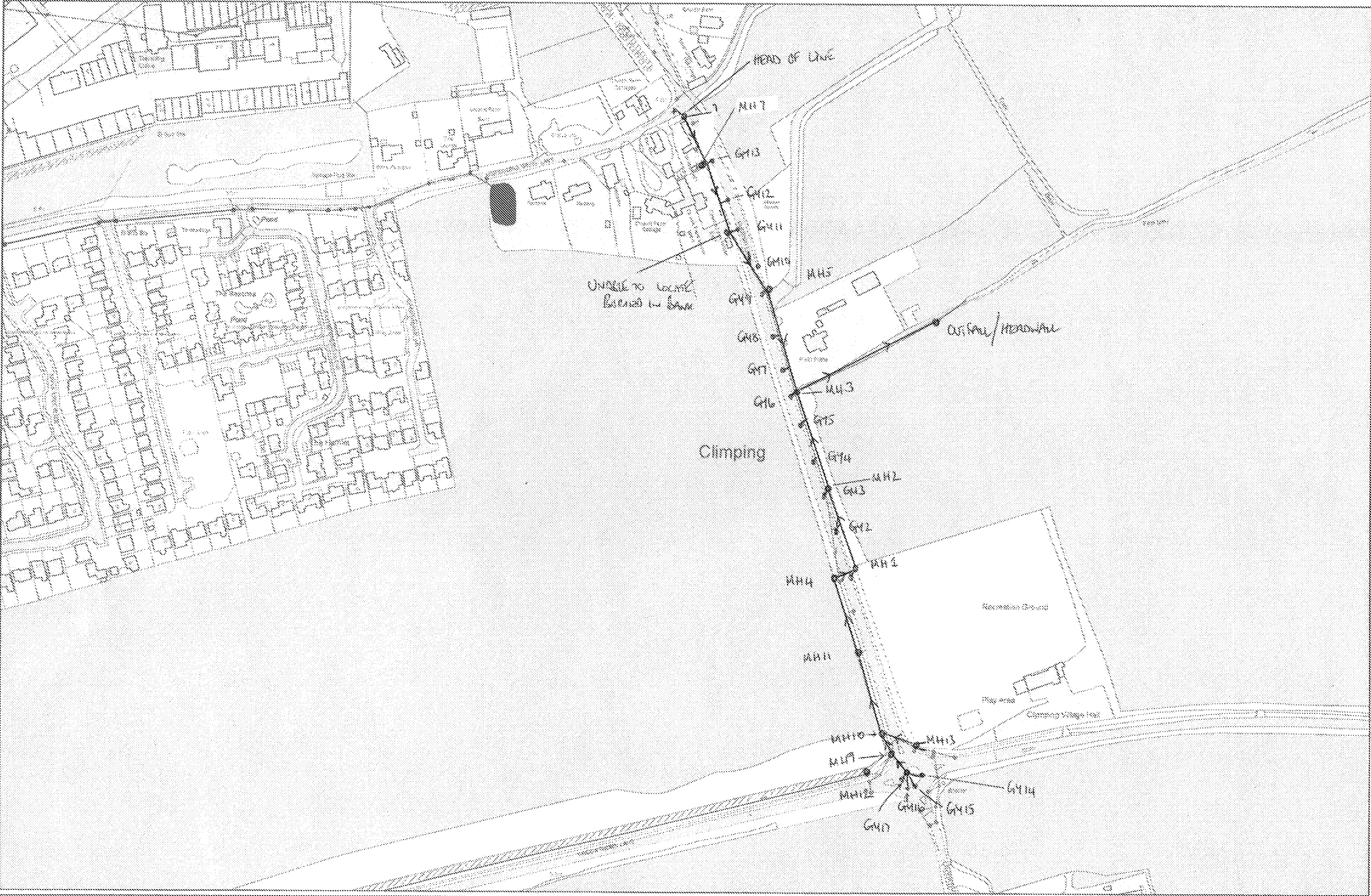


Appendix H Ultraflow Drainage Investigation Results

Arun District Council Maps





Project-information

Project name: Church Lane Investigation	Contract number: 163806AN	Contact: Katherine Richards	Date: 25/08/2020
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Client	Foreman Homes
Contact:	Katherine Richards
Position:	Planning Manager
Road	Unit 1 Station Industrial Park,Duncan Road
Town	Park Gate
County	Hampshire
Telephone:	
Fax:	
Mobile:	
E-Mail:	
Site	Church Lane
Contact:	Katherine Richards
Position:	Planning Manager
Road	Church Lane
Town	Climping
County	West Sussex
Telephone:	
Fax:	
Mobile:	
E-Mail:	
Contractor	Ultraflow Drainage Maintenance Solutions
Contact:	Phil Crowson
Position:	Sales Manager
Road	Unit 8 East Portway Ind Est
Town	Andover
County	Hampshire
Telephone:	01264 339900
Fax:	
Mobile:	07788 297214
E-Mail:	philip.crowson@ultraflowdrainage.com



Defect Grade Description

Project name: Church Lane Investigation	Contract number: 163806AN	Contact: Katherine Richards	Date: 25/08/2020
1:	Brick: No Structural Defects Pipe: No Structural Defects Acceptable Structural Condition		
2:	Brick: Minor cracking, Surface mortar loss, Spalling slight, wear slight Pipe: Circumfrential crack, Moderate joint defects, Spalling slight, Wear slight Minor collapse risk in short term but potential for further deterioration		
3:	Brick: Total mortarloss without other defects, single brick displaced, Deformation up to 5%, Spalling medium, Wear medium Pipe: Fractures with deformation up to 5%, Longitudinal cracking or multiple cracking, Minor loss of level, More severe joint defects, Spalling medium, Wear medium I Collapse unlikely in near future but future deterioration likely I		
4:	Brick: Total mortarloss with deformation greater than 10%, Deformation up to 10% and fractured, Displaced/hanging brickwork, Small number of missing bricks Pipe: Broken, Deformation up to 10% and broken, Fractured with deformation 5 - 10%, Multiple fractures, Serious loss of level, spalling large, wear large II Collapse likely in foreseeable future II		
5:	Brick: Already Collapsed, Missing invert, Deformation over 10% and fractured, Displaced/hanging brickwork and deformation over 10%, Extensive missing bricks Pipe: Already collapsed, Deformation over 10% and broken, Extensive areas of fabric missing, Fractured with deformation over 10% III Collapsed or collapse imminent III		



Inspection report

Date: 25/08/2020	Job N°: 1638.6AN	Weather: Rain	Operator: Mick Todd	section number: 1	PLR: Gully 1 X
Video Volume No.:	Flow Ctrl: No flow control	Temperature: above freezing	Year laid: Ukwn	Cleaned: Yes	Strat. Drain:

Road: Church Road	Div/Dist:	start MH: Gully 1
Place: Climping	Drain. Area:	end MH: MH 1
Location: Road	Standard: BS EN 13508-2:2003	Total length: 3.46 m
Purpose: Routine inspection of condition	Shape/Size: Circular 150	
Type: Gravity drain/sewer	Material: Concrete	Pipe length:
Use: Surface water	Lining: 	
Lining Type:		
Comment:		

1:50	position	code	observation	counter	photo	grade
/ Cover level: 5.564						
	0.00	GY	Start node type, gully, reference number: Gully 1		1_1a	
	0.00	WL	Water level 05 % height/diameter			0
	3.46	MHF	Finish node type, manhole, reference number: MH 1		3_3a	
/ Cover level: 5.491						

Inspection photos

 Place:
Climping

 Road:
Church Road

 Date:
25/08/2020

 section number:
1

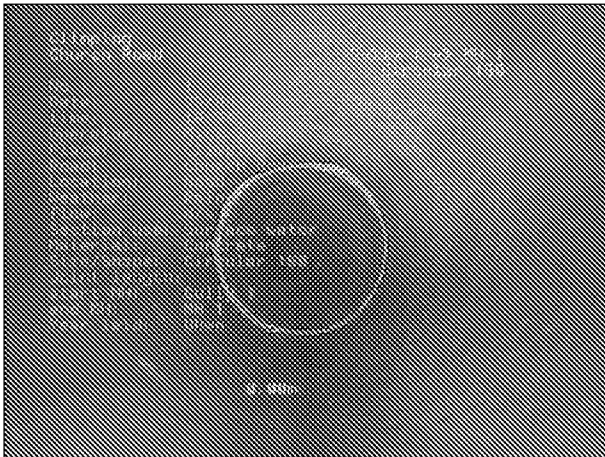
 PLR:
Gully 1 X


Photo: 1_1a
 0m, Start node type, gully, reference number: Gully 1



Photo: 3_3a
 3.46m, Finish node type, manhole, reference number: MH 1



Andover
Hampshire
Tel: 01264 339900, Fax:

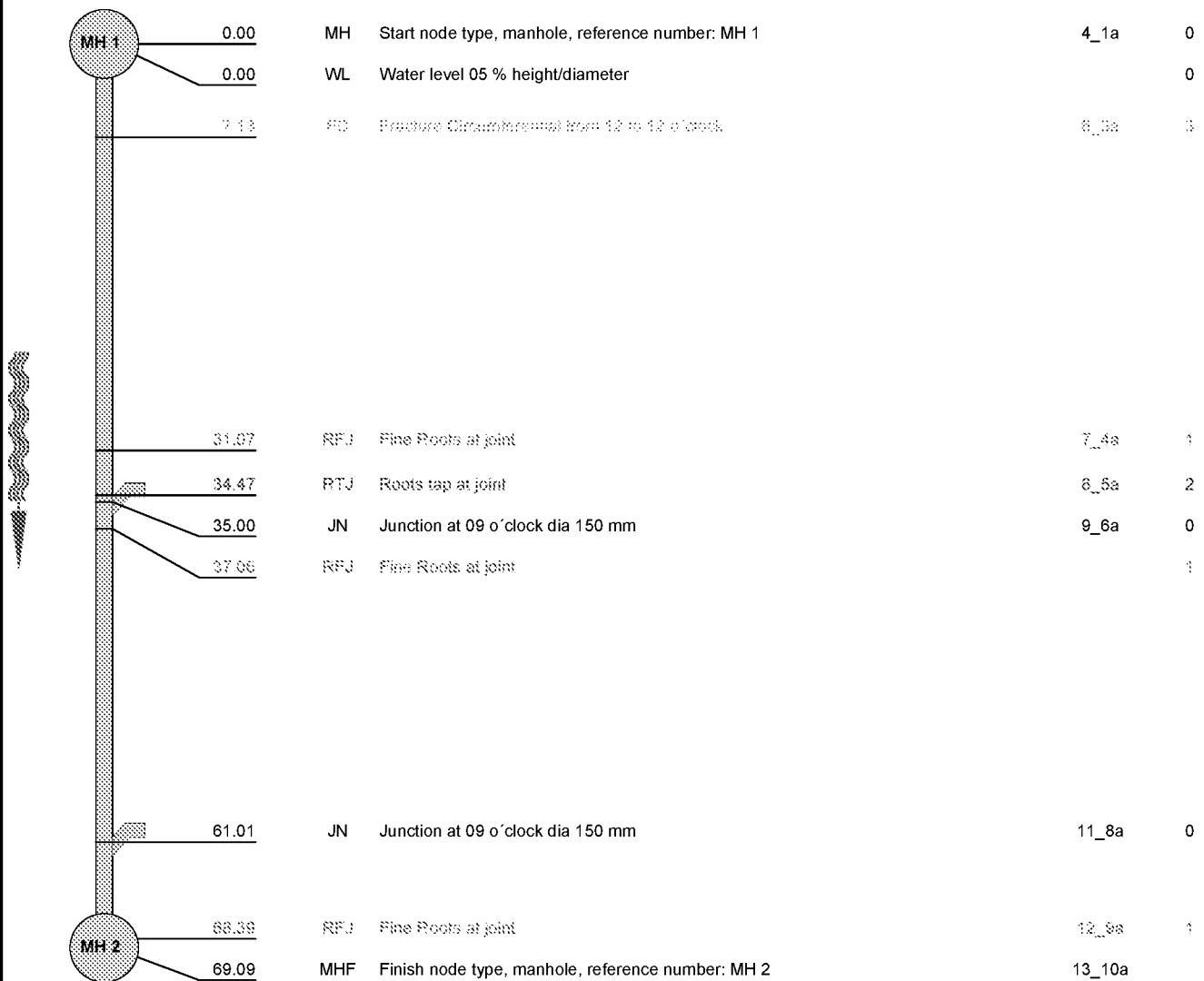
Inspection report

Date: 25/08/2020	Job N°: 1638.6AN	Weather: Rain	Operator: Mick Todd	section number: 2	PLR: MH 1 X
Video Volume No.:	Flow Ctrl: No flow control	Temperature: above freezing	Year laid: Ukwn	Cleaned: Yes	Strat. Drain:

Road:	Church Road	Div/Dist:		start MH:	MH 1
Place:	Climping	Drain. Area:		end MH:	MH 2
Location:	Road	Standard:	BS EN 13508-2:2003	Total length:	69.09 m
Purpose:	Routine inspection of condition	Shape/Size:	Circular 225	Pipe length:	
Type:	Gravity drain/sewer	Material:	Vitrified clay (i.e. all clayware)		
Use:	Surface water	Lining Type:			

Comment:

1:525	position	code	observation	counter	photo	grade
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/ Cover level: 5.14

Inspection photos

 Place:
Climping

 Road:
Church Road

 Date:
25/08/2020

 section number:
2

 PLR:
MH 1 X


Photo: 4_1a
 0m, Start node type, manhole, reference number: MH 1



Photo: 6_3a
 7.13m, Fracture Circumferential from 12 to 12 o'clock

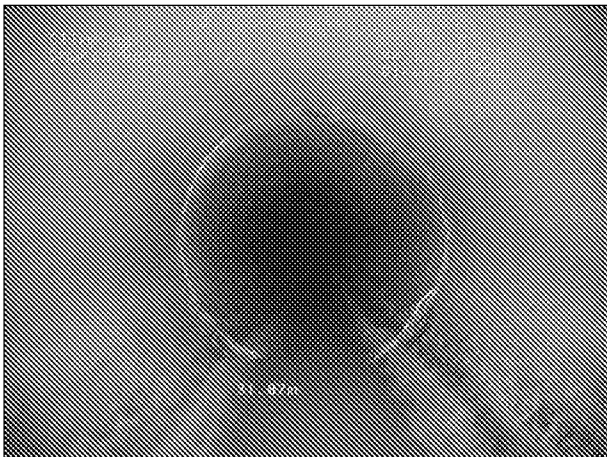


Photo: 7_4a
 31.07m, Fine Roots at joint

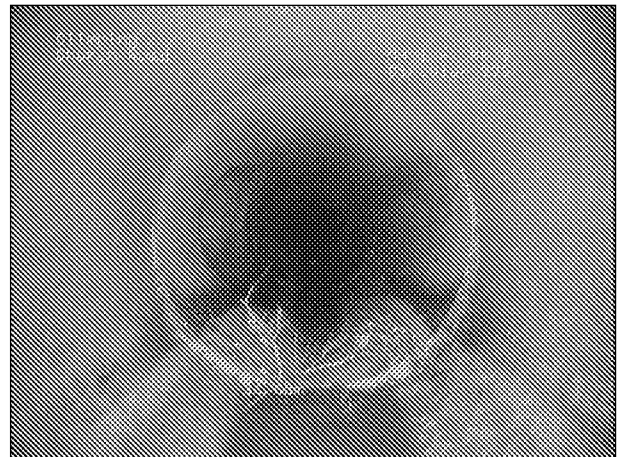


Photo: 8_5a
 34.47m, Roots tap at joint

Inspection photos

 Place:
Climping

 Road:
Church Road

 Date:
25/08/2020

 section number:
2

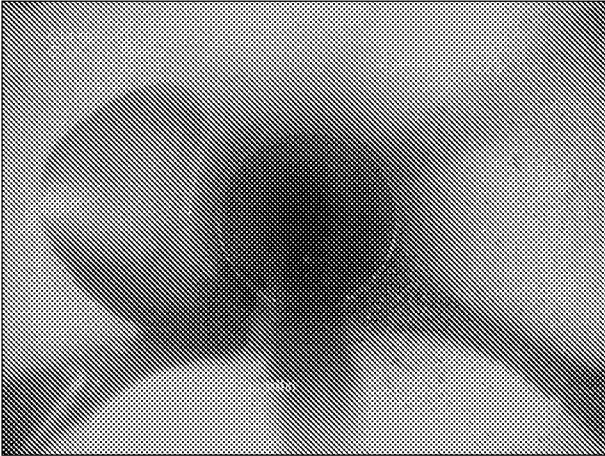
 PLR:
MH 1 X


Photo: 9_6a
35m, Junction at 09 o'clock dia 150 mm

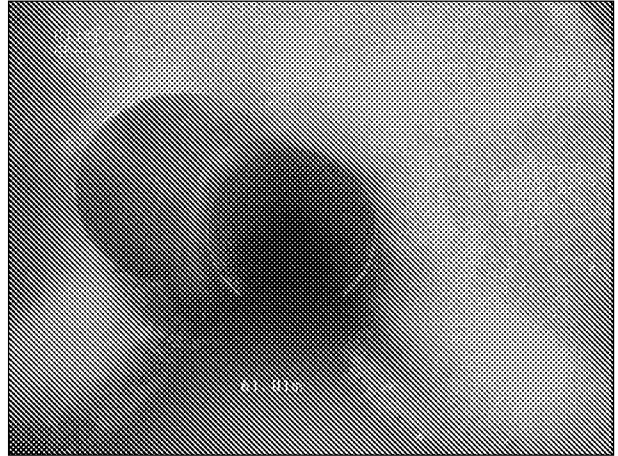


Photo: 11_8a
61.01m, Junction at 09 o'clock dia 150 mm

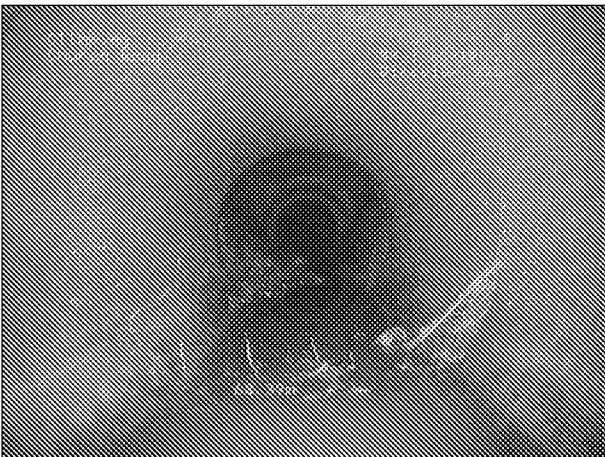


Photo: 12_9a
68.39m, Fine Roots at joint



Photo: 13_10a
69.09m, Finish node type, manhole, reference number: MH 2



Inspection report

Date: 25/08/2020	Job N°: 1638.6AN	Weather: Rain	Operator: Mick Todd	section number: 3	PLR: MH 2 X
Video Volume No.:	Flow Ctrl: No flow control	Temperature: above freezing	Year laid: Ukwn	Cleaned:	Strat. Drain:

Road: Church Road	Div/Dist:	start MH: MH 2
Place: Climping	Drain. Area:	end MH: MH 3
Location: Road	Standard: BS EN 13508-2:2003	Total length: 49.77 m
Purpose: Routine inspection of condition	Shape/Size: Circular 225	
Type: Gravity drain/sewer	Material: Vitrified clay (i.e. all clayware)	Pipe length:
Use: Surface water	Lining: Lining Type:	
Comment:		

1:375	position	code	observation	counter	photo	grade
	0.00	MH	Start node type, manhole, reference number: MH 2		14_1a	0
	0.00	WL	Water level 05 % height/diameter			0
	0.60	FC	Fracture Circumferential from 12 to 12 o'clock		18_3a	3
	2.05	RAJ	Mass Roots at joint 15 % cross-sectional area loss		17_4a	5
	7.60	RTJ	Roots tap at joint		18_5a	2
	9.35	RFJ	Fine Roots at joint		18_6a	1
	15.04	RFJ	Fine Roots at joint		20_7a	1
	17.07	JN	Junction at 09 o'clock dia 150 mm		21_8a	0
	23.33	RTJ	Roots tap at joint		22_9a	2
	25.18	RFJ	Fine Roots at joint		23_10a	1
	26.85	RAJ	Mass Roots at joint 25 % cross-sectional area loss		24_11a	5
	43.99	JN	Junction at 09 o'clock dia 150 mm		25_12a	0
	46.23	RFJ	Fine Roots at joint		26_13a	1
	48.27	RTJ	Roots tap at joint		27_14a	2
	49.10	JDL	Joint displaced large		28_15a	2
	49.77	SA	Survey abandoned, Remark: Due to large displaced joint			1

Inspection photos

 Place:
Climping

 Road:
Church Road

 Date:
25/08/2020

 section number:
3

 PLR:
MH 2 X


Photo: 14_1a
 0m, Start node type, manhole, reference number: MH 2

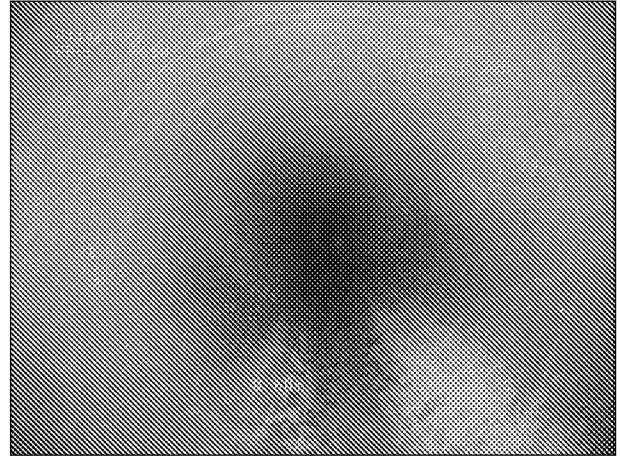


Photo: 16_3a
 0.6m, Fracture Circumferential from 12 to 12 o'clock

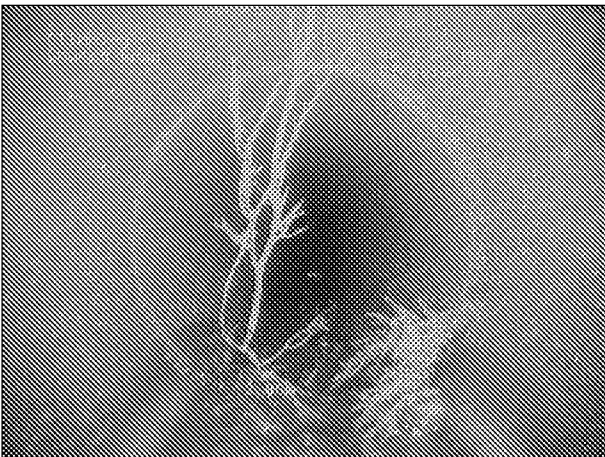


Photo: 17_4a
 2.05m, Mass Roots at joint 15 % cross-sectional area loss

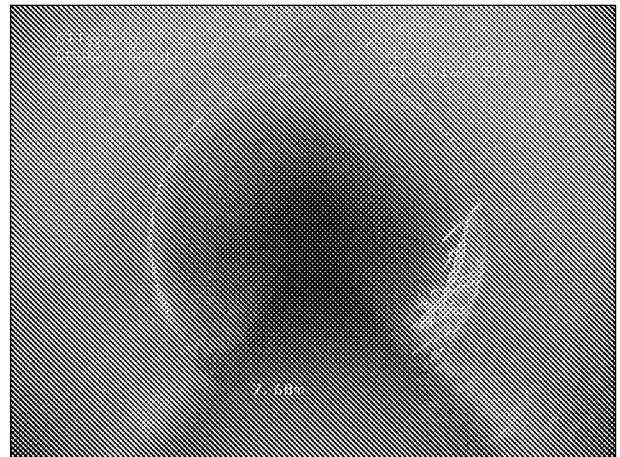


Photo: 18_5a
 7.6m, Roots tap at joint



Inspection photos

Place:
Climping

Road:
Church Road

Date:
25/08/2020

section number:
3

PLR:
MH 2 X

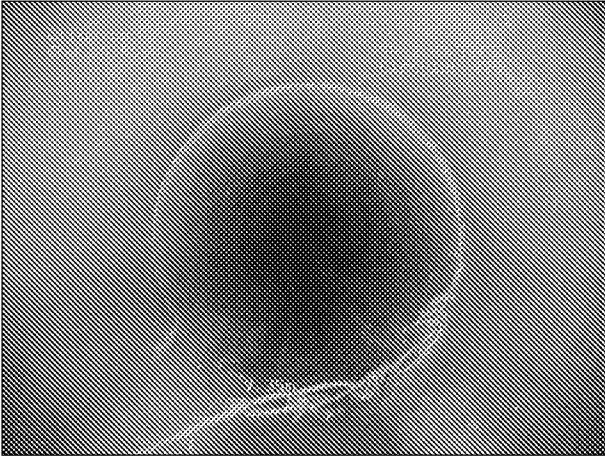


Photo: 19_6a
9.35m, Fine Roots at joint

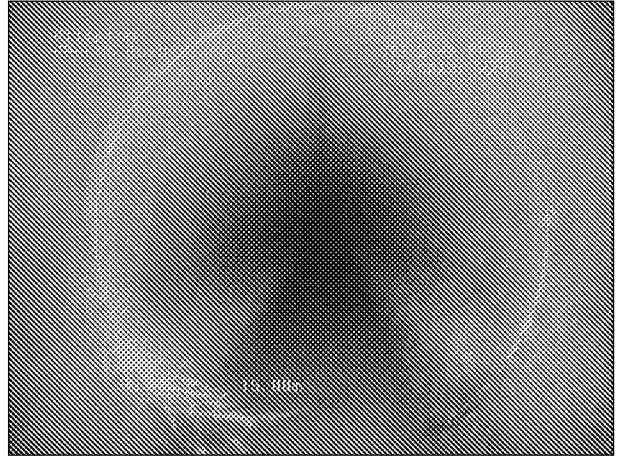


Photo: 20_7a
15.04m, Fine Roots at joint

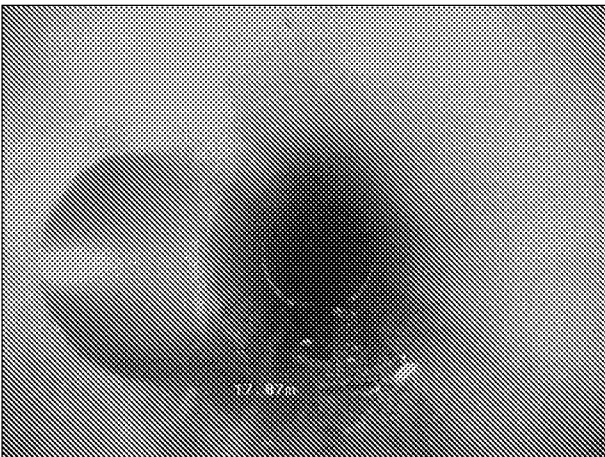


Photo: 21_8a
17.07m, Junction at 09 o'clock dia 150 mm

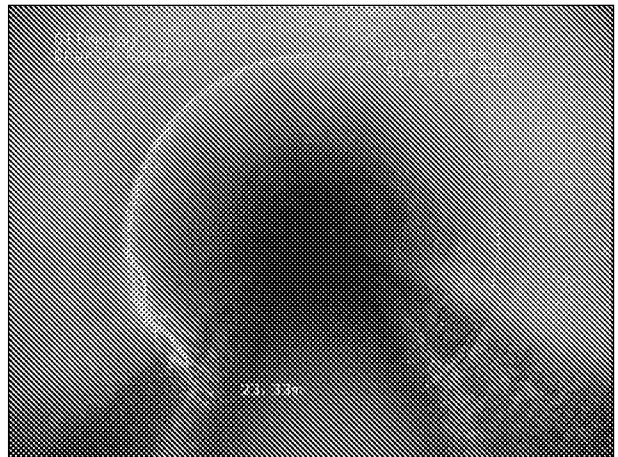


Photo: 22_9a
23.33m, Roots tap at joint

Inspection photos

 Place:
Climping

 Road:
Church Road

 Date:
25/08/2020

 section number:
3

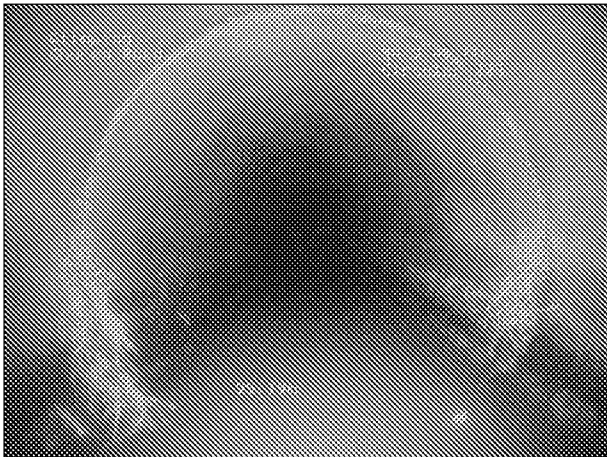
 PLR:
MH 2 X


Photo: 23_10a
25.19m, Fine Roots at joint

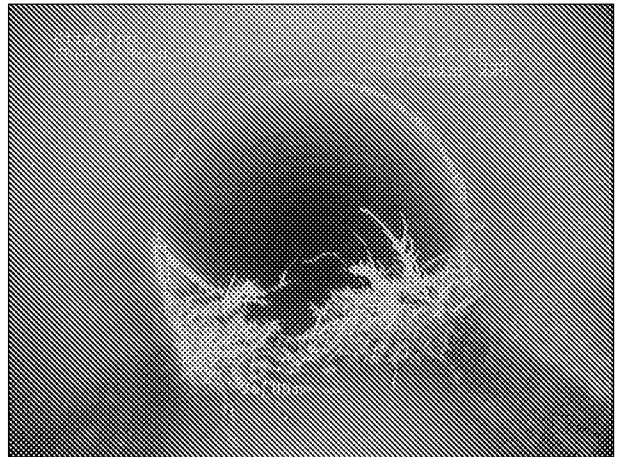


Photo: 24_11a
26.85m, Mass Roots at joint 25 % cross-sectional area loss

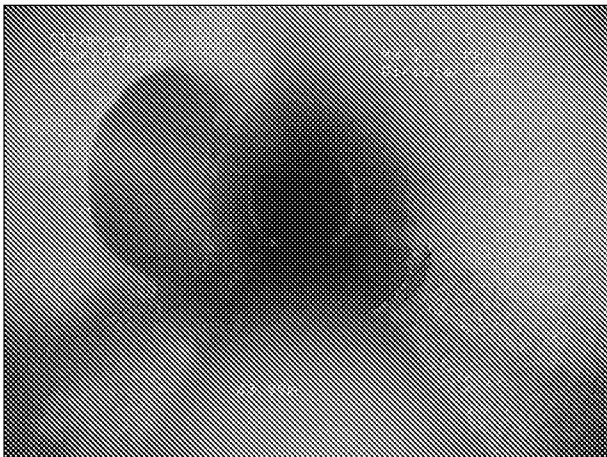


Photo: 25_12a
43.99m, Junction at 09 o'clock dia 150 mm

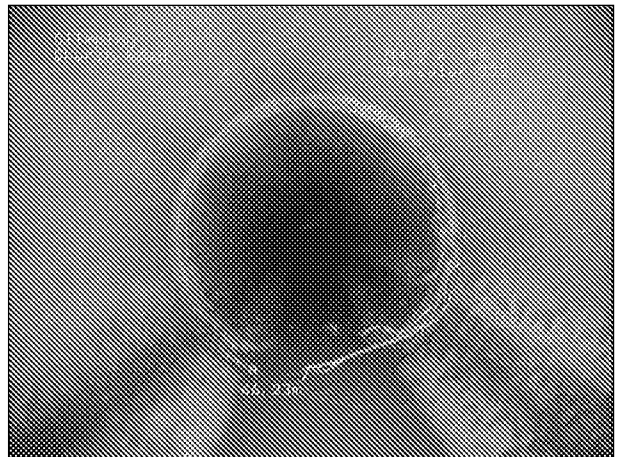


Photo: 26_13a
46.23m, Fine Roots at joint

Inspection photosPlace:
ClimpingRoad:
Church RoadDate:
25/08/2020section number:
3PLR:
MH 2 X

Photo: 27_14a
48.27m, Roots tap at joint

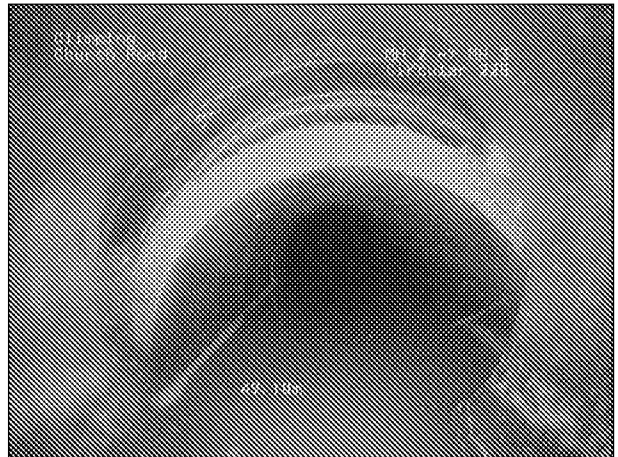


Photo: 28_15a
49.1m, Joint displaced large



Inspection report

Date: 25/08/2020	Job N°: 1638.6AN	Weather: Rain	Operator: Mick Todd	section number: 4	PLR: MH 4 X
Video Volume No.:	Flow Ctrl: No flow control	Temperature: above freezing	Year laid: Ukwn	Cleaned: Yes	Strat. Drain:

Road: Church Road	Div/Dist:	start MH: MH 1
Place: Climping	Drain. Area:	end MH: MH 4
Location: Road	Standard: BS EN 13508-2:2003	Total length: 12.33 m
Purpose: Routine inspection of condition	Shape/Size: Circular 225	
Type: Gravity drain/sewer	Material: Vitrified clay (i.e. all clayware)	Pipe length:
Use: Surface water	Lining: 	
Lining Type:		
Comment:		

1:100	position	code	observation	counter	photo	grade
	0.00	MH	Start node type, manhole, reference number: MH 1		30_1a	0
	0.00	WL	Water level 05 % height/diameter			0
	3.31	RTJ	Roots tap at joint		32_3a	2
	6.04	RT	Roots tap			2
	6.04	RM	Mass Roots 25 % cross-sectional area loss		34_5a	5
	12.33	MHF	Finish node type, manhole, reference number: MH 4		35_6a	
/ Cover level: 5.566						

Inspection photos

 Place:
Climping

 Road:
Church Road

 Date:
25/08/2020

 section number:
4

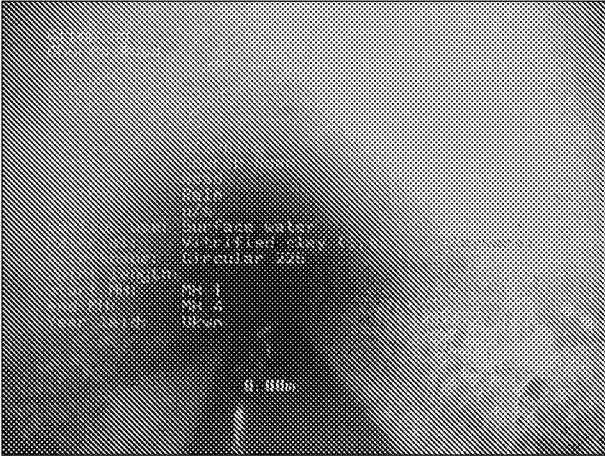
 PLR:
MH 4 X


Photo: 30_1a
 0m, Start node type, manhole, reference number: MH 1

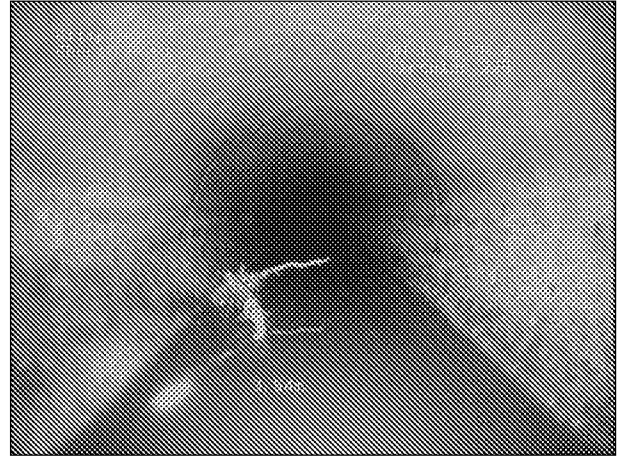


Photo: 32_3a
 3.31m, Roots tap at joint

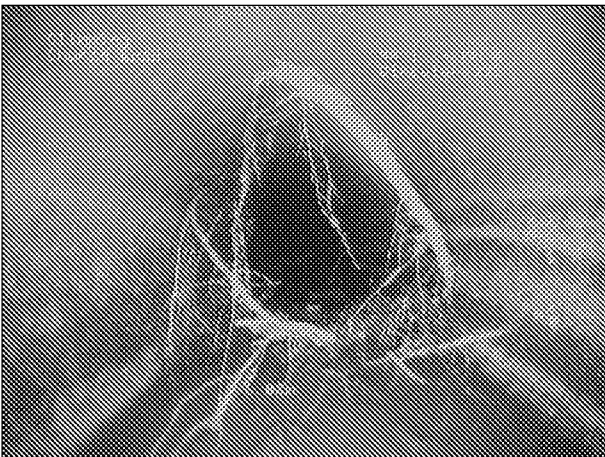


Photo: 34_5a
 6.04m, Mass Roots 25 % cross-sectional area loss



Photo: 35_6a
 12.33m, Finish node type, manhole, reference number: MH 4



Inspection report

Date: 25/08/2020	Job N°: 1638.6AN	Weather: Rain	Operator: Mick Todd	section number: 5	PLR: Gully 2 X
Video Volume No.:	Flow Ctrl: No flow control	Temperature: above freezing	Year laid: Ukwn	Cleaned: Back Jetted	Strat. Drain:

Road: Church Road	Div/Dist:	start MH: Gully 2
Place: Climping	Drain. Area:	end MH: Mainline
Location: Road	Standard: BS EN 13508-2:2003	Total length: 4.16 m
Purpose: Routine inspection of condition	Shape/Size: Circular 150	
Type: Gravity drain/sewer	Material: Vitrified clay (i.e. all clayware)	Pipe length:
Use: Surface water	Lining: 	
Lining Type:		
Comment:		

1:50	position	code	observation	counter	photo	grade
/ Cover level: 4.944						
	0.00	GY	Start node type, gully, reference number: Gully 2		36_1a	
	0.00	WL	Water level 05 % height/diameter			0
	1.08	HJ	Hole in sewer at joint from 12 to 02 o'clock		38_3a	4
	3.73	JDL	Joint displaced large		39_4a	2
	3.73	OJL	Open joint large			2
	4.16	BRF	Major connection without manhole		41_6a	0

Inspection photos

 Place:
Climping

 Road:
Church Road

 Date:
25/08/2020

 section number:
5

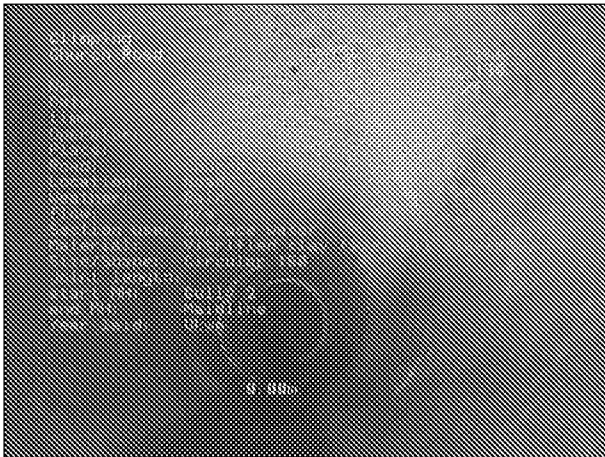
 PLR:
Gully 2 X


Photo: 36_1a
0m, Start node type, gully, reference number: Gully 2



Photo: 38_3a
1.08m, Hole in sewer at joint from 12 to 02 o'clock



Photo: 39_4a
3.73m, Joint displaced large



Photo: 41_6a
4.16m, Major connection without manhole



Inspection report

Date: 25/08/2020	Job N°: 1638.6AN	Weather: Rain	Operator: Mick Todd	section number: 6	PLR: Gully 3 X
Video Volume No.:	Flow Ctrl: No flow control	Temperature: above freezing	Year laid: Ukwn	Cleaned: Back Jetted	Strat. Drain:

Road: Church Road	Div/Dist:	start MH: Gully 3
Place: Climping	Drain. Area:	end MH: Mainline
Location: Road	Standard: BS EN 13508-2:2003	Total length: 3.69 m
Purpose: Routine inspection of condition	Shape/Size: Circular 150	
Type: Gravity drain/sewer	Material: Vitrified clay (i.e. all clayware)	Pipe length:
Use: Surface water	Lining: 	
Lining Type:		
Comment:		

1:50	position	code	observation	counter	photo	grade
/ Cover level: 4.591						
	0.00	GY	Start node type, gully, reference number: Gully 3		42_1a	
	0.00	WL	Water level 05 % height/diameter			0
	0.57	JCM	Joint displaced medium		44_3a	1
	3.39	LD	Line of drain/sewer deviates down			
	3.69	BRF	Major connection without manhole		46_5a	0

Inspection photos

 Place:
Climping

 Road:
Church Road

 Date:
25/08/2020

 section number:
6

 PLR:
Gully 3 X


Photo: 42_1a
 0m, Start node type, gully, reference number: Gully 3

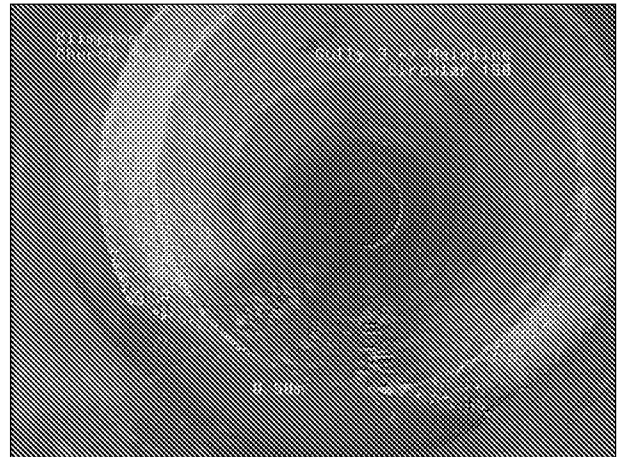


Photo: 44_3a
 0.57m, Joint displaced medium



Photo: 46_5a
 3.69m, Major connection without manhole



Inspection report

Date: 25/08/2020	Job N°: 1638.6AN	Weather: Rain	Operator: Mick Todd	section number: 7	PLR: Gully 4 X
Video Volume No.:	Flow Ctrl: No flow control	Temperature: above freezing	Year laid: Ukwn	Cleaned: Back Jetted	Strat. Drain:

Road: Church Road	Div/Dist:	start MH: Gully 4
Place: Climping	Drain. Area:	end MH: Mainline
Location: Road	Standard: BS EN 13508-2:2003	Total length: 4.01 m
Purpose: Routine inspection of condition	Shape/Size: Circular 150	
Type: Gravity drain/sewer	Material: Vitrified clay (i.e. all clayware)	Pipe length:
Use: Surface water	Lining: 	
Lining Type:		
Comment:		

1:50	position	code	observation	counter	photo	grade
/ Cover level: 5.436						
	0.00	GY	Start node type, gully, reference number: Gully 4		47_1a	
	0.00	WL	Water level 05 % height/diameter			0
	3.99	JDL	Joint displaced large			2
	3.99	OJL	Open joint large		50_4a	2
	4.01	BRF	Major connection without manhole		51_5a	0

Inspection photos

 Place:
Climping

 Road:
Church Road

 Date:
25/08/2020

 section number:
7

 PLR:
Gully 4 X


Photo: 47_1a
 0m, Start node type, gully, reference number: Gully 4



Photo: 50_4a
 3.99m, Open joint large



Photo: 51_5a
 4.01m, Major connection without manhole



Inspection report

Date: 25/08/2020	Job N°: 1638.6AN	Weather: Rain	Operator: Mick Todd	section number: 8	PLR: Gully 5 X
Video Volume No.:	Flow Ctrl: No flow control	Temperature: above freezing	Year laid: Ukwn	Cleaned: Back Jetted	Strat. Drain:

Road: Church Road	Div/Dist:	start MH: Gully 5
Place: Climping	Drain. Area:	end MH: Mainline
Location: Road	Standard: BS EN 13508-2:2003	Total length: 2.44 m
Purpose: Routine inspection of condition	Shape/Size: Circular 150	Pipe length:
Type: Gravity drain/sewer	Material: Vitrified clay (i.e. all clayware)	
Use: Surface water	Lining: Lining Type:	
Comment:		

1:25	position	code	observation	counter	photo	grade
/ Cover level: 4.005						
	0.00	GY	Start node type, gully, reference number: Gully 5		52_1a	
	0.00	WL	Water level 05 % height/diameter			0
	2.44	BRF	Major connection without manhole		54_3a	0

Inspection photos

 Place:
Climping

 Road:
Church Road

 Date:
25/08/2020

 section number:
8

 PLR:
Gully 5 X


Photo: 52_1a
 0m, Start node type, gully, reference number: Gully 5



Photo: 54_3a
 2.44m, Major connection without manhole



Inspection report

Date: 25/08/2020	Job N°: 1638.6AN	Weather: Rain	Operator: Mick Todd	section number: 9	PLR: Gully 6 X
Video Volume No.:	Flow Ctrl: No flow control	Temperature: above freezing	Year laid: Ukwn	Cleaned: Back Jetted	Strat. Drain:

Road: Church Road	Div/Dist:	start MH: Gully 6
Place: Climping	Drain. Area:	end MH: Mainline
Location: Road	Standard: BS EN 13508-2:2003	Total length: 1.64 m
Purpose: Routine inspection of condition	Shape/Size: Circular 150	
Type: Gravity drain/sewer	Material: Vitrified clay (i.e. all clayware)	Pipe length:
Use: Surface water	Lining: Lining Type:	
Comment:		

1:25	position	code	observation	counter	photo	grade
/ Cover level: 3.534						
	0.00	GY	Start node type, gully, reference number: Gully 6		55_1a	
	0.00	WL	Water level 05 % height/diameter			0
	0.64	JCM	Joint displacement medium		57_3a	1
	1.64	BRF	Major connection without manhole		58_4a	0

Inspection photos

 Place:
Climping

 Road:
Church Road

 Date:
25/08/2020

 section number:
9

 PLR:
Gully 6 X


Photo: 55_1a
 0m, Start node type, gully, reference number: Gully 6



Photo: 57_3a
 0.64m, Joint displaced medium



Photo: 58_4a
 1.64m, Major connection without manhole



Inspection report

Date: 25/08/2020	Job N°: 1638.6AN	Weather: Rain	Operator: Mick Todd	section number: 10	PLR: MH 2 X
Video Volume No.:	Flow Ctrl: No flow control	Temperature: above freezing	Year laid: Ukwn	Cleaned: Yes	Strat. Drain:

Road: Church Road	Div/Dist:	start MH: MH 3
Place: Climping	Drain. Area:	end MH: MH 2
Location: Road	Standard: BS EN 13508-2:2003	Total length: 0.8 m
Purpose: Routine inspection of condition	Shape/Size: Circular 225	
Type: Gravity drain/sewer	Material: Vitrified clay (i.e. all clayware)	Pipe length:
Use: Surface water	Lining: Lining Type:	
Comment:		

1:25	position	code	observation	counter	photo	grade
	0.00	MH	Start node type, manhole, reference number: MH 3		59_1a	0
	0.00	WL	Water level 05 % height/diameter			0
	0.77	B	Broken pipe from 04 to 07 o'clock			2
	0.78	CXI	Connection interfering at 03 o'clock dia 100 mm intrusion 40 %			4
	0.78	FD	Fracture Circumferential from 12 to 12 o'clock		60_8a	3
	0.80	SA	Survey abandoned, Remarks: Due to intruding connection			1

Inspection photos

 Place:
Climping

 Road:
Church Road

 Date:
25/08/2020

 section number:
10

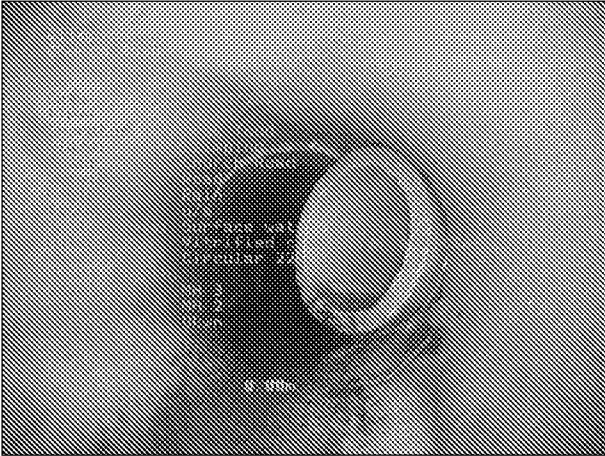
 PLR:
MH 2 X


Photo: 59_1a
 0m, Start node type, manhole, reference number: MH 3

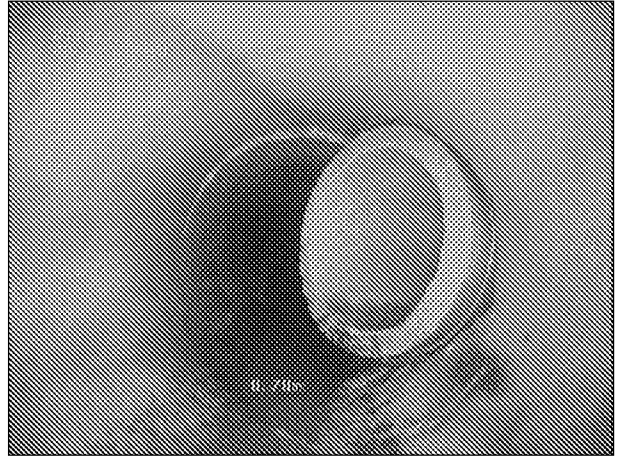


Photo: 63_5a
 0.78m, Fracture Circumferential from 12 to 12 o'clock



Inspection report

Date: 25/08/2020	Job N°: 1638.6AN	Weather: Rain	Operator: Mick Todd	section number: 11	PLR: MH 5 X
Video Volume No.:	Flow Ctrl: No flow control	Temperature: above freezing	Year laid: Ukwn	Cleaned: Yes	Strat. Drain:

