTURAL DRAWINGS, DETAILED SPECIFICATIONS WHERE APPLICABLE AND ALL ASSOCIATED DRAWINGS IN THIS SERIES.
c. ANY DISCREPANCY ON THIS DRAWING IS TO BE REPORTED IMMEDIATELY TO THE PARTNERSHIP FOR CLARIFICATION.
d. THE CONTRACTOR IS RESPONSIBLE FOR ALL TEMPORARY WORKS AND FOR THE STABILITY OF THE WORKS IN PROGRESS.
e. CDM REGULATIONS 2015. ALL CURRENT DRAWINGS AND SPECIFICATIONS MUST BE READ IN CONJUNCTION WITH THE DESIGNER'S HAZARD RISK AND ENVIRONMENT ASSESSMENT RECORD. DESIGN HAS BEEN PRODUCED BASED ON INFORMATION PROVIDED BY THE CLIENT/PRINCIPLE DESIGNER AVAILABLE AT TIME OF ISSUE. CONTRACTOR TO REVIEW DRAWING AND SPECIFICATION IN CONTEXT WITH THE WIDER SITE AND SPECIFIC SITE INVESTIGATION, CONTAMINATION ASSESSMENT, ASBESTOS SURVEY, ENVIRONMENTAL SURVEY, UXO SURVEY AND ANY OTHER RELEVANT INFORMATION AND MANAGE RISKS RELATING TO THE WORKS OUTLINED IN THE DRAWINGS AND SPECIFICATION. PRINCIPLE CONTRACTOR TO MAKE DESIGNER AND CLIENT AWARE OF SITE SPECIFIC RISKS THAT MAY AFFECT THE DRAWING AND SPECIFICATION.
f. CDM REGULATIONS 2015. FOR GENERIC MAINTENANCE AND MANAGEMENT RISKS REFER TO CHAPTER 36 OF CIRIA 752 SUDS MANUAL. FOR PROPRIETARY SYSTEMS SEE MANUFACTURER'S MANAGEMENT AND MAINTENANCE DETAILS AND RISK ASSESSMENT WITH REGARDS TO MAINTENANCE OF PROPRIETARY SYSTEMS.

2. CONSTRUCTION NOTE
a. THE MAIN CONTRACTOR IS RESPONSIBLE FOR THE DESIGN OF ALL TEMPORARY WORKS, AND IS ALSO RESPONSIBLE FOR THE SAFE MAINTENANCE AND STABILITY OF EXISTING BUILDINGS AT ALL TIMES.
b. THE MAIN CONTRACTOR IS RESPONSIBLE FOR ALL OCCURRENCES OF GROUND WATER DURING THE CONSTRUCTION PERIOD.
c. ANY INFORMATION GIVEN REGARDING EXISTING UNDERGROUND SERVICES IS GIVEN IN GOOD FAITH AFTER CONSULTATION WITH THE RELEVANT AUTHORITY, HOWEVER ACCURACY IS NOT CERTAIN. THE MAIN CONTRACTOR IS RESPONSIBLE FOR CHECKING ALL INFORMATION ON SITE PRIOR TO WORK COMMENCING AND TAKING DUE CARE AND ATTENTION WHILST UNDERTAKING THE WORKS.
d. THE CONTRACTOR MUST COMPLY WITH ALL CURRENT LEGISLATION RELATING TO HEALTH & SAFETY.
e. ALL PRODUCTS SPECIFIED SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS AND INSTRUCTIONS. IF THERE ARE DISCREPANCIES BETWEEN THAT INFORMATION AND THE DETAILS ON ANY AMBIENTAL DRAWINGS, THE MANUFACTURERS INSTRUCTIONS MUST BE USED

