STORM SEWER DESIGN by the Modified Rational Method

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	n	HYD SECT	DIA (mm)	Section Type	Auto Design
1.000	412.000	4.500	91.6	0.000	5.00	0.0		0.030	\/	-8	Pipe/Conduit	
1.001	83.000	4.500	18.4	0.000	0.00	0.0		0.030	\/	-8	Pipe/Conduit	
1.002	8.500	0.038	223.7	0.000	0.00	0.0	0.600		o	225	Pipe/Conduit	
2.000	313.000	2.000	156.5	0.000	5.00	0.0		0.030	\/	-8	Pipe/Conduit	
1.003	8.500	0.038	223.7	0.000	0.00	0.0		0.030	o	225	Pipe/Conduit	
1.004	388.000	2.498	155.3	0.000	0.00	0.0		0.030	\/	-8	Pipe/Conduit	
1.005	8.000	0.034	235.3	0.000	0.00	0.0		0.030	o	300	Pipe/Conduit	
3.000	128.000	0.013	9846.2	0.000	5.00	0.0	0.600		o	600	Pipe/Conduit	
3.001	6.000	0.020	300.0	0.000	0.00	0.0	0.600		o	300	Pipe/Conduit	
4.000	127.000	8.500	14.9	0.000	5.00	0.0		0.030	\/	-8	Pipe/Conduit	
5.000	112.000	0.370	302.7	0.000	5.00	0.0		0.030	\/	-8	Pipe/Conduit	
3.002	123.000	3.727	33.0	0.000	0.00	0.0	0.600		o	225	Pipe/Conduit	
6.000	1.000	0.001	1000.0	0.000	5.00	0.0	0.600		o	750	Pipe/Conduit	
6.001	44.000	4.170	10.6	0.000	0.00	0.0	0.600		o	300	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.000	50.00	9.82	174.000	0.000	0.0	0.0	0.0	1.42	711.8	0.0
1.001	50.00	10.26	169.500	0.000	0.0	0.0	0.0	3.17	1585.9	0.0
1.002	50.00	10.42	163.500	0.000	0.0	0.0	0.0	0.87	34.6	0.0
2.000	50.00	9.79	165.500	0.000	0.0	0.0	0.0	1.09	544.4	0.0
1.003	50.00	10.86	162.400	0.000	0.0	0.0	0.0	0.33	13.0	0.0
1.004	50.00	16.77	162.362	0.000	0.0	0.0	0.0	1.09	546.5	0.0
1.005	50.00	17.12	159.864	0.000	0.0	0.0	0.0	0.39	27.3	0.0
3.000	50.00	14.05	164.813	0.000	0.0	0.0	0.0	0.24	66.6	0.0
3.001	50.00	14.16	164.500	0.000	0.0	0.0	0.0	0.90	63.8	0.0
4.000	50.00	5.60	174.500	0.000	0.0	0.0	0.0	3.52	1762.0	0.0
5.000	50.00	7.38	166.370	0.000	0.0	0.0	0.0	0.78	391.5	0.0
3.002	50.00	15.06	163.250	0.000	0.0	0.0	0.0	2.29	90.9	0.0
6.000	50.00	5.02	165.091	0.000	0.0	0.0	0.0	0.88	387.2	0.0
6.001	50.00	5.17	164.000	0.000	0.0	0.0	0.0	4.87	344.0	0.0

©1982-2020 Innovyze

STORM SEWER DESIGN by the Modified Rational Method

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	n	HYD SECT	DIA (mm)	Section Type	Auto Design
1.006	74.000	0.481	153.8	0.000	0.00	0.0	0.600		o	500	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.006	50.00	17.82	159.600	0.000	0.0	0.0	0.0	1.75	343.4	0.0

Conduit Sections for Storm

NOTE: Diameters less than 66 refer to section numbers of hydraulic conduits. These conduits are marked by the symbols:- [] box culvert, \/ open channel, oo dual pipe, ooo triple pipe, O egg.