Road: Church Road	Div/Dist:	start MH: MH 3
Place: Climping	Drain. Area:	end MH: MH 5
Location: Road	Standard: BS EN 13508-2:2003	Total length: 7.27 m
Purpose: Routine inspection of condition	Shape/Size: Circular 300	
Type: Gravity drain/sewer	Material: Concrete	Pipe length:
Use: Surface water	Lining: Lining Type:	
Comment:		

1:75	position	code	observation	counter	photo	grade
	0.00	MH	Start node type, manhole, reference number: MH 3		65_1a	0
	0.00	WL	Water level 10 % height/diameter			0
	1.60	RFJ	Fine Roots at joint			1
	1.80	SS	Spalling at at 12 o'clock		68_4a	2
	3.47	RM	Mass Roots 10 % cross-sectional area loss		69_5a	5
	5.43	RMJ	Mass Roots at joint 10 % cross-sectional area loss, Start			5
	7.27	RM	Mass Roots 90 % cross-sectional area loss			5
	7.27	SA	Survey abandoned, Remark: Due to mass roots		72_8a	1

Inspection photos

 Place:
Climping

 Road:
Church Road

 Date:
25/08/2020

 section number:
11

 PLR:
MH 5 X


Photo: 65_1a
 0m, Start node type, manhole, reference number: MH 3



Photo: 68_4a
 1.6m, Spalling at at 12 o'clock

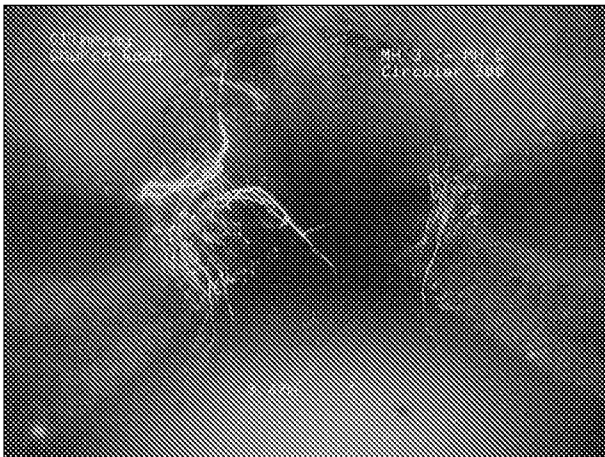


Photo: 69_5a
 3.47m, Mass Roots 10 % cross-sectional area loss



Photo: 72_8a
 7.27m, Survey abandoned, Remark: Due to mass roots



Inspection report

Date: 25/08/2020	Job N°: 1638.6AN	Weather: Rain	Operator: Mick Todd	section number: 12	PLR: MH 3 X
Video Volume No.:	Flow Ctrl: No flow control	Temperature: above freezing	Year laid: Ukwn	Cleaned: Back Jetted	Strat. Drain:

Road: Church Road	Div/Dist:	start MH: MH 3
Place: Climping	Drain. Area:	end MH: Outfall
Location: Road	Standard: BS EN 13508-2:2003	Total length: 52.21 m
Purpose: Routine inspection of condition	Shape/Size: Circular 450	
Type: Gravity drain/sewer	Material: Concrete	Pipe length:
Use: Surface water	Lining: Lining Type:	
Comment:		

1:400	position	code	observation	counter	photo	grade
	0.00	MH	Start node type, manhole, reference number: MH 3		73_1a	0
	0.00	WL	Water level 05 % height/diameter			0
	1.94	S1	RFJ Fine Roots at joint, Start			1
	8.50	FC	Fracture Circumferential from 12 to 12 o'clock			3
	22.81	FM	Fractures multiple from 12 to 12 o'clock		78_5a	4
	34.11	MCPVC	Material of drain/sewer changes to Polyvinyl chloride		79_6a	
	52.21	SA	Survey abandoned, Remark: Due to silt under the water			1

Inspection photos

 Place:
Climping

 Road:
Church Road

 Date:
25/08/2020

 section number:
12

 PLR:
MH 3 X


Photo: 73_1a
 0m, Start node type, manhole, reference number: MH 3



Photo: 78_5a
 22.81m, Fractures multiple from 12 to 12 o'clock



Photo: 79_6a
 34.11m, Material of drain/sewer changes to Polyvinyl chloride



Inspection report

Date: 25/08/2020	Job N°: 1638.6AN	Weather: Rain	Operator: Mick Todd	section number: 13	PLR: Gully 7 X
Video Volume No.:	Flow Ctrl: No flow control	Temperature: above freezing	Year laid: Ukwn	Cleaned: Back Jetted	Strat. Drain:

Road: Church Road	Div/Dist:	start MH: Gully 7
Place: Climping	Drain. Area:	end MH: Mainline
Location: Road	Standard: BS EN 13508-2:2003	Total length: 2.98 m
Purpose: Routine inspection of condition	Shape/Size: Circular 150	
Type: Gravity drain/sewer	Material: Vitrified clay (i.e. all clayware)	Pipe length:
Use: Surface water	Lining: Lining Type:	
Comment:		

1:25	position	code	observation	counter	photo	grade
/ Cover level: 1.681						
	0.00	GY	Start node type, gully, reference number: Gully 7		81_1a	
	0.00	WL	Water level 05 % height/diameter			0
	0.99	RTJ	Roots tap at joint		83_3a	2
	1.85	RFJ	Fine Roots at joint		84_4a	1
	2.47	JDL	Joint displaced large			2
	2.47	LD	Line of drain/sewer deviates down			
	2.98	BRF	Major connection without manhole		87_7a	0

Inspection photos

 Place:
Climping

 Road:
Church Road

 Date:
25/08/2020

 section number:
13

 PLR:
Gully 7 X


Photo: 81_1a
0m, Start node type, gully, reference number: Gully 7



Photo: 83_3a
0.99m, Roots tap at joint



Photo: 84_4a
1.65m, Fine Roots at joint



Photo: 87_7a
2.98m, Major connection without manhole



Inspection report

Date: 25/08/2020	Job N°: 1638.6AN	Weather: Rain	Operator: Mick Todd	section number: 14	PLR: Gully 8 X
Video Volume No.:	Flow Ctrl: No flow control	Temperature: above freezing	Year laid: Ukwn	Cleaned: Back Jetted	Strat. Drain:

Road: Church Road	Div/Dist:	start MH: Gully 8
Place: Climping	Drain. Area:	end MH: Mainline
Location: Road	Standard: BS EN 13508-2:2003	Total length: 1.15 m
Purpose: Routine inspection of condition	Shape/Size: Circular 150	
Type: Gravity drain/sewer	Material: Vitrified clay (i.e. all clayware)	Pipe length:
Use: Surface water	Lining: Lining Type:	
Comment:		

1:25	position	code	observation	counter	photo	grade
/ Cover level: 3.096						
	0.00	GY	Start node type, gully, reference number: Gully 8		88_1a	
	0.00	WL	Water level 05 % height/diameter			0
	0.78	JDM	Joint displaced medium		90_3a	1
	1.15	BRF	Major connection without manhole		91_4a	0

Place:
Climping

Road:
Church Road

Date:
25/08/2020

section number:
14

PLR:
Gully 8 X



Photo: 88_1a
0m, Start node type, gully, reference number: Gully 8

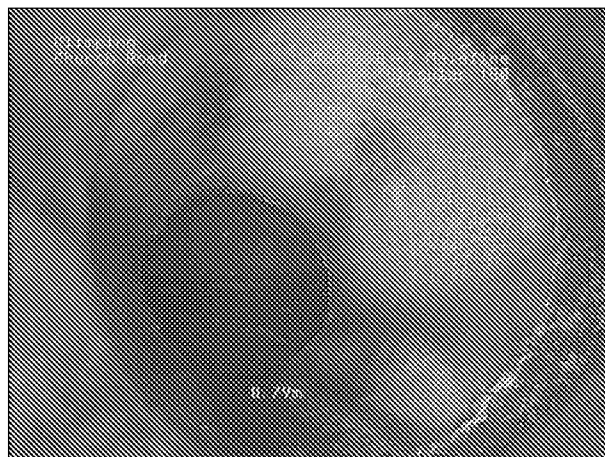


Photo: 90_3a
0.79m, Joint displaced medium



Photo: 91_4a
1.15m, Major connection without manhole



Inspection report

Date: 26/08/2020	Job N°: 1638.6AN	Weather: Rain	Operator: Mick Todd	section number: 15	PLR: MH 5 X
Video Volume No.:	Flow Ctrl: No flow control	Temperature: above freezing	Year laid: Ukwn	Cleaned: Back Jetted	Strat. Drain:

Road: Church Road	Div/Dist:	start MH: MH 5
Place: Climping	Drain. Area:	end MH: MH 3
Location: Road	Standard: BS EN 13508-2:2003	Total length: 8.63 m
Purpose: Routine inspection of condition	Shape/Size: Circular 300	
Type: Gravity drain/sewer	Material: Concrete	Pipe length:
Use: Surface water	Lining: Lining Type:	
Comment:		

1:75	position	code	observation	counter	photo	grade
/ Cover level: 3.219						
	0.00	MH	Start node type, manhole, reference number: MH 5		92_1a	0
	0.00	WL	Water level 25 % height/diameter			0
	7.79	S1	DES Settled deposits fine 30 % cross-sectional area loss, Start		100_3a	1
	8.63	SA	Survey abandoned, Remark: Due to debris.		15_4a	1

Inspection photos

 Place:
Climping

 Road:
Church Road

 Date:
26/08/2020

 section number:
15

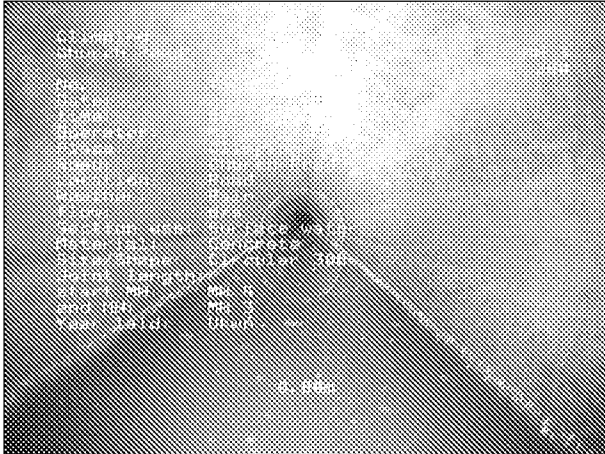
 PLR:
MH 5 X


Photo: 92_1a
 0m, Start node type, manhole, reference number: MH 5



Photo: 100_3a
 7.79m, Settled deposits fine 30 % cross-sectional area loss, Start

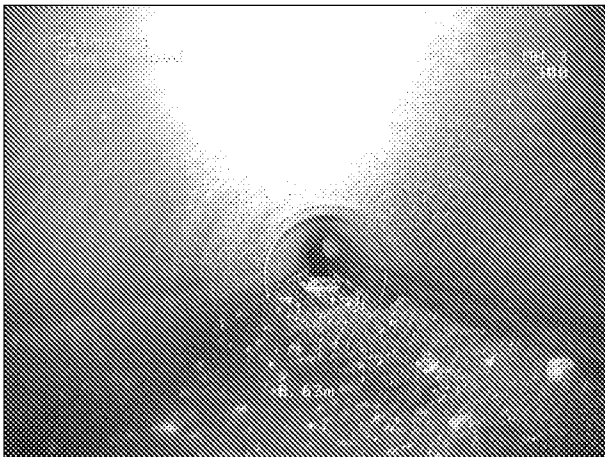


Photo: 15_4a
 8.63m, Survey abandoned, Remark: Due to debris



Andover
Hampshire
Tel: 01264 339900, Fax:

Inspection report

Date: 26/08/2020	Job N°: 1638.6AN	Weather: Rain	Operator: Mick Todd	section number: 16	PLR: Gully 13 X
Video Volume No.:	Flow Ctrl: No flow control	Temperature: above freezing	Year laid: Ukwn	Cleaned: Yes	Strat. Drain:

Road:	Church Road	Div/Dist:		start MH:	Gully 13
Place:	Climping	Drain. Area:		end MH:	Mainline
Location:	Road	Standard:	BS EN 13508-2:2003	Total length:	3.8 m
Purpose:	Routine inspection of condition	Shape/Size:	Circular 150		
Type:	Gravity drain/sewer	Material:	Vitrified clay (i.e. all clayware)	Pipe length:	
Use:	Surface water	Lining:			
		Lining Type:			

Comment:

1:25	position	code	observation	counter	photo	grade
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/ Cover level: 3.425



Inspection photos

 Place:
Climping

 Road:
Church Road

 Date:
26/08/2020

 section number:
16

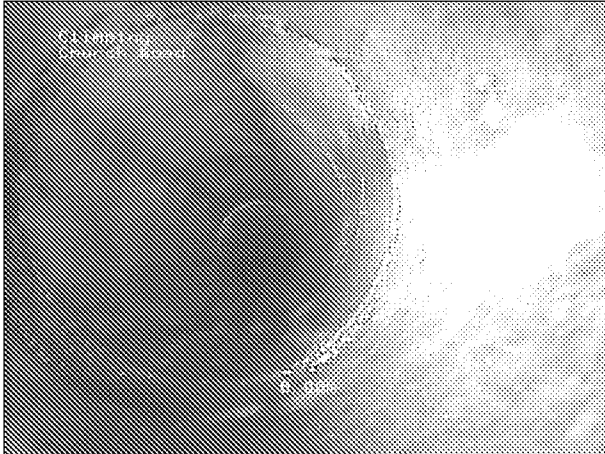
 PLR:
Gully 13 X


Photo: 95_1a
 0m, Start node type, gully, reference number: Gully 13



Photo: 97_3a
 2.26m, Open joint medium



Photo: 98_4a
 2.9m, Water level 50 % height/diameter



Inspection report

Date: 27/08/2020	Job N°: 1638.6AN	Weather: Rain	Operator: Mick Todd	section number: 17	PLR: Gully 14 X
Video Volume No.:	Flow Ctrl: No flow control	Temperature: above freezing	Year laid: Ukwn	Cleaned: Yes	Strat. Drain:

Road: Church Road	Div/Dist:	start MH: MH 8
Place: Climping	Drain. Area:	end MH: Gully 14
Location: Road	Standard: BS EN 13508-2:2003	Total length: 10.83 m
Purpose: Routine inspection of condition	Shape/Size: Circular 150	
Type: Gravity drain/sewer	Material: Polyvinyl chloride	Pipe length:
Use: Surface water	Lining: 	
Lining Type:		
Comment:		

1:100	position	code	observation	counter	photo	grade
/ Cover level: 2.059						
	0.00	CP	Start node type, catchpit, reference number: MH 8		101_1a	0
	0.00	WL	Water level 05 % height/diameter			0
	9.83	D	Deformed drain/sewer 15 %		103_3a	5
	10.83	GYF	Finish node type, gully, reference number: Gully 14		104_4a	

Inspection photos

 Place:
Climping

 Road:
Church Road

 Date:
27/08/2020

 section number:
17

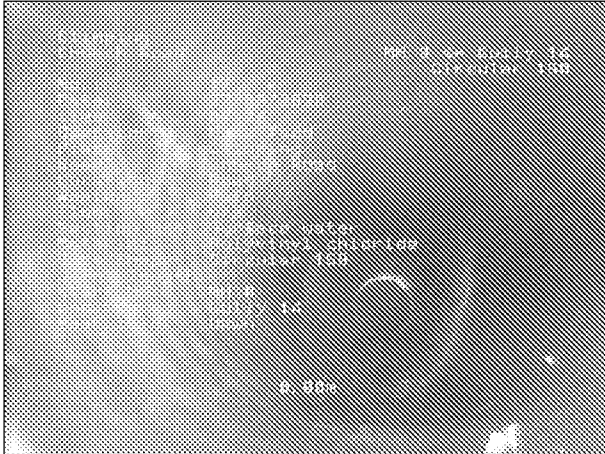
 PLR:
Gully 14 X


Photo: 101_1a
 0m, Start node type, catchpit, reference number: MH 8



Photo: 103_3a
 6.63m, Deformed drain/sewer 15 %



Photo: 104_4a
 10.83m, Finish node type, gully, reference number: Gully 14



Date: 27/08/2020	Job N°: 1638.6AN	Weather: Rain	Operator: Mick Todd	section number: 18	PLR: Gully 15 X
Video Volume No.:	Flow Ctrl: No flow control	Temperature: above freezing	Year laid: Ukwn	Cleaned: Yes	Strat. Drain:

Road:	Church Road	Div/Dist:		start MH:	MH 8
Place:	Climping	Drain. Area:		end MH:	Gully 15
Location:	Road	Standard:	BS EN 13508-2:2003	Total length:	10.15 m
Purpose:	Routine inspection of condition		Shape/Size:	Circular 150	
Type:	Gravity drain/sewer		Material:	Polyvinyl chloride Pipe length:	
Use:	Surface water		Lining:		
			Lining Type:		
Comment:					

1:75	position	code	observation	counter	photo	grade
	0.00	CP	Start node type, catchpit, reference number: MH 8		105_1a	0
	0.00	WL	Water level 05 % height/diameter			0
	9.82	JXB	Junction defective, connecting pipe is blocked at 03 o'clock, dia 150 mm		107_3a	
	10.15	DES	Settled deposits fine 100 % cross-sectional area loss		108_4a	1
	10.15	SA	Survey abandoned, Remark: Due to silt in pipe			1

Inspection photos

 Place:
Climping

 Road:
Church Road

 Date:
27/08/2020

 section number:
18

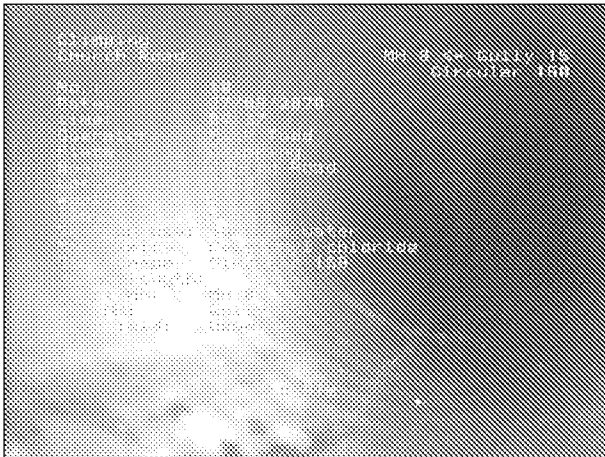
 PLR:
Gully 15 X


Photo: 105_1a
 0m, Start node type, catchpit, reference number: MH 8



Photo: 107_3a
 9.82m, Junction defective, connecting pipe is blocked at 03 o'clock, dia 150 mm

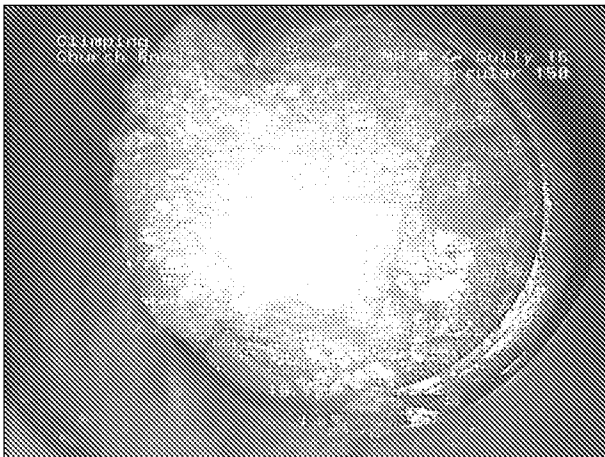


Photo: 108_4a
 10.15m, Settled deposits fine 100 % cross-sectional area loss



Inspection report

Date: 27/08/2020	Job N°: 1638.6AN	Weather: Rain	Operator: Mick Todd	section number: 19	PLR: Gully 17 X
Video Volume No.:	Flow Ctrl: No flow control	Temperature: above freezing	Year laid: Ukwn	Cleaned: Yes	Strat. Drain:

Road: Church Road	Div/Dist:	start MH: MH 8
Place: Climping	Drain. Area:	end MH: Gully 17
Location: Road	Standard: BS EN 13508-2:2003	Total length: 4.93 m
Purpose: Routine inspection of condition	Shape/Size: Circular 150	
Type: Gravity drain/sewer	Material: Polyvinyl chloride	Pipe length:
Use: Surface water	Lining: 	
Lining Type:		
Comment:		

1:50	position	code	observation	counter	photo	grade
	0.00	CP	Start node type, catchpit, reference number: MH 8			0
	0.01	WL	Water level 05 % height/diameter			0
	4.93	GYF	Finish node type, gully, reference number: Gully 17		112_3a	

Inspection photosPlace:
ClimpingRoad:
Church RoadDate:
27/08/2020section number:
19PLR:
Gully 17 X

Photo: 112_3a
4.93m, Finish node type, gully, reference number: Gully 17



Andover
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Inspection report

Date: 27/08/2020	Job N°: 1638.6AN	Weather: Rain	Operator: Mick Todd	section number: 20	PLR: MH 8 X
Video Volume No.:	Flow Ctrl: No flow control	Temperature: above freezing	Year laid: Ukwn	Cleaned: Back Jetted	Strat. Drain:

Road:	Church Road	Div/Dist:		start MH:	MH 8
Place:	Climping	Drain. Area:		end MH:	MH 9
Location:	Road	Standard:	BS EN 13508-2:2003	Total length:	13.57 m
Purpose:	Routine inspection of condition		Shape/Size:	Circular 225	
Type:	Gravity drain/sewer		Material:	Polyvinyl chloride Pipe length:	
Use:	Surface water		Lining:		
			Lining Type:		
Comment:					

1:100	position	code	observation	counter	photo	grade
		CP	Start node type, catchpit, reference number: MH 8		113_1a	0
		WL	Water level 05 % height/diameter			0
		CPF	Finish Node type, catchpit, reference number: MH 9		115_3a	0

Inspection photos

 Place:
Climping

 Road:
Church Road

 Date:
27/08/2020

 section number:
20

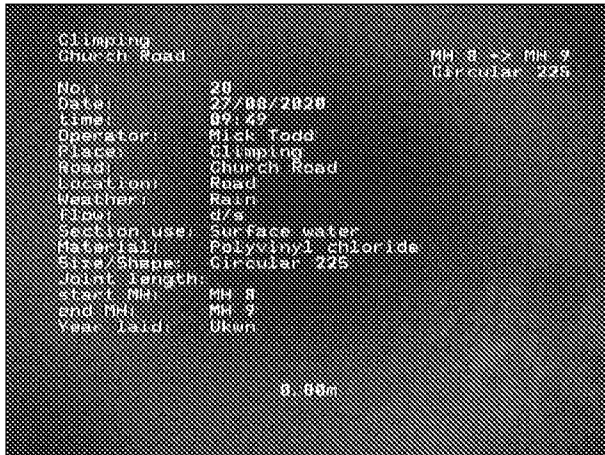
 PLR:
MH 8 X


Photo: 113_1a
 0m, Start node type, catchpit, reference number: MH 8



Photo: 115_3a
 13.57m, Finish Node type, catchpit, reference number: MH 9

Inspection report

Date: 27/08/2020	Job N°: 1638.6AN	Weather: Rain	Operator: Mick Todd	section number: 21	PLR: MH 11 X
Video Volume No.:	Flow Ctrl: No flow control	Temperature: above freezing	Year laid: Ukwn	Cleaned: Yes	Strat. Drain:

Road:	Church Road	Div/Dist:		start MH:	MH 4
Place:	Climping	Drain. Area:		end MH:	MH 11
Location:	Road	Standard:	BS EN 13508-2:2003	Total length:	71.3 m
Purpose:	Routine inspection of condition	Shape/Size:	Circular 225	Pipe length:	
Type:	Gravity drain/sewer	Material:	Vitrified clay (i.e. all clayware)		
Use:	Surface water	Lining Type:			

Comment:

1:525	position	code	observation	counter	photo	grade
	0.00	MH	Start node type, manhole, reference number: MH 4		116_1a	0
	0.00	WL	Water level 10 % height/diameter			0
	1.35	JN	Junction at 10 o'clock dia 150 mm		118_3a	0
	3.51	WL	Water level 05 % height/diameter			0
	13.62	RTJ	Roots tap at joint		120_5a	2
	20.17	DES	Settled deposits fine 10 % cross-sectional area loss		121_8a	1
	20.19	RFJ	Fine Roots at joint			1
	20.19	RTJ	Roots tap at joint		123_8a	2
	36.40	JN	Junction at 11 o'clock dia 150 mm		124_9a	0
	46.26	RFJ	Fine Roots at joint		126_10a	1
	48.07	RFJ	Fine Roots at joint			1
	57.23	RFJ	Fine Roots at joint		127_12a	1
	64.69	RTJ	Roots tap at joint		128_13a	2
	71.30	MHF	Finish node type, manhole, reference number: MH 11		129_14a	

/ Cover level: 0.223

Inspection photos

 Place:
Climping

 Road:
Church Road

 Date:
27/08/2020

 section number:
21

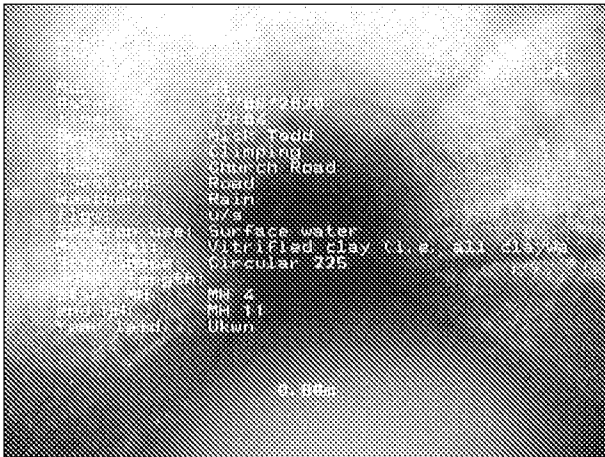
 PLR:
MH 11 X


Photo: 116_1a
 0m, Start node type, manhole, reference number: MH 4

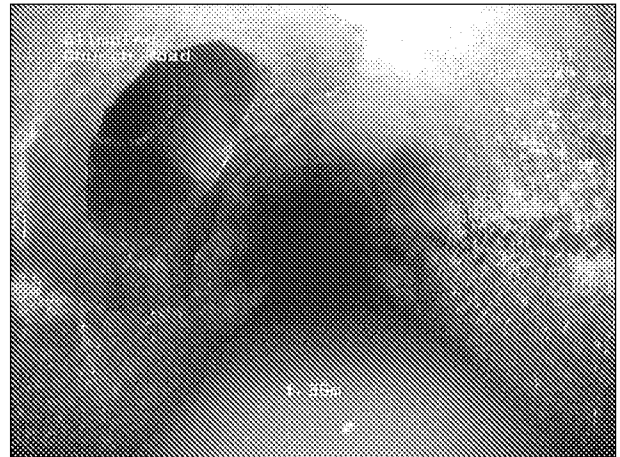


Photo: 118_3a
 1.35m, Junction at 10 o'clock dia 150 mm

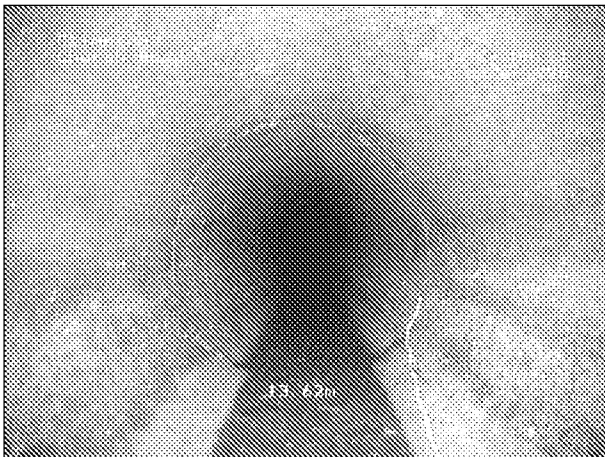


Photo: 120_5a
 13.62m, Roots tap at joint



Photo: 121_6a
 20.17m, Settled deposits fine 10 % cross-sectional area loss

Inspection photos

 Place:
Climping

 Road:
Church Road

 Date:
27/08/2020

 section number:
21

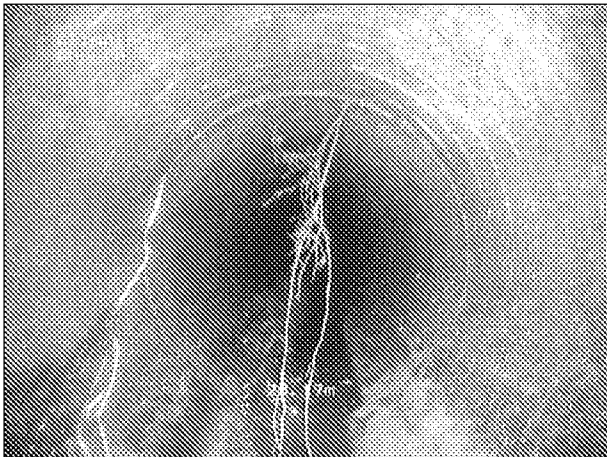
 PLR:
MH 11 X


Photo: 123_8a
20.19m, Roots tap at joint



Photo: 124_9a
36.4m, Junction at 11 o'clock dia 150 mm

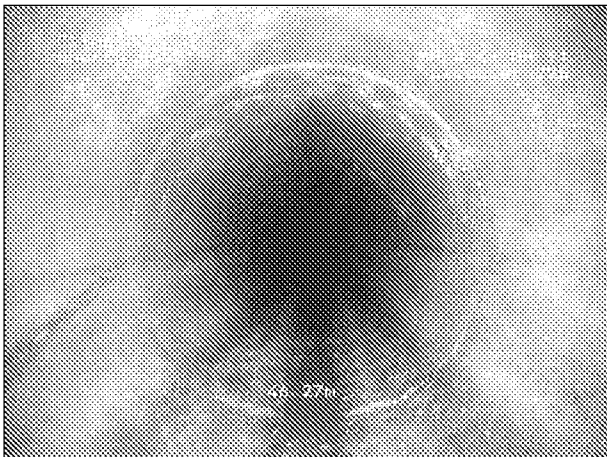


Photo: 125_10a
46.26m, Fine Roots at joint



Photo: 127_12a
57.23m, Fine Roots at joint

Inspection photos

 Place:
Climping

 Road:
Church Road

 Date:
27/08/2020

 section number:
21

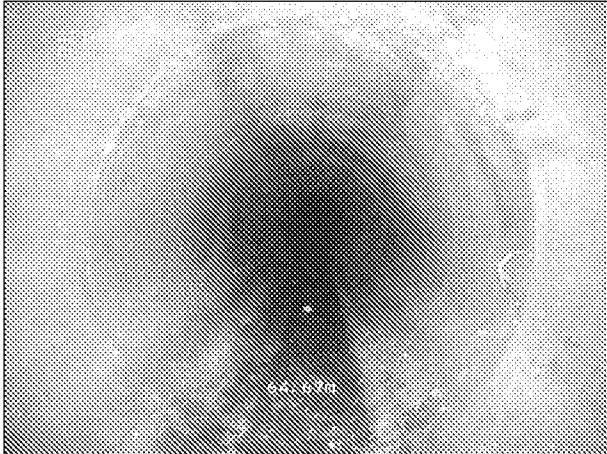
 PLR:
MH 11 X


Photo: 128_13a
 64.69m, Roots tap at joint

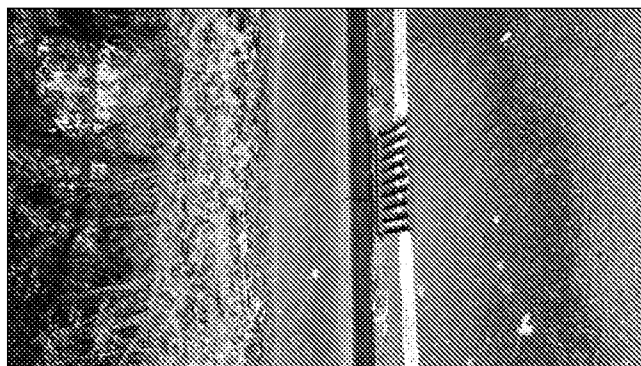
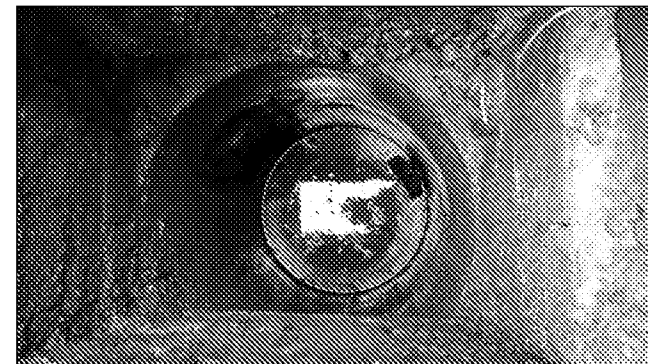
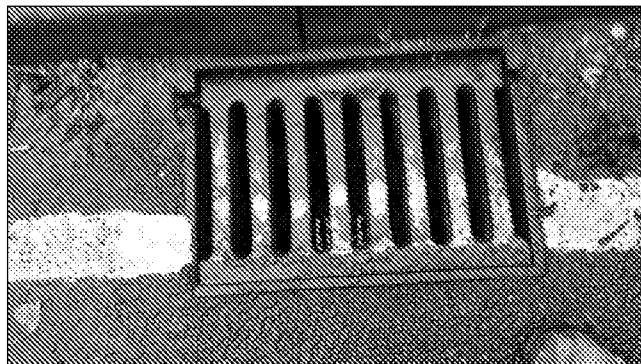
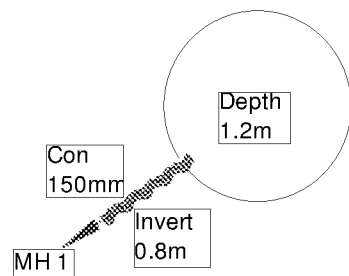


Photo: 129_14a
 71.38m, Finish node type, manhole, reference number: MH 11

Gully Details

Item Type	Gully	System Type	Surface Water	Owner	Highways Authority	Date of Survey	01/09/2020
Downstream Watercourse		Origin of Data	Internal Survey	Other Source			
Easting (m)	500408.885	Northing (m)	102082.685	Identifier		Asset Reference	
Manhole	Gully 1						
Ladder	No	Step Irons	No	Side Entry	No	Manhole Construction	Precast Concrete
Number of Landings	0						
Cover Level (m AOD)	5.564	Cover Shape	Rectangle	Other Shape			Cover Duty
Heavy							
Cover Width (m)	0.52	Cover Length (m)	0.35	Manufacturer			Grating
Yes							
Shaft Width (m)	0	Shaft Length (m)	0	Chamber Width (m)	0.45	Chamber Length (m)	0.45
Flap Valve	☒	Orifice	☒	Sluice Gate	☒	Weir	☒
Screens	☒	Penstock	☒	Flume	☒	Headwall	☒

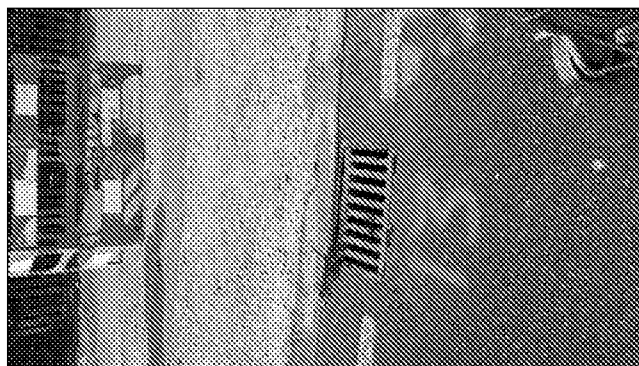
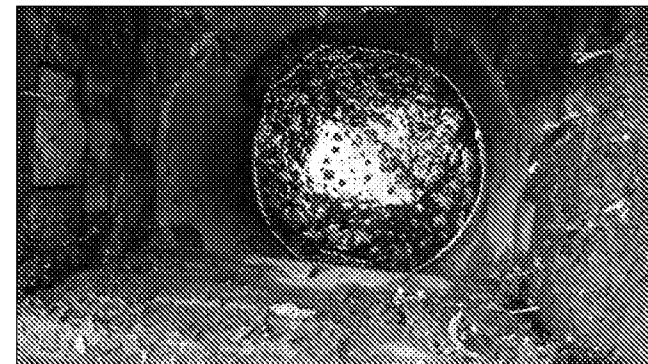
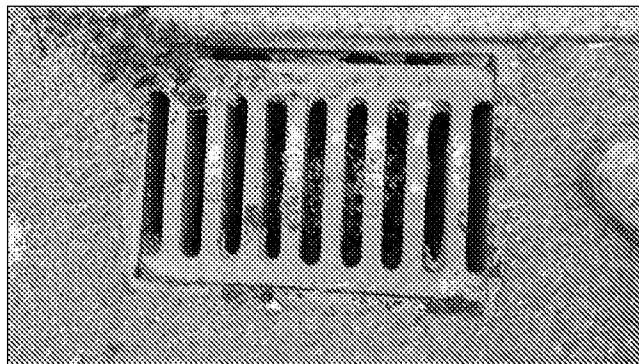
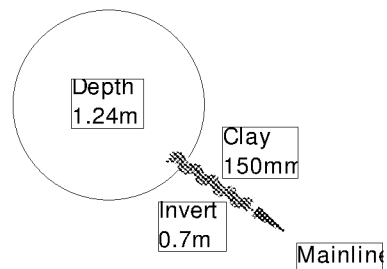
Video Ref.	Photo Ref.	Dist (m)	Cont. defect	Letters				Numbers					Remarks
				Code	Joint	Material	Band	Dimension		%	Clock		
								1	2		At/From	To	
		0.0											



Gully Details

Item Type	Gully	System Type	Surface Water	Owner	Highways Authority	Date of Survey	01/09/2020
Downstream Watercourse		Origin of Data	Internal Survey	Other Source			
Easting (m)	500303.774	Northing (m)	102384.948	Identifier		Asset Reference	
						Manhole	Gully 13
Ladder	No	Step Irons	No	Side Entry	No	Manhole Construction	Precast Concrete
						Number of Landings	0
Cover Level (m AOD)	3.425	Cover Shape	Rectangle	Other Shape			Cover Duty
							Heavy
Cover Width (m)	0.52	Cover Length (m)	0.35	Manufacturer			Grating
							Yes
Shaft Width (m)	0	Shaft Length (m)	0	Chamber Width (m)	0.45	Chamber Length (m)	0
Flap Valve	☒	Orifice	☒	Sluice Gate	☒	Weir	☒
						Screens	☒
						Penstock	☒
						Flume	☒
						Headwall	☒

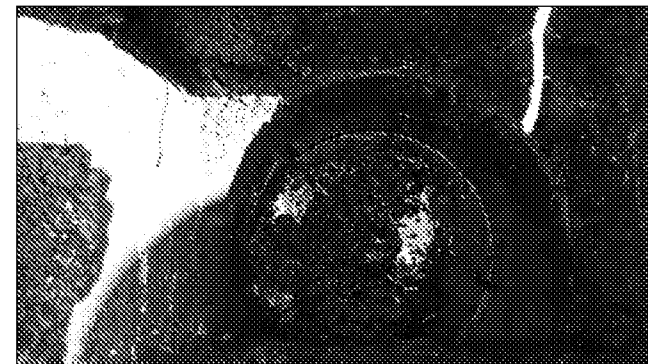
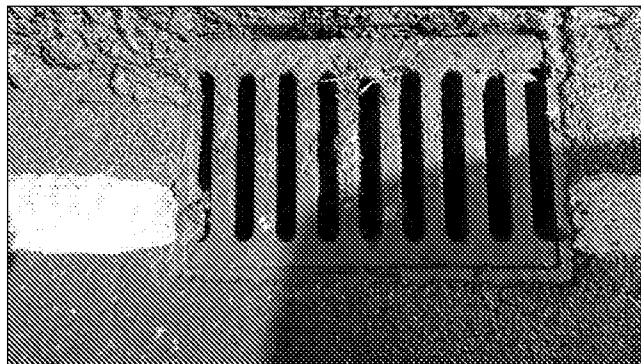
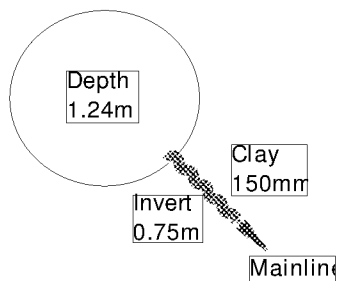
Video Ref.	Photo Ref.	Dist (m)	Cont. defect	Letters				Numbers					Remarks
				Code	Joint	Material	Band	Dimension		%	Clock		
								1	2		At/From	To	
		0.0											



Gully Details

Item Type	Gully	System Type	Surface Water	Owner	Highways Authority	Date of Survey	01/09/2020
Downstream Watercourse		Origin of Data	Internal Survey	Other Source			
Easting (m)	500398.423	Northing (m)	102114.604	Identifier		Asset Reference	
Manhole	Gully 2						
Ladder	No	Step Irons	No	Side Entry	No	Manhole Construction	Precast Concrete
Number of Landings	0						
Cover Level (m AOD)	4.944	Cover Shape	Rectangle	Other Shape			Cover Duty
Cover Width (m)	0.52	Cover Length (m)	0.35	Manufacturer			Grating
	Yes						
Shaft Width (m)	0	Shaft Length (m)	0	Chamber Width (m)	0.45	Chamber Length (m)	0
Flap Valve	☒	Orifice	☒	Sluice Gate	☒	Weir	☒
Screens	☒	Penstock	☒	Flume	☒	Headwall	☒

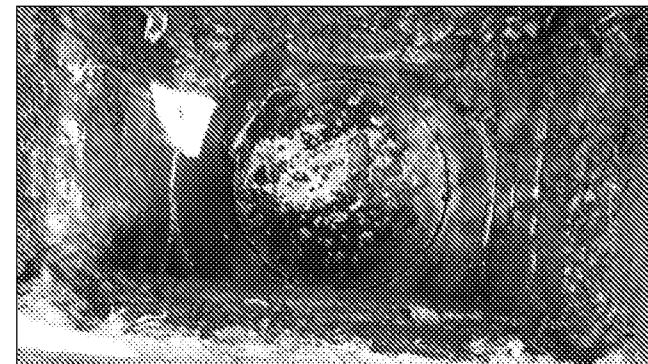
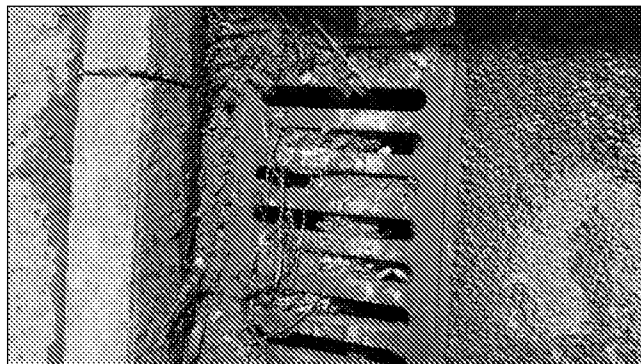
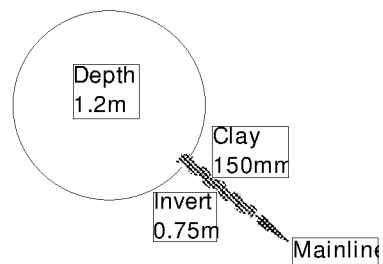
Video Ref.	Photo Ref.	Dist (m)	Cont. defect	Letters				Numbers					Remarks
				Code	Joint	Material	Band	Dimension		%	Clock		
								1	2		At/ From	To	
		0.0											



Gully Details

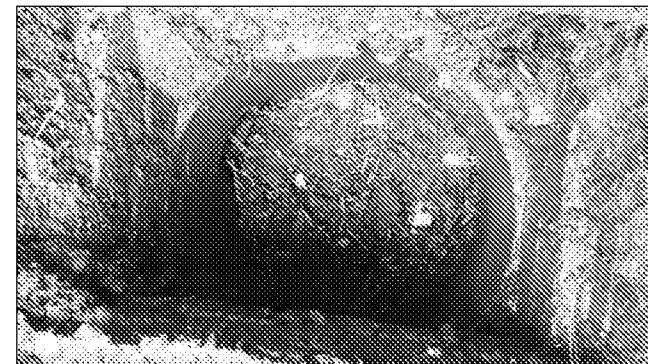
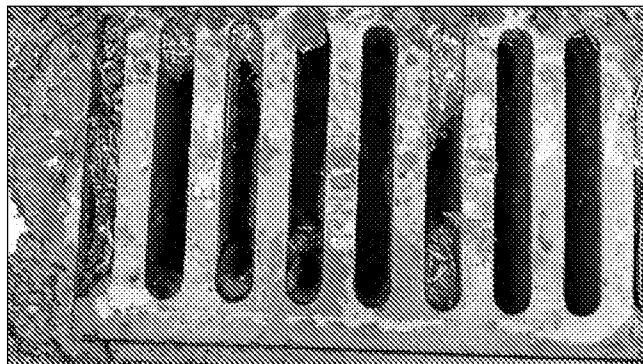
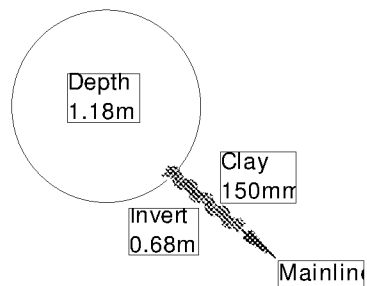
Item Type	Gully	System Type	Surface Water	Owner	Highways Authority	Date of Survey	01/09/2020
Downstream Watercourse		Origin of Data	Internal Survey	Other Source			
Easting (m)	500389.818	Northing (m)	102140.175	Identifier		Asset Reference	
Manhole	Gully 3						
Ladder	No	Step Irons	No	Side Entry	No	Manhole Construction	Precast Concrete
Number of Landings	0						
Cover Level (m AOD)	4.591	Cover Shape	Rectangle	Other Shape			Cover Duty
Heavy							
Cover Width (m)	0.52	Cover Length (m)	0.35	Manufacturer			Grating
Yes							
Shaft Width (m)	0	Shaft Length (m)	0	Chamber Width (m)	0.45	Chamber Length (m)	0
Flap Valve	☒	Orifice	☒	Sluice Gate	☒	Weir	☒
Screens	☒	Penstock	☒	Flume	☒	Headwall	☒

Video Ref.	Photo Ref.	Dist (m)	Cont. defect	Letters				Numbers					Remarks
				Code	Joint	Material	Band	Dimension		%	Clock		
								1	2		At/ From	To	
		0.0											



Gully Details										
Item Type	Gully		System Type	Surface Water		Owner	Highways Authority		Date of Survey	01/09/2020
Downstream Watercourse				Origin of Data	Internal Survey		Other Source			
Easting (m)	500382.272		Northing (m)	102162.204		Identifier			Asset Reference	
									Manhole	Gully 4
Ladder	No		Step Irons	No		Side Entry	No		Manhole Construction	Precast Concrete
									Number of Landings	0
Cover Level (m AOD)	5.436		Cover Shape	Rectangle		Other Shape			Cover Duty	Heavy
Cover Width (m)	0.52		Cover Length (m)	0.35		Manufacturer			Grating	Yes
Shaft Width (m)	0		Shaft Length (m)	0		Chamber Width (m)	0.45		Chamber Length (m)	0
Flap Valve	☒		Orifice	☒		Sluice Gate	☒		Weir	☒
									Screens	☒
									Penstock	☒
									Flume	☒
									Headwall	☒

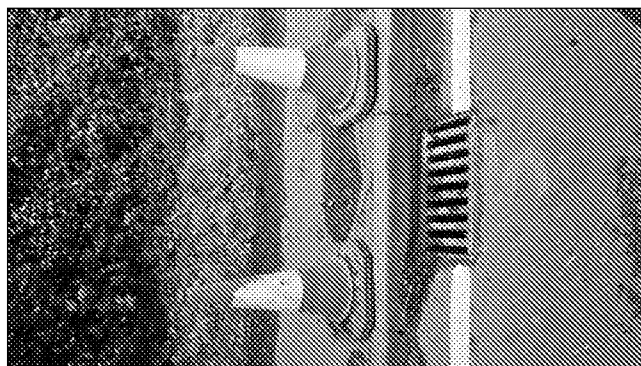
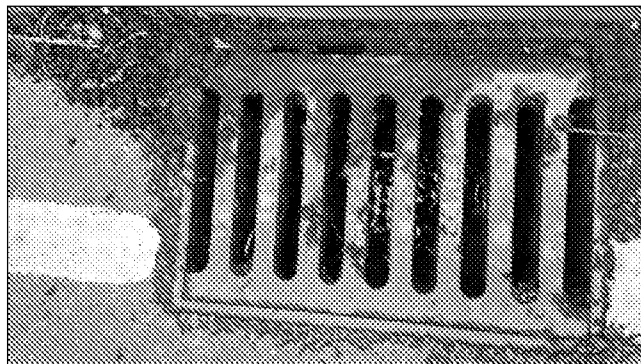
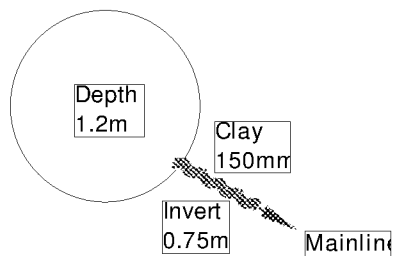
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Gully Details