3. BELOW GROUND DRAINAGE
a. PIPEWORK TO BE UPVC-U PIPES TO BS 4660 : 2000 AND INSPECTION CHAMBERS TO BS 7158 : 2001.
b. ALL ADOPTABLE DRAINAGE TO BE CONSTRUCTED IN ACCORDANCE WITH 'SEWERS FOR ADOPTION' 7TH EDITION AND THE RELEVANT COUNCIL DESIGN GUIDE.
c. ALL PRIVATE SURFACE WATER SEWERS TO BE LAID AT 1 IN 80 UNLESS OTHERWISE STATED ON THE DRAWING.
d. ALL PRIVATE FOUL WATER SEWERS TO BE LAID AT 1 IN 40 AT THE HEAD OF PIPE RUNS AND 1 IN 80 ELSEWHERE UNLESS OTHERWISE STATED.
e. ALL PRIVATE FOUL SEWER PIPES TO BE 100MM DIAMETER UNLESS OTHERWISE STATED ON THE DRAWING. ALL PRIVATE SURFACE WATER SEWER PIPES TO BE 100MM DIAMETER FROM DOWNPIPES AND 150MM DIAMETER ELSEWHERE UNLESS OTHERWISE STATED ON THE DRAWING.
f. ALLOW FOR RODDING ACCESS ABOVE GROUND WHERE RAINWATER DOWNPIPES DO NOT HAVE A DIRECT CONNECTION TO AN INSPECTION CHAMBER. EXISTING SEWER PIPE TO BE RE-USED TO BE SURVEYED AND LEVELLED PRIOR TO COMMENCEMENT OF THE DRAINAGE WORKS AND REFURBISHED IF NECESSARY.
g. CONNECTIONS TO AN ADOPTED SEWER ONLY TO BE MADE FOLLOWING APPROVAL FROM THE RELEVANT ADOPTING AUTHORITY.
h. ALL DRAINS, SEWER PIPES AND MANHOLES TO BE CLEANED AND TESTED FOR WATER TIGHTNESS ON COMPLETION OF CONSTRUCTION.

4. MANHOLE COVERS AND FRAMES
a. MANHOLE COVERS TO BE CLASS D400 IN HIGHWAYS, CLASS B125 IN FOOTWAYS AND VERGES, CLASS A15 IN NON-TRAFFICKED AREAS.
b. MANHOLE COVER AND FRAME TO BE BEDDED AND SURROUNDED IN 1:3 MORTAR.

LEGEND

- PRIVATE SURFACE WATER DRAIN
- PERFORATED SURFACE WATER DRAIN
- EXISTING SURFACE WATER DRAIN
- PUBLIC SURFACE WATER DRAIN
- THRESHOLD DRAIN
- SLOT/CHANNEL DRAIN
- TYPE 2 MANHOLE
- TYPE 3 INSPECTION CHAMBER
- TYPE 4 INSPECTION CHAMBER SILT TRAP
- RE RODDING EYE
- RWP RAIN WATER PIPE
- BOTTLE GULLY
- PERMEABLE PAVING
- ATTENUATION SYSTEM
- EXCEEDANCE FLOW ROUTE

LEGEND

- PRIVATE FOUL WATER DRAIN
- EXISTING FOUL WATER DRAIN
- PUBLIC FOUL WATER SEWER
- TYPE 2 MANHOLE
- TYPE 3 INSPECTION CHAMBER
- TYPE 4 INSPECTION CHAMBER
- SVP SOIL & VENT PIPE
- BIN STORE BOTTLE GULLY

DESIGN PHILOSOPHY

Design based on Waterman Flood Risk Assessment and Drainage Strategy Report Document Reference: WIE13316-101-R-1-1-4-FRA.

Offsite flows limited to 5l/s as outlined in Waterman report

As outlined in Waterman report all offsite flow rates and connection locations to be approved by Southern Water prior to commencement on site.

Any new connection to, or diversion of, Southern Water sewers to be approved by Southern Water prior to commencement on site.

CCTV drain survey of existing Southern Water sewer to be undertaken to inform diversion prior to commencement on site.

Given the likelihood for high groundwater as outlined in the Waterman report the permeable paving sub base and geocellular crate to be lined to prevent ingress of groundwater.