Section numbers < 0 are taken from user conduit table

Section Number	Conduit Type	Major Dimn. (mm)	Minor Dimn. (mm)	Side Slope (Deg)	Corner Splay (mm)	4*Hyd Radius (m)	XSect Area (m^2)
-8	\/	500	500	45.0		1.045	0.500

©1982-2020 Innovyze

PIPELINE SCHEDULES for Storm

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.000	\/	-8	1	174.500	174.000	0.000	Junction	
1.001	\/	-8	2	170.000	169.500	0.000	Junction	
1.002	o	225	3	165.000	163.500	1.275	Junction	
2.000	\/	-8	4	166.000	165.500	0.000	Junction	
1.003	o	225	5	164.000	162.400	1.375	Open Manhole	10000
1.004	\/	-8	6	162.862	162.362	0.000	Open Manhole	10000
1.005	o	300	7	162.000	159.864	1.836	Junction	
3.000	o	600	8	165.413	164.813	0.000	Junction	
3.001	o	300	9	165.400	164.500	0.600	Open Manhole	1500
4.000	\/	-8	10	175.000	174.500	0.000	Junction	
5.000	\/	-8	11	166.870	166.370	0.000	Junction	
3.002	o	225	12	166.000	163.250	2.525	Open Manhole	10000
6.000	o	750	13	165.841	165.091	0.000	Junction	
6.001	o	300	14	166.000	164.000	1.700	Open Manhole	1800

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.000	412.000	91.6	2	170.000	169.500	0.000	Junction	
1.001	83.000	18.4	3	165.000	165.000	-0.500	Junction	
1.002	8.500	223.7	5	164.000	163.462	0.313	Open Manhole	10000
2.000	313.000	156.5	5	164.000	163.500	0.000	Open Manhole	10000
1.003	8.500	223.7	6	162.862	162.362	0.275	Open Manhole	10000
1.004	388.000	155.3	7	162.000	159.864	1.636	Junction	
1.005	8.000	235.3	15	160.500	159.830	0.370	Open Manhole	1500
3.000	128.000	9846.2	9	165.400	164.800	0.000	Open Manhole	1500
3.001	6.000	300.0	12	166.000	164.480	1.220	Open Manhole	10000
4.000	127.000	14.9	12	166.000	166.000	-0.500	Open Manhole	10000
5.000	112.000	302.7	12	166.000	166.000	-0.500	Open Manhole	10000
3.002	123.000	33.0	15	160.500	159.523	0.752	Open Manhole	1500
6.000	1.000	1000.0	14	166.000	165.090	0.160	Open Manhole	1800
6.001	44.000	10.6	15	160.500	159.830	0.370	Open Manhole	1500

©1982-2020 Innovyze

PIPELINE SCHEDULES for Storm

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.006	o	500	15	160.500	159.600	0.400	Open Manhole	1500

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.006	74.000	153.8		163.000	159.119	3.381	Open Manhole	0