Item Type	Gully	System Type	Surface Water	Owner	Highways Authority	Date of Survey	01/09/2020
Downstream Watercourse		Origin of Data	Internal Survey	Other Source			
Easting (m)	500373.731	Northing (m)	102189.917	Identifier		Asset Reference	
Manhole	Gully 5						
Ladder	No	Step Irons	No	Side Entry	No	Manhole Construction	Precast Concrete
Number of Landings	0						
Cover Level (m AOD)	4.005	Cover Shape	Rectangle	Other Shape			Cover Duty
Heavy							
Cover Width (m)	0.52	Cover Length (m)	0.35	Manufacturer			Grating
Yes							
Shaft Width (m)	0	Shaft Length (m)	0	Chamber Width (m)	0.45	Chamber Length (m)	0
Flap Valve	☒	Orifice	☒	Sluice Gate	☒	Weir	☒
Screens	☒	Penstock	☒	Flume	☒	Headwall	☒

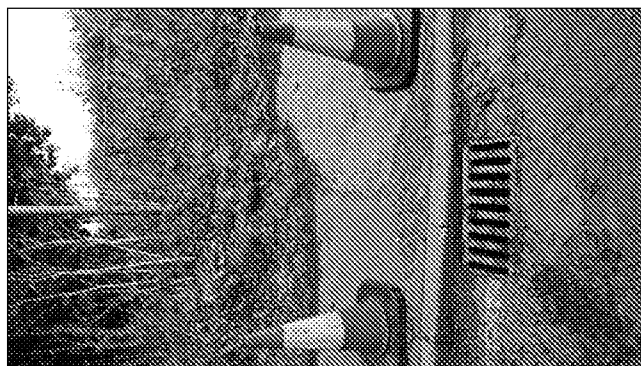
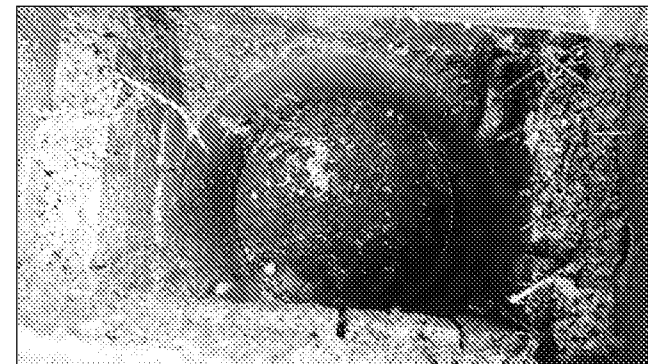
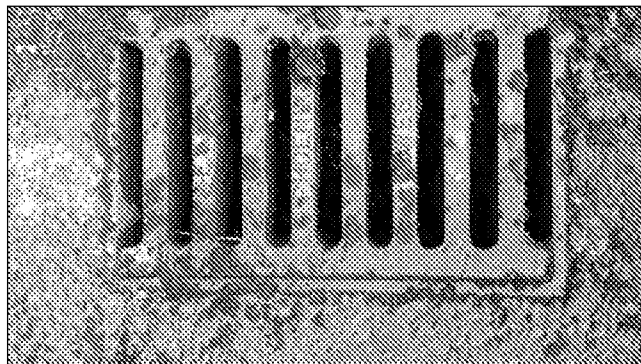
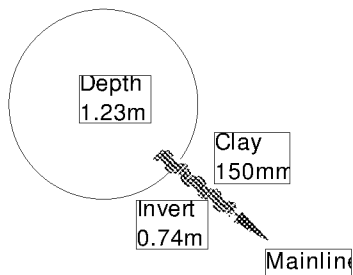
Video Ref.	Photo Ref.	Dist (m)	Cont. defect	Letters				Numbers					Remarks
				Code	Joint	Material	Band	Dimension		%	Clock		
								1	2		At/ From	To	
		0.0											



Gully Details

Item Type	Gully	System Type	Surface Water	Owner	Highways Authority	Date of Survey	01/09/2020
Downstream Watercourse		Origin of Data	Internal Survey	Other Source			
Easting (m)	500367.466	Northing (m)	102210.324	Identifier		Asset Reference	
Manhole	Gully 6						
Ladder	No	Step Irons	No	Side Entry	No	Manhole Construction	Precast Concrete
Number of Landings	0						
Cover Level (m AOD)	3.534	Cover Shape	Rectangle	Other Shape			Cover Duty
Heavy							
Cover Width (m)	0.52	Cover Length (m)	0.32	Manufacturer			Grating
Yes							
Shaft Width (m)	0	Shaft Length (m)	0	Chamber Width (m)	0.45	Chamber Length (m)	0
Flap Valve	☒	Orifice	☒	Sluice Gate	☒	Weir	☒
Screens	☒	Penstock	☒	Flume	☒	Headwall	☒

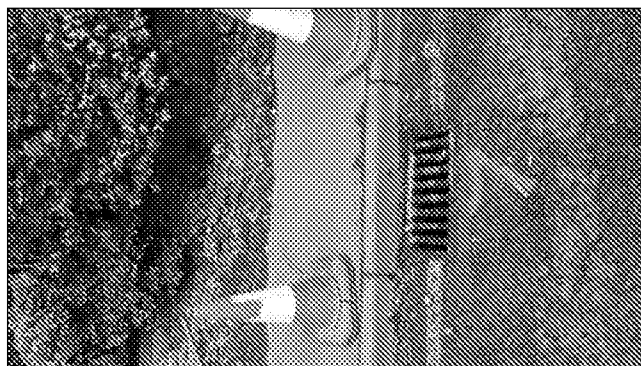
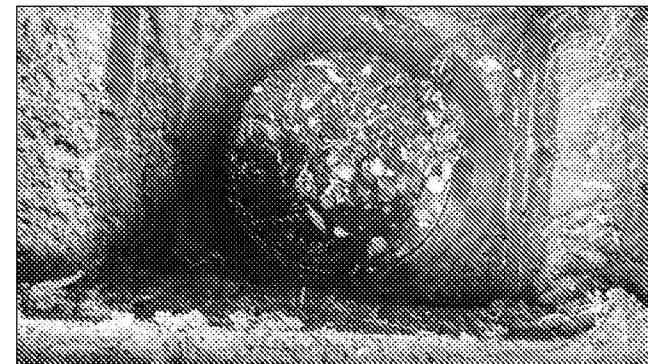
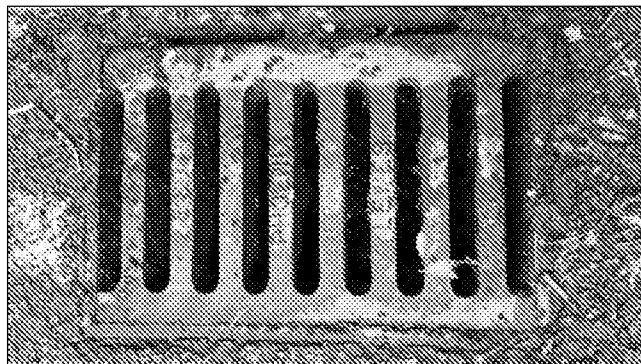
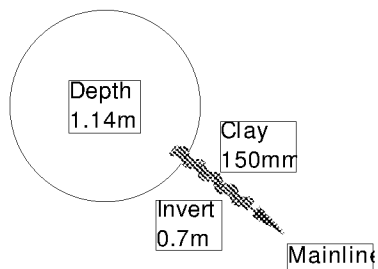
Video Ref.	Photo Ref.	Dist (m)	Cont. defect	Letters				Numbers					Remarks
				Code	Joint	Material	Band	Dimension		%	Clock		
								1	2		At/ From	To	
		0.0											



Gully Details

Item Type	Gully	System Type	Surface Water	Owner	Highways Authority	Date of Survey	01/09/2020
Downstream Watercourse		Origin of Data	Internal Survey	Other Source			
Easting (m)	500358.69	Northing (m)	102240.932	Identifier		Asset Reference	
Manhole	Gully 7						
Ladder	No	Step Irons	No	Side Entry	No	Manhole Construction	Precast Concrete
Number of Landings	0						
Cover Level (m AOD)	1.681	Cover Shape	Rectangle	Other Shape			Cover Duty
Heavy							
Cover Width (m)	0.52	Cover Length (m)	0.35	Manufacturer			Grating
Yes							
Shaft Width (m)	0	Shaft Length (m)	0	Chamber Width (m)	0.45	Chamber Length (m)	0
Flap Valve	☒	Orifice	☒	Sluice Gate	☒	Weir	☒
Screens	☒	Penstock	☒	Flume	☒	Headwall	☒

Video Ref.	Photo Ref.	Dist (m)	Cont. defect	Letters				Numbers					Remarks
				Code	Joint	Material	Band	Dimension		%	Clock		
								1	2		At/ From	To	
		0.0											

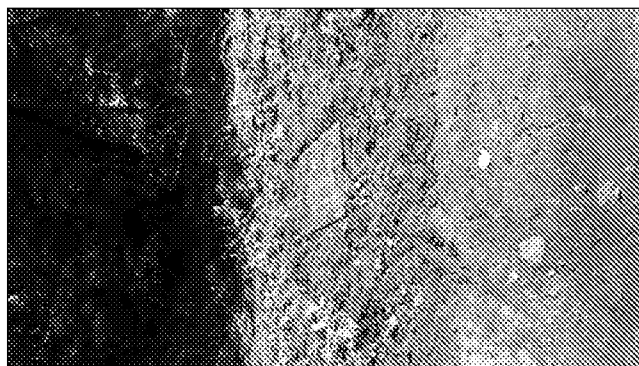
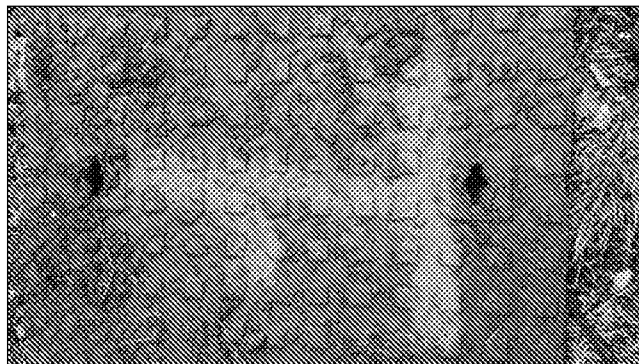
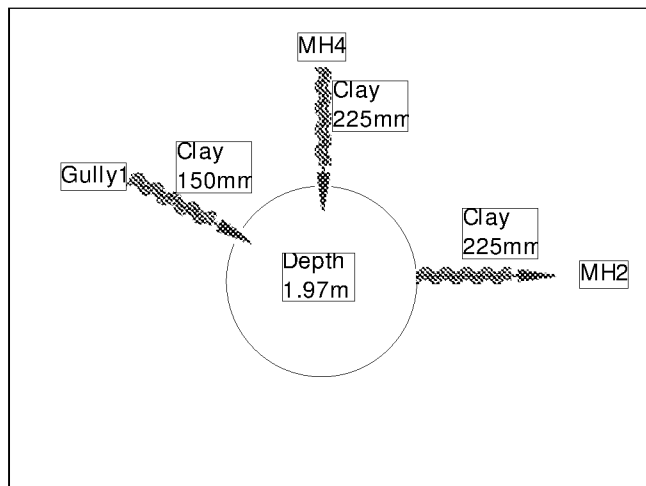


Gully Details										
Item Type	Gully		System Type	Surface Water		Owner	Highways Authority		Date of Survey	01/09/2020
Downstream Watercourse				Origin of Data	Internal Survey		Other Source			
Easting (m)	500351.765		Northing (m)	102262.151		Identifier			Asset Reference	
									Manhole	Gully 8
Ladder	No		Step Irons	No		Side Entry	No		Manhole Construction	Precast Concrete
									Number of Landings	0
Cover Level (m AOD)	3.096		Cover Shape	Rectangle		Other Shape			Cover Duty	Heavy
Cover Width (m)	0.52		Cover Length (m)	0.35		Manufacturer			Grating	No
Shaft Width (m)	0		Shaft Length (m)	0		Chamber Width (m)	0.45		Chamber Length (m)	0
Flap Valve	☒		Orifice	☒		Sluice Gate	☒		Weir	☒
									Screens	☒
									Penstock	☒
									Flume	☒
									Headwall	☒

[illegible]

Manhole Details																							
Item Type	Manhole		System Type	Surface Water		Owner	Highways Authority		Date of Survey	01/09/2020													
Downstream Watercourse				Origin of Data	Internal Survey		Other Source																
Easting (m)	500410.43		Northing (m)	102086.702		Identifier			Asset Reference		Manhole	MH 1											
Ladder	No		Step Irons	4		Side Entry	No		Manhole Construction	Precast Concrete		Number of Landings	0										
Cover Level (m AOD)	5.491		Cover Shape	Rectangle		Other Shape				Cover Duty	Heavy												
Cover Width (m)	0.675		Cover Length (m)	0.525		Manufacturer				Grating	No												
Shaft Width (m)	0		Shaft Length (m)	0		Chamber Width (m)	0.9		Chamber Length (m)	0													
Flap Valve	No		Orifice	No		Sluice Gate	No		Weir	No		Screens	No		Penstock	No		Flume	No		Headwall	☒	

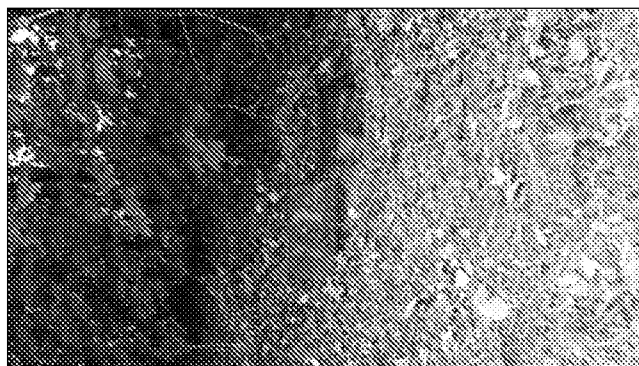
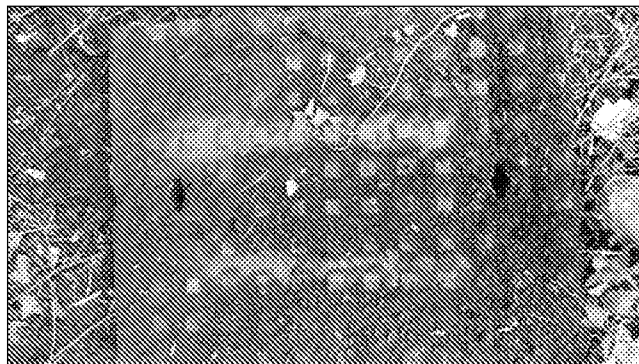
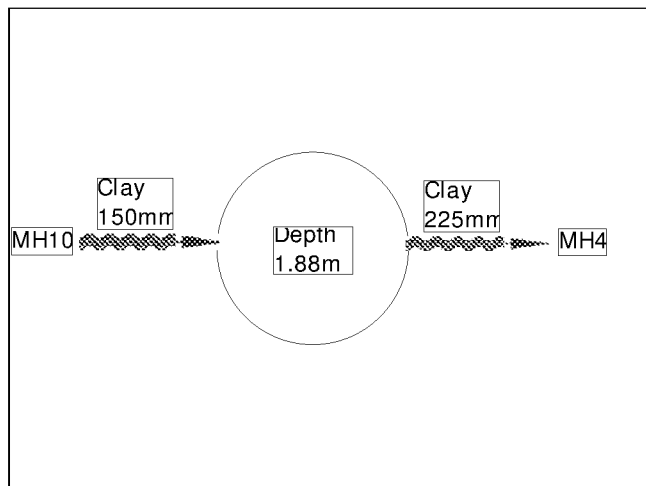
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Manhole Details

Item Type	Manhole	System Type	Surface Water	Owner	Highways Authority	Date of Survey	01/09/2020
Downstream Watercourse		Origin of Data	Internal Survey	Other Source			
Easting (m)	500417.134	Northing (m)	102020.597	Identifier		Asset Reference	
						Manhole	MH 11
Ladder	No	Step Irons	4	Side Entry	No	Manhole Construction	Precast Concrete
						Number of Landings	0
Cover Level (m AOD)	0.223	Cover Shape	Rectangle	Other Shape			Cover Duty
							Heavy. Offset from manhole
Cover Width (m)	0.625	Cover Length (m)	0.525	Manufacturer			Grating
							Yes
Shaft Width (m)	0	Shaft Length (m)	0	Chamber Width (m)	0.9	Chamber Length (m)	0
Flap Valve	No	Orifice	No	Sluice Gate	No	Weir	No
						Screens	No
						Penstock	No
						Flume	No
						Headwall	☒

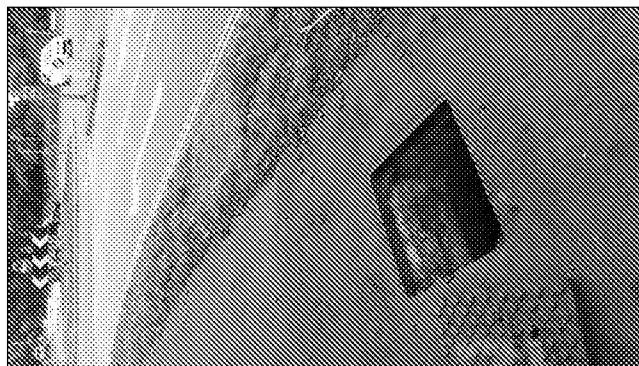
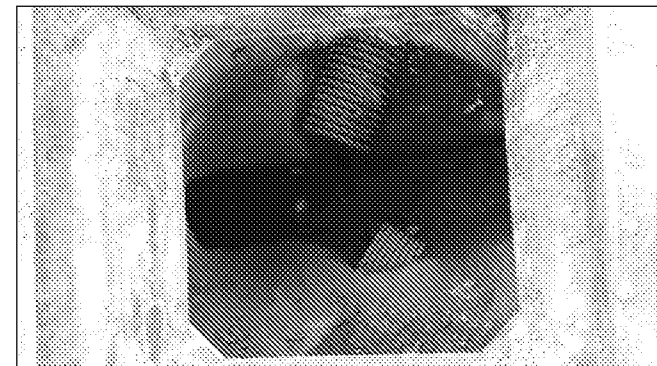
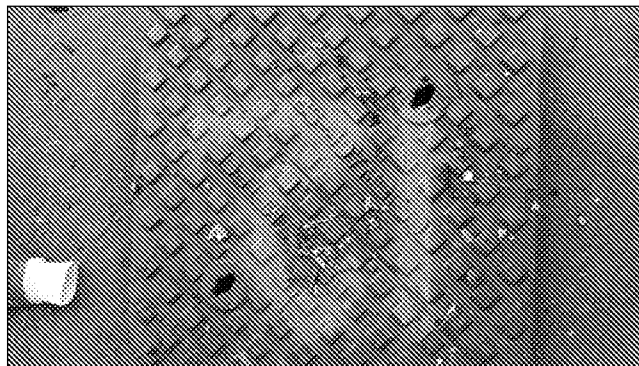
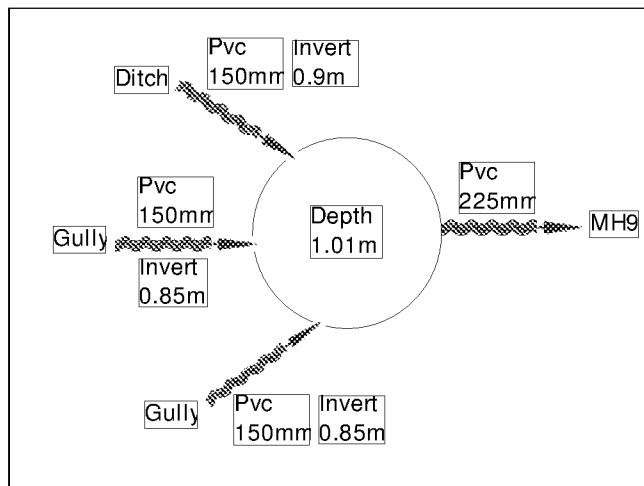
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				Code	Joint	Material	Band	Dimension		%	Clock		
								1	2		At/From	To	
		0.0											



Catchpit Details

Item Type	Catchpit	System Type	Surface Water	Owner	Highways Authority	Date of Survey	01/09/2020
Downstream Watercourse		Origin of Data	Internal Survey	Other Source			
Easting (m)	500422.767	Northing (m)	101932.694	Identifier		Asset Reference	
Ladder	No	Step Irons	No	Side Entry	No	Manhole Construction	Precast Concrete
						Number of Landings	0
Cover Level (m AOD)	6.022	Cover Shape	Square	Other Shape			Cover Duty
							Heavy
Cover Width (m)	0.6	Cover Length (m)	0.6	Manufacturer			Grating
							No
Shaft Width (m)	0	Shaft Length (m)	0	Chamber Width (m)	0.9	Chamber Length (m)	0
Flap Valve	☒	Orifice	☒	Sluice Gate	☒	Weir	☒
						Screens	☒
						Penstock	☒
						Flume	☒
						Headwall	☒

Video Ref.	Photo Ref.	Dist (m)	Cont. defect	Letters				Numbers				Remarks	
				Code	Joint	Material	Band	Dimension		%	Clock		
								1	2		At/From		To
		0.0											

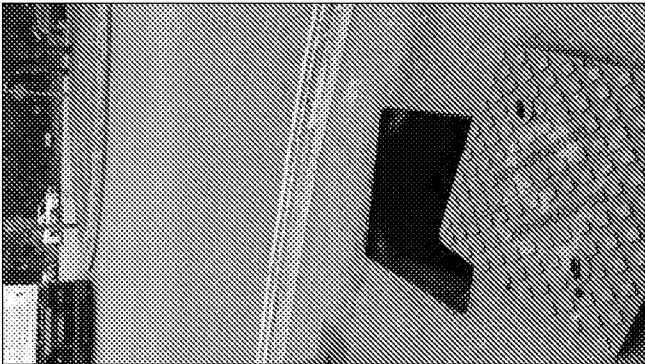
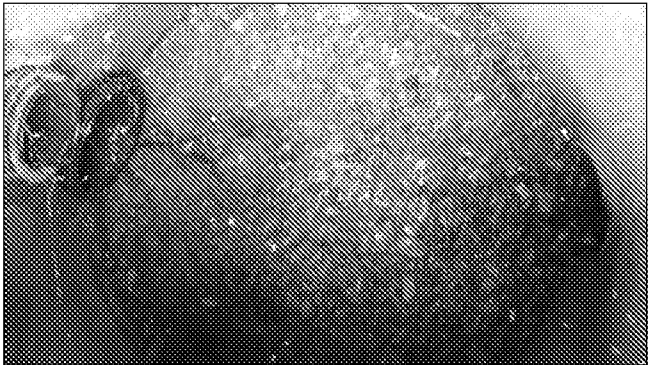
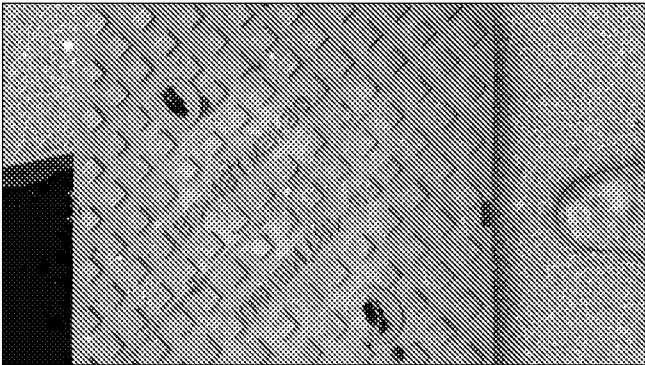
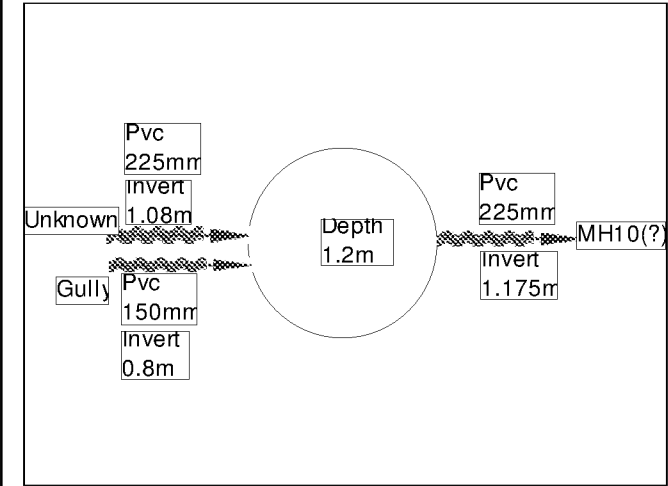


Catchpit Details

Item Type	Catchpit	System Type	Surface Water	Owner	Highways Authority	Date of Survey	01/09/2020
Downstream Watercourse		Origin of Data	Internal Survey	Other Source			
Easting (m)	500459.908	Northing (m)	101952.702	Identifier		Asset Reference	
Ladder	No	Step Irons	No	Side Entry	No	Manhole Construction	Precast Concrete
						Number of Landings	0
Cover Level (m AOD)	4.139	Cover Shape	Square	Other Shape			Cover Duty
							Heavy
Cover Width (m)	0.6	Cover Length (m)	0.6	Manufacturer			Grating
							No
Shaft Width (m)	0	Shaft Length (m)	0	Chamber Width (m)	1.05	Chamber Length (m)	0
Flap Valve	☒	Orifice	☒	Sluice Gate	☒	Weir	☒
						Screens	☒
						Penstock	☒
						Flume	☒
						Headwall	☒

Video Ref.	Photo Ref.	Dist (m)	Cont. defect	Letters				Numbers					Remarks
				Code	Joint	Material	Band	Dimension		%	Clock		
								1	2		At/From	To	
		0.0											

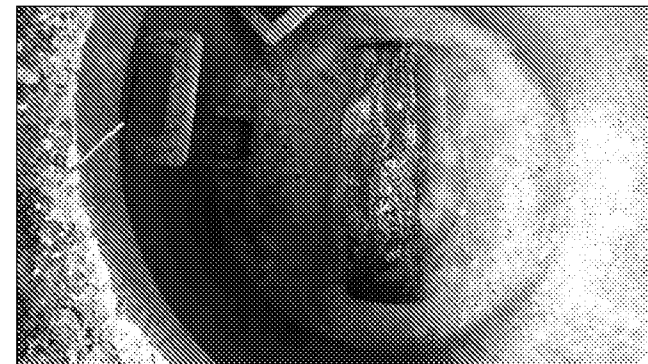
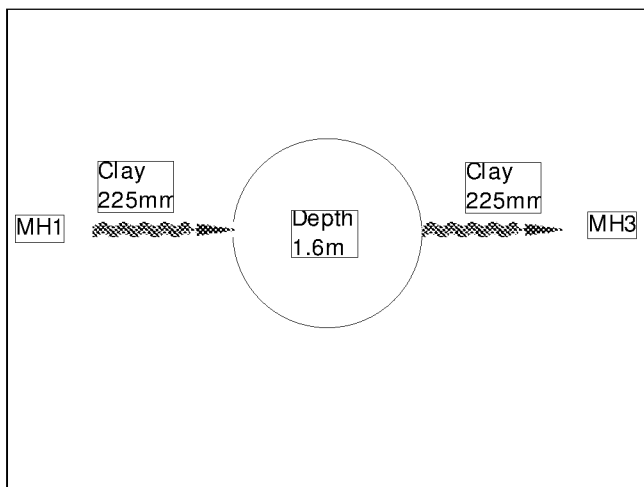
MH 13



Manhole Details

Item Type	Manhole	System Type	Surface Water	Owner	Highways Authority	Date of Survey	01/09/2020
Downstream Watercourse		Origin of Data	Internal Survey	Other Source			
Easting (m)	500388.651	Northing (m)	0	Identifier		Asset Reference	
Ladder	No	Step Irons	3	Side Entry	No	Manhole Construction	Precast Concrete
Cover Level (m AOD)	5.14	Cover Shape	Rectangle	Other Shape			Number of Landings
Cover Width (m)	0.675	Cover Length (m)	0.525	Manufacturer			Grating
Shaft Width (m)	0	Shaft Length (m)	0	Chamber Width (m)	0.9	Chamber Length (m)	0
Flap Valve	No	Orifice	No	Sluice Gate	No	Weir	No
Screens	No	Penstock	No	Flume	No	Headwall	☒

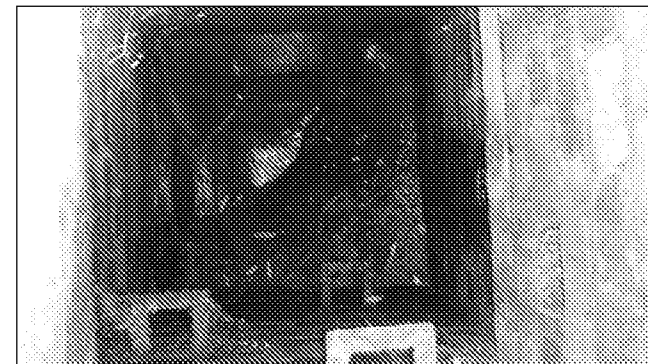
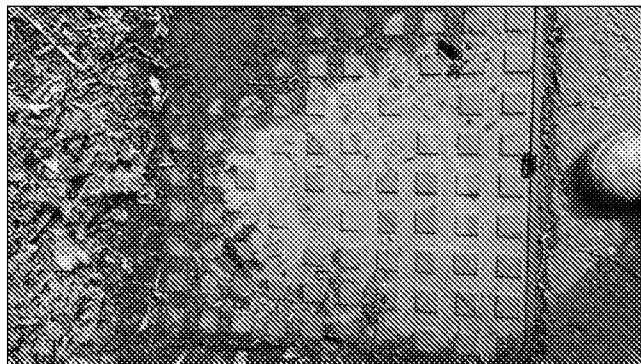
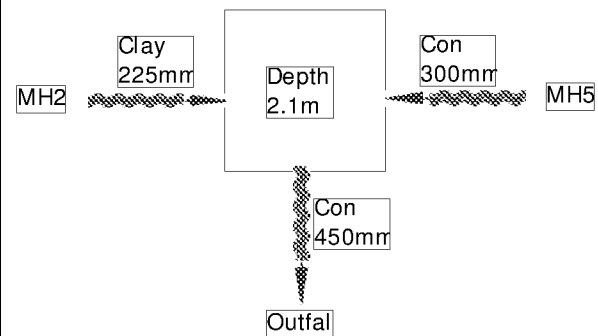
Video Ref.	Photo Ref.	Dist (m)	Cont. defect	Letters				Numbers					Remarks
				Code	Joint	Material	Band	Dimension		%	Clock		
								1	2		At/ From	To	
		0.0											



Manhole Details

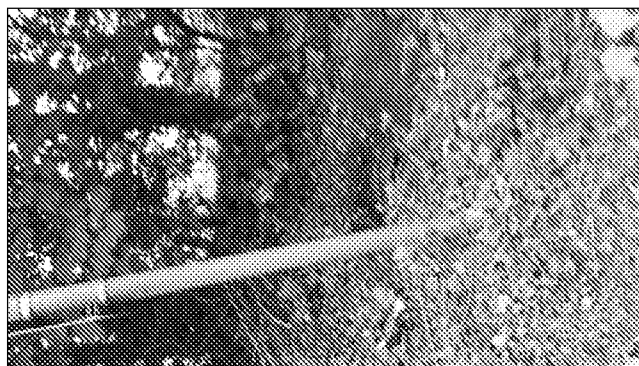
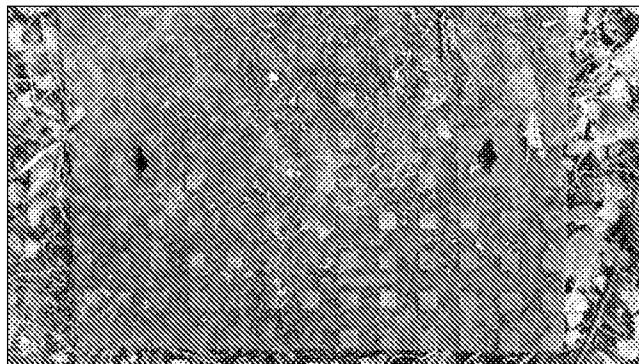
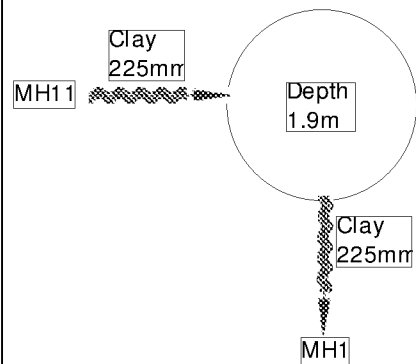
Item Type	Manhole	System Type	Surface Water	Owner	Highways Authority	Date of Survey	01/09/2020
Downstream Watercourse		Origin of Data	Internal Survey	Other Source			
Easting (m)	500368.197	Northing (m)	102210.699	Identifier		Asset Reference	
						Manhole	MH 3
Ladder	No	Step Irons	4	Side Entry	No	Manhole Construction	Brick
						Number of Landings	0
Cover Level (m AOD)	7.057	Cover Shape	Square	Other Shape			Cover Duty
							Heavy
Cover Width (m)	0.62	Cover Length (m)	0.62	Manufacturer			Grating
							No
Shaft Width (m)	0.53	Shaft Length (m)	0.45	Chamber Width (m)	1	Chamber Length (m)	1
Flap Valve	No	Orifice	No	Sluice Gate	No	Weir	No
						Screens	No
						Penstock	No
						Flume	No
						Headwall	☒

Video Ref.	Photo Ref.	Dist (m)	Cont. defect	Letters				Numbers					Remarks
				Code	Joint	Material	Band	Dimension		%	Clock		
								1	2		At/ From	To	
		0.0											



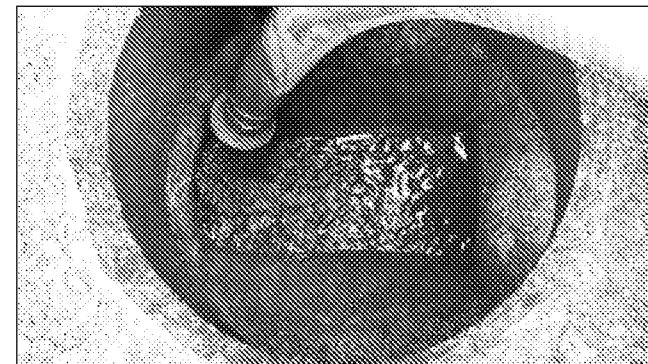
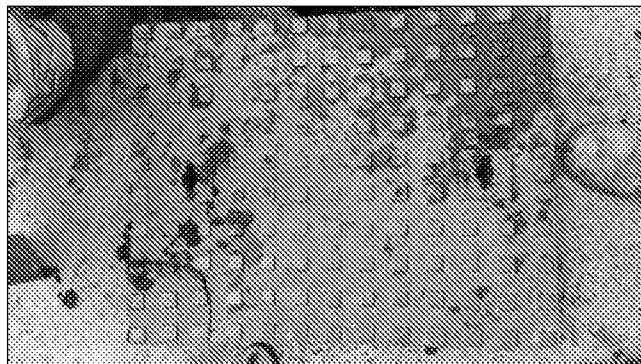
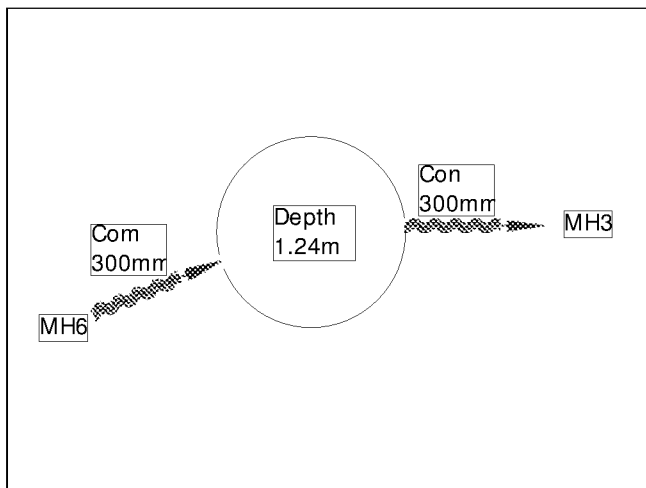
Manhole Details																							
Item Type	Manhole		System Type	Surface Water		Owner	Highways Authority		Date of Survey	01/09/2020													
Downstream Watercourse				Origin of Data	Internal Survey		Other Source																
Easting (m)	500399.922		Northing (m)	102080.611		Identifier			Asset Reference		Manhole	MH 4											
Ladder	No		Step Irons	4		Side Entry	No		Manhole Construction	Precast Concrete		Number of Landings	0										
Cover Level (m AOD)	5.566		Cover Shape	Rectangle		Other Shape				Cover Duty	Heavy												
Cover Width (m)	0.675		Cover Length (m)	0.525		Manufacturer				Grating	No												
Shaft Width (m)	0		Shaft Length (m)	0		Chamber Width (m)	0.9		Chamber Length (m)	0													
Flap Valve	No		Orifice	No		Sluice Gate	No		Weir	No		Screens	No		Penstock	No		Flume	No		Headwall	☐	

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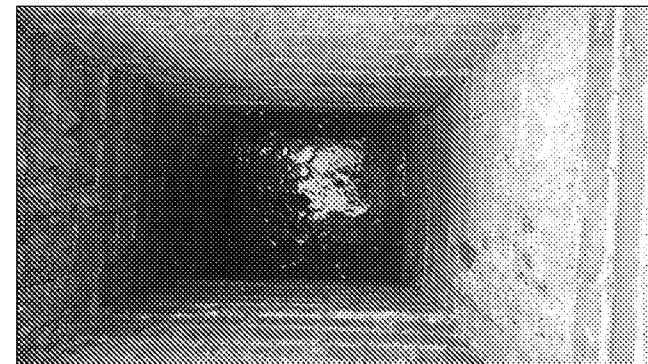
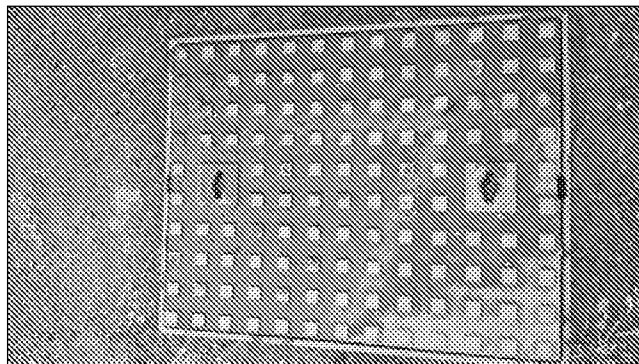
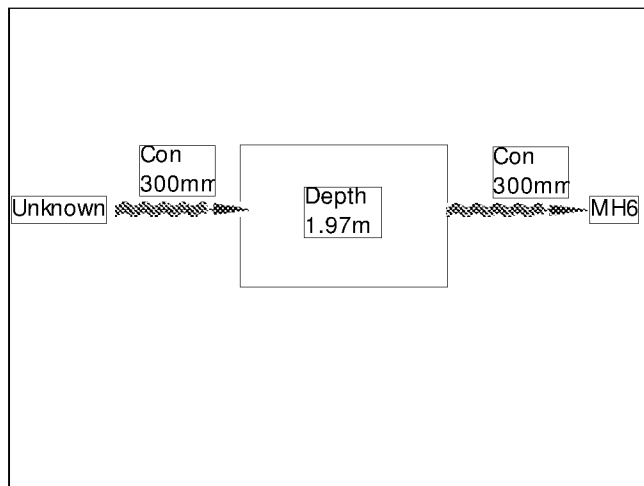
Manhole Details										
Item Type	Manhole		System Type	Surface Water		Owner	Highways Authority		Date of Survey	01/09/2020
Downstream Watercourse				Origin of Data	Internal Survey		Other Source			
Easting (m)	500347.431		Northing (m)	102283.187		Identifier			Asset Reference	
									Manhole	MH 5
Ladder	No		Step Irons	2		Side Entry	No		Manhole Construction	Precast Concrete
									Number of Landings	0
Cover Level (m AOD)	3.219		Cover Shape	Rectangle		Other Shape			Cover Duty	Heavy.Damaged
Cover Width (m)	0.625		Cover Length (m)	0.525		Manufacturer			Grating	No
Shaft Width (m)	0		Shaft Length (m)	0		Chamber Width (m)	0.9		Chamber Length (m)	0
Flap Valve	No		Orifice	No		Sluice Gate	No		Weir	No
									Screens	No
									Penstock	No
									Flume	No
									Headwall	

[illegible]



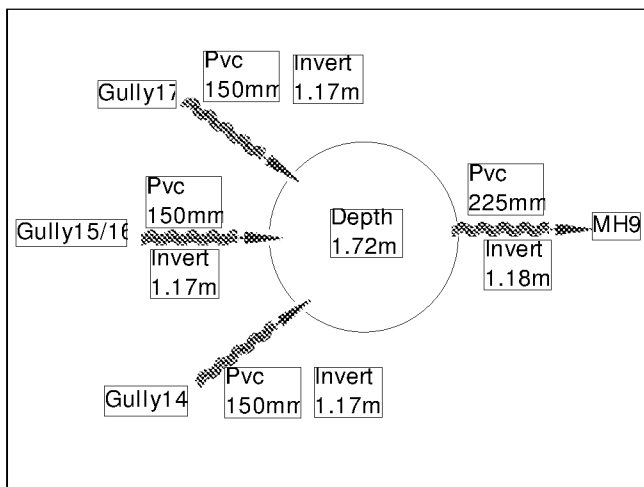
Manhole Details															
Item Type	Manhole		System Type	Surface Water		Owner	Highways Authority		Date of Survey	01/09/2020					
Downstream Watercourse				Origin of Data	Internal Survey		Other Source								
Easting (m)	500301.142		Northing (m)	102383.724		Identifier		Asset Reference							
									Manhole	MH 7					
Ladder	No	Step Irons	No	Side Entry	No	Manhole Construction	Brick		Number of Landings	0					
Cover Level (m AOD)	3.546		Cover Shape	Rectangle		Other Shape			Cover Duty	Heavy					
Cover Width (m)	0.625		Cover Length (m)	0.525		Manufacturer			Grating	No					
Shaft Width (m)	0.6		Shaft Length (m)	0.45		Chamber Width (m)	0.6		Chamber Length (m)	1					
Flap Valve	No	Orifice	No	Sluice Gate	No	Weir	No	Screens	No	Penstock	No	Flume	No	Headwall	☒

[illegible]



Manhole Details																							
Item Type	Manhole		System Type	Surface Water		Owner	Highways Authority		Date of Survey	01/09/2020													
Downstream Watercourse					Origin of Data	External Survey		Other Source															
Easting (m)	500451.468		Northing (m)	101938.884		Identifier			Asset Reference		Manhole	MH 8											
Ladder	No		Step Irons	No		Side Entry	No		Manhole Construction	Precast Concrete		Number of Landings	0										
Cover Level (m AOD)	2.059		Cover Shape	Square		Other Shape			Cover Duty	Heavy													
Cover Width (m)	0.6		Cover Length (m)	0.6		Manufacturer				Grating	No												
Shaft Width (m)	0.55		Shaft Length (m)	0.55		Chamber Width (m)	1.05		Chamber Length (m)	0													
Flap Valve	No		Orifice	No		Sluice Gate	No		Weir	No		Screens	No		Penstock	No		Flume	No		Headwall	☐	

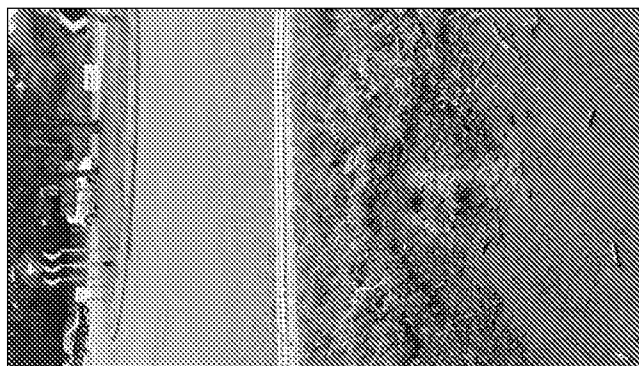
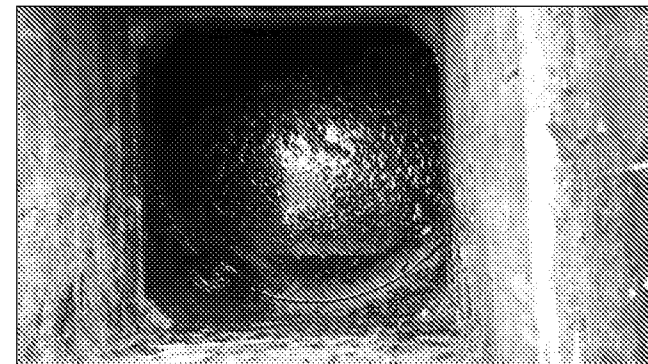
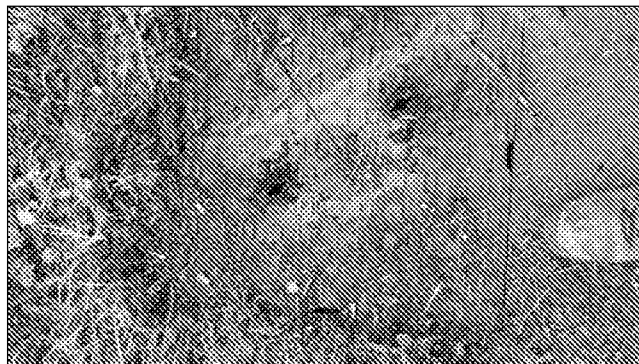
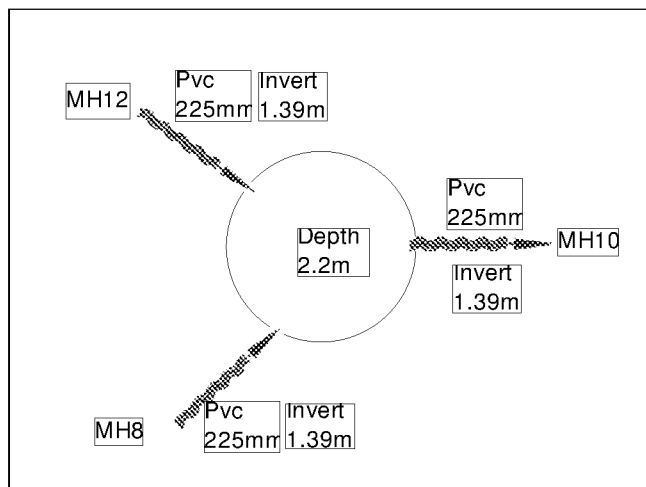
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Catchpit Details

Item Type	Catchpit	System Type	Surface Water	Owner	Highways Authority	Date of Survey	01/09/2020
Downstream Watercourse		Origin of Data	External Survey	Other Source			
Easting (m)	500438.61	Northing (m)	101946.763	Identifier		Asset Reference	
Manhole	MH 9						
Ladder	No	Step Irons	No	Side Entry	No	Manhole Construction	Precast Concrete
Number of Landings	0						
Cover Level (m AOD)	4.044	Cover Shape	Square	Other Shape			Cover Duty
Heavy							
Cover Width (m)	0.6	Cover Length (m)	0.6	Manufacturer			Grating
No							
Shaft Width (m)	0.55	Shaft Length (m)	0.55	Chamber Width (m)	1.05	Chamber Length (m)	0
Flap Valve	☒	Orifice	☒	Sluice Gate	☒	Weir	☒
Screens	☒	Penstock	☒	Flume	☒	Headwall	☒

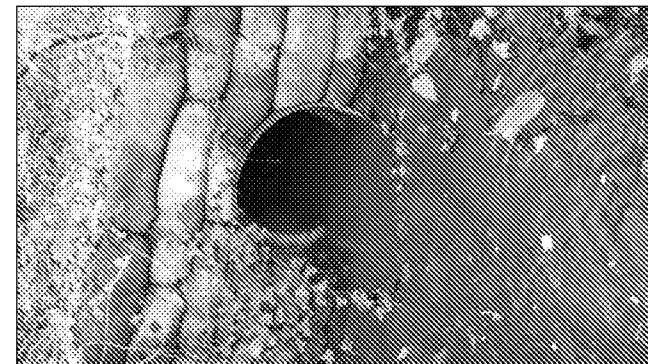
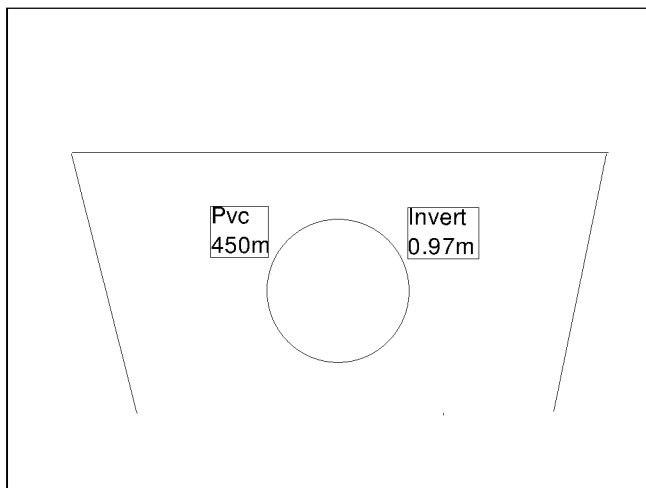
Video Ref.	Photo Ref.	Dist (m)	Cont. defect	Letters				Numbers					Remarks
				Code	Joint	Material	Band	Dimension		%	Clock		
								1	2		At/ From	To	
		0.0											



Outfall Details

Item Type	Outfall	System Type		Owner	Highways Authority	Date of Survey	01/09/2020
Downstream Watercourse		Origin of Data	External Survey	Other Source			
Easting (m)	500440.946	Northing (m)	102253.653	Identifier		Asset Reference	
Manhole	Outfall						
Ladder	☒	Step Irons	☒	Side Entry	☒	Manhole Construction	
Number of Landings	☒						
Cover Level (m AOD)	2.663	Cover Shape		Other Shape		Cover Duty	
Cover Width (m)		Cover Length (m)		Manufacturer		Grating	☒
Shaft Width (m)		Shaft Length (m)		Chamber Width (m)		Chamber Length (m)	
Flap Valve	☐	Orifice	☒	Sluice Gate	☒	Weir	☒
Screens	☐	Penstock	☒	Flume	☒	Headwall	☐

Video Ref.	Photo Ref.	Dist (m)	Cont. defect	Letters				Numbers					Remarks
				Code	Joint	Material	Band	Dimension		%	Clock		
								1	2		At/From	To	
		0.0											



Appendix I Causeway Flow Hydraulic Calculations

Greenfield runoff rate estimation for sites

www.uksuds.com | Greenfield runoff tool

Calculated by:

Site name:

Site location:

This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance "Rainfall runoff management for developments", SC030219 (2013), the SuDS Manual C753 (Ciria, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

Site Details

Latitude:

Longitude:

Reference:

Date:

Runoff estimation approach

Site characteristics

Total site area (ha):

Methodology

Q_{BAR} estimation method:

SPR estimation method:

Soil characteristics

	Default	Edited
SOIL type:	3	3
HOST class:	N/A	N/A
SPR/SPRHOST:	0.37	0.37

Hydrological characteristics

	Default	Edited
SAAR (mm):	722	722
Hydrological region:	7	7
Growth curve factor 1 year:	0.85	0.85
Growth curve factor 30 years:	2.3	2.3
Growth curve factor 100 years:	3.19	3.19
Growth curve factor 200 years:	3.74	3.74

Notes

(1) Is $Q_{BAR} < 2.0$ l/s/ha?