Storage on site to be provided in part by the permeable paving sub base and geocellular storage.

storage design to accommodate rainfall events up to, and including, the 1in100yr+40% rainfall event.

Drawing to be read in conjunction with supporting drainage network calculations.

REV	DATE	BY	CKD	APP	DESCRIPTION
A	08/09/2020	--	--	--	DRAINAGE UPDATED TO SUIT CCTV INFORMATION

PRELIMINARY DRAWING
FOR INFORMATION ONLY. NOT FOR CONSTRUCTION.

Client
NLC Durrington Ltd

AMBIENTAL ENVIRONMENTAL ASSESSMENT
a company of Royal HaskoningDHV

Project
NEW LIFE CHURCH
SALVINGTON ROAD, WORTHING

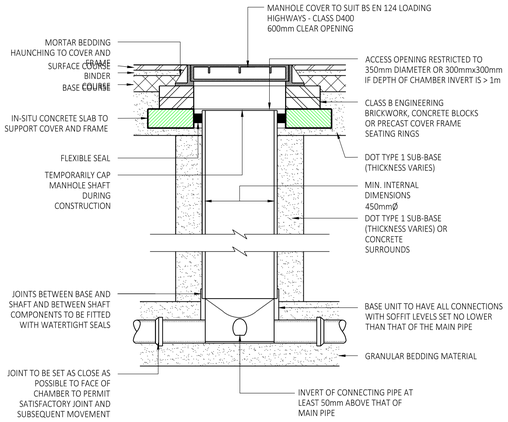
Drawing
SITE LAYOUT
FOUL AND STORM DRAINAGE

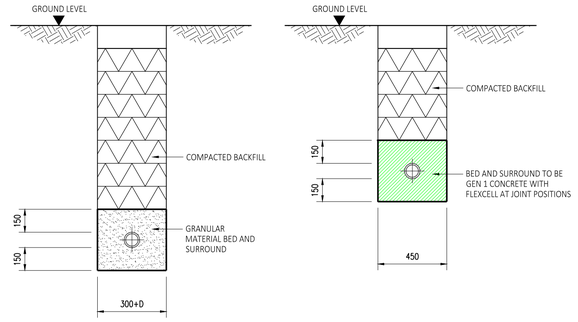
Drawn by: MN Date: AUG 2020

Drawing No. 5303 - DR01 Revision A

Drawing Scale: 1:100 @ A1
0 1m 2m 3m 4m 5m

Drawing No: C:\Users\305223\Box\WAT-DW-AEA General\PROJECTS\5303_Richardson_Durrington\Plans\Amb\5303_DR01.dwg





GRANULAR BEDDING DETAIL.

(WHERE COVER IS <600mm)

(1:20)

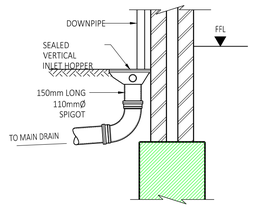
CONCRETE BEDDING DETAIL.

(WHERE COVER IS <600mm)

(1:20)

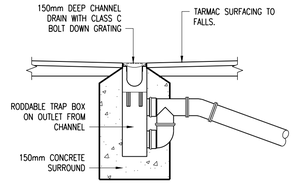
NOTE

ALL BACKFILLING AND REINSTATEMENT WITHIN ROADS AND STREETS TO BE IN ACCORDANCE WITH THE HIGHWAY AUTHORITY AND HAUC SPECIFICATION.



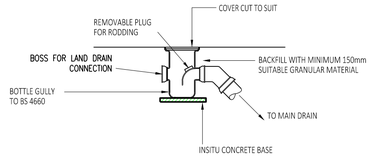
RWP CONNECTION.

(1:20)



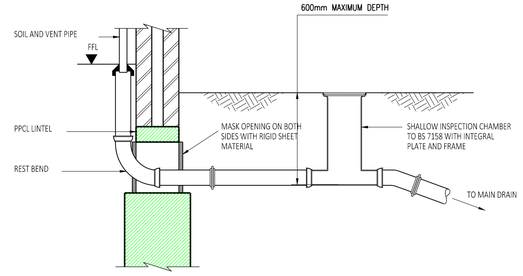
CHANNEL DRAIN

(1:20)



BOTTLE GULLY CONNECTION.

(1:20)

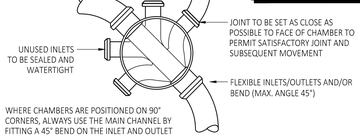


FOUL CONNECTION TO MAIN DRAINAGE.

(1:20)

ALTERNATIVE BASE INVERT LAYOUTS
ALL CONNECTIONS TO BE MIN. SOFFIT TO SOFFIT

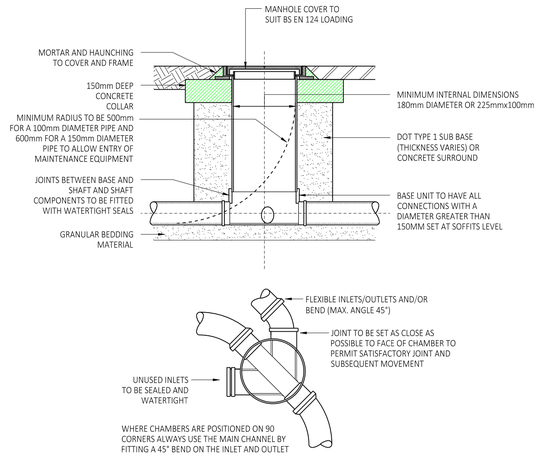
TABLE 1	
NOMINAL DIAMETER (mm)	EFFECTIVE LENGTH OF ROCKER PIPE (m)
150 TO 600	0.6
>600 TO 750	1.0
>750	1.2



TYPE 3 ACCESS CHAMBER - FLEXIBLE MATERIAL.

(SUBJECT TO VEHICLE LOADING, MAX. DEPTH 3m, NON-ENTRY)

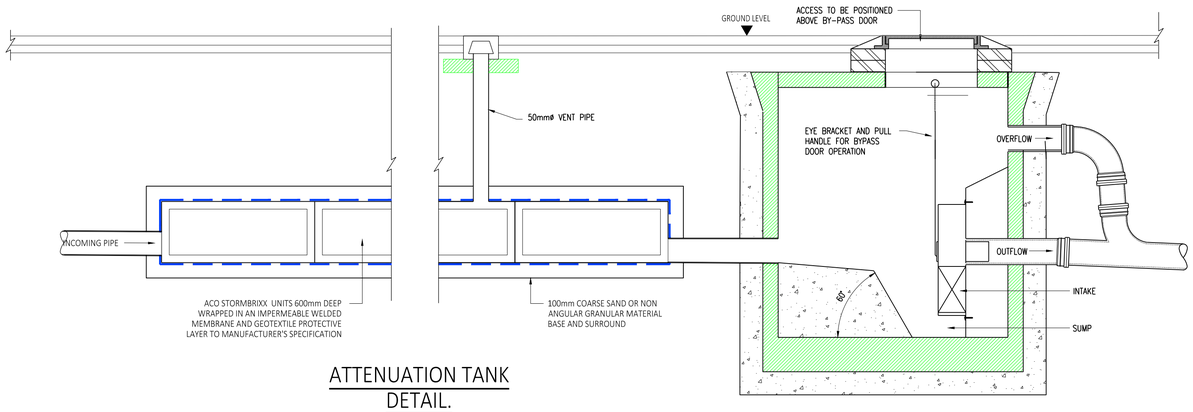
(1:20)



TYPE 4 ACCESS CHAMBER - FLEXIBLE MATERIAL SURFACED AREA.

(SUBJECT TO LIGHT TRAFFIC LOADS, MAX. DEPTH 2m, NON-ENTRY)

(1:20)

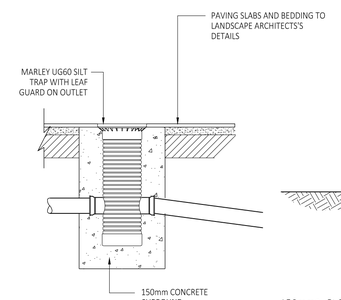


ATTENUATION TANK DETAIL.