When Q_{BAR} is < 2.0 l/s/ha then limiting discharge rates are set at 2.0 l/s/ha.

(2) Are flow rates < 5.0 l/s?

Where flow rates are less than 5.0 l/s consent for discharge is usually set at 5.0 l/s if blockage from vegetation and other materials is possible. Lower consent flow rates may be set where the blockage risk is addressed by using appropriate drainage elements.

(3) Is $SPR/SPRHOST \leq 0.3?$

Where groundwater levels are low enough the use of soakaways to avoid discharge offsite would normally be preferred for disposal of surface water runoff.

Greenfield runoff rates

	Default	Edited
Q_{BAR} (l/s):	80.87	80.87
1 in 1 year (l/s):	68.74	68.74
1 in 30 years (l/s):	186	186
1 in 100 year (l/s):	257.98	257.98
1 in 200 years (l/s):	302.46	302.46

This report was produced using the greenfield runoff tool developed by HR Wallingford and available at www.uksuds.com. The use of this tool is subject to the UK SuDS terms and conditions and licence agreement, which can both be found at www.uksuds.com/terms-and-conditions.htm. The outputs from this tool are estimates of greenfield runoff rates. The use of these results is the responsibility of the users of this tool. No liability will be accepted by HR Wallingford, the Environment Agency, CEH, Hydrosolutions or any other organisation for the use of this data in the design or operational characteristics of any drainage scheme.

Greenfield runoff rate estimation for sites

www.uksuds.com | Greenfield runoff tool

Calculated by:	Stuart Burnett
Site name:	Church Lane, Climping
Site location:	

This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance "Rainfall runoff management for developments", SC030219 (2013), the SuDS Manual C753 (Ciria, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

Site Details

Latitude:	50.80884° N
Longitude:	0.58194° W
Reference:	2834189257
Date:	Aug 11 2021 15:33

Runoff estimation approach

IH124

Site characteristics

Total site area (ha):	6.7
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Methodology

Q _{BAR} estimation method:	Calculate from SPR and SAAR
SPR estimation method:	Calculate from SOIL type

Soil characteristics

	Default	Edited
SOIL type:	3	3
HOST class:	N/A	N/A
SPR/SPRHOST:	0.37	0.37

Hydrological characteristics

	Default	Edited
SAAR (mm):	709	709
Hydrological region:	7	7
Growth curve factor 1 year:	0.85	0.85
Growth curve factor 30 years:	2.3	2.3
Growth curve factor 100 years:	3.19	3.19
Growth curve factor 200 years:	3.74	3.74

Notes

(1) Is Q_{BAR} < 2.0 l/s/ha?

When Q_{BAR} is < 2.0 l/s/ha then limiting discharge rates are set at 2.0 l/s/ha.

(2) Are flow rates < 5.0 l/s?

Where flow rates are less than 5.0 l/s consent for discharge is usually set at 5.0 l/s if blockage from vegetation and other materials is possible. Lower consent flow rates may be set where the blockage risk is addressed by using appropriate drainage elements.

(3) Is SPR/SPRHOST ≤ 0.3?

Where groundwater levels are low enough the use of soakaways to avoid discharge offsite would normally be preferred for disposal of surface water runoff.

Greenfield runoff rates

	Default	Edited
Q _{BAR} (l/s):	19.54	19.54
1 in 1 year (l/s):	16.61	16.61
1 in 30 years (l/s):	44.94	44.94
1 in 100 year (l/s):	62.32	62.32
1 in 200 years (l/s):	73.07	73.07

This report was produced using the greenfield runoff tool developed by HR Wallingford and available at www.uksuds.com. The use of this tool is subject to the UK SuDS terms and conditions and licence agreement, which can both be found at www.uksuds.com/terms-and-conditions.htm. The outputs from this tool are estimates of greenfield runoff rates. The use of these results is the responsibility of the users of this tool. No liability will be accepted by HR Wallingford, the Environment Agency, CEH, Hydrosolutions or any other organisation for the use of this data in the design or operational characteristics of any drainage scheme.



Design Settings

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	30.00
Return Period (years)	2	Maximum Rainfall (mm/hr)	250.0
Additional Flow (%)	10	Minimum Velocity (m/s)	1.00
FSR Region	England and Wales	Connection Type	Level Soffits
M5-60 (mm)	20.000	Minimum Backdrop Height (m)	0.500
Ratio-R	0.400	Preferred Cover Depth (m)	1.200
CV	0.750	Include Intermediate Ground	✓
Time of Entry (mins)	5.00	Enforce best practice design rules	x

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
43		5.00	6.100	1350	499618.879	101994.507	0.750
42			6.200	1350	499644.792	102006.141	0.907
41			6.400	1350	499676.956	102010.060	1.172
40			6.500	1350	499738.309	102031.498	1.402
39			6.600	1350	499785.427	102041.935	1.599
106	0.058	5.00	6.725	1350	499869.547	102001.228	1.350
48	0.028	5.00	6.825	1350	499842.994	101967.614	1.500
47	0.007	5.00	6.775	1350	499838.582	101977.760	1.500
46	0.022	5.00	6.875	1350	499835.636	101992.310	1.649
45	0.050	5.00	6.900	1350	499826.360	101999.895	1.714
44	0.050	5.00	6.775	1350	499826.253	102019.379	1.654
38			6.500		499817.866	102053.852	1.568
37			6.600	1350	499823.531	102055.933	1.680
36			6.100	1350	499929.256	102081.486	1.398
59	0.033	5.00	6.350		499856.698	102050.129	0.560
58			6.100	1350	499855.654	102055.529	0.900
57	0.033	5.00	5.925		499897.061	102058.396	0.560
56	0.051	5.00	5.700	1350	499896.017	102063.796	0.750
54	0.033	5.00	6.250		499986.370	102085.451	0.560
53	0.020	5.00	6.025	1350	499984.743	102090.705	1.050
52	0.033	5.00	5.975		499962.800	102077.212	0.560
51	0.029	5.00	5.750	1350	499961.172	102082.465	0.860
50	0.033	5.00	5.750		499937.817	102068.586	0.560
49	0.064	5.00	5.525	1350	499936.190	102073.840	0.725
35			6.000		499933.416	102082.793	1.307
104	0.014	5.00	6.825		499912.717	101962.003	0.560
103	0.052	5.00	6.650	1350	499918.787	101969.949	1.350
105	0.014	5.00	6.350		499908.667	102002.928	0.560
102	0.095	5.00	6.325	1350	499913.524	102009.285	1.350
101	0.082	5.00	6.100	1500	499942.429	102016.613	1.125
109	0.041	5.00	6.525	1350	499984.705	101963.478	1.350
108	0.028	5.00	6.350	1350	499980.296	101983.300	1.350
107	0.054	5.00	6.250	1500	499972.787	101995.189	1.350
100	0.056	5.00	6.075	1500	499962.231	102023.270	1.500
99	0.102	5.00	6.475	1500	500009.217	102036.855	1.700
98	0.123	5.00	6.250	1500	500061.628	102051.624	1.575
110	0.085	5.00	6.425	1350	500051.102	102072.420	1.800
111	0.025	5.00	6.500	1350	500048.605	102085.091	1.925
55			6.575	1350	500043.430	102106.146	2.050
34			5.900	1350	500034.537	102114.554	1.419
33			5.700	1350	500135.576	102140.119	1.425



Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
32			5.250		500155.575	102139.997	1.750
93	0.022	5.00	6.400		500054.095	101885.610	0.560
92			6.300	1350	500052.819	101890.960	1.300
94	0.022	5.00	6.550		500130.106	101903.740	0.560
91	0.073	5.00	6.425	1350	500128.830	101909.090	1.685
90	0.133	5.00	6.200	1350	500201.491	101928.954	1.861
89			6.050	1350	500207.311	101935.324	1.728
166	0.100	5.00	5.750		500215.524	101964.274	0.560
88	0.017	5.00	5.750	1500	500208.635	101965.279	1.500
87	0.030	5.00	6.025	1350	500207.392	101991.613	1.828
86			6.350	1500	500203.671	102019.184	2.209
112	0.120	5.00	6.175	1350	500062.981	102001.238	1.500
97	0.093	5.00	5.900	1500	500083.305	102008.798	1.628
116	0.057	5.00	6.200	1350	500106.325	102097.263	1.500
115	0.070	5.00	6.100	1350	500110.728	102083.421	1.500
114	0.086	5.00	5.950	1500	500119.169	102066.001	1.500
113	0.089	5.00	5.500	1500	500132.517	102017.272	1.500
96	0.179	5.00	5.750	1800	500136.511	102028.588	1.774
95	0.045	5.00	6.025	1350	500164.790	102034.542	2.107
85	0.077	5.00	6.025	1350	500191.697	102044.759	2.165
84	0.039	5.00	5.600	1350	500231.338	102064.637	1.829
121		5.00	5.825	1350	500317.613	102035.100	1.500
120			5.950	1350	500310.017	102036.173	1.651
122	0.084	5.00	6.000		500276.288	102026.440	0.560
119	0.063	5.00	6.000	1350	500270.764	102028.475	1.834
118			5.925	1350	500265.605	102031.926	1.930
117	0.003	5.00	5.600	1350	500243.135	102090.332	1.500
83	0.111	5.00	5.375	1350	500258.076	102069.916	1.734
82	0.093	5.00	5.700	1350	500331.965	102084.504	2.185
81	0.027	5.00	5.250	1200	500359.174	102077.091	1.500
80	0.042	5.00	5.500	1350	500358.943	102084.887	2.030
79			4.900		500358.640	102095.133	1.500
156	0.018	5.00	7.100		499861.159	101852.854	0.560
155	0.026	5.00	7.150	1350	499864.039	101857.540	1.500
154	0.017	5.00	7.075	1350	499860.411	101869.795	1.500
157		5.00	6.900		499853.563	101881.217	0.560
153	0.007	5.00	6.975	1350	499858.912	101882.493	1.500
152	0.007	5.00	7.000	1350	499860.225	101899.327	1.700
159	0.029	5.00	7.025	1350	499857.266	101946.147	0.750
158	0.027	5.00	6.850	1350	499864.723	101923.189	0.900
151	0.070	5.00	6.950	1350	499871.669	101901.600	1.700
163	0.014	5.00	6.800		499926.765	101947.091	0.560
162	0.050	5.00	6.675	1350	499925.442	101941.753	1.200
161			6.575	1350	499929.314	101935.330	1.200
160	0.014	5.00	6.375		499929.053	101917.907	0.560
150	0.144	5.00	6.450	1500	499935.155	101914.475	1.416
149	0.008	5.00	7.350	1350	499893.934	101841.001	1.500
148	0.119	5.00	6.575	1500	499957.410	101863.212	1.500
147	0.062	5.00	6.475	1500	500007.474	101880.730	1.506
146	0.052	5.00	6.600	1350	500011.061	101888.177	1.648
145	0.240	5.00	6.900	1350	499996.038	101934.246	2.079
144			6.975	1350	500012.426	101939.993	2.183



Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
143	0.059	5.00	6.950	1350	500022.658	101948.592	2.180
164	0.048	5.00	6.500		500039.378	101936.882	1.500
142			6.750	1350	500037.604	101944.169	2.006
165	0.048	5.00	5.950		500114.949	101955.277	0.950
141	0.263	5.00	5.925	1350	500113.175	101962.564	1.354
140			5.500		500120.037	101973.841	1.500
16	0.017	5.00	5.700	1350	500298.269	102126.833	1.500
15	0.017	5.00	5.775	1350	500284.432	102124.031	1.622
14	0.017	5.00	5.950	1350	500250.082	102117.073	1.914
17	0.134	5.00	5.800		500242.800	102102.263	0.560
13			5.775	1350	500232.855	102103.317	1.812
12	0.031	5.00	5.650	1350	500205.530	102135.818	1.829
18	0.093	5.00	5.250		500191.952	102149.913	1.750
11	0.038	5.00	5.750	1500	500199.764	102154.071	2.279
10	0.120	5.00	5.600	1350	500232.313	102161.866	2.241
9	0.181	5.00	5.150	1350	500302.025	102176.266	2.178
19	0.095	5.00	4.750	1800	500328.734	102183.048	1.500
8	0.022	5.00	5.050	1350	500320.284	102183.966	2.144
7			4.700		500323.899	102217.270	1.927
130		5.00	5.775	1350	500272.059	102007.745	1.300
131		5.00	5.110	1350	500261.876	101972.284	0.160
129			5.650	1350	500282.383	101964.342	1.474
128			5.750	1350	500289.078	101963.147	1.588
127			5.825	1350	500296.949	101965.012	1.679
132		5.00	5.900		500309.359	101968.353	0.560
126			5.950	1350	500305.485	101971.516	1.825
133	0.033	5.00	5.800		500345.201	102022.095	0.560
125	0.029	5.00	5.875	1350	500340.527	102023.871	1.876
136	0.014	5.00	5.675	1350	500327.586	102063.540	1.500
137	0.033	5.00	5.550		500336.705	102061.506	0.560
135	0.014	5.00	5.625	1350	500333.990	102057.308	1.500
134	0.033	5.00	5.575		500354.514	102048.311	0.560
124	0.014	5.00	5.575	1350	500349.840	102050.087	1.658
123			5.250		500356.032	102067.520	1.495
4	0.049	5.00	4.700		500333.959	102218.369	1.950
3			4.750	1800	500344.762	102206.908	2.055
2			3.940	1350	500368.018	102213.752	2.200
1			1.860	1350	500441.039	102253.173	0.750
65	0.024	5.00	5.750	1350	500186.398	102183.419	1.675
64	0.032	5.00	5.375	1350	500183.542	102198.709	1.352
63	0.048	5.00	5.150	1350	500176.943	102220.597	1.203
66		5.00	4.490		500153.378	102250.217	0.240
62	0.046	5.00	5.250	1350	500162.280	102253.013	1.425
61	0.045	5.00	5.450	1350	500156.876	102272.581	1.690
60			4.750		500174.950	102293.638	1.139
73	0.022	5.00	5.750		500242.253	102193.693	1.500
72			5.625	1350	500247.126	102194.812	1.375
74	0.022	5.00	5.850		500237.755	102213.181	1.600
71	0.031	5.00	5.775	1350	500242.544	102214.279	1.525
75	0.022	5.00	5.675		500229.490	102239.545	1.425
70	0.059	5.00	5.625	1350	500234.278	102240.643	1.459
69	0.046	5.00	5.450	1350	500191.728	102283.756	1.300



Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
68	0.046	5.00	5.125	1350	500242.145	102275.582	1.145
67			4.750		500244.067	102284.119	1.139
25	0.051	5.00	5.275	1350	500310.984	102212.135	1.500
24	0.071	5.00	5.250	1350	500300.327	102237.954	1.568
23	0.136	5.00	4.925	1350	500289.438	102267.915	1.349
22			4.750		500298.836	102271.331	1.485
31	0.075	5.00	5.725	1350	500178.667	102074.878	1.500
30	0.052	5.00	5.550	1350	500168.604	102099.494	1.500
29	0.071	5.00	5.525	1350	500159.308	102118.680	1.625
28			5.250		500164.377	102130.379	1.727
78	0.060	5.00	5.400		500328.499	102120.688	0.710
77	0.050	5.00	5.375	1350	500328.499	102115.188	1.500
76			4.900		500349.999	102115.244	1.475
6	0.060	5.00	4.725	1200	500312.328	102265.739	1.475
5			4.700		500317.590	102245.926	1.927
21	0.134	5.00	4.750		500282.626	102282.751	1.250
20			4.750		500299.100	102281.820	1.485
27	0.084	5.00	4.900		500356.164	102126.881	1.500
26			4.750		500351.360	102137.053	1.453
139		5.00	5.500		500111.023	101992.692	0.200
138			5.500		500115.956	101995.082	1.500

Links

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)
1.010	33	32	19.999	0.022	4.275	3.500	0.775	25.8	450	15.56	39.2
1.009	34	33	104.223	0.022	4.481	4.275	0.206	505.9	500	15.40	39.4
1.008	35	34	105.992	0.022	4.693	4.481	0.212	500.0	500	13.37	42.8
9.009	55	34	12.238	0.600	4.525	4.481	0.044	278.1	450	9.23	52.4
9.008	111	55	21.682	0.600	4.575	4.525	0.050	433.6	450	9.06	52.9
9.007	110	111	12.915	0.600	4.625	4.575	0.050	258.3	450	8.69	54.1
9.006	98	110	23.308	0.600	4.675	4.625	0.050	466.2	450	8.52	54.7
9.005	99	98	54.452	0.600	4.775	4.675	0.100	544.5	450	8.10	56.1
9.004	100	99	48.910	0.600	4.875	4.775	0.100	489.1	450	7.05	60.1
11.002	107	100	30.000	0.600	4.900	4.575	0.325	92.3	300	5.71	66.3
9.003	101	100	20.891	0.600	4.975	4.875	0.100	208.9	450	6.16	64.1

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)
1.010	2.085	331.6	153.7	0.975	1.300	1.315	0.0
1.009	0.853	639.6	154.6	0.919	0.925	1.315	0.0
1.008	0.858	643.3	69.5	0.807	0.919	0.544	0.0
9.009	1.214	193.0	120.5	1.600	0.969	0.771	0.0
9.008	0.970	154.2	121.7	1.475	1.600	0.771	0.0
9.007	1.260	200.4	120.3	1.350	1.475	0.746	0.0
9.006	0.935	148.7	107.7	1.125	1.350	0.661	0.0
9.005	0.864	137.4	90.0	1.250	1.125	0.538	0.0
9.004	0.912	145.1	78.1	0.750	1.250	0.436	0.0
11.002	1.637	115.7	24.3	1.050	1.200	0.123	0.0
9.003	1.402	223.1	49.1	0.675	0.750	0.257	0.0



Links

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)
9.002	102	101	29.819	0.600	5.075	4.975	0.100	298.2	450	5.91	65.3
10.000	105	102	8.000	0.600	5.790	5.737	0.053	150.0	150	5.16	69.3
9.001	103	102	39.687	0.600	5.300	4.975	0.325	122.1	450	5.49	67.5
9.000	104	103	9.999	0.600	6.265	6.097	0.168	59.5	150	5.13	69.5
11.001	108	107	14.062	0.600	5.000	4.900	0.100	140.6	300	5.41	67.9
11.000	109	108	20.306	0.600	5.175	5.000	0.175	116.0	300	5.23	68.9
1.007	36	35	4.360	0.022	4.702	4.693	0.009	500.0	500	11.31	47.0
4.003	49	35	9.373	0.600	4.800	4.769	0.031	300.0	300	6.53	62.1
8.000	50	49	5.500	0.600	5.190	5.153	0.037	150.0	150	5.11	69.6
6.002	51	49	26.429	0.600	4.890	4.800	0.090	293.7	300	6.05	64.6
4.002	56	49	41.410	0.600	4.950	4.800	0.150	276.1	300	6.41	62.9
5.000	57	56	5.500	0.600	5.365	5.328	0.037	150.0	150	5.11	69.6
4.001	58	56	41.201	0.600	5.200	4.950	0.250	164.3	300	5.67	66.5
4.000	59	58	5.500	0.600	5.790	5.753	0.037	150.0	150	5.11	69.6
7.000	52	51	5.499	0.600	5.415	5.378	0.037	150.0	150	5.11	69.6
6.001	53	51	24.970	0.600	4.975	4.890	0.085	293.8	300	5.57	67.1
6.000	54	53	5.500	0.600	5.690	5.693	0.037	150.0	150	5.11	69.6
1.006	37	36	108.769	0.022	4.920	4.702	0.218	500.0	500	11.22	47.2
1.005	38	37	6.035	0.022	4.932	4.920	0.012	500.0	500	9.11	52.8
1.004	39	38	34.559	0.022	5.001	4.932	0.069	500.0	500	8.99	53.1
2.003	44	38	35.479	0.600	5.121	5.003	0.118	300.0	300	6.31	61.1
2.002	45	44	19.484	0.600	5.186	5.121	0.065	300.0	300	6.15	64.1
2.001	46	45	11.982	0.600	5.226	5.186	0.040	300.0	300	5.79	65.9
3.001	47	46	14.345	0.600	5.275	5.226	0.049	300.0	300	5.45	67.7

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)
9.002	1.172	186.4	34.1	0.800	0.675	0.175	0.0
10.000	0.818	14.5	2.9	0.410	0.438	0.014	0.0
9.001	1.838	292.4	13.3	0.900	0.900	0.066	0.0
9.000	1.306	23.1	2.9	0.410	0.403	0.014	0.0
11.001	1.324	93.6	14.0	1.050	1.050	0.069	0.0
11.000	1.458	103.1	8.4	1.050	1.050	0.041	0.0
1.007	0.858	643.3	30.2	0.898	0.807	0.215	0.0
4.003	0.902	63.8	60.9	0.425	0.931	0.329	0.0
8.000	0.818	14.5	6.8	0.410	0.222	0.033	0.0
6.002	0.912	64.5	22.1	0.560	0.425	0.115	0.0
4.002	0.941	66.5	21.9	0.450	0.425	0.117	0.0
5.000	0.818	14.5	6.8	0.410	0.222	0.033	0.0
4.001	1.222	86.4	6.5	0.600	0.450	0.033	0.0
4.000	0.818	14.5	6.8	0.410	0.197	0.033	0.0
7.000	0.818	14.5	6.8	0.410	0.222	0.033	0.0
6.001	0.912	64.5	10.6	0.750	0.560	0.053	0.0
6.000	0.818	14.5	6.8	0.410	0.222	0.033	0.0
1.006	0.858	643.3	30.3	1.180	0.898	0.215	0.0
1.005	0.858	643.3	33.8	1.068	1.180	0.215	0.0
1.004	0.858	643.3	0.0	1.099	1.068	0.000	0.0
2.003	0.902	63.8	39.2	1.354	1.197	0.215	0.0
2.002	0.902	63.8	31.5	1.414	1.354	0.165	0.0
2.001	0.902	63.8	22.6	1.349	1.414	0.115	0.0
3.001	0.902	63.8	7.1	1.200	1.349	0.035	0.0



Links

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	106	46	35.064	0.600	5.375	5.226	0.149	235.2	300	5.57	67.0
3.000	48	47	11.064	0.600	5.325	5.275	0.050	221.3	300	5.18	69.2
1.003	40	39	48.260	0.022	5.098	5.001	0.097	500.0	500	8.32	55.3
1.002	41	40	64.991	0.022	5.228	5.098	0.130	500.0	500	7.38	58.8
1.001	42	41	32.402	0.022	5.293	5.228	0.065	500.0	500	6.12	64.3
1.000	43	42	28.405	0.600	5.350	5.293	0.057	500.0	500	5.49	67.5
12.012	80	79	10.250	0.600	3.470	3.400	0.070	146.4	525	13.05	43.4
12.011	82	80	26.981	0.600	3.515	3.470	0.045	600.0	525	12.96	43.6
21.000	81	80	7.799	0.600	3.750	3.695	0.055	141.8	300	5.10	69.7
12.010	83	82	75.315	0.600	3.641	3.515	0.126	600.0	525	12.47	44.6
12.009	84	83	27.254	0.600	3.771	3.716	0.055	495.5	525	11.08	47.6
20.000	117	83	25.299	0.600	4.100	3.716	0.384	65.9	450	5.17	69.3
18.003	118	83	38.729	0.600	3.995	3.716	0.279	138.8	450	6.37	63.1
18.002	119	118	6.207	0.600	4.166	4.145	0.021	300.0	300	5.99	64.9
19.000	122	119	5.887	0.600	5.440	5.401	0.039	150.0	150	5.12	69.6
18.001	120	119	40.001	0.600	4.299	4.166	0.133	300.0	300	5.88	65.4
18.000	121	120	7.671	0.600	4.325	4.299	0.026	295.1	300	5.14	69.4
12.008	85	84	44.346	0.600	3.860	3.771	0.089	500.0	525	10.63	48.7
12.007	86	85	28.239	0.600	4.141	3.935	0.206	137.1	450	9.88	50.6
15.003	95	85	28.781	0.600	3.918	3.860	0.058	500.0	525	6.74	61.4
15.002	96	95	28.899	0.600	3.976	3.918	0.058	500.0	525	6.26	63.6
17.000	113	96	12.000	0.600	4.000	3.976	0.024	500.0	450	5.22	69.0
16.002	114	96	41.237	0.600	4.450	3.976	0.474	87.0	450	5.64	66.7
15.001	97	96	56.767	0.600	4.272	3.976	0.296	191.8	450	5.78	66.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)
2.000	1.020	72.1	11.6	1.050	1.349	0.058	0.0
3.000	1.053	74.4	5.8	1.200	1.200	0.028	0.0
1.003	0.858	643.3	0.0	0.902	1.099	0.000	0.0
1.002	0.858	643.3	0.0	0.672	0.902	0.000	0.0
1.001	0.858	643.3	0.0	0.407	0.672	0.000	0.0
1.000	0.964	189.4	0.0	0.250	0.407	0.000	0.0
12.012	1.849	400.2	216.8	1.505	0.975	1.675	0.0
12.011	0.907	196.3	208.7	1.660	1.505	1.606	0.0
21.000	1.318	93.2	5.6	1.200	1.505	0.027	0.0
12.010	0.907	196.3	201.0	1.209	1.660	1.513	0.0
12.009	0.999	216.3	177.6	1.304	1.134	1.252	0.0
20.000	2.507	398.8	0.6	1.050	1.209	0.003	0.0
18.003	1.723	274.1	27.6	1.480	1.209	0.147	0.0
18.002	0.902	63.8	28.4	1.534	1.480	0.147	0.0
19.000	0.818	14.5	17.4	0.410	0.449	0.084	0.0
18.001	0.902	63.8	0.0	1.351	1.534	0.000	0.0
18.000	0.910	64.3	0.0	1.200	1.351	0.000	0.0
12.008	0.995	215.3	176.0	1.640	1.304	1.213	0.0
12.007	1.734	275.8	59.9	1.759	1.640	0.397	0.0
15.003	0.995	215.3	135.3	1.582	1.640	0.739	0.0
15.002	0.995	215.3	131.6	1.249	1.582	0.694	0.0
17.000	0.902	143.5	18.3	1.050	1.324	0.089	0.0
16.002	2.180	346.8	42.3	1.050	1.324	0.213	0.0
15.001	1.464	232.9	41.9	1.178	1.324	0.213	0.0



Links

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)
15.000	112	97	21.685	0.600	4.675	4.272	0.403	59.8	450	5.13	69.5
16.001	115	114	19.357	0.600	4.600	4.450	0.150	129.0	450	5.32	68.4
16.000	116	115	14.525	0.600	4.700	4.600	0.100	145.3	450	5.14	69.4
12.006	87	86	27.821	0.600	4.197	4.141	0.056	500.0	450	9.61	51.3
12.005	88	87	26.363	0.600	4.250	4.197	0.053	500.0	450	9.10	52.8
12.004	89	88	29.984	0.600	4.322	4.250	0.072	416.4	450	8.61	54.4
14.000	166	88	6.962	0.600	5.190	4.750	0.440	15.8	150	5.05	70.0
12.003	90	89	8.628	0.600	4.339	4.322	0.017	500.0	450	8.11	56.1
12.002	91	90	75.327	0.600	4.740	4.489	0.251	300.0	300	7.95	56.6
12.001	92	91	72.143	0.600	5.000	4.740	0.260	300.0	300	6.56	62.2
13.000	94	91	5.500	0.600	5.990	5.897	0.093	59.1	150	5.07	69.8
12.000	93	92	5.500	0.600	5.840	5.803	0.037	150.0	150	5.11	69.6
22.011	141	140	13.201	0.600	4.571	4.000	0.571	23.1	525	9.78	50.9
22.010	142	141	77.778	0.600	4.744	4.571	0.173	450.0	525	9.73	51.0
29.000	165	141	7.500	0.600	5.000	4.950	0.050	150.0	150	5.15	69.4
22.009	143	142	15.587	0.600	4.770	4.744	0.026	600.0	525	8.50	54.7
28.000	164	142	7.500	0.600	5.000	4.950	0.050	150.0	150	5.15	69.4
22.008	144	143	13.366	0.600	4.792	4.770	0.022	607.5	525	8.21	55.7
22.007	145	144	17.366	0.600	4.821	4.792	0.029	598.8	525	7.96	56.6
22.006	150	145	64.013	0.600	5.034	4.821	0.213	300.0	450	7.65	57.8
27.003	146	145	48.457	0.600	4.952	4.821	0.131	369.9	450	7.41	58.6
27.002	147	146	8.266	0.600	4.969	4.952	0.017	486.2	450	6.64	61.8
27.001	148	147	53.640	0.600	5.075	4.969	0.106	500.4	450	6.49	62.5
27.000	149	148	67.250	0.600	5.850	5.075	0.775	86.8	450	5.51	67.4

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)
15.000	2.776	441.5	24.9	1.050	1.178	0.120	0.0
16.001	1.788	284.3	25.9	1.050	1.050	0.127	0.0
16.000	1.684	267.9	11.8	1.050	1.050	0.057	0.0
12.006	0.902	143.5	60.8	1.378	1.759	0.397	0.0
12.005	0.902	143.5	57.8	1.050	1.378	0.367	0.0
12.004	0.990	157.4	40.5	1.278	1.050	0.250	0.0
14.000	2.545	45.0	20.9	0.410	0.850	0.100	0.0
12.003	0.902	143.5	41.8	1.411	1.278	0.250	0.0
12.002	0.902	63.8	19.8	1.385	1.411	0.117	0.0
12.001	0.902	63.8	4.1	1.000	1.385	0.022	0.0
13.000	1.310	23.2	4.6	0.410	0.378	0.022	0.0
12.000	0.818	14.5	4.6	0.410	0.347	0.022	0.0
22.011	4.672	1011.4	200.5	0.829	0.975	1.322	0.0
22.010	1.049	227.1	153.7	1.481	0.829	1.011	0.0
29.000	0.818	14.5	9.9	0.800	0.825	0.048	0.0
22.009	0.907	196.3	157.1	1.655	1.481	0.963	0.0
28.000	0.818	14.5	9.9	1.350	1.650	0.048	0.0
22.008	0.901	195.1	150.1	1.658	1.655	0.904	0.0
22.007	0.908	196.5	152.5	1.554	1.658	0.904	0.0
22.006	1.168	185.8	72.8	0.966	1.629	0.423	0.0
27.003	1.051	167.1	42.1	1.198	1.629	0.241	0.0
27.002	0.915	145.5	34.8	1.056	1.198	0.189	0.0
27.001	0.902	143.4	23.7	1.050	1.056	0.127	0.0
27.000	2.183	347.2	1.6	1.050	1.050	0.008	0.0



Links

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)
22.005	151	150	64.778	0.600	5.250	5.034	0.216	300.0	450	6.73	61.5
26.000	160	150	7.001	0.600	5.815	5.034	0.781	9.0	150	5.03	70.1
25.002	161	150	21.658	0.600	5.375	5.184	0.191	113.4	300	5.38	68.1
25.001	162	161	7.500	0.600	5.475	5.375	0.100	75.0	300	5.14	69.4
25.000	163	162	5.500	0.600	6.240	6.147	0.093	59.1	150	5.07	69.8
22.004	152	151	11.668	0.600	5.300	5.250	0.050	233.4	300	5.81	65.8
24.001	158	151	22.679	0.600	5.950	5.250	0.700	32.4	450	5.41	67.9
24.000	159	158	24.139	0.600	6.275	6.100	0.175	137.9	300	5.30	68.5
22.003	153	152	16.885	0.600	5.475	5.300	0.175	96.5	300	5.62	66.8
22.002	154	153	12.786	0.600	5.575	5.475	0.100	127.9	300	5.44	67.7
23.000	157	153	5.499	0.600	6.340	6.303	0.037	150.0	150	5.11	69.6
22.001	155	154	12.781	0.600	5.650	5.575	0.075	170.4	300	5.29	68.6
22.000	156	155	5.500	0.600	6.540	6.503	0.037	150.0	150	5.11	69.6
30.008	8	7	33.500	0.600	2.906	2.800	0.106	316.0	450	9.96	50.4
30.007	9	8	19.816	0.600	2.972	2.906	0.066	300.0	450	9.47	51.9
33.000	19	8	8.500	0.600	3.250	2.906	0.344	24.7	450	5.03	70.1
30.006	10	9	71.184	0.600	3.359	3.122	0.237	300.0	300	9.18	52.6
30.005	11	10	33.469	0.600	3.471	3.359	0.112	300.0	300	7.87	56.9
30.004	12	11	19.142	0.600	3.821	3.471	0.350	54.7	300	7.25	59.3
32.000	18	11	8.850	0.600	3.500	3.471	0.029	300.0	300	5.16	69.3
30.003	13	12	42.461	0.600	3.963	3.821	0.142	300.0	300	7.10	59.9
30.002	14	13	22.045	0.600	4.036	3.963	0.073	302.0	300	6.32	63.3
31.000	17	13	10.001	0.600	5.240	3.963	1.277	7.8	150	5.05	70.0
30.001	15	14	35.048	0.600	4.153	4.036	0.117	299.6	300	5.91	65.3

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)
22.005	1.168	185.8	36.8	1.250	0.966	0.201	0.0
26.000	3.385	59.8	2.9	0.410	1.266	0.014	0.0
25.002	1.475	104.3	13.0	0.900	0.966	0.064	0.0
25.001	1.817	128.4	13.3	0.900	0.900	0.064	0.0
25.000	1.310	23.2	2.9	0.410	0.378	0.014	0.0
22.004	1.025	72.4	14.7	1.400	1.400	0.075	0.0
24.001	3.581	569.5	11.3	0.450	1.250	0.056	0.0
24.000	1.337	94.5	5.9	0.450	0.450	0.029	0.0
22.003	1.601	113.1	13.5	1.200	1.400	0.068	0.0
22.002	1.389	98.2	12.3	1.200	1.200	0.061	0.0
23.000	0.818	14.5	0.0	0.410	0.522	0.000	0.0
22.001	1.201	84.9	9.0	1.200	1.200	0.044	0.0
22.000	0.818	14.5	3.7	0.410	0.497	0.018	0.0
30.008	1.138	181.0	114.9	1.694	1.450	0.765	0.0
30.007	1.168	185.8	100.0	1.728	1.694	0.648	0.0
33.000	4.103	652.5	19.8	1.050	1.694	0.095	0.0
30.006	0.902	63.8	73.2	1.941	1.728	0.467	0.0
30.005	0.902	63.8	58.9	1.979	1.941	0.347	0.0
30.004	2.130	150.6	38.2	1.529	1.979	0.216	0.0
32.000	0.902	63.8	19.2	1.450	1.979	0.093	0.0
30.003	0.902	63.8	33.0	1.512	1.529	0.185	0.0
30.002	0.899	63.6	9.6	1.614	1.512	0.051	0.0
31.000	3.623	64.0	28.0	0.410	1.662	0.134	0.0
30.001	0.903	63.8	6.6	1.322	1.614	0.034	0.0



Links

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)
30.000	16	15	14.118	0.600	4.200	4.153	0.047	300.4	300	5.26	68.7
34.006	124	123	12.500	0.600	3.917	3.850	0.067	276.1	450	8.14	56.0
34.005	125	124	27.821	0.600	3.999	3.917	0.082	339.3	450	7.88	56.9
40.000	134	124	5.000	0.600	5.015	4.932	0.083	150.0	150	5.10	69.7
38.001	135	124	17.417	0.600	4.125	4.067	0.058	300.0	300	5.45	67.7
39.000	137	135	4.999	0.600	4.990	4.957	0.033	150.0	150	5.10	69.7
38.000	136	135	8.936	0.600	4.175	4.125	0.050	178.7	300	5.13	69.5
34.004	126	125	63.000	0.600	4.125	3.999	0.126	500.0	450	7.46	53.5
37.000	133	125	5.000	0.600	5.240	5.207	0.033	150.0	150	5.10	69.7
34.003	127	126	10.732	0.600	4.146	4.125	0.021	500.0	450	6.30	63.4
36.000	132	126	5.002	0.600	5.340	5.307	0.033	150.0	150	5.10	69.7
34.002	128	127	8.089	0.600	4.162	4.146	0.016	500.0	450	6.10	64.4
34.001	129	128	6.801	0.600	4.176	4.162	0.014	500.0	450	5.95	65.1
34.000	130	129	44.614	0.600	4.475	4.326	0.149	300.0	300	5.82	65.7
35.000	131	129	21.991	0.600	4.950	4.803	0.147	150.0	150	5.45	67.7
41.002	2	1	82.982	0.600	1.740	1.110	0.630	131.7	300	6.42	62.8
41.001	3	2	24.242	0.600	2.695	1.740	0.955	25.4	300	5.41	67.9
41.000	4	3	15.750	0.600	2.750	2.695	0.055	286.4	300	5.28	68.6
42.004	61	60	27.750	0.600	3.760	3.650	0.110	252.3	300	7.20	59.5
42.003	62	61	20.300	0.600	3.828	3.760	0.068	300.0	300	6.73	61.5
42.002	63	62	35.578	0.600	3.947	3.825	0.122	291.6	300	6.36	63.1
43.000	66	62	9.331	0.600	4.250	4.100	0.150	62.2	150	5.12	69.5
42.001	64	63	22.661	0.600	4.023	3.947	0.076	300.0	300	5.71	66.3
42.000	65	64	15.554	0.600	4.075	4.023	0.052	300.0	300	5.29	68.6

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)
30.000	0.902	63.7	3.5	1.200	1.322	0.017	0.0
34.006	1.218	193.8	28.4	1.208	0.950	0.170	0.0
34.005	1.098	174.6	10.5	1.426	1.208	0.062	0.0
40.000	0.818	14.5	6.9	0.410	0.443	0.033	0.0
38.001	0.902	63.8	12.3	1.200	1.208	0.061	0.0
39.000	0.818	14.5	6.9	0.410	0.518	0.033	0.0
38.000	1.173	82.9	2.9	1.200	1.200	0.014	0.0
34.004	0.902	143.5	0.0	1.375	1.426	0.000	0.0
37.000	0.818	14.5	6.9	0.410	0.518	0.033	0.0
34.003	0.902	143.5	0.0	1.229	1.375	0.000	0.0
36.000	0.818	14.5	0.0	0.410	0.493	0.000	0.0
34.002	0.902	143.5	0.0	1.138	1.229	0.000	0.0
34.001	0.902	143.5	0.0	1.024	1.138	0.000	0.0
34.000	0.902	63.8	0.0	1.000	1.024	0.000	0.0
35.000	0.818	14.5	0.0	0.010	0.697	0.000	0.0
41.002	1.368	96.7	9.2	1.900	0.450	0.049	0.0
41.001	3.133	221.4	9.9	1.755	1.900	0.049	0.0
41.000	0.924	65.3	10.0	1.650	1.755	0.049	0.0
42.004	0.985	69.6	34.6	1.390	0.800	0.195	0.0
42.003	0.902	63.8	27.5	1.122	1.390	0.150	0.0
42.002	0.915	64.7	19.6	0.903	1.125	0.104	0.0
43.000	1.277	22.6	0.0	0.090	1.000	0.000	0.0
42.001	0.902	63.8	11.1	1.052	0.903	0.056	0.0
42.000	0.902	63.8	4.9	1.375	1.052	0.024	0.0



Links

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)
44.004	68	67	8.751	0.600	3.980	3.650	0.330	26.5	300	5.54	62.3
44.003	70	68	35.814	0.600	4.166	3.980	0.186	192.5	300	5.49	62.5
47.000	69	68	51.075	0.600	4.150	3.980	0.170	300.4	300	5.94	65.1
44.002	71	70	27.629	0.600	4.258	4.166	0.092	300.0	300	5.96	65.0
46.000	75	70	4.912	0.600	4.250	4.250	0.000	0.0	150	5.08	69.8
44.001	72	71	19.999	0.600	4.325	4.258	0.067	300.0	300	5.45	67.7
45.000	74	71	4.913	0.600	4.250	4.250	0.000	0.0	150	5.08	69.8
44.000	73	72	5.000	0.600	4.250	4.250	0.000	0.0	150	5.08	69.8
48.002	23	22	10.000	0.600	3.576	3.400	0.176	56.8	300	6.19	63.9
48.001	24	23	31.278	0.600	3.682	3.576	0.106	300.7	300	6.11	64.3
48.000	25	24	27.932	0.600	3.775	3.682	0.093	300.3	300	5.52	67.3
49.002	29	28	12.750	0.600	3.900	3.800	0.100	127.5	300	5.77	66.0
49.001	30	29	21.319	0.600	4.050	3.900	0.150	142.1	300	5.62	66.8
49.000	31	30	26.593	0.600	4.225	4.050	0.175	152.0	300	5.35	68.3
50.001	77	76	21.500	0.600	3.875	3.550	0.325	66.2	300	5.23	68.9
50.000	78	77	5.500	0.600	4.690	4.500	0.190	28.9	150	5.05	70.0
51.000	6	5	20.500	0.600	3.250	2.900	0.350	58.6	450	5.13	69.5
52.000	21	20	16.500	0.600	3.500	3.400	0.100	165.0	450	5.17	69.2
53.000	27	26	11.249	0.600	3.400	3.350	0.050	225.0	450	5.14	69.4
54.000	139	138	5.481	0.600	5.300	4.000	1.300	4.2	150	5.02	70.1

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)
44.004	3.065	216.6	46.1	0.845	0.800	0.248	0.0
44.003	1.129	79.8	29.1	1.159	0.845	0.156	0.0
47.000	0.902	63.7	8.9	1.000	0.845	0.046	0.0
44.002	0.902	63.8	14.5	1.217	1.159	0.075	0.0
46.000	1.000	17.7	4.6	1.275	1.225	0.022	0.0
44.001	0.902	63.8	4.4	1.000	1.217	0.022	0.0
45.000	1.000	17.7	4.6	1.450	1.375	0.022	0.0
44.000	1.000	17.7	4.6	1.350	1.225	0.022	0.0
48.002	2.090	147.7	49.2	1.049	1.050	0.258	0.0
48.001	0.901	63.7	23.4	1.268	1.049	0.122	0.0
48.000	0.902	63.7	10.2	1.200	1.268	0.051	0.0
49.002	1.391	98.3	39.0	1.325	1.150	0.198	0.0
49.001	1.317	93.1	25.3	1.200	1.325	0.127	0.0
49.000	1.273	90.0	15.3	1.200	1.200	0.075	0.0
50.001	1.936	136.8	22.6	1.200	1.050	0.110	0.0
50.000	1.878	33.2	12.5	0.560	0.725	0.060	0.0
51.000	2.660	423.1	12.4	1.025	1.350	0.060	0.0
52.000	1.580	251.2	27.7	0.800	0.900	0.134	0.0
53.000	1.351	214.9	17.4	1.050	0.950	0.084	0.0
54.000	4.942	87.3	0.0	0.050	1.350	0.000	0.0



Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.010	19.999	25.8	450	Circular	5.700	4.275	0.975	5.250	3.500	1.300
1.009	104.223	505.9	500	Ditch	5.900	4.481	0.919	5.700	4.275	0.925
1.008	105.992	500.0	500	Ditch	6.000	4.693	0.807	5.900	4.481	0.919
9.009	12.238	278.1	450	Circular	6.575	4.525	1.600	5.900	4.481	0.969
9.008	21.682	433.6	450	Circular	6.500	4.575	1.475	6.575	4.525	1.600
9.007	12.915	258.3	450	Circular	6.425	4.625	1.350	6.500	4.575	1.475
9.006	23.308	466.2	450	Circular	6.250	4.675	1.125	6.425	4.625	1.350
9.005	54.452	544.5	450	Circular	6.475	4.775	1.250	6.250	4.675	1.125
9.004	48.910	489.1	450	Circular	6.075	4.875	0.750	6.475	4.775	1.250
11.002	30.000	92.3	300	Circular	6.250	4.900	1.050	6.075	4.575	1.200
9.003	20.891	208.9	450	Circular	6.100	4.975	0.675	6.075	4.875	0.750
9.002	29.819	298.2	450	Circular	6.325	5.075	0.800	6.100	4.975	0.675
10.000	8.000	150.0	150	Circular	6.350	5.790	0.410	6.325	5.737	0.438
9.001	39.687	122.1	450	Circular	6.650	5.300	0.900	6.325	4.975	0.900
9.000	9.999	59.5	150	Circular	6.825	6.265	0.410	6.650	6.097	0.403
11.001	14.062	140.6	300	Circular	6.350	5.000	1.050	6.250	4.900	1.050
11.000	20.306	116.0	300	Circular	6.525	5.175	1.050	6.350	5.000	1.050
1.007	4.360	500.0	500	Ditch	6.100	4.702	0.898	6.000	4.693	0.807
4.003	9.373	300.0	300	Circular	5.525	4.800	0.425	6.000	4.769	0.931
8.000	5.500	150.0	150	Circular	5.750	5.190	0.410	5.525	5.153	0.222
6.002	26.423	293.7	300	Circular	5.750	4.890	0.560	5.525	4.800	0.425
4.002	41.410	276.1	300	Circular	5.700	4.950	0.450	5.525	4.800	0.425
5.000	5.500	150.0	150	Circular	5.925	5.365	0.410	5.700	5.328	0.222
4.001	41.201	164.8	300	Circular	6.100	5.200	0.600	5.700	4.950	0.450
4.000	5.500	150.0	150	Circular	6.350	5.790	0.410	6.100	5.753	0.197

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.010	33	1350	Junction		32		Manhole	Adoptable
1.009	34	1350	Junction		33	1350	Junction	
1.008	35		Junction		34	1350	Junction	
9.009	55	1350	Manhole	Adoptable	34	1350	Junction	
9.008	111	1350	Manhole	Adoptable	55	1350	Manhole	Adoptable
9.007	110	1350	Manhole	Adoptable	111	1350	Manhole	Adoptable
9.006	98	1500	Manhole	Adoptable	110	1350	Manhole	Adoptable
9.005	99	1500	Manhole	Adoptable	98	1500	Manhole	Adoptable
9.004	100	1500	Manhole	Adoptable	99	1500	Manhole	Adoptable
11.002	107	1500	Manhole	Adoptable	100	1500	Manhole	Adoptable
9.003	101	1500	Manhole	Adoptable	100	1500	Manhole	Adoptable
9.002	102	1350	Manhole	Adoptable	101	1500	Manhole	Adoptable
10.000	105		Manhole	Adoptable	102	1350	Manhole	Adoptable
9.001	103	1350	Manhole	Adoptable	102	1350	Manhole	Adoptable
9.000	104		Manhole	Adoptable	103	1350	Manhole	Adoptable
11.001	108	1350	Manhole	Adoptable	107	1500	Manhole	Adoptable
11.000	109	1350	Manhole	Adoptable	108	1350	Manhole	Adoptable
1.007	36	1350	Junction		35		Junction	
4.003	49	1350	Manhole	Adoptable	35		Junction	
8.000	50		Manhole	Adoptable	49	1350	Manhole	Adoptable
6.002	51	1350	Manhole	Adoptable	49	1350	Manhole	Adoptable
4.002	56	1350	Manhole	Adoptable	49	1350	Manhole	Adoptable
5.000	57		Manhole	Adoptable	56	1350	Manhole	Adoptable
4.001	58	1350	Manhole	Adoptable	56	1350	Manhole	Adoptable
4.000	59		Manhole	Adoptable	58	1350	Manhole	Adoptable



Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
7.000	5.499	150.0	150	Circular	5.975	5.415	0.410	5.750	5.378	0.222
6.001	24.970	293.8	300	Circular	6.025	4.975	0.750	5.750	4.890	0.560
6.000	5.500	150.0	150	Circular	6.250	5.690	0.410	6.025	5.653	0.222
1.006	108.769	500.0	500	Ditch	6.600	4.920	1.180	6.100	4.702	0.898
1.005	6.035	500.0	500	Ditch	6.500	4.932	1.068	6.600	4.920	1.180
1.004	34.559	500.0	500	Ditch	6.600	5.001	1.099	6.500	4.932	1.068
2.003	35.479	300.0	300	Circular	6.775	5.121	1.354	6.500	5.003	1.197
2.002	19.484	300.0	300	Circular	6.900	5.186	1.414	6.775	5.121	1.354
2.001	11.982	300.0	300	Circular	6.875	5.226	1.349	6.900	5.186	1.414
3.001	14.845	300.0	300	Circular	6.775	5.275	1.200	6.875	5.226	1.349
2.000	35.084	235.2	300	Circular	6.725	5.375	1.050	6.875	5.226	1.349
3.000	11.064	221.3	300	Circular	6.825	5.325	1.200	6.775	5.275	1.200
1.003	48.260	500.0	500	Ditch	6.500	5.098	0.902	6.600	5.001	1.099
1.002	64.991	500.0	500	Ditch	6.400	5.228	0.672	6.500	5.098	0.902
1.001	32.402	500.0	500	Ditch	6.200	5.293	0.407	6.400	5.228	0.672
1.000	28.405	500.0	500	Circular	6.100	5.350	0.250	6.200	5.293	0.407
12.012	10.250	146.4	525	Circular	5.500	3.470	1.505	4.900	3.400	0.975
12.011	26.981	600.0	525	Circular	5.700	3.515	1.660	5.500	3.470	1.505
21.000	7.799	141.8	300	Circular	5.250	3.750	1.200	5.500	3.695	1.505
12.010	75.315	600.0	525	Circular	5.375	3.641	1.209	5.700	3.515	1.660
12.009	27.254	495.5	525	Circular	5.600	3.771	1.304	5.375	3.716	1.134
20.000	25.299	65.9	450	Circular	5.600	4.100	1.050	5.375	3.716	1.209
18.003	38.729	138.8	450	Circular	5.925	3.995	1.480	5.375	3.716	1.209
18.002	6.207	300.0	300	Circular	6.000	4.166	1.534	5.925	4.145	1.480
19.000	5.887	150.0	150	Circular	6.000	5.440	0.410	6.000	5.401	0.449

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
7.000	52		Manhole	Adoptable	51	1350	Manhole	Adoptable
6.001	53	1350	Manhole	Adoptable	51	1350	Manhole	Adoptable
6.000	54		Manhole	Adoptable	53	1350	Manhole	Adoptable
1.006	37	1350	Junction		36	1350	Junction	
1.005	38		Junction		37	1350	Junction	
1.004	39	1350	Junction		38		Junction	
2.003	44	1350	Manhole	Adoptable	38		Junction	
2.002	45	1350	Manhole	Adoptable	44	1350	Manhole	Adoptable
2.001	46	1350	Manhole	Adoptable	45	1350	Manhole	Adoptable
3.001	47	1350	Manhole	Adoptable	46	1350	Manhole	Adoptable
2.000	106	1350	Manhole	Adoptable	46	1350	Manhole	Adoptable
3.000	48	1350	Manhole	Adoptable	47	1350	Manhole	Adoptable
1.003	40	1350	Junction		39	1350	Junction	
1.002	41	1350	Junction		40	1350	Junction	
1.001	42	1350	Junction		41	1350	Junction	
1.000	43	1350	Manhole	Adoptable	42	1350	Junction	
12.012	80	1350	Manhole	Adoptable	79		Manhole	Adoptable
12.011	82	1350	Manhole	Adoptable	80	1350	Manhole	Adoptable
21.000	81	1200	Manhole	Adoptable	80	1350	Manhole	Adoptable
12.010	83	1350	Manhole	Adoptable	82	1350	Manhole	Adoptable
12.009	84	1350	Manhole	Adoptable	83	1350	Manhole	Adoptable
20.000	117	1350	Manhole	Adoptable	83	1350	Manhole	Adoptable
18.003	118	1350	Manhole	Adoptable	83	1350	Manhole	Adoptable
18.002	119	1350	Manhole	Adoptable	118	1350	Manhole	Adoptable
19.000	122		Manhole	Adoptable	119	1350	Manhole	Adoptable



Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
18.001	40.001	300.0	300	Circular	5.950	4.299	1.351	6.000	4.166	1.534
18.000	7.671	295.1	300	Circular	5.825	4.325	1.200	5.950	4.299	1.351
12.008	44.346	500.0	525	Circular	6.025	3.860	1.640	5.600	3.771	1.304
12.007	28.239	137.1	450	Circular	6.350	4.141	1.759	6.025	3.935	1.640
15.003	28.781	500.0	525	Circular	6.025	3.918	1.582	6.025	3.860	1.640
15.002	28.899	500.0	525	Circular	5.750	3.976	1.249	6.025	3.918	1.582
17.000	12.000	500.0	450	Circular	5.500	4.000	1.050	5.750	3.976	1.324
16.002	41.237	87.0	450	Circular	5.950	4.450	1.050	5.750	3.976	1.324
15.001	56.767	191.8	450	Circular	5.900	4.272	1.178	5.750	3.976	1.324
15.000	21.685	53.8	450	Circular	6.175	4.675	1.050	5.900	4.272	1.178
16.001	19.257	129.0	450	Circular	6.100	4.600	1.050	5.950	4.450	1.050
16.000	14.525	145.3	450	Circular	6.200	4.700	1.050	6.100	4.600	1.050
12.006	27.821	500.0	450	Circular	6.025	4.197	1.378	6.350	4.141	1.759
12.005	26.363	500.0	450	Circular	5.750	4.250	1.050	6.025	4.197	1.378
12.004	29.984	416.4	450	Circular	6.050	4.322	1.278	5.750	4.250	1.050
14.000	6.962	15.8	150	Circular	5.750	5.190	0.410	5.750	4.750	0.850
12.003	8.628	500.0	450	Circular	6.200	4.339	1.411	6.050	4.322	1.278
12.002	75.327	300.0	300	Circular	6.425	4.740	1.385	6.200	4.489	1.411
12.001	78.143	300.0	300	Circular	6.300	5.000	1.000	6.425	4.740	1.385
13.000	5.500	59.1	150	Circular	6.550	5.990	0.410	6.425	5.897	0.378
12.000	5.500	150.0	150	Circular	6.400	5.840	0.410	6.300	5.803	0.347
22.011	13.201	23.1	525	Circular	5.925	4.571	0.829	5.500	4.000	0.975
22.010	77.778	450.0	525	Circular	6.750	4.744	1.481	5.925	4.571	0.829
29.000	7.500	150.0	150	Circular	5.950	5.000	0.800	5.925	4.950	0.825
22.009	15.587	600.0	525	Circular	6.950	4.770	1.655	6.750	4.744	1.481

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
18.001	120	1350	Manhole	Adoptable	119	1350	Manhole	Adoptable
18.000	121	1350	Manhole	Adoptable	120	1350	Manhole	Adoptable
12.008	85	1350	Manhole	Adoptable	84	1350	Manhole	Adoptable
12.007	86	1500	Manhole	Adoptable	85	1350	Manhole	Adoptable
15.003	95	1350	Manhole	Adoptable	85	1350	Manhole	Adoptable
15.002	96	1800	Manhole	Adoptable	95	1350	Manhole	Adoptable
17.000	113	1500	Manhole	Adoptable	96	1800	Manhole	Adoptable
16.002	114	1500	Manhole	Adoptable	96	1800	Manhole	Adoptable
15.001	97	1500	Manhole	Adoptable	96	1800	Manhole	Adoptable
15.000	112	1350	Manhole	Adoptable	97	1500	Manhole	Adoptable
16.001	115	1350	Manhole	Adoptable	114	1500	Manhole	Adoptable
16.000	116	1350	Manhole	Adoptable	115	1350	Manhole	Adoptable
12.006	87	1350	Manhole	Adoptable	86	1500	Manhole	Adoptable
12.005	88	1500	Manhole	Adoptable	87	1350	Manhole	Adoptable
12.004	89	1350	Manhole	Adoptable	88	1500	Manhole	Adoptable
14.000	166		Manhole	Adoptable	88	1500	Manhole	Adoptable
12.003	90	1350	Manhole	Adoptable	89	1350	Manhole	Adoptable
12.002	91	1350	Manhole	Adoptable	90	1350	Manhole	Adoptable
12.001	92	1350	Manhole	Adoptable	91	1350	Manhole	Adoptable
13.000	94		Manhole	Adoptable	91	1350	Manhole	Adoptable
12.000	93		Manhole	Adoptable	92	1350	Manhole	Adoptable
22.011	141	1350	Manhole	Adoptable	140		Manhole	Adoptable
22.010	142	1350	Manhole	Adoptable	141	1350	Manhole	Adoptable
29.000	165		Manhole	Adoptable	141	1350	Manhole	Adoptable
22.009	143	1350	Manhole	Adoptable	142	1350	Manhole	Adoptable



Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
28.000	7.500	150.0	150	Circular	6.500	5.000	1.350	6.750	4.950	1.650
22.008	13.366	607.5	525	Circular	6.975	4.792	1.658	6.950	4.770	1.655
22.007	17.366	598.8	525	Circular	6.900	4.821	1.554	6.975	4.792	1.658
22.006	64.013	300.0	450	Circular	6.450	5.034	0.966	6.900	4.821	1.629
27.003	48.457	369.9	450	Circular	6.600	4.952	1.198	6.900	4.821	1.629
27.002	8.266	486.2	450	Circular	6.475	4.969	1.056	6.600	4.952	1.198
27.001	53.040	500.4	450	Circular	6.575	5.075	1.050	6.475	4.969	1.056
27.000	67.250	86.8	450	Circular	7.350	5.850	1.050	6.575	5.075	1.050
22.005	64.778	300.0	450	Circular	6.950	5.250	1.250	6.450	5.034	0.966
26.000	7.001	9.0	150	Circular	6.375	5.815	0.410	6.450	5.034	1.266
25.002	21.658	113.4	300	Circular	6.575	5.375	0.900	6.450	5.184	0.966
25.001	7.500	75.0	300	Circular	6.675	5.475	0.900	6.575	5.375	0.900
25.000	5.500	59.1	150	Circular	6.800	6.240	0.410	6.675	6.147	0.378
22.004	11.668	233.4	300	Circular	7.000	5.300	1.400	6.950	5.250	1.400
24.001	22.679	32.4	450	Circular	6.850	5.950	0.450	6.950	5.250	1.250
24.000	24.139	137.9	300	Circular	7.025	6.275	0.450	6.850	6.100	0.450
22.003	16.885	96.5	300	Circular	6.975	5.475	1.200	7.000	5.300	1.400
22.002	12.786	127.9	300	Circular	7.075	5.575	1.200	6.975	5.475	1.200
23.000	5.499	150.0	150	Circular	6.900	6.340	0.410	6.975	6.303	0.522
22.001	12.781	170.4	300	Circular	7.150	5.650	1.200	7.075	5.575	1.200
22.000	5.500	150.0	150	Circular	7.100	6.540	0.410	7.150	6.503	0.497
30.008	93.500	316.0	450	Circular	5.050	2.906	1.694	4.700	2.800	1.450
30.007	19.816	300.0	450	Circular	5.150	2.972	1.728	5.050	2.906	1.694
33.000	8.500	24.7	450	Circular	4.750	3.250	1.050	5.050	2.906	1.694
30.006	71.184	300.0	300	Circular	5.600	3.359	1.941	5.150	3.122	1.728

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
28.000	164		Manhole	Adoptable	142	1350	Manhole	Adoptable
22.008	144	1350	Manhole	Adoptable	143	1350	Manhole	Adoptable
22.007	145	1350	Manhole	Adoptable	144	1350	Manhole	Adoptable
22.006	150	1500	Manhole	Adoptable	145	1350	Manhole	Adoptable
27.003	146	1350	Manhole	Adoptable	145	1350	Manhole	Adoptable
27.002	147	1500	Manhole	Adoptable	146	1350	Manhole	Adoptable
27.001	148	1500	Manhole	Adoptable	147	1500	Manhole	Adoptable
27.000	149	1350	Manhole	Adoptable	148	1500	Manhole	Adoptable
22.005	151	1350	Manhole	Adoptable	150	1500	Manhole	Adoptable
26.000	160		Manhole	Adoptable	150	1500	Manhole	Adoptable
25.002	161	1350	Manhole	Adoptable	150	1500	Manhole	Adoptable
25.001	162	1350	Manhole	Adoptable	161	1350	Manhole	Adoptable
25.000	163		Manhole	Adoptable	162	1350	Manhole	Adoptable
22.004	152	1350	Manhole	Adoptable	151	1350	Manhole	Adoptable
24.001	158	1350	Manhole	Adoptable	151	1350	Manhole	Adoptable
24.000	159	1350	Manhole	Adoptable	158	1350	Manhole	Adoptable
22.003	153	1350	Manhole	Adoptable	152	1350	Manhole	Adoptable
22.002	154	1350	Manhole	Adoptable	153	1350	Manhole	Adoptable
23.000	157		Manhole	Adoptable	153	1350	Manhole	Adoptable
22.001	155	1350	Manhole	Adoptable	154	1350	Manhole	Adoptable
22.000	156		Manhole	Adoptable	155	1350	Manhole	Adoptable
30.008	8	1350	Manhole	Adoptable	7		Manhole	Adoptable
30.007	9	1350	Manhole	Adoptable	8	1350	Manhole	Adoptable
33.000	19	1800	Manhole	Adoptable	8	1350	Manhole	Adoptable
30.006	10	1350	Manhole	Adoptable	9	1350	Manhole	Adoptable



Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
30.005	33.469	300.0	300	Circular	5.750	3.471	1.979	5.600	3.359	1.941
30.004	19.142	54.7	300	Circular	5.650	3.821	1.529	5.750	3.471	1.979
32.000	8.850	300.0	300	Circular	5.250	3.500	1.450	5.750	3.471	1.979
30.003	42.461	300.0	300	Circular	5.775	3.963	1.512	5.650	3.821	1.529
30.002	22.045	302.0	300	Circular	5.950	4.036	1.614	5.775	3.963	1.512
31.000	10.001	7.8	150	Circular	5.800	5.240	0.410	5.775	3.963	1.662
30.001	35.048	299.6	300	Circular	5.775	4.153	1.322	5.950	4.036	1.614
30.000	14.118	300.4	300	Circular	5.700	4.200	1.200	5.775	4.153	1.322
34.006	18.500	276.1	450	Circular	5.575	3.917	1.208	5.250	3.850	0.950
34.005	27.821	339.3	450	Circular	5.875	3.999	1.426	5.575	3.917	1.208
40.000	5.000	150.0	150	Circular	5.575	5.015	0.410	5.575	4.982	0.443
38.001	17.417	300.0	300	Circular	5.625	4.125	1.200	5.575	4.067	1.208
39.000	4.999	150.0	150	Circular	5.550	4.990	0.410	5.625	4.957	0.518
38.000	8.936	178.7	300	Circular	5.675	4.175	1.200	5.625	4.125	1.200
34.004	63.000	500.0	450	Circular	5.950	4.125	1.375	5.875	3.959	1.426
37.000	5.000	150.0	150	Circular	5.800	5.240	0.410	5.875	5.207	0.518
34.003	10.732	500.0	450	Circular	5.825	4.146	1.229	5.950	4.125	1.375
36.000	5.002	150.0	150	Circular	5.900	5.340	0.410	5.950	5.307	0.493
34.002	8.089	500.0	450	Circular	5.750	4.162	1.138	5.825	4.146	1.229
34.001	6.801	500.0	450	Circular	5.650	4.176	1.024	5.750	4.162	1.138
34.000	44.614	300.0	300	Circular	5.775	4.475	1.000	5.650	4.326	1.024
35.000	21.991	150.0	150	Circular	5.110	4.950	0.010	5.650	4.803	0.697
41.002	82.982	131.7	300	Circular	3.940	1.740	1.900	1.860	1.110	0.450
41.001	24.242	25.4	300	Circular	4.750	2.695	1.755	3.940	1.740	1.900
41.000	15.750	296.4	300	Circular	4.700	2.750	1.650	4.750	2.695	1.755

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
30.005	11	1500	Manhole	Adoptable	10	1350	Manhole	Adoptable
30.004	12	1350	Manhole	Adoptable	11	1500	Manhole	Adoptable
32.000	18		Manhole	Adoptable	11	1500	Manhole	Adoptable
30.003	13	1350	Manhole	Adoptable	12	1350	Manhole	Adoptable
30.002	14	1350	Manhole	Adoptable	13	1350	Manhole	Adoptable
31.000	17		Manhole	Adoptable	13	1350	Manhole	Adoptable
30.001	15	1350	Manhole	Adoptable	14	1350	Manhole	Adoptable
30.000	16	1350	Manhole	Adoptable	15	1350	Manhole	Adoptable
34.006	124	1350	Manhole	Adoptable	123		Manhole	Adoptable
34.005	125	1350	Manhole	Adoptable	124	1350	Manhole	Adoptable
40.000	134		Manhole	Adoptable	124	1350	Manhole	Adoptable
38.001	135	1350	Manhole	Adoptable	124	1350	Manhole	Adoptable
39.000	137		Manhole	Adoptable	135	1350	Manhole	Adoptable
38.000	136	1350	Manhole	Adoptable	135	1350	Manhole	Adoptable
34.004	126	1350	Manhole	Adoptable	125	1350	Manhole	Adoptable
37.000	133		Manhole	Adoptable	125	1350	Manhole	Adoptable
34.003	127	1350	Manhole	Adoptable	126	1350	Manhole	Adoptable
35.000	132		Manhole	Adoptable	126	1350	Manhole	Adoptable
34.002	128	1350	Manhole	Adoptable	127	1350	Manhole	Adoptable
34.001	129	1350	Manhole	Adoptable	128	1350	Manhole	Adoptable
34.000	130	1350	Manhole	Adoptable	129	1350	Manhole	Adoptable
35.000	131	1350	Manhole	Adoptable	129	1350	Manhole	Adoptable
41.002	2	1350	Manhole	Adoptable	1	1350	Manhole	Adoptable
41.001	3	1800	Manhole	Adoptable	2	1350	Manhole	Adoptable
41.000	4		Manhole	Adoptable	3	1800	Manhole	Adoptable



Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
42.004	27.750	252.3	300	Circular	5.450	3.760	1.390	4.750	3.650	0.800
42.003	20.300	300.0	300	Circular	5.250	3.828	1.122	5.450	3.760	1.390
42.002	35.578	291.6	300	Circular	5.150	3.947	0.903	5.250	3.825	1.125
43.000	9.331	62.2	150	Circular	4.490	4.250	0.090	5.250	4.100	1.000
42.001	22.861	300.0	300	Circular	5.375	4.023	1.052	5.150	3.947	0.903
42.000	15.554	300.0	300	Circular	5.750	4.075	1.375	5.375	4.023	1.052
44.004	8.751	26.5	300	Circular	5.125	3.980	0.845	4.750	3.650	0.800
44.003	35.814	192.5	300	Circular	5.625	4.166	1.159	5.125	3.980	0.845
47.000	51.075	300.4	300	Circular	5.450	4.150	1.000	5.125	3.980	0.845
44.002	27.629	300.0	300	Circular	5.775	4.258	1.217	5.625	4.166	1.159
46.000	4.912	0.0	150	Circular	5.675	4.250	1.275	5.625	4.250	1.225
44.001	19.999	300.0	300	Circular	5.625	4.325	1.000	5.775	4.258	1.217
45.000	4.913	0.0	150	Circular	5.850	4.250	1.450	5.775	4.250	1.375
44.000	5.000	0.0	150	Circular	5.750	4.250	1.350	5.625	4.250	1.225
48.002	10.000	56.8	300	Circular	4.925	3.576	1.049	4.750	3.400	1.050
48.001	31.878	300.7	300	Circular	5.250	3.682	1.268	4.925	3.576	1.049
48.000	27.932	300.3	300	Circular	5.275	3.775	1.200	5.250	3.682	1.268
49.002	12.750	127.5	300	Circular	5.525	3.900	1.325	5.250	3.800	1.150
49.001	21.319	142.1	300	Circular	5.550	4.050	1.200	5.525	3.900	1.325
49.000	26.593	152.0	300	Circular	5.725	4.225	1.200	5.550	4.050	1.200
50.001	21.500	66.2	300	Circular	5.375	3.875	1.200	4.900	3.550	1.050
50.000	5.500	28.9	150	Circular	5.400	4.690	0.560	5.375	4.500	0.725
51.000	20.500	58.6	450	Circular	4.725	3.250	1.025	4.700	2.900	1.350
52.000	16.500	165.0	450	Circular	4.750	3.500	0.800	4.750	3.400	0.900
53.000	11.249	125.0	450	Circular	4.900	3.400	1.050	4.750	3.350	0.950

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
42.004	61	1350	Manhole	Adoptable	60		Manhole	Adoptable
42.003	62	1350	Manhole	Adoptable	61	1350	Manhole	Adoptable
42.002	63	1350	Manhole	Adoptable	62	1350	Manhole	Adoptable
43.000	66		Junction		62	1350	Manhole	Adoptable
42.001	64	1350	Manhole	Adoptable	63	1350	Manhole	Adoptable
42.000	65	1350	Manhole	Adoptable	64	1350	Manhole	Adoptable
44.004	68	1350	Manhole	Adoptable	67		Manhole	Adoptable
44.003	70	1350	Manhole	Adoptable	68	1350	Manhole	Adoptable
47.000	69	1350	Manhole	Adoptable	68	1350	Manhole	Adoptable
44.002	71	1350	Manhole	Adoptable	70	1350	Manhole	Adoptable
46.000	75		Manhole	Adoptable	70	1350	Manhole	Adoptable
44.001	72	1350	Manhole	Adoptable	71	1350	Manhole	Adoptable
45.000	74		Manhole	Adoptable	71	1350	Manhole	Adoptable
44.000	73		Manhole	Adoptable	72	1350	Manhole	Adoptable
48.002	23	1350	Manhole	Adoptable	22		Manhole	Adoptable
48.001	24	1350	Manhole	Adoptable	23	1350	Manhole	Adoptable
48.000	25	1350	Manhole	Adoptable	24	1350	Manhole	Adoptable
49.002	29	1350	Manhole	Adoptable	28		Manhole	Adoptable
49.001	30	1350	Manhole	Adoptable	29	1350	Manhole	Adoptable
49.000	31	1350	Manhole	Adoptable	30	1350	Manhole	Adoptable
50.001	77	1350	Manhole	Adoptable	76		Manhole	Adoptable
50.000	78		Manhole	Adoptable	77	1350	Manhole	Adoptable
51.000	6	1200	Manhole	Adoptable	5		Manhole	Adoptable
52.000	21		Manhole	Adoptable	20		Manhole	Adoptable
53.000	27		Manhole	Adoptable	26		Manhole	Adoptable

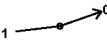
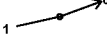
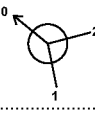


Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
54.000	5.481	4.2	150	Circular	5.500	5.300	0.050	5.500	4.000	1.350

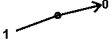
Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
54.000	139		Manhole	Adoptable	138		Manhole	Adoptable

Manhole Schedule

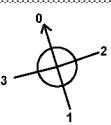
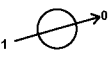
Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
43	499618.879	101994.507	6.100	0.750	1350					
							0	1.000	5.350	500
42	499644.792	102006.141	6.200	0.907	1350					
							1	1.000	5.293	500
41	499676.956	102010.060	6.400	1.172	1350					
							0	1.001	5.293	500
							1	1.001	5.228	500
40	499738.309	102031.498	6.500	1.402	1350					
							0	1.002	5.228	500
							1	1.002	5.098	500
39	499785.427	102041.935	6.600	1.599	1350					
							0	1.003	5.098	500
							1	1.003	5.001	500
							0	1.004	5.001	500
106	499869.547	102001.228	6.725	1.350	1350					
							0	2.000	5.375	300
48	499842.994	101967.614	6.825	1.500	1350					
							0	3.000	5.325	300
47	499838.582	101977.760	6.775	1.500	1350					
							0	3.001	5.275	300
46	499835.636	101992.310	6.875	1.649	1350					
							1	3.001	5.226	300
							2	2.000	5.226	300
							0	2.001	5.226	300
45	499826.360	101999.895	6.900	1.714	1350					
							1	2.001	5.186	300
							0	2.002	5.186	300



Manhole Schedule

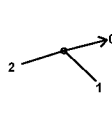
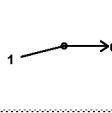
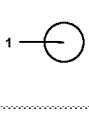
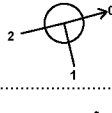
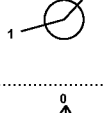
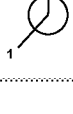
Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
44	499826.253	102019.379	6.775	1.654	1350		1	2.002	5.121 300
							0	2.003	5.121 300
38	499817.866	102053.852	6.500	1.568			1	2.003	5.003 300
							2	1.004	4.932 500
							0	1.005	4.932 500
37	499823.531	102055.933	6.600	1.680	1350		1	1.005	4.920 500
							0	1.006	4.920 500
36	499929.256	102081.486	6.100	1.398	1350		1	1.006	4.702 500
							0	1.007	4.702 500
59	499856.698	102050.129	6.350	0.560					
							0	4.000	5.790 150
58	499855.654	102055.529	6.100	0.900	1350		1	4.000	5.753 150
							0	4.001	5.200 300
57	499897.061	102058.396	5.925	0.560					
							0	5.000	5.365 150
56	499896.017	102063.796	5.700	0.750	1350		1	5.000	5.328 150
							2	4.001	4.950 300
							0	4.002	4.950 300
54	499986.370	102085.451	6.250	0.560					
							0	6.000	5.690 150
53	499984.743	102090.705	6.025	1.050	1350		1	6.000	5.653 150
							0	6.001	4.975 300
52	499962.800	102077.212	5.975	0.560					
							0	7.000	5.415 150
51	499961.172	102082.465	5.750	0.860	1350		1	7.000	5.378 150
							2	6.001	4.890 300
							0	6.002	4.890 300
50	499937.817	102068.586	5.750	0.560					
							0	8.000	5.190 150

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
49	499936.190	102073.840	5.525	0.725	1350		1 2 3 0	8.000 8.002 4.002 4.003	5.153 4.800 4.800 4.800	150 300 300 300
35	499933.416	102082.793	6.000	1.307			1 2 0	4.003 1.007 1.008	4.769 4.693 4.693	300 500 500
104	499912.717	101962.003	6.825	0.560			0	9.000	6.265	150
103	499918.787	101969.949	6.650	1.350	1350		1 0	9.000 9.001	6.097 5.300	150 450
105	499908.667	102002.928	6.350	0.560			0	10.000	5.790	150
102	499913.524	102009.285	6.325	1.350	1350		1 2 0	10.000 9.801 9.802	5.737 4.975 5.075	150 450 450
101	499942.429	102016.613	6.100	1.125	1500		1 0	9.802 9.803	4.975 4.975	450 450
109	499984.705	101963.478	6.525	1.350	1350		0	11.000	5.175	300
108	499980.296	101983.300	6.350	1.350	1350		1 0	11.000 11.001	5.000 5.000	300 300
107	499972.787	101995.189	6.250	1.350	1500		1 0	11.001 11.002	4.900 4.900	300 300
100	499962.231	102023.270	6.075	1.500	1500		1 2 0	11.002 9.803 9.804	4.575 4.875 4.875	300 450 450
99	500009.217	102036.855	6.475	1.700	1500		1 0	9.804 9.805	4.775 4.775	450 450
98	500061.628	102051.624	6.250	1.575	1500		1 0	9.805 9.806	4.675 4.675	450 450

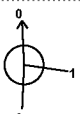
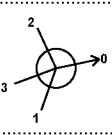


Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
110	500051.102	102072.420	6.425	1.800	1350		1	9.006	4.625 450
111	500048.605	102085.091	6.500	1.925	1350		1	9.007	4.575 450
55	500043.430	102106.146	6.575	2.050	1350		1	9.008	4.525 450
34	500034.537	102114.554	5.900	1.419	1350		1	9.009	4.481 450
33	500135.576	102140.119	5.700	1.425	1350		1	1.009	4.275 500
32	500155.575	102139.997	5.250	1.750			1	1.010	3.500 450
93	500054.095	101885.610	6.400	0.560			0	12.000	5.840 150
92	500052.819	101890.960	6.300	1.300	1350		1	12.000	5.803 150
94	500130.106	101903.740	6.550	0.560			0	12.001	5.800 300
91	500128.830	101909.090	6.425	1.685	1350		1	12.002	4.740 300
90	500201.491	101928.954	6.200	1.861	1350		1	12.002	4.489 300
89	500207.311	101935.324	6.050	1.728	1350		1	12.003	4.339 450
166	500215.524	101964.274	5.750	0.560			0	14.000	5.190 150



Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
88	500208.635	101965.279	5.750	1.500	1500		1 14.000 2 12.004	4.750 4.250	150 450
87	500207.392	101991.613	6.025	1.828	1350		0 12.005 1 12.005	4.250 4.197	450 450
86	500203.671	102019.184	6.350	2.209	1500		0 12.006 1 12.006	4.197 4.141	450 450
112	500062.981	102001.238	6.175	1.500	1350		0 15.000 1 15.000	4.675 4.272	450 450
97	500083.305	102008.798	5.900	1.628	1500		0 15.001 1 15.001	4.272 4.272	450 450
116	500106.325	102097.263	6.200	1.500	1350		0 16.000 1 16.000	4.700 4.600	450 450
115	500110.728	102083.421	6.100	1.500	1350		0 16.001 1 16.001	4.600 4.450	450 450
114	500119.169	102066.001	5.950	1.500	1500		0 16.002 1 16.002	4.450 4.450	450 450
113	500132.517	102017.272	5.500	1.500	1500		0 17.000 1 17.000	4.000 3.976	450 450
96	500136.511	102028.588	5.750	1.774	1800		1 17.000 2 16.002 3 15.001 0 15.002	3.976 3.976 3.976 3.976	450 450 450 525
95	500164.790	102034.542	6.025	2.107	1350		0 15.002 1 15.002	3.918 3.918	525 525
85	500191.697	102044.759	6.025	2.165	1350		0 15.003 1 15.003 2 12.007	3.860 3.860 3.935	525 525 450
84	500231.338	102064.637	5.600	1.829	1350		0 12.008 1 12.008	3.860 3.771	525 525

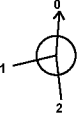


Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
121	500317.613	102035.100	5.825	1.500	1250		0	18.000	4.325 300
120	500310.017	102036.173	5.950	1.651	1350		1	18.000	4.299 300
122	500276.288	102026.440	6.000	0.560			0	18.001	4.299 300
119	500270.764	102028.475	6.000	1.834	1350		0	19.000	5.440 150
							1	19.000	5.401 150
							2	18.001	4.166 300
118	500265.605	102031.926	5.925	1.930	1350		0	18.002	4.166 300
							1	18.002	4.145 300
117	500243.135	102090.332	5.600	1.500	1350		0	18.003	3.995 450
83	500258.076	102069.916	5.375	1.734	1350		0	20.000	4.100 450
							1	20.000	3.716 450
							2	18.003	3.716 450
							3	12.009	3.716 525
							0	12.010	3.641 525
82	500331.965	102084.504	5.700	2.185	1350		1	12.010	3.515 525
							0	12.011	3.515 525
81	500359.174	102077.091	5.250	1.500	1200		0	21.000	3.750 300
80	500358.943	102084.887	5.500	2.030	1350		1	21.000	3.695 300
							2	12.011	3.470 525
							0	12.012	3.470 525
79	500358.640	102095.133	4.900	1.500			1	12.012	3.400 525
156	499861.159	101852.854	7.100	0.560			0	22.000	6.540 150
155	499864.039	101857.540	7.150	1.500	1350		1	22.000	6.502 150
							0	22.001	5.650 300



Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
154	499860.411	101869.795	7.075	1.500	1350		1	22.001	5.575 300
157	499853.563	101881.217	6.900	0.560			0	22.002	5.575 300
153	499858.912	101882.493	6.975	1.500	1350		1	23.000	6.340 150
							2	22.002	5.475 300
152	499860.225	101899.327	7.000	1.700	1350		0	22.003	5.475 300
159	499857.266	101946.147	7.025	0.750	1350		0	22.004	5.300 300
158	499864.723	101923.189	6.850	0.900	1350		0	24.000	6.275 300
151	499871.669	101901.600	6.950	1.700	1350		1	24.001	5.950 450
							2	22.004	5.250 300
163	499926.765	101947.091	6.800	0.560			0	22.005	5.250 450
162	499925.442	101941.753	6.675	1.200	1350		0	25.000	6.240 150
161	499929.314	101935.330	6.575	1.200	1350		1	25.001	5.475 300
160	499929.053	101917.907	6.375	0.560			0	25.002	5.375 300
150	499935.155	101914.475	6.450	1.416	1500		1	26.000	5.815 150
							2	25.002	5.034 150
							3	22.005	5.034 450
149	499893.934	101841.001	7.350	1.500	1350		0	22.006	5.034 450
							0	27.000	5.850 450

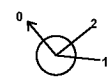
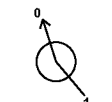
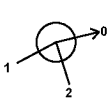
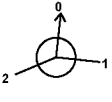


Manhole Schedule

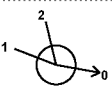
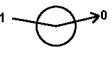
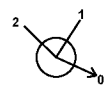
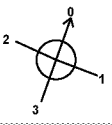
Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
148	499957.410	101863.212	6.575	1.500	1500		1 27.000	5.075	450
							0 27.001	5.075	450
147	500007.474	101880.730	6.475	1.506	1500		1 27.001	4.969	450
							0 27.002	4.969	450
146	500011.061	101888.177	6.600	1.648	1350		1 27.002	4.952	450
							0 27.003	4.952	450
145	499996.038	101934.246	6.900	2.079	1350		1 27.003	4.821	450
							2 22.006	4.821	450
							0 22.007	4.821	525
144	500012.426	101939.993	6.975	2.183	1350		1 22.007	4.792	525
							0 22.008	4.792	525
143	500022.658	101948.592	6.950	2.180	1350		1 22.008	4.770	525
							0 22.009	4.770	525
164	500039.378	101936.882	6.500	1.500					
							0 28.000	5.000	150
142	500037.604	101944.169	6.750	2.006	1350		1 28.000	4.950	150
							2 22.009	4.744	525
							0 22.010	4.744	525
165	500114.949	101955.277	5.950	0.950					
							0 29.000	5.000	150
141	500113.175	101962.564	5.925	1.354	1350		1 29.000	4.950	150
							2 22.010	4.571	525
							0 22.011	4.571	525
140	500120.037	101973.841	5.500	1.500			1 22.011	4.000	525
16	500298.269	102126.833	5.700	1.500	1350				
							0 30.000	4.200	300
15	500284.432	102124.031	5.775	1.622	1350		1 30.000	4.153	300
							0 30.001	4.153	300



Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
14	500250.082	102117.073	5.950	1.914	1350		1 30.001	4.036	300
17	500242.800	102102.263	5.800	0.560			0 30.002	4.036	300
13	500232.855	102103.317	5.775	1.812	1350		1 31.000 2 30.002	5.240 3.963	150 300
12	500205.530	102135.818	5.650	1.829	1350		0 30.003 1 30.003	3.963 3.821	300 300
18	500191.952	102149.913	5.250	1.750			0 32.000	3.500	300
11	500199.764	102154.071	5.750	2.279	1500		1 32.000 2 30.004	3.471 3.471	300 300
10	500232.313	102161.866	5.600	2.241	1350		0 30.005 1 30.005	3.471 3.359	300 300
9	500302.025	102176.266	5.150	2.178	1350		0 30.006 1 30.006	3.359 3.122	300 300
19	500328.734	102183.048	4.750	1.500	1800		0 30.007	2.972	450
8	500320.284	102183.966	5.050	2.144	1350		0 33.000 1 33.000 2 30.007	3.250 2.906 2.906	450 450 450
7	500323.899	102217.270	4.700	1.927			0 30.008 1 30.008	2.906 2.800	450 450
130	500272.059	102007.745	5.775	1.300	1350		0 34.000	4.475	300
131	500261.876	101972.284	5.110	0.160	1350		0 35.000	4.950	150

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
129	500282.383	101964.342	5.650	1.474	1350		1 35.000 2 34.000	4.803 4.326	150 300
						0	34.001	4.176	450
128	500289.078	101963.147	5.750	1.588	1350		1 34.001	4.162	450
						0	34.002	4.162	450
127	500296.949	101965.012	5.825	1.679	1350		1 34.002	4.146	450
						0	34.003	4.146	450
132	500309.359	101968.353	5.900	0.560			0 36.000	5.340	150
126	500305.485	101971.516	5.950	1.825	1350		1 36.000 2 34.003	5.307 4.125	150 450
						0	34.004	4.125	450
133	500345.201	102022.095	5.800	0.560			0 37.000	5.240	150
125	500340.527	102023.871	5.875	1.876	1350		1 37.000 2 34.004	5.207 3.999	150 450
						0	34.005	3.999	450
136	500327.586	102063.540	5.675	1.500	1350		0 38.000	4.175	300
137	500336.705	102061.506	5.550	0.560			0 39.000	4.990	150
135	500333.990	102057.308	5.625	1.500	1350		1 39.000 2 38.000	4.957 4.125	150 300
						0	38.001	4.125	300
134	500354.514	102048.311	5.575	0.560			0 40.000	5.015	150
124	500349.840	102050.087	5.575	1.658	1350		1 40.000 2 38.001 3 34.005	4.982 4.067 3.917	150 300 450
						0	34.006	3.917	450
123	500356.032	102067.520	5.250	1.495			1 34.006	3.850	450

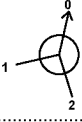
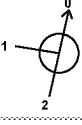


Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
4	500333.959	102218.369	4.700	1.950			0	41.000	2.750	300
3	500344.762	102206.908	4.750	2.055	1800		1	41.000	2.695	300
							0	41.001	2.695	300
2	500368.018	102213.752	3.940	2.200	1350		1	41.001	1.740	300
							0	41.002	1.740	300
1	500441.039	102253.173	1.860	0.750	1350		1	41.002	1.110	300
							0	41.003	1.110	300
65	500186.398	102183.419	5.750	1.675	1350		0	42.000	4.075	300
64	500183.542	102198.709	5.375	1.352	1350		1	42.000	4.023	300
							0	42.001	4.023	300
63	500176.943	102220.597	5.150	1.203	1350		1	42.001	3.947	300
							0	42.002	3.947	300
66	500153.378	102250.217	4.490	0.240			0	43.000	4.250	150
62	500162.280	102253.013	5.250	1.425	1350		1	43.000	4.100	150
							2	42.002	3.825	300
							0	42.003	3.825	300
61	500156.876	102272.581	5.450	1.690	1350		1	42.003	3.760	300
							0	42.004	3.760	300
60	500174.950	102293.638	4.750	1.139			1	42.004	3.650	300
							0	44.000	4.250	150
73	500242.253	102193.693	5.750	1.500			0	44.000	4.250	150
72	500247.126	102194.812	5.625	1.375	1350		1	44.000	4.250	150
							0	44.001	4.325	300



Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
74	500237.755	102213.181	5.850	1.600						
						0	45.000	4.250	150	
71	500242.544	102214.279	5.775	1.525	1350		1	45.000	4.250	150
						2	44.001	4.258	300	
						0	44.002	4.258	300	
75	500229.490	102239.545	5.675	1.425						
						0	46.000	4.250	150	
70	500234.278	102240.643	5.625	1.459	1350		1	46.000	4.250	150
						2	44.002	4.166	300	
						0	44.003	4.166	300	
69	500191.728	102283.756	5.450	1.300	1350					
						0	47.000	4.150	300	
68	500242.145	102275.582	5.125	1.145	1350		1	47.000	3.980	300
						2	44.003	3.980	300	
						0	44.004	3.980	300	
67	500244.067	102284.119	4.750	1.139			1	44.004	3.650	300
25	500310.984	102212.135	5.275	1.500	1350					
						0	48.000	3.775	300	
24	500300.327	102237.954	5.250	1.568	1350		1	48.000	3.682	300
						0	48.001	3.682	300	
23	500289.438	102267.915	4.925	1.349	1350		1	48.001	3.576	300
						0	48.002	3.576	300	
22	500298.836	102271.331	4.750	1.485			1	48.002	3.400	300
31	500178.667	102074.878	5.725	1.500	1350					
						0	49.000	4.225	300	
30	500168.604	102099.494	5.550	1.500	1350		1	49.000	4.050	300
						0	49.001	4.050	300	



Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
29	500159.308	102118.680	5.525	1.625	1350	 1	49.001	3.900	300
						0	49.002	3.900	300
28	500164.377	102130.379	5.250	1.727		 1	49.002	3.800	300
78	500328.499	102120.688	5.400	0.710		 0	50.000	4.690	150
77	500328.499	102115.188	5.375	1.500	1350	 1	50.000	4.500	150
						0	50.001	3.875	300
76	500349.999	102115.244	4.900	1.475		 1	50.001	3.550	300
6	500312.328	102265.739	4.725	1.475	1200	 0	51.000	3.250	450
5	500317.590	102245.926	4.700	1.927		 1	51.000	2.900	450
21	500282.626	102282.751	4.750	1.250		 0	52.000	3.500	450
20	500299.100	102281.820	4.750	1.485		 1	52.000	3.400	450
27	500356.164	102126.881	4.900	1.500		 0	53.000	3.400	450
26	500351.360	102137.053	4.750	1.453		 1	53.000	3.350	450
139	500111.023	101992.692	5.500	0.200		 0	54.000	5.300	150
138	500115.956	101995.082	5.500	1.500		 1	54.000	4.000	150



Simulation Settings

Rainfall Methodology	FSR	Skip Steady State	x
FSR Region	England and Wales	Drain Down Time (mins)	240
M5-60 (mm)	20.000	Additional Storage (m ³ /ha)	21.0
Ratio-R	0.400	Check Discharge Rate(s)	x
Winter CV	1.000	Check Discharge Volume	x
Analysis Speed	Detailed		

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 %)
2	40	0	0
10	40	0	0
30	40	0	0
100	20	0	0
100	40	10	0

Node 140 Online Orifice Control

Flap Valve	x	Invert Level (m)	4.000	Discharge Coefficient	0.600
Replaces Downstream Link	x	Diameter (m)	0.525		

Node 28 Online Orifice Control

Flap Valve	x	Invert Level (m)	3.523	Discharge Coefficient	0.600
Replaces Downstream Link	x	Diameter (m)	0.300		

Node 32 Online Orifice Control

Flap Valve	x	Invert Level (m)	3.500	Discharge Coefficient	0.600
Replaces Downstream Link	x	Diameter (m)	0.450		

Node 60 Online Orifice Control

Flap Valve	x	Invert Level (m)	3.611	Discharge Coefficient	0.600
Replaces Downstream Link	x	Diameter (m)	0.300		

Node 67 Online Orifice Control

Flap Valve	x	Invert Level (m)	3.611	Discharge Coefficient	0.600
Replaces Downstream Link	x	Diameter (m)	0.300		

Node 20 Online Orifice Control

Flap Valve	x	Invert Level (m)	3.265	Discharge Coefficient	0.600
Replaces Downstream Link	x	Diameter (m)	0.450		

Node 22 Online Orifice Control

Flap Valve	x	Invert Level (m)	3.265	Discharge Coefficient	0.600
Replaces Downstream Link	x	Diameter (m)	0.300		



Node 5 Online Orifice Control

Flap Valve	x	Invert Level (m)	2.773	Discharge Coefficient	0.600
Replaces Downstream Link	x	Diameter (m)	0.450		

Node 7 Online Orifice Control

Flap Valve	x	Invert Level (m)	2.773	Discharge Coefficient	0.600
Replaces Downstream Link	x	Diameter (m)	0.450		

Node 26 Online Orifice Control

Flap Valve	x	Invert Level (m)	3.297	Discharge Coefficient	0.600
Replaces Downstream Link	x	Diameter (m)	0.450		

Node 76 Online Orifice Control

Flap Valve	x	Invert Level (m)	3.425	Discharge Coefficient	0.600
Replaces Downstream Link	x	Diameter (m)	0.300		

Node 79 Online Orifice Control

Flap Valve	x	Invert Level (m)	3.400	Discharge Coefficient	0.600
Replaces Downstream Link	x	Diameter (m)	0.525		

Node 123 Online Orifice Control

Flap Valve	x	Invert Level (m)	3.755	Discharge Coefficient	0.600
Replaces Downstream Link	x	Diameter (m)	0.450		

Node 3 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	2.695	Product Number	CTL-SHE-0181-1950-2055-1950
Design Depth (m)	2.055	Min Outlet Diameter (m)	0.225
Design Flow (l/s)	19.5	Min Node Diameter (mm)	1800

Node 11 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	3.471	Product Number	CTL-SHE-0120-7500-1529-7500
Design Depth (m)	1.529	Min Outlet Diameter (m)	0.150
Design Flow (l/s)	7.5	Min Node Diameter (mm)	1200

Node 113 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	4.000	Product Number	CTL-SHE-0168-1500-1500-1500
Design Depth (m)	1.500	Min Outlet Diameter (m)	0.225
Design Flow (l/s)	15.0	Min Node Diameter (mm)	1500



Node 19 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	x	Sump Available	✓
Invert Level (m)	3.250	Product Number	CTL-SHE-0202-2250-1500-2250
Design Depth (m)	1.500	Min Outlet Diameter (m)	0.225
Design Flow (l/s)	22.5	Min Node Diameter (mm)	1800

Node 27 Online Orifice Control

Flap Valve	x	Invert Level (m)	3.400	Discharge Coefficient	0.600
Replaces Downstream Link	x	Diameter (m)	0.450		

Node 86 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	4.141	Product Number	CTL-SHE-0128-1000-2209-1000
Design Depth (m)	2.209	Min Outlet Diameter (m)	0.150
Design Flow (l/s)	10.0	Min Node Diameter (mm)	1500

Node 6 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	3.250	Product Number	CTL-SHE-0069-2500-1500-2500
Design Depth (m)	1.500	Min Outlet Diameter (m)	0.100
Design Flow (l/s)	2.5	Min Node Diameter (mm)	1200

Node 81 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	3.750	Product Number	CTL-SHE-0069-2500-1500-2500
Design Depth (m)	1.500	Min Outlet Diameter (m)	0.100
Design Flow (l/s)	2.5	Min Node Diameter (mm)	1200

Node 59 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	5.790	Slope (1:X)	100.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	4	Depth (m)	0.450
Safety Factor	1.0	Width (m)	5.500	Inf Depth (m)	
Porosity	0.32	Length (m)	60.640		

Node 57 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	5.365	Slope (1:X)	100.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	4	Depth (m)	0.450
Safety Factor	1.0	Width (m)	5.500	Inf Depth (m)	
Porosity	0.32	Length (m)	60.640		

Node 50 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	5.190	Slope (1:X)	100.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	4	Depth (m)	0.450
Safety Factor	1.0	Width (m)	5.500	Inf Depth (m)	
Porosity	0.32	Length (m)	60.640		



Node 52 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	5.415	Slope (1:X)	100.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	4	Depth (m)	0.450
Safety Factor	1.0	Width (m)	5.500	Inf Depth (m)	
Porosity	0.45	Length (m)	60.640		

Node 54 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	5.690	Slope (1:X)	100.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	4	Depth (m)	0.450
Safety Factor	1.0	Width (m)	5.500	Inf Depth (m)	
Porosity	0.32	Length (m)	60.640		

Node 105 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	5.790	Slope (1:X)	100.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	7	Depth (m)	0.450
Safety Factor	1.0	Width (m)	24.993	Inf Depth (m)	
Porosity	0.32	Length (m)	5.500		

Node 104 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	6.265	Slope (1:X)	100.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	6	Depth (m)	0.450
Safety Factor	1.0	Width (m)	24.993	Inf Depth (m)	
Porosity	0.32	Length (m)	5.500		

Node 163 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	6.240	Slope (1:X)	100.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	4	Depth (m)	0.450
Safety Factor	1.0	Width (m)	24.993	Inf Depth (m)	
Porosity	0.32	Length (m)	5.500		

Node 160 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	5.815	Slope (1:X)	100.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	6	Depth (m)	0.450
Safety Factor	1.0	Width (m)	24.993	Inf Depth (m)	
Porosity	0.32	Length (m)	5.500		

Node 156 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	6.540	Slope (1:X)	100.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	3	Depth (m)	0.450
Safety Factor	1.0	Width (m)	5.500	Inf Depth (m)	
Porosity	0.32	Length (m)	33.339		

Node 157 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	6.340	Slope (1:X)	100.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	2	Depth (m)	0.450
Safety Factor	1.0	Width (m)	5.500	Inf Depth (m)	
Porosity	0.32	Length (m)	33.339		



Node 165 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	5.000	Slope (1:X)	200.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	0.450
Safety Factor	1.0	Width (m)	88.111	Inf Depth (m)	
Porosity	0.32	Length (m)	5.500		

Node 164 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	5.000	Slope (1:X)	200.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	0.450
Safety Factor	1.0	Width (m)	88.111	Inf Depth (m)	
Porosity	0.32	Length (m)	5.500		

Node 122 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	5.440	Slope (1:X)	100.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	34	Depth (m)	0.450
Safety Factor	1.0	Width (m)	153.461	Inf Depth (m)	
Porosity	0.32	Length (m)	5.500		

Node 132 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	5.340	Slope (1:X)	100.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	0.450
Safety Factor	1.0	Width (m)	5.500	Inf Depth (m)	
Porosity	0.32	Length (m)	161.537		

Node 133 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	5.240	Slope (1:X)	100.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	4	Depth (m)	0.450
Safety Factor	1.0	Width (m)	5.500	Inf Depth (m)	
Porosity	0.32	Length (m)	60.238		

Node 134 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	5.015	Slope (1:X)	100.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	4	Depth (m)	0.450
Safety Factor	1.0	Width (m)	5.500	Inf Depth (m)	
Porosity	0.32	Length (m)	60.238		

Node 137 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	4.990	Slope (1:X)	100.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	15	Depth (m)	0.450
Safety Factor	1.0	Width (m)	60.238	Inf Depth (m)	
Porosity	0.32	Length (m)	5.500		

Node 78 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	4.690	Slope (1:X)	100.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	13	Depth (m)	0.600
Safety Factor	1.0	Width (m)	109.674	Inf Depth (m)	
Porosity	0.32	Length (m)	5.500		



Node 17 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	5.240	Slope (1:X)	100.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	8	Depth (m)	0.450
Safety Factor	1.0	Width (m)	133.985	Inf Depth (m)	
Porosity	0.32	Length (m)	10.000		