(1:20)

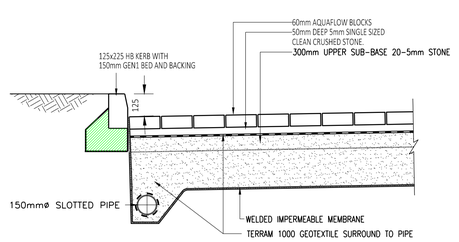
HYDROBRAKE MANHOLE.

(1:20)



MARLEY WATERLOC TYPE UG60 SILT TRAP

(1:20)



SECTION A-A

(1:20)

1. GENERAL

(i) WORK TO FIGURED DIMENSIONS ONLY.
(ii) THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTURAL DRAWINGS, DETAILED SPECIFICATIONS WHERE APPLICABLE AND ALL ASSOCIATED DRAWINGS IN THIS SERIES.
(iii) ANY DISCREPANCY ON THIS DRAWING IS TO BE REPORTED IMMEDIATELY TO THE PARTNERSHIP FOR CLARIFICATION.
(iv) THE CONTRACTOR IS RESPONSIBLE FOR ALL TEMPORARY WORKS AND FOR THE STABILITY OF THE WORKS IN PROGRESS.

2. DRAINAGE GENERAL

(i) ALL FOUL AND STORM WATER DRAINS WHICH ARE NOT TO BE ADOPTED AS PUBLIC SEWERS UNDER A SECTION 104 AGREEMENT MUST BE CONSTRUCTED IN ACCORDANCE WITH THE BUILDING REGULATIONS, BS EN 752 AND WHERE APPROPRIATE THE RELEVANT AGREEMENT CERTIFICATES.
(ii) MANHOLES, GULLIES, GULLY CONNECTIONS, SEWERS AND OTHER SEWERAGE STRUCTURES INTENDED TO CONVEY SURFACE WATER ARE TO BE CONSTRUCTED IN ACCORDANCE WITH THE WATER AUTHORITIES ASSOCIATION SPECIFICATION 'SEWERS FOR ADOPTION' 6TH EDITION AND RELEVANT COUNCIL DESIGN GUIDE.
(iii) ALL CONCRETE USED IN DRAINAGE WORKS TO COMPLY WITH BRE DIGEST 363 FOR CLASS 2 SULPHATE CONDITIONS.

3. MANHOLE COVERS AND FRAMES

(i) MANHOLE COVERS TO BE CLASS D400 IN HIGHWAYS, CLASS B125 IN FOOTWAYS AND VERGES, CLASS A15 IN NON-TRAFFICKED AREAS.
(ii) MANHOLE COVER AND FRAME TO BE BEDDED AND SURROUNDED IN 1:3 MORTAR.

4. MANHOLE RINGS, COVER SLABS & TAPERS

(i) PRECAST CONCRETE MANHOLE UNITS SHALL COMPLY WITH THE REQUIREMENTS OF BS 5911. THE RELEVANT ABSORPTION TESTS REQUIRED SHALL BE CARRIED OUT ON A SAMPLE OF THOSE RINGS AND SLABS USED UNLESS A CERTIFICATE OF TESTING IS SUPPLIED BY THE MANUFACTURER. COVER SLABS SITUATED UNDER CARRIAGEWAYS OR TRAFFICKED AREAS SHALL BE HEAVY DUTY AND THOSE ELSEWHERE SHALL BE LIGHT DUTY. MANHOLE UNITS SHALL BE COMPLETE WITH STEP IRONS IF REQUIRED.

5. PIPES

(i) PLASTIC PIPES SHALL BE OF UNPLASTICISED POLYVINYL CHLORIDE (UPVC) COMPLYING WITH THE REQUIREMENTS OF BS EN 1401.
(ii) CONCRETE PIPES SHALL BE SPUN BY A CENTRIFUGAL PROCESS OR BE VERTICALLY PRESSED. THEY SHALL POSSESS SELF INVERTING SOCKETS AND SHALL COMPLY WITH WITH THE REQUIREMENTS OF AND BE TESTED IN ACCORDANCE WITH BS 5911.
(iii) SOLID WALL CONCENTRIC EXTERNAL RIB-REINFORCED UNPLASTICISED PVC PIPE SHALL COMPLY WITH ASTM A978.
(iv) ALL VITRIFIED CLAY PIPES TO BE IN ACCORDFANCE WITH BS EN 295.
(v) ALL PIPE CONNECTIONS TO MHS AND CATCH PITS TO HAVE MIN 600MM ROCKER PIPE AS CLOSE AS PRACTICABLE TO CHAMBER WALL.

6. GULLY GRATES & FRAMES

(i) GULLY GRATES AND FRAMES FOR CARRIAGEWAY GULLIES SHALL COMPLY WITH BS EN 142. GULLIES SHALL BE PATTERN GB4-325 FOR ROADS BELOW 50 DV AND PATTERN GA2-450 FOR ROADS ABOVE 50 DV. GULLY GRATES AND FRAMES FOR KERB SIDE GULLIES SHALL BE PATTERN GK-115 FOR ROADS BELOW 50 DV AND GK-165 FOR ROADS ABOVE 50 DV. CURVED BAR GULLY GRATES SHALL BE USED IN ROADS WHERE THE GRADIENT EXCEEDS 4%.

REV	DATE	BY	CKD	APP	DESCRIPTION
##	XX.XX.XX	--	--	--	--

PRELIMINARY DRAWING
FOR INFORMATION ONLY. NOT FOR CONSTRUCTION.

Client: NLC Durrington Ltd

AMBIENTAL ENVIRONMENTAL ASSESSMENT
a company of Royal HaskoningDHV

Project: NEW LIFE CHURCH
SALVINGTON ROAD, WORTHING

Drawing: DRAINAGE DETAILS

Drawn by: MN | Date: AUG 2020

Drawing No.: 5303 - DR02 | Revision: -

Drawing Scale: 1:100 @ A1
0 1m 2m 3m 4m 5m

Drawing No.: C:\Users\30522293\Box\WAT-DW-AEA General\PROJECTS\5303_Richardson_Durrington\Plans\Amb\5303_DR01.dwg

Appendix 3 – Network Calculations

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Design Settings

Rainfall Methodology	FEH-99	E (1km)	0.314	Connection Type	Level Soffits
Return Period (years)	100	F (1km)	2.381	Minimum Backdrop Height (m)	0.200
Additional Flow (%)	40	CV	0.750	Preferred Cover Depth (m)	0.600
C (1km)	-0.027	Time of Entry (mins)	4.00	Include Intermediate Ground	✓
D1 (1km)	0.403	Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	✓
D2 (1km)	0.327	Maximum Rainfall (mm/hr)	50.0		
D3 (1km)	0.351	Minimum Velocity (m/s)	1.00		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
7	0.011	4.00	14.980	600	1534.454	836.849	0.855
6	0.004	4.00	14.890	600	1535.151	846.516	0.700
5	0.009	4.00	14.890	600	1558.286	840.239	0.750
4	0.004	4.00	14.890	600	1558.286	831.262	0.810
3	0.009	4.00	14.800	600	1545.958	827.658	0.806
2	0.004	4.00	14.810	1200	1533.791	827.658	1.328
Existing			14.700	1200	1531.551	822.868	1.253
Attenuation tank			14.810		1536.417	827.626	1.310
PERMEABLE 2		4.00	14.840		1547.340	826.618	0.590
PERMEABLE 1		4.00	14.850		1530.514	837.289	0.600

Links (Input)