Node 73 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	4.250	Slope (1:X)	100.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	6	Depth (m)	0.450
Safety Factor	1.0	Width (m)	5.500	Inf Depth (m)	
Porosity	0.32	Length (m)	40.617		

Node 74 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	4.250	Slope (1:X)	100.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	5	Depth (m)	0.450
Safety Factor	1.0	Width (m)	5.500	Inf Depth (m)	
Porosity	0.32	Length (m)	40.617		

Node 75 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	4.250	Slope (1:X)	100.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	5	Depth (m)	0.450
Safety Factor	1.0	Width (m)	5.500	Inf Depth (m)	
Porosity	0.32	Length (m)	40.617		

Node 166 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	5.190	Slope (1:X)	200.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	220	Depth (m)	0.500
Safety Factor	2.0	Width (m)	100.000	Inf Depth (m)	
Porosity	0.32	Length (m)	10.000		

Node 19 Flow through Pond Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Main Channel Length (m)	46.507
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	3.250	Main Channel Slope (1:X)	1000.0
Safety Factor	2.0	Time to half empty (mins)		Main Channel n	0.025

Inlets

26

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	401.1	0.0	1.500	949.5	0.0

Node 27 Flow through Pond Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Main Channel Length (m)	25.307
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	3.400	Main Channel Slope (1:X)	1000.0
Safety Factor	2.0	Time to half empty (mins)		Main Channel n	0.025

Inlets

79 76



Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	402.7	0.0	1.500	836.2	0.0

Node 21 Flow through Pond Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Main Channel Length (m)	111.400
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	3.500	Main Channel Slope (1:X)	1000.0
Safety Factor	2.0	Time to half empty (mins)		Main Channel n	0.025

Inlets

60 67

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	439.6	0.0	1.250	1337.5	0.0

Node 6 Flow through Pond Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Main Channel Length (m)	15.469
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	3.250	Main Channel Slope (1:X)	1000.0
Safety Factor	2.0	Time to half empty (mins)		Main Channel n	0.025

Inlets

20 22

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	255.5	0.0	1.500	598.0	0.0

Node 4 Flow through Pond Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Main Channel Length (m)	23.007
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	2.750	Main Channel Slope (1:X)	1000.0
Safety Factor	2.0	Time to half empty (mins)		Main Channel n	0.025

Inlets

5 7

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	145.6	0.0	1.850	492.9	0.0

Node 18 Flow through Pond Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Main Channel Length (m)	23.336
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	3.500	Main Channel Slope (1:X)	1000.0
Safety Factor	2.0	Time to half empty (mins)		Main Channel n	0.025

Inlets

32 28

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	453.2	0.0	1.500	935.3	0.0



Node 81 Flow through Pond Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Main Channel Length (m)	4.806
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	3.750	Main Channel Slope (1:X)	1000.0
Safety Factor	2.0	Time to half empty (mins)		Main Channel n	0.025

Inlets

123

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	41.7	0.0	1.500	272.3	0.0

Node 113 Flow through Pond Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Main Channel Length (m)	33.685
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	4.000	Main Channel Slope (1:X)	1000.0
Safety Factor	2.0	Time to half empty (mins)		Main Channel n	0.025

Inlets

140 138

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	427.5	0.0	1.500	885.3	0.0

Node 100 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	4.575	Slope (1:X)	100.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	0.450
Safety Factor	2.0	Width (m)	50.000	Inf Depth (m)	
Porosity	0.32	Length (m)	6.000		

Node 26 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	3.297
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Time to half empty (mins)	

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	350.0	0.0	0.800	350.0	0.0	1.200	350.0	0.0	1.201	0.0	0.0

Node 9 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	2.972
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Time to half empty (mins)	

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	100.0	0.0	1.200	100.0	0.0	1.600	100.0	0.0	1.601	0.0	0.0



Results for 2 year +40% CC Critical Storm Duration. Lowest mass balance: 96.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	43	1	5.350	0.000	0.0	0.0000	0.0000	OK
15 minute winter	42	1	5.293	0.000	0.0	0.0000	0.0000	OK
15 minute winter	41	1	5.228	0.000	0.0	0.0000	0.0000	OK
15 minute winter	40	1	5.098	0.000	0.0	0.0000	0.0000	OK
15 minute winter	39	14	5.073	0.072	8.5	0.0000	0.0000	OK
15 minute winter	106	10	5.474	0.099	17.6	0.2299	0.0000	OK
15 minute winter	48	11	5.422	0.097	8.5	0.1761	0.0000	OK
15 minute winter	47	11	5.419	0.144	9.6	0.2202	0.0000	OK
15 minute winter	46	11	5.417	0.191	32.2	0.3268	0.0000	OK
15 minute winter	45	11	5.397	0.211	45.3	0.4311	0.0000	OK
15 minute winter	44	11	5.342	0.221	58.8	0.4563	0.0000	OK
15 minute winter	38	14	5.069	0.137	57.8	0.0000	0.0000	OK
15 minute winter	37	14	5.056	0.136	47.9	0.0000	0.0000	OK
15 minute winter	36	15	4.904	0.202	44.5	0.0000	0.0000	OK
15 minute winter	59	11	5.884	0.094	10.0	0.7010	0.0000	OK
15 minute winter	58	12	5.264	0.064	9.0	0.0922	0.0000	OK
15 minute winter	57	11	5.459	0.094	10.0	0.7010	0.0000	OK
15 minute winter	56	12	5.105	0.155	32.3	0.4443	0.0000	OK
15 minute winter	54	11	5.784	0.094	10.0	0.7010	0.0000	OK
15 minute winter	53	12	5.102	0.127	14.7	0.2318	0.0000	OK
15 minute winter	52	12	5.506	0.091	10.0	0.8758	0.0000	OK
15 minute winter	51	12	5.095	0.205	29.8	0.4383	0.0000	OK
15 minute winter	50	11	5.284	0.094	10.0	0.7010	0.0000	OK
15 minute winter	49	12	5.076	0.276	83.8	0.9066	0.0000	OK
15 minute winter	35	15	4.902	0.209	107.2	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	43	1.000	42	0.0	0.000	0.000	0.0000	
15 minute winter	42	1.001	41	0.0	0.000	0.000	0.0005	
15 minute winter	41	1.002	40	0.0	0.000	0.000	0.0010	
15 minute winter	40	1.003	39	0.0	0.000	0.000	1.1278	
15 minute winter	39	1.004	38	-8.5	-0.157	-0.013	2.6355	
15 minute winter	106	2.000	46	17.2	0.558	0.238	1.1778	
15 minute winter	48	3.000	47	7.6	0.518	0.103	0.2932	
15 minute winter	47	3.001	46	9.4	0.305	0.147	0.5991	
15 minute winter	46	2.001	45	31.2	0.636	0.489	0.6005	
15 minute winter	45	2.002	44	44.5	0.820	0.698	1.0573	
15 minute winter	44	2.003	38	57.8	1.136	0.907	1.8024	
15 minute winter	38	1.005	37	47.9	0.583	0.074	0.6364	
15 minute winter	37	1.006	36	44.5	0.328	0.069	15.6155	
15 minute winter	36	1.007	35	47.6	-0.424	0.074	0.8161	
15 minute winter	59	4.000	58	9.0	0.820	0.621	0.0602	
15 minute winter	58	4.001	56	8.9	0.391	0.103	0.9870	
15 minute winter	57	5.000	56	9.0	0.820	0.621	0.0602	
15 minute winter	56	4.002	49	29.8	0.591	0.448	2.1666	
15 minute winter	54	6.000	53	9.0	0.820	0.621	0.0602	
15 minute winter	53	6.001	51	13.8	0.502	0.215	0.9925	
15 minute winter	52	7.000	51	8.6	0.814	0.592	0.0579	
15 minute winter	51	6.002	49	29.7	0.510	0.461	1.5732	
15 minute winter	50	8.000	49	9.0	0.820	0.621	0.0602	
15 minute winter	49	4.003	35	84.0	1.333	1.316	0.5849	
15 minute winter	35	1.008	34	102.1	0.422	0.159	26.0755	



Results for 2 year +40% CC Critical Storm Duration. Lowest mass balance: 96.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	104	12	6.304	0.039	4.3	0.6238	0.0000	OK
15 minute winter	103	11	5.375	0.075	18.4	0.1673	0.0000	OK
15 minute winter	105	13	5.835	0.045	4.3	0.8316	0.0000	OK
15 minute winter	102	11	5.239	0.264	48.7	0.7668	0.0000	OK
15 minute winter	101	11	5.161	0.186	71.4	0.6149	0.0000	OK
15 minute winter	109	10	5.244	0.069	12.5	0.1436	0.0000	OK
30 minute winter	108	22	5.122	0.122	16.0	0.2282	0.0000	OK
30 minute winter	107	22	5.107	0.207	28.5	0.5390	0.0000	OK
30 minute winter	100	23	5.098	0.523	97.8	41.7040	0.0000	OK
30 minute winter	99	23	5.030	0.255	80.2	0.7707	0.0000	OK
30 minute winter	98	23	4.955	0.280	90.5	0.9552	0.0000	OK
30 minute winter	110	23	4.903	0.278	97.9	0.6740	0.0000	OK
30 minute winter	111	24	4.865	0.290	99.5	0.4937	0.0000	OK
30 minute winter	55	24	4.804	0.279	99.2	0.3998	0.0000	OK
30 minute winter	34	25	4.781	0.300	194.2	0.0000	0.0000	OK
30 minute winter	33	26	4.514	0.239	186.8	0.0000	0.0000	OK
600 minute winter	32	585	4.380	0.880	38.5	0.0000	0.0000	OK
15 minute winter	93	10	5.917	0.077	6.7	0.0637	0.0000	OK
60 minute winter	92	40	5.452	0.452	25.0	0.6465	0.0000	SURCHARGED
15 minute winter	94	10	6.050	0.060	6.7	0.0497	0.0000	OK
60 minute winter	91	40	5.451	0.711	42.7	1.6635	0.0000	SURCHARGED
60 minute winter	90	41	5.432	1.093	42.2	3.2033	0.0000	SURCHARGED
60 minute winter	89	41	5.431	1.109	39.4	1.5864	0.0000	SURCHARGED
60 minute winter	166	60	5.296	0.106	29.8	26.2688	0.0000	OK
60 minute winter	88	41	5.428	1.178	39.4	2.3626	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	104	9.000	103	3.1	0.895	0.136	0.0351	
15 minute winter	103	9.001	102	18.0	0.332	0.062	2.2554	
15 minute winter	105	10.000	102	2.6	0.605	0.179	0.0343	
15 minute winter	102	9.002	101	48.0	0.843	0.258	1.7003	
15 minute winter	101	9.003	100	71.6	1.217	0.321	1.2289	
15 minute winter	109	11.000	108	12.3	0.737	0.120	0.3425	
30 minute winter	108	11.001	107	16.4	0.838	0.176	0.5536	
30 minute winter	107	11.002	100	28.4	0.850	0.246	1.8330	
30 minute winter	100	9.004	99	66.1	0.795	0.455	4.1719	
30 minute winter	99	9.005	98	76.9	0.783	0.559	5.3442	
30 minute winter	98	9.006	110	88.5	0.857	0.596	2.4087	
30 minute winter	110	9.007	111	96.7	0.920	0.482	1.3596	
30 minute winter	111	9.008	55	99.2	0.941	0.643	2.2905	
30 minute winter	55	9.009	34	99.1	1.314	0.513	1.3156	
30 minute winter	34	1.009	33	186.8	0.674	0.292	29.1052	
30 minute winter	33	1.010	32	182.9	1.370	0.552	2.4411	
600 minute winter	32	Flow through pond	18	20.7	0.019	0.000	514.5862	
15 minute winter	93	12.000	92	6.6	0.765	0.458	0.0476	
60 minute winter	92	12.001	91	-22.2	-0.315	-0.348	5.5028	
15 minute winter	94	13.000	91	6.6	1.067	0.287	0.0342	
60 minute winter	91	12.002	90	26.3	0.720	0.412	5.3045	
60 minute winter	90	12.003	89	39.4	0.628	0.274	1.3671	
60 minute winter	89	12.004	88	37.4	0.489	0.237	4.7508	
60 minute winter	166	14.000	88	-20.7	1.779	-0.461	0.1075	
60 minute winter	88	12.005	87	21.3	0.467	0.149	4.1770	



Results for 2 year +40% CC Critical Storm Duration. Lowest mass balance: 96.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute winter	87	41	5.428	1.231	24.9	2.1868	0.0000	SURCHARGED
60 minute winter	86	41	5.429	1.288	17.6	2.2759	0.0000	SURCHARGED
15 minute winter	112	10	4.761	0.086	36.5	0.2674	0.0000	OK
15 minute winter	97	11	4.428	0.156	64.5	0.4635	0.0000	OK
15 minute winter	116	10	4.777	0.077	17.3	0.1712	0.0000	OK
15 minute winter	115	10	4.717	0.117	38.4	0.2831	0.0000	OK
15 minute winter	114	10	4.578	0.128	63.9	0.3792	0.0000	OK
240 minute winter	113	232	4.648	0.648	47.6	1.9539	0.0000	SURCHARGED
15 minute winter	96	12	4.364	0.388	179.5	1.8090	0.0000	OK
15 minute winter	95	12	4.323	0.405	166.7	0.7619	0.0000	OK
15 minute winter	85	12	4.277	0.417	192.1	0.9090	0.0000	OK
15 minute winter	84	13	4.201	0.430	194.6	0.8085	0.0000	OK
15 minute winter	121	1	4.325	0.000	0.0	0.0000	0.0000	OK
15 minute winter	120	1	4.299	0.000	0.0	0.0000	0.0000	OK
60 minute winter	122	44	5.507	0.067	13.0	10.8521	0.0000	OK
15 minute winter	119	11	4.293	0.127	21.7	0.2735	0.0000	OK
15 minute winter	118	14	4.149	0.154	21.4	0.2207	0.0000	OK
15 minute winter	117	13	4.156	0.056	2.6	0.0830	0.0000	OK
15 minute winter	83	13	4.154	0.513	233.6	1.4238	0.0000	OK
15 minute winter	82	13	4.009	0.494	230.0	1.1483	0.0000	OK
180 minute winter	81	176	4.194	0.444	7.0	0.6700	0.0000	SURCHARGED
1440 minute winter	80	1380	3.970	0.500	39.6	0.9326	0.0000	OK
1440 minute winter	79	1380	3.972	0.572	39.4	0.0000	0.0000	OK
15 minute winter	156	11	6.604	0.064	5.5	0.4154	0.0000	OK
15 minute winter	155	11	5.732	0.082	12.4	0.1470	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)
60 minute winter	87	12.006	86	17.6	0.395	0.122	4.4081	
60 minute winter	86	Hydro-Brake®	85	9.3				
15 minute winter	112	15.000	97	36.2	1.056	0.082	0.7580	
15 minute winter	97	15.001	96	62.4	0.689	0.268	5.5019	
15 minute winter	116	16.000	115	17.1	0.681	0.064	0.3688	
15 minute winter	115	16.001	114	37.9	1.085	0.133	0.6754	
15 minute winter	114	16.002	96	62.8	0.752	0.181	3.7491	
240 minute winter	113	Hydro-Brake®	96	14.9				
15 minute winter	96	15.002	95	153.8	0.913	0.714	5.0564	
15 minute winter	95	15.003	85	160.8	0.916	0.747	5.2238	
15 minute winter	85	12.008	84	185.3	1.044	0.861	8.2353	
15 minute winter	84	12.009	83	189.7	1.107	0.877	5.2044	
15 minute winter	121	18.000	120	0.0	0.000	0.000	0.0000	
15 minute winter	120	18.001	119	0.0	0.000	0.000	0.5674	
60 minute winter	122	19.000	119	5.2	0.719	0.360	0.0426	
15 minute winter	119	18.002	118	21.4	0.821	0.335	0.1618	
15 minute winter	118	18.003	83	21.4	0.628	0.078	3.9563	
15 minute winter	117	20.000	83	3.6	0.395	0.009	2.1339	
15 minute winter	83	12.010	82	211.9	1.025	1.079	16.0233	
15 minute winter	82	12.011	80	225.6	1.107	1.149	5.5227	
180 minute winter	81	Hydro-Brake®	80	2.1				
1440 minute winter	80	12.012	79	39.4	0.602	0.098	2.1948	
1440 minute winter	79	Flow through pond	27	37.2	0.017	0.001	269.0897	
15 minute winter	156	22.000	155	4.9	0.710	0.338	0.0379	
15 minute winter	155	22.001	154	12.3	0.740	0.145	0.2135	



Results for 2 year +40% CC Critical Storm Duration. Lowest mass balance: 96.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	154	11	5.665	0.090	17.4	0.1508	0.0000	OK
15 minute winter	157	1	6.340	0.000	0.0	0.0000	0.0000	OK
15 minute winter	153	11	5.560	0.085	19.4	0.1298	0.0000	OK
15 minute winter	152	11	5.435	0.135	21.6	0.2050	0.0000	OK
15 minute winter	159	10	6.337	0.062	8.8	0.1396	0.0000	OK
15 minute winter	158	10	6.002	0.052	16.7	0.1076	0.0000	OK
15 minute winter	151	11	5.418	0.168	57.8	0.3853	0.0000	OK
15 minute winter	163	12	6.279	0.039	4.3	0.6444	0.0000	OK
15 minute winter	162	10	5.557	0.082	17.7	0.1899	0.0000	OK
15 minute winter	161	10	5.460	0.085	17.5	0.1222	0.0000	OK
15 minute winter	160	11	5.841	0.026	4.3	0.2903	0.0000	OK
15 minute winter	150	12	5.353	0.319	119.9	1.2464	0.0000	OK
15 minute winter	149	11	5.876	0.026	2.4	0.0401	0.0000	OK
15 minute winter	148	13	5.324	0.249	38.2	0.8540	0.0000	OK
15 minute winter	147	13	5.319	0.350	45.5	0.9220	0.0000	OK
15 minute winter	146	13	5.315	0.363	50.5	0.7611	0.0000	OK
15 minute winter	145	13	5.296	0.475	197.9	1.8331	0.0000	OK
15 minute winter	144	13	5.244	0.452	198.7	0.6475	0.0000	OK
15 minute winter	143	13	5.189	0.419	209.7	0.8380	0.0000	OK
30 minute winter	164	24	5.066	0.066	14.0	8.1187	0.0000	OK
15 minute winter	142	13	5.101	0.357	210.1	0.5106	0.0000	OK
60 minute winter	165	43	5.052	0.052	7.4	5.9726	0.0000	OK
15 minute winter	141	11	4.780	0.209	264.9	1.1510	0.0000	OK
240 minute winter	140	228	4.649	0.649	75.0	0.0000	0.0000	OK
600 minute winter	16	585	4.378	0.178	0.5	0.2975	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	154	22.002	153	17.4	1.017	0.177	0.2187	
15 minute winter	157	23.000	153	0.0	0.000	0.000	0.0000	
15 minute winter	153	22.003	152	19.6	0.841	0.173	0.3978	
15 minute winter	152	22.004	151	21.5	0.603	0.297	0.4159	
15 minute winter	159	24.000	158	8.5	0.830	0.090	0.2488	
15 minute winter	158	24.001	151	16.5	0.587	0.029	0.7251	
15 minute winter	151	22.005	150	57.1	0.767	0.307	5.5884	
15 minute winter	163	25.000	162	3.1	0.878	0.134	0.0194	
15 minute winter	162	25.001	161	17.5	1.111	0.136	0.1207	
15 minute winter	161	25.002	150	17.7	1.023	0.169	0.6019	
15 minute winter	160	26.000	150	4.0	0.334	0.066	0.0688	
15 minute winter	150	22.006	145	106.1	0.796	0.571	8.9218	
15 minute winter	149	27.000	148	2.3	0.100	0.007	3.1328	
15 minute winter	148	27.001	147	29.3	0.544	0.204	5.8948	
15 minute winter	147	27.002	146	44.2	0.585	0.303	1.1142	
15 minute winter	146	27.003	145	56.5	0.442	0.338	7.1625	
15 minute winter	145	22.007	144	198.7	0.984	1.011	3.5047	
15 minute winter	144	22.008	143	199.4	1.041	1.022	2.5579	
15 minute winter	143	22.009	142	210.1	1.229	1.070	2.6581	
30 minute winter	164	28.000	142	5.0	0.717	0.348	0.0835	
15 minute winter	142	22.010	141	203.0	1.829	0.894	9.0703	
60 minute winter	165	29.000	141	3.4	0.651	0.236	0.0394	
15 minute winter	141	22.011	140	268.8	1.679	0.266	1.9454	
240 minute winter	140	Flow through pond	113	42.6	0.049	0.002	331.2152	
600 minute winter	16	30.000	15	0.5	0.210	0.008	0.7086	



Results for 2 year +40% CC Critical Storm Duration. Lowest mass balance: 96.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
600 minute winter	15	585	4.378	0.225	1.0	0.3719	0.0000	OK
600 minute winter	14	585	4.378	0.342	1.5	0.5538	0.0000	SURCHARGED
15 minute winter	17	13	5.303	0.063	40.7	8.7281	0.0000	OK
600 minute winter	13	585	4.378	0.415	5.4	0.5943	0.0000	SURCHARGED
600 minute winter	12	585	4.378	0.557	6.3	0.9958	0.0000	SURCHARGED
600 minute winter	18	585	4.379	0.879	23.3	0.9807	0.0000	SURCHARGED
600 minute winter	11	585	4.378	0.907	7.8	1.9206	0.0000	SURCHARGED
1440 minute winter	10	1410	3.856	0.497	9.3	1.2713	0.0000	SURCHARGED
1440 minute winter	9	1410	3.853	0.881	12.1	86.4471	0.0000	SURCHARGED
1440 minute winter	19	1380	3.967	0.717	25.7	2.7783	0.0000	SURCHARGED
1440 minute winter	8	1410	3.852	0.946	27.9	1.5586	0.0000	SURCHARGED
1440 minute winter	7	1410	3.853	1.080	27.8	0.0000	0.0000	OK
15 minute winter	130	1	4.475	0.000	0.0	0.0000	0.0000	OK
15 minute winter	131	1	4.950	0.000	0.0	0.0000	0.0000	OK
180 minute winter	129	176	4.194	0.018	0.0	0.0262	0.0000	OK
180 minute winter	128	176	4.194	0.032	0.1	0.0462	0.0000	OK
180 minute winter	127	176	4.194	0.048	0.2	0.0691	0.0000	OK
15 minute winter	132	1	5.340	0.000	0.0	0.0000	0.0000	OK
180 minute winter	126	176	4.194	0.069	0.8	0.0991	0.0000	OK
15 minute winter	133	11	5.335	0.095	10.0	0.7160	0.0000	OK
180 minute winter	125	176	4.194	0.195	4.5	0.3427	0.0000	OK
15 minute winter	136	10	4.221	0.046	4.3	0.0743	0.0000	OK
30 minute winter	137	23	5.046	0.056	7.7	3.0653	0.0000	OK
15 minute winter	135	11	4.212	0.087	10.9	0.1412	0.0000	OK
15 minute winter	134	11	5.110	0.095	10.0	0.7160	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)
600 minute winter	15	30.001	14	1.0	0.291	0.016	2.2286	
600 minute winter	14	30.002	13	1.5	0.229	0.024	1.5524	
15 minute winter	17	31.000	13	23.3	1.677	0.364	0.1228	
600 minute winter	13	30.003	12	5.4	0.662	0.085	2.9901	
600 minute winter	12	30.004	11	5.9	0.291	0.039	1.3480	
600 minute winter	18	32.000	11	7.2	0.167	0.114	0.6232	
600 minute winter	11	Hydro-Brake®	10	7.5				
1440 minute winter	10	30.006	9	9.3	0.662	0.146	5.0127	
1440 minute winter	9	30.007	8	9.1	0.435	0.049	3.1397	
1440 minute winter	19	33.000	8	20.8	0.757	0.032	1.3468	
1440 minute winter	8	30.008	7	27.8	0.659	0.154	5.3079	
1440 minute winter	7	Flow through pond	4	24.5	0.021	0.001	269.1149	
15 minute winter	130	34.000	129	0.0	0.000	0.000	0.0000	
15 minute winter	131	35.000	129	0.0	0.000	0.000	0.0000	
180 minute winter	129	34.001	128	0.0	-0.036	0.000	0.0242	
180 minute winter	128	34.002	127	-0.1	-0.051	-0.001	0.0569	
180 minute winter	127	34.003	126	-0.2	-0.059	-0.001	0.1313	
15 minute winter	132	36.000	126	0.0	0.000	0.000	0.0000	
180 minute winter	126	34.004	125	-0.8	-0.033	-0.005	2.5598	
15 minute winter	133	37.000	125	8.9	0.811	0.618	0.0551	
180 minute winter	125	34.005	124	4.4	0.331	0.025	2.3407	
15 minute winter	136	38.000	135	4.2	0.379	0.051	0.1047	
30 minute winter	137	39.000	135	3.7	0.656	0.258	0.0284	
15 minute winter	135	38.001	124	10.9	0.691	0.171	0.2750	
15 minute winter	134	40.000	124	8.9	0.811	0.618	0.0551	



Results for 2 year +40% CC Critical Storm Duration. Lowest mass balance: 96.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
180 minute winter	124	176	4.194	0.277	11.6	0.4458	0.0000	OK
180 minute winter	123	176	4.195	0.440	10.5	0.0000	0.0000	OK
1440 minute winter	4	1410	3.848	1.098	25.2	0.5799	0.0000	SURCHARGED
1440 minute winter	3	1410	3.843	1.148	19.5	2.9216	0.0000	SURCHARGED
15 minute winter	2	230	1.832	0.092	19.4	0.1310	0.0000	OK
120 minute winter	1	162	1.200	0.090	19.4	0.0000	0.0000	OK
15 minute winter	65	10	4.143	0.068	7.3	0.1171	0.0000	OK
15 minute winter	64	11	4.129	0.106	16.8	0.2043	0.0000	OK
15 minute winter	63	11	4.092	0.145	30.8	0.3290	0.0000	OK
15 minute winter	66	1	4.250	0.000	0.0	0.0000	0.0000	OK
15 minute winter	62	11	4.032	0.207	43.6	0.4374	0.0000	OK
15 minute winter	61	11	3.978	0.218	55.8	0.4347	0.0000	OK
15 minute winter	60	12	3.871	0.260	55.0	0.0000	0.0000	OK
15 minute winter	73	13	4.379	0.129	6.7	1.5168	0.0000	OK
15 minute winter	72	13	4.375	0.125	4.0	0.1790	0.0000	OK
15 minute winter	74	12	4.367	0.117	6.7	1.2458	0.0000	OK
15 minute winter	71	12	4.359	0.109	16.0	0.2021	0.0000	OK
15 minute winter	75	12	4.345	0.095	6.7	0.8249	0.0000	OK
15 minute winter	70	11	4.314	0.148	37.4	0.3383	0.0000	OK
15 minute winter	69	11	4.242	0.092	14.0	0.2010	0.0000	OK
15 minute winter	68	11	4.106	0.126	63.5	0.2872	0.0000	OK
15 minute winter	67	12	3.892	0.281	62.6	0.0000	0.0000	OK
15 minute winter	25	10	3.873	0.098	15.5	0.2109	0.0000	OK
1440 minute winter	24	1500	3.868	0.186	1.9	0.4438	0.0000	OK
1440 minute winter	23	1500	3.868	0.292	4.0	1.0360	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)
180 minute winter	124	34.006	123	10.5	0.579	0.054	2.1458	
180 minute winter	123	Flow through pond	81	5.1	0.008	0.000	33.4041	
1440 minute winter	4	41.000	3	19.5	0.430	0.299	1.1091	
1440 minute winter	3	Hydro-Brake®	2	19.4				
15 minute winter	2	41.002	1	19.4	1.079	0.201	1.4926	272.7
15 minute winter	65	42.000	64	7.1	0.426	0.111	0.2643	
15 minute winter	64	42.001	63	16.5	0.594	0.259	0.6395	
15 minute winter	63	42.002	62	30.4	0.714	0.470	1.5240	
15 minute winter	66	43.000	62	0.0	0.000	0.000	0.0000	
15 minute winter	62	42.003	61	42.9	0.809	0.673	1.0765	
15 minute winter	61	42.004	60	55.0	1.008	0.790	1.5211	
15 minute winter	60	Flow through pond	21	92.3	0.216	0.013	56.7898	
15 minute winter	73	44.000	72	4.0	0.295	0.224	0.0795	
15 minute winter	72	44.001	71	4.0	0.301	0.062	0.2812	
15 minute winter	74	45.000	71	5.0	0.369	0.285	0.0698	
15 minute winter	71	44.002	70	15.9	0.591	0.249	0.7582	
15 minute winter	75	46.000	70	5.4	0.559	0.306	0.0474	
15 minute winter	70	44.003	68	36.8	1.187	0.461	1.1256	
15 minute winter	69	47.000	68	13.5	0.611	0.211	1.1892	
15 minute winter	68	44.004	67	62.6	1.559	0.289	0.3889	
15 minute winter	67	Flow through pond	21	92.3	0.216	0.013	56.7898	
15 minute winter	25	48.000	24	15.1	0.503	0.238	0.8475	
1440 minute winter	24	48.001	23	1.9	0.402	0.030	1.8469	
1440 minute winter	23	48.002	22	4.8	0.742	0.033	0.7016	



Results for 2 year +40% CC Critical Storm Duration. Lowest mass balance: 96.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute winter	22	1410	3.869	0.604	4.8	0.0000	0.0000	OK
600 minute winter	31	585	4.379	0.154	2.2	0.3811	0.0000	OK
600 minute winter	30	585	4.379	0.329	3.7	0.7097	0.0000	SURCHARGED
600 minute winter	29	585	4.379	0.479	5.8	1.1246	0.0000	SURCHARGED
600 minute winter	28	600	4.380	0.857	5.8	0.0000	0.0000	OK
30 minute winter	78	22	4.743	0.053	13.9	5.0303	0.0000	OK
1440 minute winter	77	1380	3.969	0.094	1.7	0.2001	0.0000	OK
1440 minute winter	76	1380	3.969	0.544	1.7	0.0000	0.0000	OK
1440 minute winter	6	1440	3.868	0.618	5.9	1.2263	0.0000	SURCHARGED
1440 minute winter	5	1410	3.853	1.080	11.0	0.0000	0.0000	OK
1440 minute winter	21	1440	3.868	0.368	8.4	0.8277	0.0000	OK
1440 minute winter	20	1440	3.871	0.605	6.1	0.0000	0.0000	OK
1440 minute winter	27	1380	3.969	0.569	38.5	0.6691	0.0000	SURCHARGED
1440 minute winter	26	1380	3.967	0.670	34.9	222.9364	0.0000	OK
720 minute winter	139	570	5.300	0.000	0.0	0.0000	0.0000	OK
240 minute winter	138	232	4.787	0.787	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)
1440 minute winter	22	Flow through pond	6	5.2	0.006	0.000	198.4933	
600 minute winter	31	49.000	30	2.2	0.454	0.024	1.4189	
600 minute winter	30	49.001	29	3.7	0.564	0.040	1.5013	
600 minute winter	29	49.002	28	5.8	0.722	0.059	0.8978	
600 minute winter	28	Flow through pond	18	20.7	0.019	0.000	514.5862	
30 minute winter	78	50.000	77	7.5	1.435	0.227	0.0289	
1440 minute winter	77	50.001	76	1.7	0.609	0.012	0.9594	
1440 minute winter	76	Flow through pond	27	37.2	0.017	0.001	269.0897	
1440 minute winter	6	Hydro-Brake®	5	2.1				
1440 minute winter	5	Flow through pond	4	24.5	0.021	0.001	269.1149	
1440 minute winter	21	52.000	20	6.1	0.585	0.024	2.4511	
1440 minute winter	20	Flow through pond	6	5.2	0.006	0.000	198.4933	
1440 minute winter	27	53.000	26	34.9	0.798	0.163	1.7823	
1440 minute winter	26	Flow through pond	19	24.3	0.018	0.001	366.1183	
720 minute winter	139	54.000	138	0.0	0.000	0.000	0.0483	
240 minute winter	138	Flow through pond	113	42.6	0.049	0.002	331.2152	



Results for 10 year +40% CC Critical Storm Duration. Lowest mass balance: 96.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	43	1	5.350	0.000	0.0	0.0000	0.0000	OK
15 minute winter	42	1	5.293	0.000	0.0	0.0000	0.0000	OK
15 minute winter	41	1	5.228	0.000	0.0	0.0000	0.0000	OK
15 minute winter	40	16	5.101	0.003	1.0	0.0000	0.0000	OK
15 minute winter	39	14	5.102	0.101	12.7	0.0000	0.0000	OK
15 minute winter	106	12	5.543	0.168	26.4	0.3926	0.0000	OK
15 minute winter	48	12	5.531	0.206	12.7	0.3750	0.0000	OK
15 minute winter	47	12	5.530	0.255	13.5	0.3900	0.0000	OK
15 minute winter	46	12	5.529	0.303	45.5	0.5184	0.0000	SURCHARGED
15 minute winter	45	12	5.501	0.315	61.4	0.6448	0.0000	SURCHARGED
15 minute winter	44	11	5.427	0.306	80.8	0.6329	0.0000	SURCHARGED
15 minute winter	38	14	5.101	0.169	79.0	0.0000	0.0000	OK
15 minute winter	37	15	5.088	0.168	70.6	0.0000	0.0000	OK
15 minute winter	36	15	4.951	0.249	66.4	0.0000	0.0000	OK
15 minute winter	59	11	5.913	0.123	15.0	1.1550	0.0000	OK
15 minute winter	58	12	5.278	0.078	12.9	0.1116	0.0000	OK
15 minute winter	57	11	5.488	0.123	15.0	1.1550	0.0000	OK
15 minute winter	56	12	5.277	0.327	47.2	0.9337	0.0000	SURCHARGED
15 minute winter	54	11	5.813	0.123	15.0	1.1550	0.0000	OK
15 minute winter	53	12	5.255	0.280	21.5	0.5134	0.0000	OK
15 minute winter	52	12	5.534	0.119	15.0	1.4549	0.0000	OK
15 minute winter	51	12	5.245	0.355	42.9	0.7605	0.0000	SURCHARGED
15 minute winter	50	11	5.313	0.123	15.0	1.1550	0.0000	OK
15 minute winter	49	12	5.196	0.396	122.4	1.3005	0.0000	SURCHARGED
15 minute winter	35	15	4.950	0.257	160.0	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	43	1.000	42	0.0	0.000	0.000	0.0000	
15 minute winter	42	1.001	41	0.0	0.000	0.000	0.0005	
15 minute winter	41	1.002	40	0.0	0.000	0.000	0.0538	
15 minute winter	40	1.003	39	-1.0	-0.032	-0.002	1.7217	
15 minute winter	39	1.004	38	-12.7	-0.190	-0.020	3.6684	
15 minute winter	106	2.000	46	25.8	0.595	0.357	1.9471	
15 minute winter	48	3.000	47	10.5	0.522	0.140	0.6380	
15 minute winter	47	3.001	46	14.6	0.312	0.229	0.9964	
15 minute winter	46	2.001	45	45.3	0.666	0.710	0.8437	
15 minute winter	45	2.002	44	60.5	0.868	0.949	1.3720	
15 minute winter	44	2.003	38	79.0	1.213	1.238	2.2285	
15 minute winter	38	1.005	37	70.6	0.617	0.110	0.8492	
15 minute winter	37	1.006	36	66.4	0.352	0.103	21.1748	
15 minute winter	36	1.007	35	70.1	-0.453	0.109	1.1109	
15 minute winter	59	4.000	58	12.9	0.897	0.892	0.0789	
15 minute winter	58	4.001	56	12.6	0.382	0.146	1.7499	
15 minute winter	57	5.000	56	12.9	0.897	0.892	0.0789	
15 minute winter	56	4.002	49	43.9	0.623	0.660	2.9161	
15 minute winter	54	6.000	53	12.9	0.897	0.892	0.0789	
15 minute winter	53	6.001	51	20.1	0.511	0.312	1.7342	
15 minute winter	52	7.000	51	12.4	0.884	0.854	0.0767	
15 minute winter	51	6.002	49	42.9	0.609	0.665	1.8611	
15 minute winter	50	8.000	49	12.9	0.897	0.892	0.0789	
15 minute winter	49	4.003	35	122.6	1.744	1.923	0.6397	
15 minute winter	35	1.008	34	154.7	0.452	0.240	37.9979	



Results for 10 year +40% CC Critical Storm Duration. Lowest mass balance: 96.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	104	12	6.313	0.048	6.4	0.9445	0.0000	OK
15 minute winter	103	11	5.391	0.091	27.4	0.2031	0.0000	OK
15 minute winter	105	13	5.846	0.056	6.4	1.2644	0.0000	OK
30 minute winter	102	22	5.301	0.326	57.7	0.9485	0.0000	OK
30 minute winter	101	22	5.294	0.319	85.6	1.0516	0.0000	OK
30 minute winter	109	21	5.318	0.143	14.2	0.2956	0.0000	OK
15 minute winter	108	13	5.357	0.357	31.1	0.6670	0.0000	SURCHARGED
30 minute winter	107	21	5.307	0.407	46.3	1.0604	0.0000	SURCHARGED
30 minute winter	100	22	5.287	0.712	137.3	42.1869	0.0000	OK
30 minute winter	99	20	5.247	0.472	146.0	1.4285	0.0000	SURCHARGED
30 minute winter	98	20	5.148	0.473	162.7	1.6118	0.0000	SURCHARGED
30 minute winter	110	20	5.074	0.449	179.1	1.0880	0.0000	OK
30 minute winter	111	20	5.007	0.432	186.2	0.7354	0.0000	OK
30 minute winter	55	22	4.904	0.379	185.4	0.5428	0.0000	OK
30 minute winter	34	23	4.852	0.371	321.3	0.0000	0.0000	OK
30 minute winter	33	28	4.764	0.489	326.1	0.0000	0.0000	SURCHARGED
720 minute winter	32	705	4.717	1.217	47.7	0.0000	0.0000	OK
15 minute winter	93	10	5.941	0.101	10.0	0.0830	0.0000	OK
15 minute winter	92	13	5.828	0.828	45.8	1.1844	0.0000	SURCHARGED
15 minute winter	94	10	6.067	0.077	10.0	0.0632	0.0000	OK
30 minute winter	91	21	5.887	1.147	81.8	2.6840	0.0000	SURCHARGED
30 minute winter	90	20	5.814	1.475	78.8	4.3234	0.0000	SURCHARGED
30 minute winter	89	20	5.798	1.476	67.3	2.1122	0.0000	FLOOD RISK
120 minute winter	166	116	5.427	0.237	44.8	68.7586	0.0000	SURCHARGED
30 minute winter	88	20	5.750	1.500	91.7	3.0075	7.5912	FLOOD

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	104	9.000	103	4.7	0.996	0.202	0.0469	
15 minute winter	103	9.001	102	26.8	0.397	0.092	2.7608	
15 minute winter	105	10.000	102	3.8	0.671	0.265	0.0457	
30 minute winter	102	9.002	101	57.2	0.863	0.307	2.9792	
30 minute winter	101	9.003	100	79.8	1.245	0.358	2.8426	
30 minute winter	109	11.000	108	14.3	0.759	0.139	1.0508	
15 minute winter	108	11.001	107	30.8	0.977	0.329	0.9902	
30 minute winter	107	11.002	100	38.2	0.947	0.330	2.1126	
30 minute winter	100	9.004	99	112.5	0.882	0.776	7.5894	
30 minute winter	99	9.005	98	127.7	0.834	0.929	8.6276	
30 minute winter	98	9.006	110	154.1	0.973	1.037	3.6914	
30 minute winter	110	9.007	111	178.9	1.136	0.893	2.0315	
30 minute winter	111	9.008	55	185.4	1.252	1.202	3.2329	
30 minute winter	55	9.009	34	182.5	1.410	0.945	1.7274	
30 minute winter	34	1.009	33	326.1	0.768	0.510	57.7923	
30 minute winter	33	1.010	32	255.1	1.664	0.769	3.1687	
720 minute winter	32	Flow through pond	18	25.1	0.018	0.000	778.3913	
15 minute winter	93	12.000	92	9.9	0.835	0.683	0.0649	
15 minute winter	92	12.001	91	-37.7	-0.535	-0.591	5.5028	
15 minute winter	94	13.000	91	9.9	1.175	0.428	0.0464	
30 minute winter	91	12.002	90	-42.0	0.807	-0.658	5.3045	
30 minute winter	90	12.003	89	67.3	0.710	0.469	1.3671	
30 minute winter	89	12.004	88	68.3	0.595	0.434	4.7508	
120 minute winter	166	14.000	88	-31.6	-1.908	-0.703	0.1226	
30 minute winter	88	12.005	87	28.9	0.573	0.201	4.1770	



Results for 10 year +40% CC Critical Storm Duration. Lowest mass balance: 96.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute winter	87	35	5.758	1.561	25.1	2.7721	0.0000	FLOOD RISK
60 minute winter	86	35	5.762	1.621	17.8	2.8645	0.0000	SURCHARGED
15 minute winter	112	10	4.780	0.105	54.5	0.3264	0.0000	OK
15 minute winter	97	12	4.783	0.511	96.4	1.5161	0.0000	SURCHARGED
15 minute winter	116	13	4.827	0.127	25.9	0.2829	0.0000	OK
15 minute winter	115	13	4.771	0.171	57.4	0.4117	0.0000	OK
15 minute winter	114	13	4.788	0.338	95.8	1.0049	0.0000	OK
360 minute winter	113	344	4.933	0.933	51.7	2.8100	0.0000	SURCHARGED
15 minute winter	96	12	4.747	0.771	244.0	3.5969	0.0000	SURCHARGED
15 minute winter	95	12	4.690	0.772	216.7	1.4518	0.0000	SURCHARGED
15 minute winter	85	12	4.637	0.777	256.7	1.6918	0.0000	SURCHARGED
15 minute winter	84	12	4.541	0.770	260.6	1.4471	0.0000	SURCHARGED
15 minute winter	121	13	4.520	0.195	9.1	0.2795	0.0000	OK
15 minute winter	120	13	4.500	0.201	22.4	0.2881	0.0000	OK
60 minute winter	122	44	5.526	0.086	19.2	16.0518	0.0000	OK
15 minute winter	119	13	4.480	0.314	32.4	0.6770	0.0000	SURCHARGED
15 minute winter	118	13	4.486	0.491	35.6	0.7031	0.0000	SURCHARGED
15 minute winter	117	13	4.454	0.354	24.3	0.5212	0.0000	OK
15 minute winter	83	13	4.451	0.810	283.8	2.2477	0.0000	SURCHARGED
1440 minute winter	82	1350	4.228	0.713	45.8	1.6574	0.0000	SURCHARGED
240 minute winter	81	236	4.331	0.581	7.2	0.8760	0.0000	SURCHARGED
1440 minute winter	80	1380	4.227	0.757	48.1	1.4134	0.0000	SURCHARGED
1440 minute winter	79	1320	4.231	0.831	47.8	0.0000	0.0000	OK
15 minute winter	156	11	6.621	0.081	8.2	0.6440	0.0000	OK
15 minute winter	155	11	5.753	0.103	18.4	0.1841	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)
60 minute winter	87	12.006	86	17.8	0.420	0.124	4.4081	
60 minute winter	86	Hydro-Brake®	85	9.3				
15 minute winter	112	15.000	97	54.1	1.168	0.123	2.0118	
15 minute winter	97	15.001	96	83.3	0.731	0.358	8.9944	
15 minute winter	116	16.000	115	25.6	0.738	0.096	0.6664	
15 minute winter	115	16.001	114	56.7	1.198	0.199	1.7708	
15 minute winter	114	16.002	96	94.4	0.797	0.272	5.9026	
360 minute winter	113	Hydro-Brake®	96	14.9				
15 minute winter	96	15.002	95	196.2	0.984	0.911	6.2431	
15 minute winter	95	15.003	85	212.5	0.984	0.987	6.2176	
15 minute winter	85	12.008	84	242.9	1.125	1.128	9.5802	
15 minute winter	84	12.009	83	233.3	1.125	1.079	5.8878	
15 minute winter	121	18.000	120	-9.1	-0.474	-0.141	0.3791	
15 minute winter	120	18.001	119	-22.4	-0.427	-0.351	2.4139	
60 minute winter	122	19.000	119	7.9	0.795	0.543	0.0582	
15 minute winter	119	18.002	118	35.6	0.902	0.559	0.4371	
15 minute winter	118	18.003	83	44.3	0.656	0.162	6.1364	
15 minute winter	117	20.000	83	-23.0	0.381	-0.058	3.6957	
15 minute winter	83	12.010	82	272.0	1.259	1.385	16.2705	
1440 minute winter	82	12.011	80	45.1	0.699	0.230	5.8288	
240 minute winter	81	Hydro-Brake®	80	2.1				
1440 minute winter	80	12.012	79	47.8	0.599	0.119	2.2143	
1440 minute winter	79	Flow through pond	27	43.2	0.016	0.001	423.9567	
15 minute winter	156	22.000	155	7.2	0.782	0.499	0.0507	
15 minute winter	155	22.001	154	18.4	0.811	0.216	0.2897	



Results for 10 year +40% CC Critical Storm Duration. Lowest mass balance: 96.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	154	11	5.687	0.112	25.8	0.1876	0.0000	OK
15 minute winter	157	1	6.340	0.000	0.0	0.0000	0.0000	OK
15 minute winter	153	13	5.697	0.222	28.8	0.3393	0.0000	OK
15 minute winter	152	13	5.687	0.387	32.0	0.5869	0.0000	SURCHARGED
15 minute winter	159	10	6.352	0.077	13.2	0.1725	0.0000	OK
15 minute winter	158	10	6.013	0.063	25.1	0.1306	0.0000	OK
15 minute winter	151	13	5.682	0.432	86.8	0.9923	0.0000	OK
15 minute winter	163	12	6.289	0.049	6.4	0.9797	0.0000	OK
15 minute winter	162	13	5.664	0.189	26.4	0.4359	0.0000	OK
15 minute winter	161	13	5.665	0.290	27.9	0.4146	0.0000	OK
15 minute winter	160	11	5.847	0.032	6.4	0.4266	0.0000	OK
15 minute winter	150	13	5.648	0.614	173.3	2.3967	0.0000	SURCHARGED
15 minute winter	149	11	5.881	0.031	3.6	0.0485	0.0000	OK
15 minute winter	148	12	5.618	0.543	67.2	1.8641	0.0000	SURCHARGED
15 minute winter	147	12	5.589	0.620	69.8	1.6313	0.0000	SURCHARGED
15 minute winter	146	12	5.578	0.626	90.6	1.3102	0.0000	SURCHARGED
15 minute winter	145	12	5.536	0.715	286.4	2.7576	0.0000	SURCHARGED
15 minute winter	144	12	5.432	0.640	286.9	0.9157	0.0000	SURCHARGED
15 minute winter	143	12	5.342	0.572	307.4	1.1435	0.0000	SURCHARGED
30 minute winter	164	25	5.119	0.119	27.8	16.3777	0.0000	OK
15 minute winter	142	13	5.228	0.484	306.5	0.6927	0.0000	OK
30 minute winter	165	25	5.069	0.069	16.6	8.5713	0.0000	OK
360 minute winter	141	344	4.934	0.363	80.1	2.0025	0.0000	OK
360 minute winter	140	344	4.936	0.936	80.0	0.0000	0.0000	OK
720 minute winter	16	705	4.714	0.514	0.6	0.8574	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	154	22.002	153	25.8	1.140	0.263	0.5043	
15 minute winter	157	23.000	153	0.0	0.000	0.000	0.0000	
15 minute winter	153	22.003	152	29.0	0.894	0.256	1.0663	
15 minute winter	152	22.004	151	31.9	0.644	0.440	0.8217	
15 minute winter	159	24.000	158	12.8	0.929	0.136	0.3345	
15 minute winter	158	24.001	151	24.9	0.648	0.044	1.8893	
15 minute winter	151	22.005	150	76.4	0.785	0.411	10.1972	
15 minute winter	163	25.000	162	4.6	0.973	0.198	0.0259	
15 minute winter	162	25.001	161	27.9	1.241	0.217	0.4366	
15 minute winter	161	25.002	150	38.7	1.060	0.371	1.5172	
15 minute winter	160	26.000	150	5.9	0.483	0.099	0.0712	
15 minute winter	150	22.006	145	138.5	0.874	0.745	10.1424	
15 minute winter	149	27.000	148	3.4	0.103	0.010	5.4890	
15 minute winter	148	27.001	147	47.8	0.555	0.334	8.4038	
15 minute winter	147	27.002	146	72.1	0.592	0.496	1.3097	
15 minute winter	146	27.003	145	93.5	0.590	0.560	7.6777	
15 minute winter	145	22.007	144	286.9	1.328	1.460	3.7516	
15 minute winter	144	22.008	143	286.5	1.326	1.469	2.8875	
15 minute winter	143	22.009	142	306.5	1.420	1.561	3.3065	
30 minute winter	164	28.000	142	-12.8	0.872	-0.885	0.1223	
15 minute winter	142	22.010	141	281.1	1.931	1.238	12.9187	
30 minute winter	165	29.000	141	5.6	0.739	0.386	0.0566	
360 minute winter	141	22.011	140	80.0	0.966	0.079	2.4786	
360 minute winter	140	Flow through pond	113	46.2	0.047	0.002	520.2283	
720 minute winter	16	30.000	15	0.6	0.223	0.009	0.9942	