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.003	2	Existing	5.288	0.600	13.482	13.447	0.035	150.0	150	4.76	50.0
2.001	7	2	9.215	0.600	14.125	14.064	0.061	150.0	100	4.50	50.0
1.002	3	Attenuation tank	9.541	0.600	13.994	13.899	0.095	100.4	150	4.60	50.0
1.001	4	3	12.844	0.600	14.080	13.994	0.086	150.0	150	4.44	50.0
1.000	5	4	8.977	0.600	14.140	14.080	0.060	150.0	150	4.18	50.0
2.000	6	7	9.692	0.600	14.190	14.125	0.065	150.0	100	4.26	50.0
1.003_1	Attenuation tank	2	2.626	0.600	13.500	13.482	0.018	150.0	150	4.66	50.0

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Links (Input)

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
2.000_1	PERMEABLE 2	3	1.729	0.600	14.250	14.044	0.206	8.4	100	4.01	50.0
4.000	PERMEABLE 1	7	3.965	0.600	14.250	14.125	0.125	31.7	100	4.05	50.0

Simulation Settings

Rainfall Methodology	FEH-13	Analysis Speed	Normal	Additional Storage (m³/ha)	0.0
Summer CV	0.750	Skip Steady State	x	Check Discharge Rate(s)	x
Winter CV	0.840	Drain Down Time (mins)	1440	Check Discharge Volume	x

Storm Durations

15	30	60	120	180	240	360	480	600	720	960	1440

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)	Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
2	40	0	0	100	40	0	0
30	40	0	0				

Node 2 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Downstream Link	1.003	Sump Available	✓
Replaces Downstream Link	✓	Product Number	CTL-SHE-0103-5000-1200-5000
Invert Level (m)	13.482	Min Outlet Diameter (m)	0.150
Design Depth (m)	1.200	Min Node Diameter (mm)	1200
Design Flow (l/s)	5.0		

Node Attenuation tank Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	13.500
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Time to half empty (mins)	34

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Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	15.0	0.0	0.400	15.0	0.0	0.600	15.0	0.0	0.601	0.0	0.0

Node PERMEABLE 2 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.30	Width (m)	4.800	Depth (m)	0.300
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	14.390	Length (m)	9.600	Inf Depth (m)	
Safety Factor	2.0	Time to half empty (mins)	0	Slope (1:X)	1000.0		

Node PERMEABLE 1 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.30	Width (m)	4.800	Depth (m)	0.300
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	14.400	Length (m)	7.200	Inf Depth (m)	
Safety Factor	2.0	Time to half empty (mins)	0	Slope (1:X)	1000.0		

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Results for 2 year +40% CC Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	7	10	14.189	0.064	3.4	0.0181	0.0000	OK
15 minute winter	6	10	14.220	0.030	1.0	0.0086	0.0000	OK
15 minute winter	5	10	14.178	0.038	2.0	0.0108	0.0000	OK
15 minute summer	4	10	14.127	0.047	3.0	0.0133	0.0000	OK
15 minute summer	3	10	14.050	0.056	5.0	0.0157	0.0000	OK
15 minute winter	2	13	13.619	0.137	4.5	0.1551	0.0000	OK
15 minute summer	Existing	1	13.447	0.000	4.2	0.0000	0.0000	OK
15 minute winter	Attenuation tank	13	13.620	0.120	5.3	1.7057	0.0000	OK
15 minute summer	PERMEABLE 2	1	14.250	0.000	0.0	0.0000	0.0000	OK
15 minute summer	PERMEABLE 1	1	14.250	0.000	0.0	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	7	2.001	2	3.3	0.661	0.677	0.0464	
15 minute winter	6	2.000	7	1.0	0.274	0.203	0.0353	
15 minute winter	5	1.000	4	2.0	0.489	0.139	0.0369	
15 minute summer	4	1.001	3	3.0	0.564	0.208	0.0684	
15 minute summer	3	1.002	Attenuation tank	4.9	0.850	0.279	0.0556	
15 minute winter	2	Hydro-Brake®	Existing	4.3				4.0
15 minute winter	Attenuation tank	1.003_1	2	3.2	0.293	0.220	0.0420	
15 minute summer	PERMEABLE 2	2.000_1	3	0.0	0.000	0.000	0.0001	
15 minute summer	PERMEABLE 1	4.000	7	0.0	0.000	0.000	0.0104	

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Results for 30 year +40% CC Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	7	11	14.314	0.189	8.3	0.0536	0.0000	SURCHARGED
15 minute winter	6	11	14.330	0.140	2.6	0.0397	0.0000	SURCHARGED
15 minute winter	5	10	14.207	0.067	5.4	0.0190	0.0000	OK
15 minute summer	4	10	14.164	0.084	8.0	0.0237	0.0000	OK
15 minute winter	3	10	14.094	0.100	13.2	0.0284	0.0000	OK
30 minute winter	2	25	13.999	0.517	7.9	0.5848	0.0000	SURCHARGED
15 minute summer	Existing	1	13.447	0.000	5.0	0.0000	0.0000	OK
30 minute winter	Attenuation tank	26	14.000	0.500	11.9	7.1276	0.0000	SURCHARGED
15 minute summer	PERMEABLE 2	1	14.250	0.000	0.0	0.0000	0.0000	OK
15 minute winter	PERMEABLE 1	11	14.315	0.065	0.8	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	7	2.001	2	7.5	0.966	1.535	0.0695	
15 minute winter	6	2.000	7	2.2	0.302	0.451	0.0758	
15 minute winter	5	1.000	4	5.4	0.610	0.374	0.0795	
15 minute summer	4	1.001	3	8.0	0.707	0.554	0.1453	
15 minute winter	3	1.002	Attenuation tank	13.2	1.077	0.742	0.1165	
30 minute winter	2	Hydro-Brake®	Existing	5.0				13.9
30 minute winter	Attenuation tank	1.003_1	2	4.6	0.297	0.319	0.0462	
15 minute summer	PERMEABLE 2	2.000_1	3	0.0	0.000	0.000	0.0034	
15 minute winter	PERMEABLE 1	4.000	7	-0.8	-0.151	-0.074	0.0261	

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Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	7	11	14.403	0.278	10.2	0.0786	0.0000	SURCHARGED
15 minute winter	6	11	14.427	0.237	3.2	0.0670	0.0000	SURCHARGED
30 minute winter	5	28	14.307	0.167	5.3	0.0471	0.0000	SURCHARGED
30 minute winter	4	29	14.306	0.226	7.8	0.0640	0.0000	SURCHARGED
30 minute winter	3	29	14.305	0.311	12.8	0.0881	0.0000	SURCHARGED
30 minute winter	2	29	14.303	0.821	9.7	0.9284	0.0000	SURCHARGED
15 minute summer	Existing	1	13.447	0.000	5.0	0.0000	0.0000	OK
30 minute winter	Attenuation tank	29	14.304	0.804	16.2	8.5571	0.0000	SURCHARGED
30 minute winter	PERMEABLE 2	29	14.305	0.055	0.3	0.0000	0.0000	OK
15 minute winter	PERMEABLE 1	11	14.403	0.153	1.2	0.0055	0.0000	SURCHARGED

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	7	2.001	2	9.0	1.154	1.838	0.0709	
15 minute winter	6	2.000	7	2.6	0.337	0.537	0.0758	
30 minute winter	5	1.000	4	5.3	0.610	0.364	0.1580	
30 minute winter	4	1.001	3	7.7	0.700	0.531	0.2261	
30 minute winter	3	1.002	Attenuation tank	12.7	1.070	0.715	0.1680	
30 minute winter	2	Hydro-Brake®	Existing	5.0				17.8
30 minute winter	Attenuation tank	1.003_1	2	4.6	0.296	0.320	0.0462	
30 minute winter	PERMEABLE 2	2.000_1	3	0.3	0.071	0.016	0.0106	
15 minute winter	PERMEABLE 1	4.000	7	1.3	0.226	0.119	0.0310	

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