Results for 10 year +40% CC Critical Storm Duration. Lowest mass balance: 96.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
720 minute winter	15	705	4.714	0.561	1.2	0.9257	0.0000	SURCHARGED
720 minute winter	14	705	4.714	0.678	1.8	1.0966	0.0000	SURCHARGED
15 minute winter	17	13	5.317	0.077	60.9	13.2596	0.0000	OK
720 minute winter	13	705	4.714	0.751	6.4	1.0743	0.0000	SURCHARGED
720 minute winter	12	705	4.714	0.893	7.0	1.5952	0.0000	SURCHARGED
720 minute winter	18	705	4.714	1.214	28.5	1.3550	0.0000	SURCHARGED
720 minute winter	11	705	4.714	1.243	7.7	2.6307	0.0000	SURCHARGED
1440 minute winter	10	1410	4.110	0.751	10.0	1.9206	0.0000	SURCHARGED
1440 minute winter	9	1410	4.107	1.135	13.7	111.3835	0.0000	SURCHARGED
1440 minute winter	19	1380	4.225	0.975	25.7	3.7770	0.0000	SURCHARGED
1440 minute winter	8	1410	4.106	1.200	28.5	1.9769	0.0000	SURCHARGED
1440 minute winter	7	1410	4.108	1.335	28.2	0.0000	0.0000	OK
15 minute winter	130	1	4.475	0.000	0.0	0.0000	0.0000	OK
15 minute winter	131	1	4.950	0.000	0.0	0.0000	0.0000	OK
240 minute winter	129	236	4.332	0.156	0.3	0.2227	0.0000	OK
240 minute winter	128	236	4.332	0.170	0.6	0.2426	0.0000	OK
240 minute winter	127	236	4.331	0.185	0.9	0.2651	0.0000	OK
15 minute winter	132	1	5.340	0.000	0.0	0.0000	0.0000	OK
240 minute winter	126	232	4.331	0.206	2.0	0.2947	0.0000	OK
15 minute winter	133	11	5.364	0.124	15.0	1.1756	0.0000	OK
240 minute winter	125	240	4.330	0.331	5.2	0.5816	0.0000	OK
240 minute winter	136	240	4.330	0.155	1.2	0.2528	0.0000	OK
30 minute winter	137	23	5.060	0.070	11.4	4.5837	0.0000	OK
240 minute winter	135	244	4.331	0.206	4.9	0.3344	0.0000	OK
15 minute winter	134	11	5.139	0.124	15.0	1.1756	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)
720 minute winter	15	30.001	14	1.2	0.308	0.019	2.4681	
720 minute winter	14	30.002	13	1.8	0.245	0.028	1.5524	
15 minute winter	17	31.000	13	33.8	2.218	0.528	0.1339	
720 minute winter	13	30.003	12	6.0	0.660	0.094	2.9901	
720 minute winter	12	30.004	11	6.2	0.296	0.041	1.3480	
720 minute winter	18	32.000	11	7.3	0.160	0.115	0.6232	
720 minute winter	11	Hydro-Brake®	10	7.5				
1440 minute winter	10	30.006	9	9.8	0.660	0.153	5.0127	
1440 minute winter	9	30.007	8	10.8	0.433	0.058	3.1397	
1440 minute winter	19	33.000	8	21.0	0.747	0.032	1.3468	
1440 minute winter	8	30.008	7	28.2	0.664	0.156	5.3079	
1440 minute winter	7	Flow through pond	4	24.3	0.021	0.001	363.4895	
15 minute winter	130	34.000	129	0.0	0.000	0.000	0.0000	
15 minute winter	131	35.000	129	0.0	0.000	0.000	0.0000	
240 minute winter	129	34.001	128	0.3	-0.062	0.002	0.3510	
240 minute winter	128	34.002	127	-0.6	-0.112	-0.004	0.4695	
240 minute winter	127	34.003	126	-0.9	-0.098	-0.006	0.7091	
15 minute winter	132	36.000	126	0.0	0.000	0.000	0.0000	
240 minute winter	126	34.004	125	-2.0	-0.066	-0.014	6.1600	
15 minute winter	133	37.000	125	12.9	0.892	0.891	0.0719	
240 minute winter	125	34.005	124	3.9	0.315	0.023	3.8610	
240 minute winter	136	38.000	135	1.2	0.215	0.014	0.3935	
30 minute winter	137	39.000	135	5.5	0.726	0.383	0.0381	
240 minute winter	135	38.001	124	4.9	0.538	0.076	1.0191	
15 minute winter	134	40.000	124	12.9	0.892	0.891	0.0719	



Results for 10 year +40% CC Critical Storm Duration. Lowest mass balance: 96.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
240 minute winter	124	232	4.331	0.414	12.0	0.6668	0.0000	OK
240 minute winter	123	232	4.334	0.579	10.6	0.0000	0.0000	OK
1440 minute winter	4	1410	4.101	1.351	25.1	0.7134	0.0000	SURCHARGED
1440 minute winter	3	1410	4.096	1.401	19.5	3.5660	0.0000	SURCHARGED
60 minute winter	2	101	1.832	0.092	19.4	0.1310	0.0000	OK
60 minute winter	1	101	1.200	0.090	19.4	0.0000	0.0000	OK
15 minute winter	65	12	4.192	0.117	10.9	0.2022	0.0000	OK
15 minute winter	64	12	4.186	0.163	24.8	0.3151	0.0000	OK
15 minute winter	63	11	4.171	0.224	45.1	0.5084	0.0000	OK
15 minute winter	66	1	4.250	0.000	0.0	0.0000	0.0000	OK
15 minute winter	62	11	4.136	0.311	61.0	0.6566	0.0000	SURCHARGED
15 minute winter	61	11	4.068	0.308	76.0	0.6124	0.0000	SURCHARGED
1440 minute winter	60	1620	4.051	0.439	4.2	0.0000	0.0000	OK
15 minute winter	73	13	4.404	0.154	10.0	2.1555	0.0000	SURCHARGED
15 minute winter	72	12	4.395	0.145	6.6	0.2071	0.0000	OK
15 minute winter	74	12	4.399	0.149	10.0	1.9994	0.0000	OK
15 minute winter	71	12	4.388	0.138	23.3	0.2570	0.0000	OK
15 minute winter	75	12	4.375	0.125	10.0	1.4344	0.0000	OK
15 minute winter	70	11	4.353	0.187	54.1	0.4269	0.0000	OK
15 minute winter	69	10	4.264	0.114	20.9	0.2485	0.0000	OK
15 minute winter	68	11	4.148	0.168	93.2	0.3819	0.0000	OK
1440 minute winter	67	1650	4.051	0.440	5.5	0.0000	0.0000	OK
1440 minute winter	25	1650	4.053	0.278	1.1	0.5963	0.0000	OK
1440 minute winter	24	1650	4.053	0.371	2.6	0.8839	0.0000	SURCHARGED
1440 minute winter	23	1650	4.053	0.477	5.3	1.6927	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)
240 minute winter	124	34.006	123	10.6	0.538	0.055	2.8779	
240 minute winter	123	Flow through pond	81	5.8	0.007	0.000	49.8500	
1440 minute winter	4	41.000	3	19.5	0.431	0.299	1.1091	
1440 minute winter	3	Hydro-Brake®	2	19.4				
60 minute winter	2	41.002	1	19.4	1.079	0.201	1.4926	316.3
15 minute winter	65	42.000	64	10.3	0.434	0.161	0.5022	
15 minute winter	64	42.001	63	23.3	0.609	0.366	1.0933	
15 minute winter	63	42.002	62	40.1	0.729	0.620	2.2568	
15 minute winter	66	43.000	62	0.0	0.000	0.000	0.0153	
15 minute winter	62	42.003	61	57.7	0.836	0.905	1.4295	
15 minute winter	61	42.004	60	75.8	1.086	1.088	1.9111	
1440 minute winter	60	Flow through pond	21	-7.8	0.040	-0.001	306.8482	
15 minute winter	73	44.000	72	6.6	0.410	0.375	0.0876	
15 minute winter	72	44.001	71	6.8	0.368	0.107	0.4174	
15 minute winter	74	45.000	71	7.4	0.447	0.417	0.0849	
15 minute winter	71	44.002	70	23.2	0.659	0.364	1.0336	
15 minute winter	75	46.000	70	8.1	0.636	0.459	0.0695	
15 minute winter	70	44.003	68	53.4	1.283	0.669	1.5537	
15 minute winter	69	47.000	68	20.1	0.645	0.316	1.6640	
15 minute winter	68	44.004	67	91.9	1.584	0.424	0.4855	
1440 minute winter	67	Flow through pond	21	-7.8	0.040	-0.001	306.8482	
1440 minute winter	25	48.000	24	1.1	0.242	0.017	1.9350	
1440 minute winter	24	48.001	23	2.5	0.406	0.039	2.2448	
1440 minute winter	23	48.002	22	5.2	0.696	0.035	0.7042	



Results for 10 year +40% CC Critical Storm Duration. Lowest mass balance: 96.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute winter	22	1650	4.055	0.789	5.5	0.0000	0.0000	OK
720 minute winter	31	705	4.714	0.489	2.7	1.2141	0.0000	SURCHARGED
720 minute winter	30	705	4.714	0.664	4.6	1.4343	0.0000	SURCHARGED
720 minute winter	29	705	4.714	0.814	6.9	1.9128	0.0000	SURCHARGED
720 minute winter	28	705	4.716	1.193	6.3	0.0000	0.0000	OK
30 minute winter	78	23	4.756	0.066	20.8	7.6243	0.0000	OK
1440 minute winter	77	1380	4.227	0.352	2.4	0.7491	0.0000	SURCHARGED
1440 minute winter	76	1350	4.229	0.803	2.4	0.0000	0.0000	OK
1440 minute winter	6	1650	4.053	0.803	7.3	1.5948	0.0000	SURCHARGED
1440 minute winter	5	1440	4.101	1.328	16.5	0.0000	0.0000	OK
1440 minute winter	21	1680	4.050	0.550	9.8	1.2387	0.0000	SURCHARGED
1440 minute winter	20	1530	4.047	0.782	12.8	0.0000	0.0000	OK
1440 minute winter	27	1380	4.227	0.827	45.0	0.9720	0.0000	SURCHARGED
1440 minute winter	26	1380	4.225	0.928	38.4	308.6247	0.0000	OK
360 minute winter	139	336	5.301	0.001	0.0	0.0000	0.0000	OK
360 minute winter	138	336	5.131	1.131	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)
1440 minute winter	22	Flow through pond	6	6.4	0.006	0.000	275.7766	
720 minute winter	31	49.000	30	2.7	0.478	0.030	1.8727	
720 minute winter	30	49.001	29	4.4	0.577	0.047	1.5013	
720 minute winter	29	49.002	28	6.3	0.713	0.064	0.8978	
720 minute winter	28	Flow through pond	18	25.1	0.018	0.000	778.3913	
30 minute winter	78	50.000	77	11.0	1.574	0.332	0.0386	
1440 minute winter	77	50.001	76	2.4	0.623	0.018	1.5140	
1440 minute winter	76	Flow through pond	27	43.2	0.016	0.001	423.9567	
1440 minute winter	6	Hydro-Brake®	5	2.1				
1440 minute winter	5	Flow through pond	4	24.3	0.021	0.001	363.4895	
1440 minute winter	21	52.000	20	7.9	0.585	0.032	2.6143	
1440 minute winter	20	Flow through pond	6	6.4	0.006	0.000	275.7766	
1440 minute winter	27	53.000	26	38.4	0.775	0.179	1.7823	
1440 minute winter	26	Flow through pond	19	24.2	0.019	0.001	547.0517	
360 minute winter	139	54.000	138	0.0	0.002	0.000	0.0483	
360 minute winter	138	Flow through pond	113	46.2	0.047	0.002	520.2283	



Results for 30 year +40% CC Critical Storm Duration. Lowest mass balance: 96.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	43	1	5.350	0.000	0.0	0.0000	0.0000	OK
15 minute winter	42	1	5.293	0.000	0.0	0.0000	0.0000	OK
15 minute winter	41	1	5.228	0.000	0.0	0.0000	0.0000	OK
15 minute winter	40	16	5.118	0.020	3.9	0.0000	0.0000	OK
15 minute winter	39	14	5.120	0.119	15.0	0.0000	0.0000	OK
15 minute winter	106	12	5.764	0.389	33.4	0.9089	0.0000	SURCHARGED
15 minute winter	48	12	5.751	0.426	16.1	0.7758	0.0000	SURCHARGED
15 minute winter	47	12	5.747	0.472	18.2	0.7220	0.0000	SURCHARGED
15 minute winter	46	12	5.741	0.515	54.6	0.8812	0.0000	SURCHARGED
15 minute winter	45	12	5.694	0.508	78.5	1.0374	0.0000	SURCHARGED
15 minute winter	44	12	5.560	0.439	103.2	0.9074	0.0000	SURCHARGED
15 minute winter	38	13	5.118	0.186	102.3	0.0000	0.0000	OK
15 minute winter	37	14	5.107	0.187	88.3	0.0000	0.0000	OK
15 minute winter	36	15	4.982	0.280	81.7	0.0000	0.0000	OK
15 minute winter	59	12	5.939	0.149	19.0	1.6528	0.0000	OK
15 minute winter	58	12	5.422	0.222	15.5	0.3171	0.0000	OK
15 minute winter	57	12	5.514	0.149	19.0	1.6528	0.0000	OK
15 minute winter	56	12	5.404	0.454	54.3	1.2967	0.0000	FLOOD RISK
15 minute winter	54	12	5.839	0.149	19.0	1.6528	0.0000	OK
15 minute winter	53	11	5.385	0.410	26.2	0.7505	0.0000	SURCHARGED
15 minute winter	52	12	5.556	0.141	19.0	2.0173	0.0000	OK
15 minute winter	51	12	5.367	0.477	56.6	1.0206	0.0000	SURCHARGED
15 minute winter	50	12	5.343	0.153	19.0	1.7222	0.0000	SURCHARGED
15 minute winter	49	12	5.289	0.489	150.1	1.6057	0.0000	FLOOD RISK
15 minute winter	35	15	4.980	0.287	202.9	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	43	1.000	42	0.0	0.000	0.000	0.0000	
15 minute winter	42	1.001	41	0.0	0.000	0.000	0.0005	
15 minute winter	41	1.002	40	0.0	0.000	0.000	0.3545	
15 minute winter	40	1.003	39	-3.9	-0.099	-0.006	2.2849	
15 minute winter	39	1.004	38	-15.0	-0.202	-0.023	4.3272	
15 minute winter	106	2.000	46	30.2	0.616	0.419	2.4692	
15 minute winter	48	3.000	47	14.2	0.526	0.191	0.7791	
15 minute winter	47	3.001	46	18.0	0.324	0.282	1.0454	
15 minute winter	46	2.001	45	55.2	0.784	0.866	0.8438	
15 minute winter	45	2.002	44	78.5	1.115	1.231	1.3720	
15 minute winter	44	2.003	38	102.3	1.470	1.604	2.3529	
15 minute winter	38	1.005	37	88.3	0.660	0.137	0.9829	
15 minute winter	37	1.006	36	81.7	0.369	0.127	24.8338	
15 minute winter	36	1.007	35	84.4	-0.490	0.131	1.3187	
15 minute winter	59	4.000	58	15.5	0.945	1.075	0.0884	
15 minute winter	58	4.001	56	21.9	0.380	0.253	2.5999	
15 minute winter	57	5.000	56	15.5	0.945	1.075	0.0884	
15 minute winter	56	4.002	49	55.4	0.786	0.832	2.9161	
15 minute winter	54	6.000	53	15.5	0.945	1.075	0.0884	
15 minute winter	53	6.001	51	26.4	0.511	0.409	1.7584	
15 minute winter	52	7.000	51	14.9	0.936	1.031	0.0865	
15 minute winter	51	6.002	49	56.3	0.800	0.874	1.8611	
15 minute winter	50	8.000	49	15.4	0.943	1.063	0.0945	
15 minute winter	49	4.003	35	151.0	2.144	2.367	0.6515	
15 minute winter	35	1.008	34	194.8	0.466	0.303	45.0601	



Results for 30 year +40% CC Critical Storm Duration. Lowest mass balance: 96.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	104	12	6.319	0.054	8.1	1.2076	0.0000	OK
30 minute winter	103	21	5.721	0.421	60.5	0.9440	0.0000	OK
15 minute winter	105	13	5.853	0.063	8.1	1.6143	0.0000	OK
30 minute winter	102	21	5.734	0.759	73.6	2.2078	0.0000	SURCHARGED
15 minute winter	101	13	5.758	0.783	135.2	2.5807	0.0000	SURCHARGED
30 minute winter	109	21	5.752	0.577	18.2	1.1943	0.0000	SURCHARGED
30 minute winter	108	21	5.753	0.753	28.5	1.4056	0.0000	SURCHARGED
30 minute winter	107	21	5.741	0.841	53.6	2.1937	0.0000	SURCHARGED
30 minute winter	100	21	5.703	1.128	147.2	43.2496	0.0000	SURCHARGED
30 minute winter	99	21	5.593	0.818	167.0	2.4772	0.0000	SURCHARGED
30 minute winter	98	21	5.412	0.737	204.5	2.5103	0.0000	SURCHARGED
30 minute winter	110	21	5.274	0.649	230.7	1.5716	0.0000	SURCHARGED
30 minute winter	111	21	5.153	0.578	238.7	0.9848	0.0000	SURCHARGED
30 minute winter	55	21	4.980	0.455	238.7	0.6516	0.0000	SURCHARGED
720 minute winter	34	705	4.929	0.448	60.1	0.0000	0.0000	OK
720 minute winter	33	705	4.929	0.654	65.1	0.0000	0.0000	SURCHARGED
720 minute winter	32	705	4.930	1.430	58.4	0.0000	0.0000	OK
15 minute winter	93	12	6.198	0.358	12.7	0.2956	0.0000	FLOOD RISK
15 minute winter	92	12	6.169	1.169	47.8	1.6728	0.0000	FLOOD RISK
15 minute winter	94	12	6.152	0.162	12.7	0.1334	0.0000	SURCHARGED
15 minute winter	91	12	6.128	1.388	92.6	3.2505	0.0000	FLOOD RISK
30 minute winter	90	18	5.854	1.515	107.7	4.4419	0.0000	SURCHARGED
30 minute winter	89	18	5.827	1.505	109.7	2.1531	0.0000	FLOOD RISK
180 minute winter	166	172	5.543	0.353	43.0	106.2737	0.0000	FLOOD RISK
30 minute winter	88	18	5.750	1.500	124.6	3.0075	25.9460	FLOOD

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	104	9.000	103	5.9	1.057	0.254	0.0554	
30 minute winter	103	9.001	102	-33.6	0.398	-0.115	6.2055	
15 minute winter	105	10.000	102	4.8	0.713	0.335	0.0544	
30 minute winter	102	9.002	101	68.9	0.886	0.370	4.7246	
15 minute winter	101	9.003	100	133.1	1.398	0.597	3.3100	
30 minute winter	109	11.000	108	16.8	0.793	0.163	1.4299	
30 minute winter	108	11.001	107	29.7	0.922	0.317	0.9902	
30 minute winter	107	11.002	100	42.9	1.006	0.370	2.1126	
30 minute winter	100	9.004	99	137.5	0.892	0.947	7.7495	
30 minute winter	99	9.005	98	167.3	1.056	1.218	8.6276	
30 minute winter	98	9.006	110	203.5	1.284	1.369	3.6930	
30 minute winter	110	9.007	111	230.7	1.456	1.151	2.0463	
30 minute winter	111	9.008	55	238.7	1.507	1.548	3.4354	
30 minute winter	55	9.009	34	238.7	1.636	1.236	1.9260	
720 minute winter	34	1.009	33	65.1	0.482	0.102	94.3153	
720 minute winter	33	1.010	32	58.4	0.651	0.176	3.1687	
720 minute winter	32	Flow through pond	18	30.0	0.019	0.001	965.9410	
15 minute winter	93	12.000	92	12.8	0.886	0.882	0.0968	
15 minute winter	92	12.001	91	-35.0	-0.497	-0.549	5.5028	
15 minute winter	94	13.000	91	12.6	1.239	0.544	0.0968	
15 minute winter	91	12.002	90	57.8	0.880	0.907	5.3045	
30 minute winter	90	12.003	89	109.7	0.700	0.765	1.3671	
30 minute winter	89	12.004	88	110.6	0.698	0.703	4.7508	
180 minute winter	166	14.000	88	-29.7	-1.752	-0.660	0.1226	
30 minute winter	88	12.005	87	25.1	0.585	0.175	4.1770	



Results for 30 year +40% CC Critical Storm Duration. Lowest mass balance: 96.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute winter	87	19	5.827	1.630	33.2	2.8948	0.0000	FLOOD RISK
30 minute winter	86	18	5.870	1.729	23.3	3.0554	0.0000	SURCHARGED
15 minute winter	112	13	5.405	0.730	69.2	2.2724	0.0000	SURCHARGED
15 minute winter	97	13	5.409	1.137	114.9	3.3736	0.0000	SURCHARGED
15 minute winter	116	13	5.406	0.706	69.4	1.5733	0.0000	SURCHARGED
15 minute winter	115	13	5.470	0.870	73.7	2.0980	0.0000	SURCHARGED
15 minute winter	114	13	5.422	0.972	124.5	2.8869	0.0000	SURCHARGED
360 minute winter	113	352	5.102	1.102	59.9	3.3218	0.0000	SURCHARGED
15 minute winter	96	13	5.373	1.397	272.3	6.5155	0.0000	SURCHARGED
15 minute winter	95	13	5.290	1.372	230.2	2.5798	0.0000	SURCHARGED
15 minute winter	85	13	5.207	1.347	276.0	2.9344	0.0000	SURCHARGED
15 minute winter	84	13	5.052	1.281	276.8	2.4072	0.0000	SURCHARGED
15 minute winter	121	13	4.987	0.662	7.7	0.9468	0.0000	SURCHARGED
15 minute winter	120	13	4.965	0.666	54.1	0.9530	0.0000	SURCHARGED
60 minute winter	122	44	5.542	0.102	24.7	20.5576	0.0000	OK
15 minute winter	119	13	4.966	0.800	63.0	1.7231	0.0000	SURCHARGED
15 minute winter	118	13	4.953	0.958	35.5	1.3707	0.0000	SURCHARGED
15 minute winter	117	13	4.926	0.826	34.9	1.2174	0.0000	SURCHARGED
15 minute winter	83	13	4.925	1.284	345.6	3.5639	0.0000	SURCHARGED
15 minute winter	82	13	4.488	0.973	373.3	2.2613	0.0000	SURCHARGED
240 minute winter	81	240	4.455	0.705	8.6	1.0645	0.0000	SURCHARGED
1440 minute winter	80	1410	4.408	0.938	54.7	1.7507	0.0000	SURCHARGED
1440 minute winter	79	1410	4.412	1.012	54.4	0.0000	0.0000	OK
15 minute winter	156	11	6.634	0.094	10.4	0.8470	0.0000	OK
15 minute winter	155	12	6.155	0.505	45.1	0.9058	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)
30 minute winter	87	12.006	86	23.3	0.484	0.163	4.4081	
30 minute winter	86	Hydro-Brake®	85	9.3				
15 minute winter	112	15.000	97	64.4	1.193	0.146	3.4358	
15 minute winter	97	15.001	96	84.7	0.755	0.364	8.9944	
15 minute winter	116	16.000	115	42.2	0.766	0.158	2.3014	
15 minute winter	115	16.001	114	74.9	1.237	0.263	3.0670	
15 minute winter	114	16.002	96	107.5	0.857	0.310	6.5337	
360 minute winter	113	Hydro-Brake®	96	14.9				
15 minute winter	96	15.002	95	209.4	0.989	0.972	6.2431	
15 minute winter	95	15.003	85	225.0	1.042	1.045	6.2176	
15 minute winter	85	12.008	84	261.0	1.208	1.212	9.5802	
15 minute winter	84	12.009	83	273.9	1.268	1.266	5.8878	
15 minute winter	121	18.000	120	-7.7	0.161	-0.119	0.5402	
15 minute winter	120	18.001	119	-54.1	-0.768	-0.848	2.8168	
60 minute winter	122	19.000	119	10.1	0.837	0.699	0.0711	
15 minute winter	119	18.002	118	35.5	0.928	0.556	0.4371	
15 minute winter	118	18.003	83	46.4	0.666	0.169	6.1364	
15 minute winter	117	20.000	83	-33.2	0.397	-0.083	4.0085	
15 minute winter	83	12.010	82	337.4	1.562	1.719	16.2705	
15 minute winter	82	12.011	80	366.9	1.699	1.869	5.8288	
240 minute winter	81	Hydro-Brake®	80	2.1				
1440 minute winter	80	12.012	79	54.4	0.606	0.136	2.2143	
1440 minute winter	79	Flow through pond	27	48.4	0.030	0.002	543.1442	
15 minute winter	156	22.000	155	9.0	0.822	0.621	0.0601	
15 minute winter	155	22.001	154	25.5	0.844	0.301	0.9000	



Results for 30 year +40% CC Critical Storm Duration. Lowest mass balance: 96.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	154	12	6.185	0.610	33.2	1.0175	0.0000	SURCHARGED
15 minute winter	157	1	6.340	0.000	0.0	0.0000	0.0000	OK
15 minute winter	153	12	6.159	0.684	36.1	1.0459	0.0000	SURCHARGED
15 minute winter	152	13	6.122	0.822	44.1	1.2479	0.0000	SURCHARGED
15 minute winter	159	10	6.362	0.087	16.7	0.1955	0.0000	OK
15 minute winter	158	12	6.118	0.168	31.9	0.3453	0.0000	OK
15 minute winter	151	13	6.086	0.836	98.5	1.9186	0.0000	SURCHARGED
15 minute winter	163	12	6.295	0.055	8.1	1.2555	0.0000	OK
15 minute winter	162	13	6.049	0.574	33.5	1.3232	0.0000	SURCHARGED
15 minute winter	161	12	6.042	0.667	59.5	0.9551	0.0000	SURCHARGED
15 minute winter	160	14	5.936	0.121	24.3	4.1701	0.0000	OK
15 minute winter	150	13	6.019	0.985	198.6	3.8458	0.0000	SURCHARGED
15 minute winter	149	13	5.956	0.106	17.4	0.1638	0.0000	OK
15 minute winter	148	12	5.931	0.856	90.5	2.9385	0.0000	SURCHARGED
15 minute winter	147	12	5.921	0.952	82.6	2.5064	0.0000	SURCHARGED
15 minute winter	146	12	5.914	0.962	104.1	2.0136	0.0000	SURCHARGED
15 minute winter	145	12	5.875	1.054	347.8	4.0623	0.0000	SURCHARGED
15 minute winter	144	12	5.734	0.942	337.0	1.3479	0.0000	SURCHARGED
15 minute winter	143	12	5.611	0.841	363.2	1.6822	0.0000	SURCHARGED
30 minute winter	164	27	5.188	0.188	45.2	27.0980	0.0000	SURCHARGED
15 minute winter	142	12	5.455	0.711	360.0	1.0181	0.0000	SURCHARGED
240 minute winter	165	236	5.105	0.105	5.2	14.1560	0.0000	OK
240 minute winter	141	236	5.105	0.534	138.8	2.9398	0.0000	SURCHARGED
240 minute winter	140	232	5.108	1.108	137.2	0.0000	0.0000	OK
720 minute winter	16	705	4.928	0.728	0.8	1.2152	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	154	22.002	153	32.1	1.166	0.327	0.9004	
15 minute winter	157	23.000	153	0.0	0.000	0.000	0.0000	
15 minute winter	153	22.003	152	40.9	0.913	0.361	1.1890	
15 minute winter	152	22.004	151	44.2	0.650	0.610	0.8217	
15 minute winter	159	24.000	158	16.3	0.991	0.172	0.3975	
15 minute winter	158	24.001	151	32.4	0.681	0.057	2.4059	
15 minute winter	151	22.005	150	92.2	0.805	0.496	10.2636	
15 minute winter	163	25.000	162	5.7	1.030	0.248	0.0307	
15 minute winter	162	25.001	161	59.5	1.288	0.463	0.5281	
15 minute winter	161	25.002	150	34.0	1.029	0.326	1.5251	
15 minute winter	160	26.000	150	21.2	1.366	0.354	0.1148	
15 minute winter	150	22.006	145	155.0	0.978	0.834	10.1424	
15 minute winter	149	27.000	148	-13.8	-0.133	-0.040	6.2858	
15 minute winter	148	27.001	147	68.3	0.570	0.476	8.4038	
15 minute winter	147	27.002	146	88.7	0.624	0.609	1.3097	
15 minute winter	146	27.003	145	105.4	0.666	0.631	7.6777	
15 minute winter	145	22.007	144	337.0	1.560	1.715	3.7516	
15 minute winter	144	22.008	143	335.5	1.553	1.720	2.8875	
15 minute winter	143	22.009	142	360.0	1.667	1.834	3.3673	
30 minute winter	164	28.000	142	-27.0	-1.534	-1.866	0.1320	
15 minute winter	142	22.010	141	324.7	1.808	1.430	16.6343	
240 minute winter	165	29.000	141	4.4	0.694	0.301	0.1152	
240 minute winter	141	22.011	140	137.2	1.091	0.136	2.8518	
240 minute winter	140	Flow through pond	113	74.6	0.058	0.003	643.8749	
720 minute winter	16	30.000	15	0.7	0.235	0.011	0.9942	



Results for 30 year +40% CC Critical Storm Duration. Lowest mass balance: 96.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
720 minute winter	15	705	4.928	0.775	1.4	1.2797	0.0000	SURCHARGED
720 minute winter	14	705	4.928	0.892	2.1	1.4434	0.0000	SURCHARGED
15 minute winter	17	13	5.328	0.088	77.3	17.1277	0.0000	OK
720 minute winter	13	705	4.928	0.965	7.6	1.3810	0.0000	SURCHARGED
720 minute winter	12	705	4.928	1.107	8.8	1.9783	0.0000	SURCHARGED
720 minute winter	18	705	4.928	1.428	36.4	1.5941	0.0000	SURCHARGED
720 minute winter	11	705	4.928	1.457	10.4	3.0846	0.0000	SURCHARGED
1440 minute winter	10	1470	4.272	0.913	10.5	2.3340	0.0000	SURCHARGED
1440 minute winter	9	1470	4.269	1.297	15.2	127.2961	0.0000	SURCHARGED
1440 minute winter	19	1440	4.403	1.153	25.2	4.4693	0.0000	SURCHARGED
1440 minute winter	8	1470	4.268	1.362	42.0	2.2439	0.0000	SURCHARGED
1440 minute winter	7	1470	4.267	1.494	27.6	0.0000	0.0000	OK
15 minute winter	130	1	4.475	0.000	0.0	0.0000	0.0000	OK
15 minute winter	131	1	4.950	0.000	0.0	0.0000	0.0000	OK
240 minute winter	129	236	4.457	0.281	0.7	0.4015	0.0000	OK
240 minute winter	128	236	4.457	0.295	1.2	0.4218	0.0000	OK
240 minute winter	127	236	4.457	0.311	1.7	0.4450	0.0000	OK
15 minute winter	132	1	5.340	0.000	0.0	0.0000	0.0000	OK
240 minute winter	126	236	4.457	0.332	3.0	0.4754	0.0000	OK
15 minute winter	133	12	5.390	0.150	19.0	1.6761	0.0000	OK
240 minute winter	125	240	4.457	0.458	6.6	0.8048	0.0000	SURCHARGED
240 minute winter	136	240	4.457	0.282	1.5	0.4592	0.0000	OK
30 minute winter	137	23	5.072	0.082	14.6	5.8581	0.0000	OK
240 minute winter	135	240	4.456	0.331	6.0	0.5393	0.0000	SURCHARGED
15 minute winter	134	12	5.165	0.150	19.0	1.6761	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)
720 minute winter	15	30.001	14	1.4	0.308	0.022	2.4681	
720 minute winter	14	30.002	13	1.8	0.242	0.028	1.5524	
15 minute winter	17	31.000	13	40.8	2.577	0.638	0.1419	
720 minute winter	13	30.003	12	7.4	0.653	0.117	2.9901	
720 minute winter	12	30.004	11	8.7	0.312	0.058	1.3480	
720 minute winter	18	32.000	11	7.2	0.148	0.113	0.6232	
720 minute winter	11	Hydro-Brake®	10	7.5				
1440 minute winter	10	30.006	9	10.4	0.655	0.163	5.0127	
1440 minute winter	9	30.007	8	12.0	0.448	0.064	3.1397	
1440 minute winter	19	33.000	8	30.7	0.748	0.047	1.3468	
1440 minute winter	8	30.008	7	27.6	0.669	0.153	5.3079	
1440 minute winter	7	Flow through pond	4	37.4	0.021	0.001	430.8376	
15 minute winter	130	34.000	129	0.0	0.000	0.000	0.0000	
15 minute winter	131	35.000	129	0.0	0.000	0.000	0.0000	
240 minute winter	129	34.001	128	1.2	-0.044	0.009	0.7275	
240 minute winter	128	34.002	127	1.7	-0.128	0.012	0.9176	
240 minute winter	127	34.003	126	2.0	-0.107	0.014	1.3002	
15 minute winter	132	36.000	126	0.0	0.000	0.000	0.0000	
240 minute winter	126	34.004	125	-3.0	-0.066	-0.021	8.9429	
15 minute winter	133	37.000	125	15.5	0.942	1.075	0.0804	
240 minute winter	125	34.005	124	4.2	0.310	0.024	4.4081	
240 minute winter	136	38.000	135	1.5	0.228	0.018	0.6218	
30 minute winter	137	39.000	135	7.2	0.774	0.496	0.0464	
240 minute winter	135	38.001	124	5.5	0.553	0.086	1.2265	
15 minute winter	134	40.000	124	15.5	0.942	1.075	0.0804	



Results for 30 year +40% CC Critical Storm Duration. Lowest mass balance: 96.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
240 minute winter	124	236	4.456	0.539	13.0	0.8675	0.0000	SURCHARGED
240 minute winter	123	240	4.461	0.706	13.4	0.0000	0.0000	OK
1440 minute winter	4	1470	4.264	1.514	37.7	0.7996	0.0000	SURCHARGED
1440 minute winter	3	1470	4.259	1.564	19.5	3.9804	0.0000	SURCHARGED
30 minute winter	2	81	1.832	0.092	19.4	0.1310	0.0000	OK
30 minute winter	1	81	1.200	0.090	19.4	0.0000	0.0000	OK
15 minute winter	65	12	4.411	0.336	13.8	0.5824	0.0000	SURCHARGED
15 minute winter	64	12	4.417	0.394	28.9	0.7590	0.0000	SURCHARGED
15 minute winter	63	12	4.394	0.447	51.6	1.0136	0.0000	SURCHARGED
15 minute winter	66	12	4.325	0.075	1.3	0.0000	0.0000	OK
15 minute winter	62	12	4.320	0.495	70.1	1.0430	0.0000	SURCHARGED
15 minute winter	61	12	4.212	0.452	89.1	0.9008	0.0000	SURCHARGED
1440 minute winter	60	1680	4.190	0.578	5.1	0.0000	0.0000	OK
15 minute winter	73	13	4.431	0.181	12.7	2.9497	0.0000	SURCHARGED
15 minute winter	72	12	4.417	0.167	8.4	0.2389	0.0000	OK
15 minute winter	74	13	4.427	0.177	12.7	2.8101	0.0000	SURCHARGED
15 minute winter	71	12	4.412	0.162	27.4	0.3007	0.0000	OK
15 minute winter	75	12	4.402	0.152	12.7	2.1036	0.0000	SURCHARGED
15 minute winter	70	11	4.382	0.216	64.9	0.4938	0.0000	OK
15 minute winter	69	10	4.281	0.131	26.5	0.2837	0.0000	OK
15 minute winter	68	12	4.221	0.241	114.3	0.5473	0.0000	OK
1440 minute winter	67	1650	4.188	0.576	6.6	0.0000	0.0000	OK
15 minute winter	25	11	4.274	0.499	29.4	1.0696	0.0000	SURCHARGED
15 minute winter	24	11	4.252	0.570	67.3	1.3582	0.0000	SURCHARGED
1440 minute winter	23	1680	4.189	0.613	6.6	2.1758	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)
240 minute winter	124	34.006	123	11.5	0.515	0.059	2.9312	
240 minute winter	123	Flow through pond	81	8.1	0.013	0.000	67.3542	
1440 minute winter	4	41.000	3	19.5	0.431	0.299	1.1091	
1440 minute winter	3	Hydro-Brake®	2	19.4				
30 minute winter	2	41.002	1	19.4	1.079	0.201	1.4926	293.3
15 minute winter	65	42.000	64	13.1	0.436	0.206	1.0953	
15 minute winter	64	42.001	63	29.2	0.611	0.458	1.6099	
15 minute winter	63	42.002	62	47.7	0.735	0.737	2.5054	
15 minute winter	66	43.000	62	-1.3	0.249	-0.059	0.1233	
15 minute winter	62	42.003	61	68.8	0.977	1.079	1.4295	
15 minute winter	61	42.004	60	89.1	1.265	1.280	1.9541	
1440 minute winter	60	Flow through pond	21	-8.3	0.039	-0.001	422.8508	
15 minute winter	73	44.000	72	8.4	0.475	0.473	0.0880	
15 minute winter	72	44.001	71	8.9	0.408	0.139	0.5463	
15 minute winter	74	45.000	71	9.3	0.527	0.525	0.0865	
15 minute winter	71	44.002	70	27.7	0.697	0.435	1.2520	
15 minute winter	75	46.000	70	10.2	0.685	0.575	0.0835	
15 minute winter	70	44.003	68	63.8	1.316	0.800	2.0563	
15 minute winter	69	47.000	68	25.6	0.670	0.402	2.2522	
15 minute winter	68	44.004	67	109.5	1.584	0.506	0.5731	
1440 minute winter	67	Flow through pond	21	-8.3	0.039	-0.001	422.8508	
15 minute winter	25	48.000	24	26.4	0.520	0.415	1.9670	
15 minute winter	24	48.001	23	60.9	0.864	0.955	2.2448	
1440 minute winter	23	48.002	22	8.0	0.671	0.054	0.7042	



Results for 30 year +40% CC Critical Storm Duration. Lowest mass balance: 96.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute winter	22	1680	4.191	0.926	8.0	0.0000	0.0000	OK
720 minute winter	31	705	4.929	0.704	3.4	1.7455	0.0000	SURCHARGED
720 minute winter	30	705	4.929	0.879	5.6	1.8969	0.0000	SURCHARGED
720 minute winter	29	705	4.929	1.029	8.1	2.4161	0.0000	SURCHARGED
720 minute winter	28	720	4.931	1.407	7.9	0.0000	0.0000	OK
30 minute winter	78	23	4.768	0.078	26.6	9.8010	0.0000	OK
1440 minute winter	77	1410	4.406	0.531	2.9	1.1310	0.0000	SURCHARGED
1440 minute winter	76	1410	4.407	0.982	2.9	0.0000	0.0000	OK
1440 minute winter	6	1680	4.190	0.940	7.0	1.8651	0.0000	SURCHARGED
1440 minute winter	5	1470	4.264	1.491	20.3	0.0000	0.0000	OK
1440 minute winter	21	1680	4.187	0.687	9.6	1.5473	0.0000	SURCHARGED
1440 minute winter	20	1500	4.185	0.919	9.1	0.0000	0.0000	OK
1440 minute winter	27	1410	4.406	1.006	50.6	1.1830	0.0000	SURCHARGED
1440 minute winter	26	1440	4.404	1.107	42.0	368.0921	0.0000	OK
180 minute winter	139	184	5.305	0.005	0.0	0.0000	0.0000	OK
180 minute winter	138	180	5.232	1.232	0.1	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)
1440 minute winter	22	Flow through pond	6	-6.3	0.010	0.000	337.4182	
720 minute winter	31	49.000	30	3.3	0.493	0.037	1.8727	
720 minute winter	30	49.001	29	5.0	0.573	0.054	1.5013	
720 minute winter	29	49.002	28	7.9	0.733	0.080	0.8978	
720 minute winter	28	Flow through pond	18	30.0	0.019	0.001	965.9410	
30 minute winter	78	50.000	77	14.2	1.665	0.426	0.0468	
1440 minute winter	77	50.001	76	2.9	0.636	0.021	1.5140	
1440 minute winter	76	Flow through pond	27	48.4	0.030	0.002	543.1442	
1440 minute winter	6	Hydro-Brake®	5	2.1				
1440 minute winter	5	Flow through pond	4	37.4	0.021	0.001	430.8376	
1440 minute winter	21	52.000	20	-9.6	0.569	-0.038	2.6143	
1440 minute winter	20	Flow through pond	6	-6.3	0.010	0.000	337.4182	
1440 minute winter	27	53.000	26	42.0	0.776	0.196	1.7823	
1440 minute winter	26	Flow through pond	19	23.6	0.021	0.001	686.6781	
180 minute winter	139	54.000	138	0.1	0.010	0.001	0.0487	
180 minute winter	138	Flow through pond	113	90.4	0.063	0.004	627.1976	



Results for 100 year +20% CC Critical Storm Duration. Lowest mass balance: 96.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	43	1	5.350	0.000	0.0	0.0000	0.0000	OK
15 minute winter	42	1	5.293	0.000	0.0	0.0000	0.0000	OK
15 minute winter	41	1	5.228	0.000	0.0	0.0000	0.0000	OK
15 minute winter	40	16	5.128	0.030	5.5	0.0000	0.0000	OK
15 minute winter	39	14	5.130	0.129	16.9	0.0000	0.0000	OK
15 minute winter	106	12	5.905	0.530	37.2	1.2361	0.0000	SURCHARGED
15 minute winter	48	12	5.883	0.558	18.0	1.0165	0.0000	SURCHARGED
15 minute winter	47	12	5.880	0.605	19.2	0.9249	0.0000	SURCHARGED
15 minute winter	46	12	5.873	0.647	60.8	1.1075	0.0000	SURCHARGED
15 minute winter	45	12	5.815	0.629	87.7	1.2850	0.0000	SURCHARGED
15 minute winter	44	12	5.648	0.527	115.2	1.0879	0.0000	SURCHARGED
15 minute winter	38	13	5.129	0.197	114.6	0.0000	0.0000	OK
15 minute winter	37	14	5.117	0.197	97.6	0.0000	0.0000	OK
960 minute winter	36	945	5.010	0.308	8.6	0.0000	0.0000	OK
15 minute winter	59	12	5.954	0.164	21.2	1.9695	0.0000	SURCHARGED
15 minute winter	58	12	5.482	0.282	21.5	0.4042	0.0000	OK
15 minute winter	57	12	5.533	0.168	21.2	2.0666	0.0000	SURCHARGED
15 minute winter	56	12	5.476	0.526	58.8	1.5024	0.0000	FLOOD RISK
15 minute winter	54	12	5.854	0.164	21.2	1.9695	0.0000	SURCHARGED
15 minute winter	53	12	5.442	0.467	28.5	0.8554	0.0000	SURCHARGED
15 minute winter	52	12	5.569	0.154	21.2	2.3700	0.0000	SURCHARGED
15 minute winter	51	12	5.424	0.534	60.5	1.1423	0.0000	SURCHARGED
15 minute winter	50	12	5.374	0.184	21.2	2.4439	0.0000	SURCHARGED
15 minute winter	49	12	5.332	0.532	162.9	1.7464	0.0000	FLOOD RISK
960 minute winter	35	945	5.010	0.317	21.7	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	43	1.000	42	0.0	0.000	0.000	0.0000	
15 minute winter	42	1.001	41	0.0	0.000	0.000	0.0005	
15 minute winter	41	1.002	40	0.0	0.000	0.000	0.5501	
15 minute winter	40	1.003	39	-5.5	-0.122	-0.009	2.6491	
15 minute winter	39	1.004	38	-16.9	-0.210	-0.026	4.7348	
15 minute winter	106	2.000	46	29.6	0.627	0.410	2.4692	
15 minute winter	48	3.000	47	15.6	0.520	0.210	0.7791	
15 minute winter	47	3.001	46	21.2	0.328	0.332	1.0454	
15 minute winter	46	2.001	45	61.9	0.879	0.971	0.8438	
15 minute winter	45	2.002	44	88.1	1.252	1.382	1.3720	
15 minute winter	44	2.003	38	114.5	1.633	1.796	2.3984	
15 minute winter	38	1.005	37	97.6	0.675	0.152	1.0630	
15 minute winter	37	1.006	36	91.1	0.382	0.142	26.7749	
960 minute winter	36	1.007	35	8.6	0.145	0.013	1.5350	
15 minute winter	59	4.000	58	16.8	0.976	1.164	0.0899	
15 minute winter	58	4.001	56	22.9	0.406	0.265	2.8677	
15 minute winter	57	5.000	56	16.8	0.975	1.160	0.0966	
15 minute winter	56	4.002	49	59.9	0.851	0.901	2.9161	
15 minute winter	54	6.000	53	16.8	0.976	1.164	0.0899	
15 minute winter	53	6.001	51	27.5	0.512	0.427	1.7584	
15 minute winter	52	7.000	51	15.9	0.949	1.097	0.0888	
15 minute winter	51	6.002	49	59.1	0.839	0.916	1.8611	
15 minute winter	50	8.000	49	17.1	0.988	1.183	0.0968	
15 minute winter	49	4.003	35	163.7	2.324	2.566	0.6534	
960 minute winter	35	1.008	34	21.7	0.242	0.034	62.7890	



Results for 100 year +20% CC Critical Storm Duration. Lowest mass balance: 96.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	104	12	6.323	0.058	9.0	1.3527	0.0000	OK
15 minute winter	103	12	6.015	0.715	38.7	1.6016	0.0000	SURCHARGED
30 minute winter	105	22	5.920	0.130	20.5	4.5592	0.0000	OK
15 minute winter	102	12	5.991	1.016	102.8	2.9569	0.0000	SURCHARGED
30 minute winter	101	21	5.974	0.999	113.9	3.2953	0.0000	FLOOD RISK
30 minute winter	109	20	6.046	0.871	20.4	1.8019	0.0000	SURCHARGED
15 minute winter	108	13	6.078	1.078	44.0	2.0133	0.0000	FLOOD RISK
15 minute winter	107	13	6.028	1.128	78.2	2.9396	0.0000	FLOOD RISK
30 minute winter	100	21	5.955	1.380	157.9	43.8921	0.0000	FLOOD RISK
30 minute winter	99	20	5.832	1.057	187.9	3.1987	0.0000	SURCHARGED
30 minute winter	98	20	5.606	0.931	235.1	3.1716	0.0000	SURCHARGED
30 minute winter	110	21	5.426	0.801	267.4	1.9403	0.0000	SURCHARGED
30 minute winter	111	21	5.267	0.692	275.9	1.1792	0.0000	SURCHARGED
30 minute winter	55	21	5.034	0.509	274.9	0.7282	0.0000	SURCHARGED
960 minute winter	34	945	5.010	0.529	52.5	0.0000	0.0000	SURCHARGED
960 minute winter	33	945	5.010	0.735	52.8	0.0000	0.0000	SURCHARGED
960 minute winter	32	930	5.011	1.511	49.8	0.0000	0.0000	OK
15 minute winter	93	12	6.298	0.458	14.1	0.3778	0.0000	FLOOD RISK
15 minute winter	92	12	6.242	1.242	44.2	1.7778	0.0000	FLOOD RISK
15 minute winter	94	12	6.251	0.261	14.1	0.2151	0.0000	FLOOD RISK
15 minute winter	91	12	6.207	1.467	98.2	3.4348	0.0000	FLOOD RISK
15 minute winter	90	11	5.897	1.558	138.7	4.5679	0.0000	SURCHARGED
15 minute winter	89	11	5.853	1.531	139.7	2.1904	0.0000	FLOOD RISK
180 minute winter	166	176	5.619	0.429	47.6	130.7779	0.0000	FLOOD RISK
60 minute winter	88	30	5.750	1.500	92.8	3.0075	29.9454	FLOOD

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	104	9.000	103	6.5	1.086	0.282	0.0598	
15 minute winter	103	9.001	102	51.9	0.454	0.178	6.2881	
30 minute winter	105	10.000	102	-15.5	-0.922	-1.073	0.1351	
15 minute winter	102	9.002	101	98.0	0.957	0.526	4.7246	
30 minute winter	101	9.003	100	104.3	1.271	0.468	3.3100	
30 minute winter	109	11.000	108	27.4	0.792	0.266	1.4299	
15 minute winter	108	11.001	107	43.6	1.026	0.466	0.9902	
15 minute winter	107	11.002	100	68.1	1.261	0.589	2.1126	
30 minute winter	100	9.004	99	150.2	0.948	1.035	7.7495	
30 minute winter	99	9.005	98	188.4	1.189	1.371	8.6276	
30 minute winter	98	9.006	110	233.8	1.476	1.573	3.6930	
30 minute winter	110	9.007	111	265.4	1.675	1.324	2.0463	
30 minute winter	111	9.008	55	274.9	1.735	1.783	3.4354	
30 minute winter	55	9.009	34	274.4	1.732	1.422	1.9390	
960 minute winter	34	1.009	33	52.8	0.459	0.083	118.4785	
960 minute winter	33	1.010	32	49.8	0.640	0.150	3.1687	
960 minute winter	32	Flow through pond	18	25.7	0.019	0.000	1040.6816	
15 minute winter	93	12.000	92	15.7	0.916	1.086	0.0968	
15 minute winter	92	12.001	91	-30.2	-0.519	-0.474	5.5028	
15 minute winter	94	13.000	91	14.0	1.267	0.604	0.0968	
15 minute winter	91	12.002	90	72.1	1.024	1.131	5.3045	
15 minute winter	90	12.003	89	139.7	0.882	0.974	1.3671	
15 minute winter	89	12.004	88	139.7	0.882	0.888	4.7508	
180 minute winter	166	14.000	88	-32.8	-1.862	-0.729	0.1226	
60 minute winter	88	12.005	87	16.6	0.548	0.116	4.1770	



Results for 100 year +20% CC Critical Storm Duration. Lowest mass balance: 96.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute winter	87	23	5.786	1.589	41.7	2.8212	0.0000	FLOOD RISK
30 minute winter	86	22	5.807	1.666	31.0	2.9440	0.0000	SURCHARGED
15 minute winter	112	12	5.796	1.121	77.0	3.4885	0.0000	SURCHARGED
15 minute winter	97	12	5.819	1.547	147.1	4.5904	0.0000	FLOOD RISK
15 minute winter	116	12	5.782	1.082	69.0	2.4122	0.0000	SURCHARGED
15 minute winter	115	13	5.792	1.192	107.5	2.8728	0.0000	SURCHARGED
15 minute winter	114	13	5.774	1.324	124.4	3.9333	0.0000	FLOOD RISK
360 minute winter	113	352	5.187	1.187	67.4	3.5759	0.0000	SURCHARGED
15 minute winter	96	13	5.750	1.774	288.8	8.2739	1.2613	FLOOD
15 minute winter	95	13	5.666	1.748	256.9	3.2858	0.0000	SURCHARGED
15 minute winter	85	13	5.566	1.706	288.6	3.7155	0.0000	SURCHARGED
15 minute winter	84	13	5.375	1.604	299.3	3.0139	0.0000	FLOOD RISK
15 minute winter	121	13	5.255	0.930	11.9	1.3306	0.0000	SURCHARGED
15 minute winter	120	13	5.255	0.956	42.7	1.3681	0.0000	SURCHARGED
60 minute winter	122	44	5.552	0.112	27.8	23.1770	0.0000	OK
15 minute winter	119	13	5.261	1.095	48.4	2.3565	0.0000	SURCHARGED
15 minute winter	118	13	5.244	1.249	69.0	1.7873	0.0000	SURCHARGED
15 minute winter	117	13	5.226	1.126	50.7	1.6579	0.0000	SURCHARGED
15 minute winter	83	13	5.228	1.587	371.5	4.4043	0.0000	FLOOD RISK
15 minute winter	82	13	4.710	1.195	408.4	2.7780	0.0000	SURCHARGED
240 minute winter	81	236	4.522	0.772	9.4	1.1654	0.0000	SURCHARGED
1440 minute winter	80	1560	4.503	1.033	56.9	1.9272	0.0000	SURCHARGED
1440 minute winter	79	1560	4.507	1.107	56.6	0.0000	0.0000	OK
15 minute winter	156	12	6.640	0.100	11.5	0.9617	0.0000	OK
15 minute winter	155	12	6.344	0.694	25.7	1.2450	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)
30 minute winter	87	12.006	86	31.0	0.499	0.216	4.4081	
30 minute winter	86	Hydro-Brake®	85	9.3				
15 minute winter	112	15.000	97	87.4	1.220	0.198	3.4358	
15 minute winter	97	15.001	96	98.2	0.758	0.422	8.9944	
15 minute winter	116	16.000	115	39.7	0.769	0.148	2.3014	
15 minute winter	115	16.001	114	72.5	1.242	0.255	3.0670	
15 minute winter	114	16.002	96	106.0	0.826	0.306	6.5337	
360 minute winter	113	Hydro-Brake®	96	14.9				
15 minute winter	96	15.002	95	229.7	1.063	1.067	6.2431	
15 minute winter	95	15.003	85	238.0	1.102	1.105	6.2176	
15 minute winter	85	12.008	84	279.8	1.295	1.299	9.5802	
15 minute winter	84	12.009	83	298.3	1.381	1.379	5.8878	
15 minute winter	121	18.000	120	-11.9	-0.453	-0.186	0.5402	
15 minute winter	120	18.001	119	-42.7	-0.744	-0.669	2.8168	
60 minute winter	122	19.000	119	11.4	0.861	0.788	0.0778	
15 minute winter	119	18.002	118	38.7	0.953	0.607	0.4371	
15 minute winter	118	18.003	83	48.5	0.677	0.177	6.1364	
15 minute winter	117	20.000	83	-48.9	-0.426	-0.123	4.0085	
15 minute winter	83	12.010	82	374.2	1.732	1.906	16.2705	
15 minute winter	82	12.011	80	409.6	1.896	2.086	5.8288	
240 minute winter	81	Hydro-Brake®	80	2.1				
1440 minute winter	80	12.012	79	56.6	0.619	0.142	2.2143	
1440 minute winter	79	Flow through pond	27	50.8	0.031	0.002	609.4825	
15 minute winter	156	22.000	155	9.9	0.837	0.684	0.0649	
15 minute winter	155	22.001	154	25.3	0.862	0.298	0.9000	



Results for 100 year +20% CC Critical Storm Duration. Lowest mass balance: 96.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	154	13	6.326	0.751	36.2	1.2538	0.0000	SURCHARGED
15 minute winter	157	13	6.341	0.001	0.0	0.0003	0.0000	OK
15 minute winter	153	13	6.319	0.844	63.8	1.2899	0.0000	SURCHARGED
15 minute winter	152	13	6.291	0.991	39.9	1.5040	0.0000	SURCHARGED
15 minute winter	159	10	6.367	0.092	18.6	0.2073	0.0000	OK
15 minute winter	158	12	6.300	0.350	36.7	0.7221	0.0000	OK
15 minute winter	151	12	6.274	1.024	107.8	2.3509	0.0000	SURCHARGED
15 minute winter	163	12	6.299	0.059	9.0	1.4081	0.0000	OK
15 minute winter	162	12	6.242	0.767	37.3	1.7678	0.0000	SURCHARGED
15 minute winter	161	12	6.231	0.856	35.7	1.2243	0.0000	SURCHARGED
15 minute winter	160	15	6.020	0.205	38.5	7.9305	0.0000	SURCHARGED
15 minute winter	150	12	6.212	1.178	181.9	4.5969	0.0000	FLOOD RISK
15 minute winter	149	13	6.154	0.304	35.5	0.4684	0.0000	OK
15 minute winter	148	13	6.134	1.059	112.1	3.6359	0.0000	SURCHARGED
15 minute winter	147	13	6.097	1.128	96.7	2.9696	0.0000	SURCHARGED
15 minute winter	146	13	6.083	1.131	112.3	2.3692	0.0000	SURCHARGED
15 minute winter	145	12	6.022	1.201	355.4	4.6325	0.0000	SURCHARGED
15 minute winter	144	12	5.871	1.079	345.1	1.5437	0.0000	SURCHARGED
15 minute winter	143	12	5.740	0.970	375.1	1.9406	0.0000	SURCHARGED
30 minute winter	164	27	5.231	0.231	57.2	33.8290	0.0000	SURCHARGED
15 minute winter	142	12	5.576	0.832	370.2	1.1900	0.0000	SURCHARGED
360 minute winter	165	352	5.189	0.189	7.0	27.3643	0.0000	SURCHARGED
360 minute winter	141	352	5.189	0.618	113.8	3.4051	0.0000	SURCHARGED
360 minute winter	140	352	5.193	1.193	109.0	0.0000	0.0000	OK
960 minute winter	16	945	5.009	0.809	0.7	1.3503	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	154	22.002	153	33.7	1.167	0.344	0.9004	
15 minute winter	157	23.000	153	0.0	0.004	0.000	0.0027	
15 minute winter	153	22.003	152	38.5	0.923	0.340	1.1890	
15 minute winter	152	22.004	151	46.0	0.654	0.636	0.8217	
15 minute winter	159	24.000	158	18.1	1.020	0.192	0.7878	
15 minute winter	158	24.001	151	36.7	0.689	0.064	3.2984	
15 minute winter	151	22.005	150	100.5	0.804	0.541	10.2636	
15 minute winter	163	25.000	162	6.4	1.038	0.276	0.0498	
15 minute winter	162	25.001	161	32.0	1.208	0.249	0.5281	
15 minute winter	161	25.002	150	31.7	1.061	0.304	1.5251	
15 minute winter	160	26.000	150	33.9	1.924	0.566	0.1233	
15 minute winter	150	22.006	145	158.2	0.999	0.852	10.1424	
15 minute winter	149	27.000	148	39.0	0.346	0.112	9.1532	
15 minute winter	148	27.001	147	86.0	0.560	0.599	8.4038	
15 minute winter	147	27.002	146	103.3	0.652	0.710	1.3097	
15 minute winter	146	27.003	145	117.5	0.741	0.703	7.6777	
15 minute winter	145	22.007	144	345.1	1.597	1.756	3.7516	
15 minute winter	144	22.008	143	346.4	1.604	1.776	2.8875	
15 minute winter	143	22.009	142	370.2	1.714	1.885	3.3673	
30 minute winter	164	28.000	142	-34.6	-2.003	-2.394	0.1320	
15 minute winter	142	22.010	141	335.9	1.648	1.479	16.8026	
360 minute winter	165	29.000	141	-4.9	0.669	-0.339	0.1320	
360 minute winter	141	22.011	140	109.0	1.028	0.108	2.8518	
360 minute winter	140	Flow through pond	113	59.8	0.053	0.002	709.3666	
960 minute winter	16	30.000	15	0.6	0.223	0.009	0.9942	



Results for 100 year +20% CC Critical Storm Duration. Lowest mass balance: 96.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
960 minute winter	15	945	5.009	0.856	1.3	1.4133	0.0000	SURCHARGED
960 minute winter	14	945	5.009	0.973	1.9	1.5744	0.0000	SURCHARGED
15 minute winter	17	13	5.334	0.094	86.0	19.3903	0.0000	OK
960 minute winter	13	945	5.009	1.046	7.1	1.4969	0.0000	SURCHARGED
960 minute winter	12	945	5.009	1.188	8.2	2.1230	0.0000	SURCHARGED
960 minute winter	18	945	5.009	1.509	30.3	1.6846	0.0000	FLOOD RISK
960 minute winter	11	945	5.009	1.538	9.5	3.2561	0.0000	SURCHARGED
1440 minute winter	10	1650	4.360	1.001	10.7	2.5590	0.0000	SURCHARGED
1440 minute winter	9	1650	4.357	1.385	15.9	135.9329	0.0000	SURCHARGED
1440 minute winter	19	1560	4.497	1.247	26.0	4.8321	0.0000	FLOOD RISK
1440 minute winter	8	1650	4.356	1.450	40.1	2.3888	0.0000	SURCHARGED
1440 minute winter	7	1650	4.355	1.582	27.3	0.0000	0.0000	OK
240 minute winter	130	244	4.524	0.049	0.4	0.0705	0.0000	OK
15 minute winter	131	1	4.950	0.000	0.0	0.0000	0.0000	OK
240 minute winter	129	240	4.525	0.349	1.1	0.4995	0.0000	OK
240 minute winter	128	240	4.525	0.363	1.3	0.5193	0.0000	OK
240 minute winter	127	240	4.525	0.379	1.5	0.5418	0.0000	OK
15 minute winter	132	1	5.340	0.000	0.0	0.0000	0.0000	OK
240 minute winter	126	240	4.524	0.399	3.5	0.5715	0.0000	OK
15 minute winter	133	12	5.404	0.164	21.2	1.9884	0.0000	SURCHARGED
240 minute winter	125	236	4.524	0.525	7.5	0.9214	0.0000	SURCHARGED
240 minute winter	136	236	4.524	0.349	1.7	0.5680	0.0000	SURCHARGED
30 minute winter	137	23	5.078	0.088	16.4	6.5701	0.0000	OK
240 minute winter	135	236	4.523	0.398	6.6	0.6482	0.0000	SURCHARGED
15 minute winter	134	12	5.179	0.164	21.2	1.9884	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)
960 minute winter	15	30.001	14	1.2	0.290	0.018	2.4681	
960 minute winter	14	30.002	13	1.7	0.227	0.027	1.5524	
15 minute winter	17	31.000	13	43.4	2.690	0.679	0.1461	
960 minute winter	13	30.003	12	7.0	0.611	0.109	2.9901	
960 minute winter	12	30.004	11	8.0	0.299	0.053	1.3480	
960 minute winter	18	32.000	11	7.3	0.158	0.114	0.6232	
960 minute winter	11	Hydro-Brake®	10	7.5				
1440 minute winter	10	30.006	9	10.7	0.661	0.167	5.0127	
1440 minute winter	9	30.007	8	12.5	0.457	0.067	3.1397	
1440 minute winter	19	33.000	8	29.8	0.747	0.046	1.3468	
1440 minute winter	8	30.008	7	27.3	0.667	0.151	5.3079	
1440 minute winter	7	Flow through pond	4	25.4	0.021	0.001	469.1016	
240 minute winter	130	34.000	129	0.5	-0.019	0.007	1.2700	
15 minute winter	131	35.000	129	0.0	0.000	0.000	0.0000	
240 minute winter	129	34.001	128	1.2	-0.066	0.008	0.9145	
240 minute winter	128	34.002	127	1.5	-0.123	0.010	1.1297	
240 minute winter	127	34.003	126	2.0	-0.120	0.014	1.5617	
15 minute winter	132	36.000	126	0.0	0.000	0.000	0.0000	
240 minute winter	126	34.004	125	-3.5	-0.071	-0.024	9.6748	
15 minute winter	133	37.000	125	16.9	0.977	1.166	0.0818	
240 minute winter	125	34.005	124	4.3	0.309	0.024	4.4081	
240 minute winter	136	38.000	135	2.0	0.233	0.024	0.6293	
30 minute winter	137	39.000	135	8.1	0.795	0.560	0.0509	
240 minute winter	135	38.001	124	6.0	0.554	0.095	1.2265	
15 minute winter	134	40.000	124	16.9	0.977	1.166	0.0818	



Results for 100 year +20% CC Critical Storm Duration. Lowest mass balance: 96.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
240 minute winter	124	240	4.524	0.607	13.8	0.9763	0.0000	SURCHARGED
240 minute winter	123	244	4.525	0.770	12.3	0.0000	0.0000	OK
1440 minute winter	4	1650	4.352	1.602	26.2	0.8459	0.0000	SURCHARGED
1440 minute winter	3	1650	4.346	1.651	19.5	4.2028	0.0000	SURCHARGED
30 minute winter	2	55	1.832	0.092	19.4	0.1310	0.0000	OK
15 minute winter	1	104	1.200	0.090	19.4	0.0000	0.0000	OK
15 minute winter	65	12	4.581	0.506	15.4	0.8772	0.0000	SURCHARGED
15 minute winter	64	12	4.578	0.555	32.3	1.0697	0.0000	SURCHARGED
15 minute winter	63	12	4.559	0.612	57.2	1.3889	0.0000	SURCHARGED
15 minute winter	66	12	4.455	0.205	2.1	0.0000	0.0000	FLOOD RISK
15 minute winter	62	12	4.456	0.631	80.3	1.3310	0.0000	SURCHARGED
15 minute winter	61	12	4.325	0.565	99.5	1.1243	0.0000	SURCHARGED
1440 minute winter	60	1650	4.246	0.635	5.4	0.0000	0.0000	OK
15 minute winter	73	13	4.446	0.196	14.1	3.4653	0.0000	SURCHARGED
15 minute winter	72	12	4.431	0.181	9.4	0.2585	0.0000	OK
15 minute winter	74	13	4.443	0.193	14.1	3.3550	0.0000	SURCHARGED
15 minute winter	71	12	4.428	0.178	28.6	0.3305	0.0000	OK
15 minute winter	75	13	4.420	0.170	14.1	2.6195	0.0000	SURCHARGED
15 minute winter	70	12	4.405	0.239	69.8	0.5447	0.0000	OK
15 minute winter	69	12	4.306	0.156	29.5	0.3388	0.0000	OK
15 minute winter	68	12	4.279	0.299	123.4	0.6811	0.0000	OK
1440 minute winter	67	1680	4.246	0.634	7.0	0.0000	0.0000	OK
15 minute winter	25	12	4.468	0.693	32.7	1.4860	0.0000	SURCHARGED
15 minute winter	24	11	4.449	0.767	70.3	1.8267	0.0000	SURCHARGED
15 minute winter	23	12	4.301	0.725	149.3	2.5735	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)
240 minute winter	124	34.006	123	12.3	0.515	0.063	2.9312	
240 minute winter	123	Flow through pond	81	8.8	0.015	0.000	77.6869	
1440 minute winter	4	41.000	3	19.5	0.432	0.299	1.1091	
1440 minute winter	3	Hydro-Brake®	2	19.4				
30 minute winter	2	41.002	1	19.4	1.079	0.201	1.4926	292.9
15 minute winter	65	42.000	64	13.1	0.436	0.205	1.0953	
15 minute winter	64	42.001	63	29.4	0.613	0.461	1.6099	
15 minute winter	63	42.002	62	53.0	0.753	0.819	2.5054	
15 minute winter	66	43.000	62	-2.1	0.253	-0.095	0.1643	
15 minute winter	62	42.003	61	76.8	1.091	1.204	1.4295	
15 minute winter	61	42.004	60	99.5	1.414	1.429	1.9541	
1440 minute winter	60	Flow through pond	21	-14.9	0.040	-0.002	476.8705	
15 minute winter	73	44.000	72	9.4	0.533	0.531	0.0880	
15 minute winter	72	44.001	71	10.0	0.430	0.157	0.6329	
15 minute winter	74	45.000	71	10.3	0.587	0.584	0.0865	
15 minute winter	71	44.002	70	29.7	0.714	0.465	1.3991	
15 minute winter	75	46.000	70	11.9	0.730	0.675	0.0865	
15 minute winter	70	44.003	68	67.9	1.330	0.850	2.3367	
15 minute winter	69	47.000	68	28.6	0.675	0.448	2.7406	
15 minute winter	68	44.004	67	113.2	1.607	0.522	0.6160	
1440 minute winter	67	Flow through pond	21	-14.9	0.040	-0.002	476.8705	
15 minute winter	25	48.000	24	28.6	0.531	0.448	1.9670	
15 minute winter	24	48.001	23	67.2	0.955	1.056	2.2448	
15 minute winter	23	48.002	22	143.9	2.043	0.974	0.7042	



Results for 100 year +20% CC Critical Storm Duration. Lowest mass balance: 96.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute winter	22	1680	4.249	0.984	7.0	0.0000	0.0000	OK
960 minute winter	31	945	5.010	0.785	3.0	1.9467	0.0000	SURCHARGED
960 minute winter	30	945	5.010	0.960	4.8	2.0721	0.0000	SURCHARGED
960 minute winter	29	945	5.010	1.110	7.4	2.6068	0.0000	SURCHARGED
960 minute winter	28	945	5.012	1.488	7.3	0.0000	0.0000	OK
30 minute winter	78	23	4.774	0.084	29.8	11.0020	0.0000	OK
1440 minute winter	77	1560	4.500	0.625	3.1	1.3313	0.0000	SURCHARGED
1440 minute winter	76	1590	4.501	1.076	3.1	0.0000	0.0000	OK
1440 minute winter	6	1680	4.248	0.998	6.2	1.9806	0.0000	SURCHARGED
1440 minute winter	5	1650	4.354	1.581	9.0	0.0000	0.0000	OK
1440 minute winter	21	1680	4.246	0.746	12.3	1.6798	0.0000	SURCHARGED
1440 minute winter	20	1650	4.245	0.980	11.3	0.0000	0.0000	OK
1440 minute winter	27	1560	4.500	1.100	53.2	1.2939	0.0000	SURCHARGED
1440 minute winter	26	1560	4.497	1.201	43.2	399.1658	0.0000	OK
240 minute winter	139	240	5.306	0.006	0.0	0.0000	0.0000	OK
240 minute winter	138	240	5.292	1.292	0.4	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)
1440 minute winter	22	Flow through pond	6	-7.3	0.010	0.000	365.0684	
960 minute winter	31	49.000	30	2.7	0.459	0.030	1.8727	
960 minute winter	30	49.001	29	4.6	0.537	0.050	1.5013	
960 minute winter	29	49.002	28	7.3	0.667	0.074	0.8978	
960 minute winter	28	Flow through pond	18	25.7	0.019	0.000	1040.6816	
30 minute winter	78	50.000	77	15.9	1.707	0.479	0.0512	
1440 minute winter	77	50.001	76	3.1	0.618	0.023	1.5140	
1440 minute winter	76	Flow through pond	27	50.8	0.031	0.002	609.4825	
1440 minute winter	6	Hydro-Brake®	5	2.1				
1440 minute winter	5	Flow through pond	4	25.4	0.021	0.001	469.1016	
1440 minute winter	21	52.000	20	-11.7	0.565	-0.047	2.6143	
1440 minute winter	20	Flow through pond	6	-7.3	0.010	0.000	365.0684	
1440 minute winter	27	53.000	26	43.2	0.778	0.201	1.7823	
1440 minute winter	26	Flow through pond	19	24.4	0.021	0.001	764.5901	
240 minute winter	139	54.000	138	0.1	0.014	0.002	0.0489	
240 minute winter	138	Flow through pond	113	83.5	0.059	0.003	698.9177	



Results for 100 year +40% CC +10% A Critical Storm Duration. Lowest mass balance: 96.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	43	1	5.350	0.000	0.0	0.0000	0.0000	OK
15 minute winter	42	1	5.293	0.000	0.0	0.0000	0.0000	OK
960 minute winter	41	945	5.245	0.017	0.2	0.0000	0.0000	OK
960 minute winter	40	945	5.245	0.147	0.8	0.0000	0.0000	OK
960 minute winter	39	945	5.245	0.244	1.5	0.0000	0.0000	OK
15 minute winter	106	12	6.331	0.956	47.7	2.3185	0.0000	SURCHARGED
15 minute winter	48	12	6.299	0.974	23.0	1.8152	0.0000	SURCHARGED
15 minute winter	47	12	6.294	1.019	23.4	1.5678	0.0000	SURCHARGED
15 minute winter	46	12	6.282	1.056	76.6	1.8379	0.0000	SURCHARGED
15 minute winter	45	12	6.190	1.004	109.7	2.1130	0.0000	SURCHARGED
15 minute winter	44	12	5.925	0.804	144.0	1.7119	0.0000	SURCHARGED
960 minute winter	38	945	5.245	0.313	11.1	0.0000	0.0000	OK
960 minute winter	37	945	5.245	0.325	11.1	0.0000	0.0000	OK
960 minute winter	36	945	5.245	0.543	11.1	0.0000	0.0000	SURCHARGED
15 minute winter	59	12	5.992	0.202	27.2	2.9658	0.0000	SURCHARGED
15 minute winter	58	11	5.606	0.406	22.9	0.5809	0.0000	SURCHARGED
15 minute winter	57	13	5.630	0.265	27.2	4.9702	0.0000	FLOOD RISK
15 minute winter	56	12	5.587	0.637	64.8	1.9118	0.0000	FLOOD RISK
15 minute winter	54	12	5.892	0.202	27.2	2.9658	0.0000	SURCHARGED
15 minute winter	53	11	5.582	0.607	35.0	1.1351	0.0000	SURCHARGED
15 minute winter	52	13	5.616	0.201	27.2	3.9869	0.0000	SURCHARGED
15 minute winter	51	11	5.551	0.661	71.6	1.4616	0.0000	FLOOD RISK
15 minute winter	50	13	5.464	0.274	27.2	5.2951	0.0000	FLOOD RISK
15 minute winter	49	11	5.419	0.619	187.5	2.1485	0.0000	FLOOD RISK
960 minute winter	35	945	5.245	0.552	28.0	0.0000	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	43	1.000	42	0.0	0.000	0.000	0.0000	
15 minute winter	42	1.001	41	0.0	0.000	0.000	0.0005	
960 minute winter	41	1.002	40	0.4	0.009	0.001	4.0844	
960 minute winter	40	1.003	39	-0.8	-0.017	-0.001	8.6269	
960 minute winter	39	1.004	38	-1.5	-0.024	-0.002	10.2473	
15 minute winter	106	2.000	46	38.4	0.631	0.533	2.4692	
15 minute winter	48	3.000	47	18.9	0.538	0.254	0.7791	
15 minute winter	47	3.001	46	26.8	0.380	0.420	1.0454	
15 minute winter	46	2.001	45	77.7	1.103	1.217	0.8438	
15 minute winter	45	2.002	44	110.7	1.572	1.735	1.3720	
15 minute winter	44	2.003	38	143.9	2.043	2.256	2.4597	
960 minute winter	38	1.005	37	11.1	0.279	0.017	2.1895	
960 minute winter	37	1.006	36	11.1	0.207	0.017	67.1165	
960 minute winter	36	1.007	35	11.1	0.154	0.017	3.8052	
15 minute winter	59	4.000	58	20.2	1.150	1.395	0.0929	
15 minute winter	58	4.001	56	23.2	0.377	0.268	2.9013	
15 minute winter	57	5.000	56	22.4	1.273	1.549	0.0968	
15 minute winter	56	4.002	49	64.8	0.920	0.974	2.9161	
15 minute winter	54	6.000	53	20.2	1.150	1.395	0.0929	
15 minute winter	53	6.001	51	34.0	0.525	0.528	1.7584	
15 minute winter	52	7.000	51	19.8	1.127	1.367	0.0968	
15 minute winter	51	6.002	49	69.5	0.987	1.078	1.8611	
15 minute winter	50	8.000	49	23.1	1.316	1.601	0.0968	
15 minute winter	49	4.003	35	187.3	2.660	2.937	0.6534	
960 minute winter	35	1.008	34	28.0	0.260	0.044	128.9688	



Results for 100 year +40% CC +10% A Critical Storm Duration. Lowest mass balance: 96.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	104	12	6.331	0.066	11.5	1.7218	0.0000	OK
15 minute winter	103	11	6.247	0.947	67.0	2.1989	0.0000	SURCHARGED
30 minute winter	105	23	6.063	0.273	37.4	10.9743	0.0000	FLOOD RISK
30 minute winter	102	18	6.156	1.181	122.2	3.6095	0.0000	FLOOD RISK
15 minute winter	101	11	6.100	1.125	191.6	3.8824	11.2272	FLOOD
30 minute winter	109	18	6.343	1.168	26.2	2.4912	0.0000	FLOOD RISK
30 minute winter	108	18	6.299	1.299	63.8	2.4806	0.0000	FLOOD RISK
15 minute winter	107	12	6.250	1.350	91.2	3.6329	0.4513	FLOOD
30 minute winter	100	18	6.075	1.500	198.9	44.3160	15.7789	FLOOD
15 minute winter	99	11	6.016	1.241	189.5	3.9129	0.0000	SURCHARGED
30 minute winter	98	18	5.836	1.161	255.2	4.1452	0.0000	SURCHARGED
30 minute winter	110	18	5.633	1.008	308.0	2.5415	0.0000	SURCHARGED
30 minute winter	111	18	5.417	0.842	322.9	1.4583	0.0000	SURCHARGED
960 minute winter	55	945	5.245	0.720	39.2	1.0300	0.0000	SURCHARGED
960 minute winter	34	945	5.245	0.764	66.3	0.0000	0.0000	SURCHARGED
960 minute winter	33	945	5.245	0.970	64.6	0.0000	0.0000	SURCHARGED
960 minute winter	32	945	5.247	1.747	55.9	0.0000	0.0000	OK
15 minute winter	93	11	6.379	0.539	27.7	0.4887	0.0000	FLOOD RISK
15 minute winter	92	10	6.300	1.300	25.8	1.8603	2.2494	FLOOD
15 minute winter	94	11	6.359	0.369	18.1	0.3353	0.0000	FLOOD RISK
15 minute winter	91	12	6.270	1.530	101.4	3.7216	0.0000	FLOOD RISK
30 minute winter	90	16	5.951	1.612	157.6	4.9678	0.0000	FLOOD RISK
30 minute winter	89	16	5.900	1.578	157.3	2.2580	0.0000	FLOOD RISK
240 minute winter	166	164	5.750	0.560	47.8	154.4725	15.1453	FLOOD
60 minute winter	88	27	5.750	1.500	124.8	3.0435	61.0499	FLOOD

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	104	9.000	103	8.6	1.150	0.373	0.1233	
15 minute winter	103	9.001	102	74.2	0.483	0.254	6.2881	
30 minute winter	105	10.000	102	-28.5	-1.694	-1.971	0.1408	
30 minute winter	102	9.002	101	81.4	0.892	0.437	4.7246	
15 minute winter	101	9.003	100	157.0	1.443	0.704	3.3100	
30 minute winter	109	11.000	108	35.0	0.807	0.340	1.4299	
30 minute winter	108	11.001	107	41.5	0.934	0.444	0.9902	
15 minute winter	107	11.002	100	75.7	1.321	0.654	2.1126	
30 minute winter	100	9.004	99	153.7	0.970	1.059	7.7495	
15 minute winter	99	9.005	98	195.4	1.233	1.422	8.6276	
30 minute winter	98	9.006	110	253.8	1.602	1.707	3.6930	
30 minute winter	110	9.007	111	307.0	1.938	1.532	2.0463	
30 minute winter	111	9.008	55	322.1	2.033	2.089	3.4354	
960 minute winter	55	9.009	34	38.6	0.770	0.200	1.9390	
960 minute winter	34	1.009	33	64.6	0.470	0.101	204.0009	
960 minute winter	33	1.010	32	55.9	0.657	0.168	3.1687	
960 minute winter	32	Flow through pond	18	28.1	0.019	0.001	1259.8077	
15 minute winter	93	12.000	92	17.2	0.975	1.187	0.0968	
15 minute winter	92	12.001	91	-19.7	0.314	-0.309	5.5028	
15 minute winter	94	13.000	91	19.7	1.306	0.852	0.0968	
15 minute winter	91	12.002	90	73.2	1.040	1.148	5.3045	
30 minute winter	90	12.003	89	157.3	0.993	1.097	1.3671	
30 minute winter	89	12.004	88	157.3	0.993	0.999	4.7508	
240 minute winter	166	14.000	88	-32.6	-1.854	-0.726	0.1226	
60 minute winter	88	12.005	87	17.9	0.563	0.125	4.1770	



Results for 100 year +40% CC +10% A Critical Storm Duration. Lowest mass balance: 96.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute winter	87	17	5.801	1.604	50.9	2.9032	0.0000	FLOOD RISK
30 minute winter	86	16	5.850	1.709	23.4	3.0206	0.0000	SURCHARGED
30 minute winter	112	18	5.937	1.262	76.5	4.1393	0.0000	FLOOD RISK
30 minute winter	97	18	5.900	1.628	137.8	5.0256	1.1091	FLOOD
15 minute winter	116	11	5.959	1.259	88.0	2.9066	0.0000	FLOOD RISK
30 minute winter	115	18	5.896	1.296	149.7	3.2506	0.0000	FLOOD RISK
15 minute winter	114	11	5.910	1.460	178.5	4.5128	0.0000	FLOOD RISK
360 minute winter	113	352	5.406	1.406	85.9	4.4119	0.0000	FLOOD RISK
15 minute winter	96	11	5.750	1.774	462.6	8.6500	38.1443	FLOOD
15 minute winter	95	11	5.703	1.785	285.7	3.4358	0.0000	SURCHARGED
15 minute winter	85	11	5.649	1.789	322.6	4.0301	0.0000	SURCHARGED
15 minute winter	84	11	5.509	1.738	315.4	3.3434	0.0000	FLOOD RISK
15 minute winter	121	11	5.558	1.233	16.6	1.7648	0.0000	FLOOD RISK
15 minute winter	120	11	5.545	1.246	38.4	1.7825	0.0000	SURCHARGED
60 minute winter	122	44	5.576	0.136	35.7	29.8148	0.0000	OK
30 minute winter	119	19	5.435	1.269	66.3	2.8230	0.0000	SURCHARGED
30 minute winter	118	19	5.396	1.401	57.5	2.0052	0.0000	SURCHARGED
15 minute winter	117	11	5.396	1.296	10.1	1.9148	0.0000	FLOOD RISK
15 minute winter	83	11	5.375	1.734	435.0	5.0459	4.3881	FLOOD
30 minute winter	82	20	4.883	1.368	420.0	3.3042	0.0000	SURCHARGED
1440 minute winter	81	1620	4.749	0.999	8.3	1.5453	0.0000	SURCHARGED
1440 minute winter	80	1560	4.751	1.281	63.4	2.4457	0.0000	SURCHARGED
1440 minute winter	79	1560	4.755	1.355	63.3	0.0000	0.0000	OK
15 minute winter	156	12	6.681	0.141	14.8	1.8602	0.0000	OK
15 minute winter	155	11	6.712	1.062	32.5	1.9454	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)
30 minute winter	87	12.006	86	23.4	0.523	0.163	4.4081	
30 minute winter	86	Hydro-Brake®	85	9.3				
30 minute winter	112	15.000	97	78.5	1.161	0.178	3.4358	
30 minute winter	97	15.001	96	131.7	0.831	0.565	8.9944	
15 minute winter	116	16.000	115	45.0	0.776	0.168	2.3014	
30 minute winter	115	16.001	114	74.9	1.188	0.263	3.0670	
15 minute winter	114	16.002	96	179.6	1.134	0.518	6.5337	
360 minute winter	113	Hydro-Brake®	96	14.9				
15 minute winter	96	15.002	95	248.7	1.151	1.155	6.2431	
15 minute winter	95	15.003	85	250.1	1.158	1.161	6.2176	
15 minute winter	85	12.008	84	283.3	1.311	1.316	9.5802	
15 minute winter	84	12.009	83	288.0	1.333	1.331	5.8878	
15 minute winter	121	18.000	120	-16.6	-0.275	-0.259	0.5402	
15 minute winter	120	18.001	119	-38.4	-0.583	-0.602	2.8168	
60 minute winter	122	19.000	119	14.4	0.925	0.994	0.0907	
30 minute winter	119	18.002	118	57.5	0.900	0.902	0.4371	
30 minute winter	118	18.003	83	56.7	0.663	0.207	6.1364	
15 minute winter	117	20.000	83	11.7	0.387	0.029	4.0085	
15 minute winter	83	12.010	82	370.1	1.713	1.885	16.2705	
30 minute winter	82	12.011	80	419.9	1.944	2.139	5.8288	
1440 minute winter	81	Hydro-Brake®	80	2.1				
1440 minute winter	80	12.012	79	63.3	0.639	0.158	2.2143	
1440 minute winter	79	Flow through pond	27	57.0	0.032	0.002	796.5429	
15 minute winter	156	22.000	155	13.9	0.920	0.964	0.0899	
15 minute winter	155	22.001	154	30.3	0.870	0.357	0.9000	



Results for 100 year +40% CC +10% A Critical Storm Duration. Lowest mass balance: 96.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	154	11	6.622	1.047	41.8	1.7722	0.0000	SURCHARGED
15 minute winter	157	14	6.529	0.189	19.7	3.1426	0.0000	SURCHARGED
15 minute winter	153	12	6.576	1.101	62.9	1.6942	0.0000	SURCHARGED
15 minute winter	152	12	6.569	1.269	48.8	1.9372	0.0000	SURCHARGED
15 minute winter	159	11	6.761	0.486	23.9	1.1294	0.0000	FLOOD RISK
15 minute winter	158	11	6.633	0.683	62.8	1.4517	0.0000	FLOOD RISK
15 minute winter	151	12	6.549	1.299	122.5	3.0951	0.0000	SURCHARGED
15 minute winter	163	14	6.422	0.182	33.2	6.9245	0.0000	SURCHARGED
15 minute winter	162	11	6.480	1.005	48.9	2.4070	0.0000	FLOOD RISK
15 minute winter	161	11	6.479	1.104	50.6	1.5792	0.0000	FLOOD RISK
30 minute winter	160	25	6.228	0.413	45.3	17.2013	0.0000	FLOOD RISK
15 minute winter	150	11	6.450	1.416	226.8	5.8283	9.5569	FLOOD
15 minute winter	149	11	6.621	0.771	76.8	1.1997	0.0000	SURCHARGED
15 minute winter	148	11	6.575	1.500	145.4	5.4000	5.4865	FLOOD
15 minute winter	147	11	6.475	1.506	133.6	4.0933	6.6992	FLOOD
15 minute winter	146	11	6.500	1.548	121.9	3.3431	0.0000	FLOOD RISK
15 minute winter	145	12	6.372	1.551	387.6	6.3561	0.0000	SURCHARGED
15 minute winter	144	12	6.207	1.415	365.8	2.0254	0.0000	SURCHARGED
15 minute winter	143	12	6.065	1.295	400.8	2.6641	0.0000	SURCHARGED
360 minute winter	164	352	5.408	0.408	13.3	61.4059	0.0000	SURCHARGED
15 minute winter	142	12	5.876	1.132	397.5	1.6200	0.0000	SURCHARGED
360 minute winter	165	352	5.408	0.408	13.9	61.5373	0.0000	SURCHARGED
30 minute winter	141	20	5.420	0.849	494.6	5.0254	0.0000	SURCHARGED
360 minute winter	140	352	5.410	1.410	134.9	0.0000	0.0000	OK
960 minute winter	16	945	5.243	1.043	0.9	1.7665	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	154	22.002	153	43.4	1.158	0.442	0.9004	
15 minute winter	157	23.000	153	-19.7	-1.300	-1.363	0.0968	
15 minute winter	153	22.003	152	47.2	0.931	0.417	1.1890	
15 minute winter	152	22.004	151	51.7	0.734	0.714	0.8217	
15 minute winter	159	24.000	158	33.6	1.088	0.356	1.6999	
15 minute winter	158	24.001	151	45.3	0.724	0.080	3.5933	
15 minute winter	151	22.005	150	122.2	0.816	0.658	10.2636	
15 minute winter	163	25.000	162	-22.4	-1.418	-0.969	0.0968	
15 minute winter	162	25.001	161	50.6	1.334	0.394	0.5281	
15 minute winter	161	25.002	150	39.5	1.019	0.379	1.5251	
30 minute winter	160	26.000	150	40.3	2.290	0.674	0.1233	
15 minute winter	150	22.006	145	177.5	1.120	0.955	10.1424	
15 minute winter	149	27.000	148	-70.2	-0.551	-0.202	10.6553	
15 minute winter	148	27.001	147	93.7	0.591	0.653	8.4038	
15 minute winter	147	27.002	146	97.4	0.615	0.669	1.3097	
15 minute winter	146	27.003	145	132.7	0.838	0.794	7.6777	
15 minute winter	145	22.007	144	365.8	1.694	1.861	3.7516	
15 minute winter	144	22.008	143	367.3	1.701	1.883	2.8875	
15 minute winter	143	22.009	142	397.5	1.840	2.025	3.3673	
360 minute winter	164	28.000	142	-8.7	0.688	-0.601	0.1320	
15 minute winter	142	22.010	141	355.8	1.647	1.566	16.8026	
360 minute winter	165	29.000	141	-9.3	0.703	-0.644	0.1320	
30 minute winter	141	22.011	140	460.7	2.133	0.456	2.8518	
360 minute winter	140	Flow through pond	113	75.9	0.058	0.003	888.5973	
960 minute winter	16	30.000	15	0.8	0.223	0.012	0.9942	



Results for 100 year +40% CC +10% A Critical Storm Duration. Lowest mass balance: 96.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
960 minute winter	15	945	5.243	1.090	1.7	1.8243	0.0000	SURCHARGED
960 minute winter	14	945	5.243	1.207	2.5	1.9766	0.0000	SURCHARGED
15 minute winter	17	14	5.350	0.110	110.3	26.4907	0.0000	OK
960 minute winter	13	945	5.243	1.280	9.2	1.8323	0.0000	SURCHARGED
960 minute winter	12	945	5.243	1.422	10.7	2.5931	0.0000	SURCHARGED
960 minute winter	18	945	5.244	1.744	37.3	2.1414	0.0000	FLOOD RISK
960 minute winter	11	945	5.243	1.772	12.5	3.8142	0.0000	SURCHARGED
1440 minute winter	10	1620	4.598	1.239	11.4	3.3044	0.0000	SURCHARGED
1440 minute winter	9	1620	4.594	1.622	18.0	157.4827	0.0000	SURCHARGED
1440 minute winter	19	1590	4.744	1.494	26.0	5.9882	0.0000	FLOOD RISK
1440 minute winter	8	1620	4.594	1.688	27.8	2.8152	0.0000	SURCHARGED
1440 minute winter	7	1620	4.593	1.820	28.0	0.0000	0.0000	OK
1440 minute winter	130	1620	4.750	0.275	0.5	0.3929	0.0000	OK
15 minute winter	131	1	4.950	0.000	0.0	0.0000	0.0000	OK
1440 minute winter	129	1440	4.750	0.574	0.9	0.8220	0.0000	SURCHARGED
1440 minute winter	128	1440	4.751	0.589	1.1	0.8426	0.0000	SURCHARGED
1440 minute winter	127	1440	4.751	0.605	1.4	0.8663	0.0000	SURCHARGED
15 minute winter	132	1	5.340	0.000	0.0	0.0000	0.0000	OK
1440 minute winter	126	1440	4.752	0.627	1.1	0.8970	0.0000	SURCHARGED
15 minute winter	133	12	5.442	0.202	27.2	2.9714	0.0000	SURCHARGED
1440 minute winter	125	1440	4.750	0.751	2.3	1.3424	0.0000	SURCHARGED
1440 minute winter	136	1620	4.749	0.574	1.2	0.9461	0.0000	SURCHARGED
30 minute winter	137	23	5.095	0.105	21.1	8.4075	0.0000	OK
1440 minute winter	135	1620	4.749	0.624	2.2	1.0285	0.0000	SURCHARGED
15 minute winter	134	12	5.217	0.202	27.2	2.9714	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)
960 minute winter	15	30.001	14	1.6	0.291	0.025	2.4681	
960 minute winter	14	30.002	13	2.4	0.231	0.037	1.5524	
15 minute winter	17	31.000	13	49.1	2.901	0.767	0.1575	
960 minute winter	13	30.003	12	9.1	0.584	0.142	2.9901	
960 minute winter	12	30.004	11	10.5	0.301	0.070	1.3480	
960 minute winter	18	32.000	11	7.2	0.132	0.113	0.6232	
960 minute winter	11	Hydro-Brake®	10	7.5				
1440 minute winter	10	30.006	9	11.3	0.659	0.177	5.0127	
1440 minute winter	9	30.007	8	14.1	0.485	0.076	3.1397	
1440 minute winter	19	33.000	8	20.4	0.754	0.031	1.3468	
1440 minute winter	8	30.008	7	28.0	0.679	0.155	5.3079	
1440 minute winter	7	Flow through pond	4	26.1	0.022	0.001	579.4802	
1440 minute winter	130	34.000	129	0.8	0.013	0.013	3.0782	
15 minute winter	131	35.000	129	0.0	0.000	0.000	0.0000	
1440 minute winter	129	34.001	128	1.1	-0.009	0.008	1.0776	
1440 minute winter	128	34.002	127	1.4	-0.024	0.009	1.2816	
1440 minute winter	127	34.003	126	1.1	-0.022	0.008	1.7004	
15 minute winter	132	36.000	126	0.0	0.000	0.000	0.0000	
1440 minute winter	126	34.004	125	1.1	-0.016	0.008	9.9819	
15 minute winter	133	37.000	125	20.3	1.157	1.404	0.0845	
1440 minute winter	125	34.005	124	2.1	0.221	0.012	4.4081	
1440 minute winter	136	38.000	135	1.3	0.148	0.016	0.6293	
30 minute winter	137	39.000	135	10.4	0.836	0.718	0.0620	
1440 minute winter	135	38.001	124	2.4	0.413	0.037	1.2265	
15 minute winter	134	40.000	124	20.3	1.157	1.404	0.0845	



Results for 100 year +40% CC +10% A Critical Storm Duration. Lowest mass balance: 96.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute winter	124	1440	4.750	0.833	5.1	1.3537	0.0000	SURCHARGED
1440 minute winter	123	1440	4.752	0.998	15.3	0.0000	0.0000	OK
1440 minute winter	4	1620	4.589	1.839	27.2	1.0665	0.0000	FLOOD RISK
1440 minute winter	3	1620	4.582	1.887	19.5	4.8033	0.0000	FLOOD RISK
15 minute winter	2	59	1.832	0.092	19.4	0.1310	0.0000	OK
15 minute winter	1	60	1.200	0.090	19.4	0.0000	0.0000	OK
15 minute winter	65	12	5.054	0.979	20.9	1.7258	0.0000	SURCHARGED
15 minute winter	64	12	5.046	1.023	44.4	2.0232	0.0000	SURCHARGED
15 minute winter	63	12	5.016	1.069	70.0	2.5149	0.0000	FLOOD RISK
15 minute winter	66	10	4.490	0.240	3.4	0.0000	0.0000	FLOOD RISK
15 minute winter	62	12	4.858	1.033	98.7	2.2496	0.0000	SURCHARGED
15 minute winter	61	12	4.652	0.892	125.7	1.8250	0.0000	SURCHARGED
1440 minute winter	60	1680	4.417	0.805	6.9	0.0000	0.0000	OK
15 minute winter	73	14	4.513	0.263	18.6	6.2096	0.0000	SURCHARGED
15 minute winter	72	13	4.504	0.254	13.6	0.3628	0.0000	OK
15 minute winter	74	14	4.509	0.259	18.2	5.9922	0.0000	SURCHARGED
15 minute winter	71	13	4.496	0.246	34.0	0.4675	0.0000	OK
15 minute winter	75	13	4.500	0.250	24.8	5.6078	0.0000	SURCHARGED
15 minute winter	70	12	4.485	0.319	73.0	0.7550	0.0000	SURCHARGED
15 minute winter	69	11	4.426	0.276	37.9	0.6211	0.0000	OK
1440 minute winter	68	1680	4.415	0.435	9.1	1.0262	0.0000	SURCHARGED
1440 minute winter	67	1680	4.414	0.803	9.1	0.0000	0.0000	OK
15 minute winter	25	12	5.085	1.310	42.0	2.9051	0.0000	FLOOD RISK
15 minute winter	24	12	5.049	1.367	88.9	3.3863	0.0000	FLOOD RISK
15 minute winter	23	12	4.825	1.249	186.7	4.6956	0.0000	FLOOD RISK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
1440 minute winter	124	34.006	123	5.4	0.450	0.028	2.9312	
1440 minute winter	123	Flow through pond	81	7.9	0.003	0.000	117.9225	
1440 minute winter	4	41.000	3	19.5	0.432	0.299	1.1091	
1440 minute winter	3	Hydro-Brake®	2	19.4				
15 minute winter	2	41.002	1	19.4	1.079	0.201	1.4926	282.3
15 minute winter	65	42.000	64	18.1	0.439	0.284	1.0953	
15 minute winter	64	42.001	63	36.5	0.614	0.572	1.6099	
15 minute winter	63	42.002	62	66.4	0.944	1.027	2.5054	
15 minute winter	66	43.000	62	4.1	0.306	0.181	0.1643	
15 minute winter	62	42.003	61	96.0	1.363	1.505	1.4295	
15 minute winter	61	42.004	60	125.2	1.778	1.798	1.9541	
1440 minute winter	60	Flow through pond	21	7.3	0.036	0.001	645.0827	
15 minute winter	73	44.000	72	13.6	0.771	0.768	0.0880	
15 minute winter	72	44.001	71	14.7	0.481	0.231	1.0363	
15 minute winter	74	45.000	71	14.3	0.813	0.810	0.0865	
15 minute winter	71	44.002	70	37.6	0.762	0.590	1.8007	
15 minute winter	75	46.000	70	17.4	0.990	0.986	0.0865	
15 minute winter	70	44.003	68	72.3	1.483	0.905	2.5220	
15 minute winter	69	47.000	68	33.8	0.697	0.531	3.5307	
1440 minute winter	68	44.004	67	9.1	1.225	0.042	0.6162	
1440 minute winter	67	Flow through pond	21	7.3	0.036	0.001	645.0827	
15 minute winter	25	48.000	24	35.4	0.520	0.555	1.9670	
15 minute winter	24	48.001	23	83.7	1.189	1.314	2.2448	
15 minute winter	23	48.002	22	177.5	2.521	1.202	0.7042	



Results for 100 year +40% CC +10% A Critical Storm Duration. Lowest mass balance: 96.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute winter	22	1650	4.417	1.151	9.2	0.0000	0.0000	OK
960 minute winter	31	945	5.244	1.019	3.9	2.6353	0.0000	SURCHARGED
960 minute winter	30	945	5.244	1.194	6.4	2.6651	0.0000	SURCHARGED
960 minute winter	29	945	5.244	1.344	9.9	3.2807	0.0000	FLOOD RISK
960 minute winter	28	945	5.245	1.722	9.7	0.0000	0.0000	OK
30 minute winter	78	23	4.790	0.100	38.3	14.1567	0.0000	OK
1440 minute winter	77	1590	4.749	0.874	4.1	1.9241	0.0000	SURCHARGED
1440 minute winter	76	1620	4.748	1.323	4.7	0.0000	0.0000	OK
1440 minute winter	6	1650	4.415	1.165	8.8	2.4133	0.0000	SURCHARGED
1440 minute winter	5	1650	4.585	1.812	12.6	0.0000	0.0000	OK
1440 minute winter	21	1680	4.415	0.915	12.5	2.2662	0.0000	SURCHARGED
1440 minute winter	20	1680	4.413	1.147	16.8	0.0000	0.0000	OK
1440 minute winter	27	1560	4.749	1.349	60.0	1.7450	0.0000	FLOOD RISK
1440 minute winter	26	1590	4.747	1.451	47.8	399.1663	0.0000	OK
480 minute winter	139	472	5.403	0.103	0.0	0.0000	0.0000	OK
480 minute winter	138	464	5.442	1.442	0.1	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)
1440 minute winter	22	Flow through pond	6	-8.0	0.011	0.000	448.9595	
960 minute winter	31	49.000	30	3.7	0.459	0.041	1.8727	
960 minute winter	30	49.001	29	6.2	0.540	0.067	1.5013	
960 minute winter	29	49.002	28	9.7	0.671	0.099	0.8978	
960 minute winter	28	Flow through pond	18	28.1	0.019	0.001	1259.8077	
30 minute winter	78	50.000	77	20.5	1.795	0.616	0.0626	
1440 minute winter	77	50.001	76	3.9	0.609	0.029	1.5140	
1440 minute winter	76	Flow through pond	27	57.0	0.032	0.002	796.5429	
1440 minute winter	6	Hydro-Brake®	5	2.1				
1440 minute winter	5	Flow through pond	4	26.1	0.022	0.001	579.4802	
1440 minute winter	21	52.000	20	-11.6	0.576	-0.046	2.6143	
1440 minute winter	20	Flow through pond	6	-8.0	0.011	0.000	448.9595	
1440 minute winter	27	53.000	26	47.8	0.811	0.223	1.7823	
1440 minute winter	26	Flow through pond	19	23.2	0.022	0.001	985.4509	
480 minute winter	139	54.000	138	0.1	0.006	0.001	0.0835	
480 minute winter	138	Flow through pond	113	67.8	0.050	0.003	881.8143	