©1982-2020 Innovyze

Online Controls for Storm

Orifice Manhole: 3, DS/PN: 1.002, Volume (m³): 41.5

Diameter (m) 0.200 Discharge Coefficient 0.600 Invert Level (m) 163.500

Orifice Manhole: 5, DS/PN: 1.003, Volume (m³): 279.8

Diameter (m) 0.170 Discharge Coefficient 0.600 Invert Level (m) 162.400

Orifice Manhole: 12, DS/PN: 3.002, Volume (m³): 330.5

Diameter (m) 0.160 Discharge Coefficient 0.600 Invert Level (m) 163.250

Orifice Manhole: 14, DS/PN: 6.001, Volume (m³): 5.1

Diameter (m) 0.240 Discharge Coefficient 0.600 Invert Level (m) 164.000

©1982-2020 Innovyze

Storage Structures for Storm

Tank or Pond Manhole: 3, DS/PN: 1.002

Invert Level (m) 163.500

Depth (m)	Area (m²)	Depth (m)	Area (m²)
0.000	1300.0	1.500	2740.0

Tank or Pond Manhole: 5, DS/PN: 1.003

Invert Level (m) 162.400

Depth (m)	Area (m²)	Depth (m)	Area (m²)
0.000	828.0	1.600	1350.0

Tank or Pond Manhole: 9, DS/PN: 3.001

Invert Level (m) 164.500

Depth (m)	Area (m²)	Depth (m)	Area (m²)
0.000	852.0	0.900	1142.0

Tank or Pond Manhole: 12, DS/PN: 3.002

Invert Level (m) 163.250

Depth (m)	Area (m²)	Depth (m)	Area (m²)
0.000	500.0	2.750	1499.0

Tank or Pond Manhole: 14, DS/PN: 6.001

Invert Level (m) 164.000

Depth (m)	Area (m²)	Depth (m)	Area (m²)
0.000	863.0	2.000	1644.0

Tank or Pond Manhole: 15, DS/PN: 1.006

Invert Level (m) 159.600

Depth (m)	Area (m²)	Depth (m)	Area (m²)
0.000	250.0	0.900	320.0

©1982-2020 Innovyze

1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000
Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 2.000
Hot Start Level (mm) 0 Inlet Coeffiecient 0.800
Manhole Headloss Coeff (Global) 0.500 Flow per Person per Day (l/per/day) 0.000
Foul Sewage per hectare (l/s) 0.000

Number of Input Hydrographs 8 Number of Storage Structures 6
Number of Online Controls 4 Number of Time/Area Diagrams 1
Number of Offline Controls 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR Ratio R 0.223
Region England and Wales Cv (Summer) 0.600
M5-60 (mm) 19.900 Cv (Winter) 0.600

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years) 1, 30, 100
Climate Change (%) 0, 0, 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
1.000	1	120 Summer	1	+0%				
1.001	2	120 Summer	1	+0%				
1.002	3	1440 Summer	1	+0%	30/60 Summer			
2.000	4	120 Summer	1	+0%				
1.003	5	1440 Summer	1	+0%	1/120 Summer			
1.004	6	960 Summer	1	+0%				
1.005	7	960 Summer	1	+0%	1/60 Summer			
3.000	8	240 Summer	1	+0%				
3.001	9	1440 Summer	1	+0%				
4.000	10	120 Summer	1	+0%				
5.000	11	120 Summer	1	+0%				
3.002	12	480 Summer	1	+0%	1/240 Summer			
6.000	13	240 Summer	1	+0%				
6.001	14	480 Summer	1	+0%	1/60 Summer			
1.006	15	480 Summer	1	+0%	100/120 Summer			

©1982-2020 Innovyze

1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status
1.000	1	174.124	-0.376	0.000	0.08			55.6	OK
1.001	2	169.581	-0.419	0.000	0.04			62.3	OK
1.002	3	163.718	-0.007	0.000	0.81			24.2	OK*
2.000	4	165.605	-0.395	0.000	0.06			33.5	OK
1.003	5	162.796	0.171	0.000	2.23			28.0	SURCHARGED
1.004	6	162.495	-0.367	0.000	0.09			47.6	OK
1.005	7	160.218	0.054	0.000	1.74			47.5	SURCHARGED*
3.000	8	164.894	-0.519	0.000	0.03			6.7	OK*
3.001	9	164.548	-0.252	0.000	0.06			2.7	OK
4.000	10	174.525	-0.475	0.000	0.01			14.4	OK
5.000	11	166.443	-0.427	0.000	0.03			13.1	OK
3.002	12	163.520	0.045	0.000	0.26			23.3	SURCHARGED
6.000	13	165.358	-0.483	0.000	0.28			167.3	OK*
6.001	14	164.556	0.256	0.000	0.25			79.4	SURCHARGED
1.006	15	159.836	-0.264	0.000	0.46			145.3	OK

PN	US/MH Name	Level Exceeded
1.000	1	
1.001	2	
1.002	3	
2.000	4	
1.003	5	
1.004	6	
1.005	7	
3.000	8	
3.001	9	
4.000	10	
5.000	11	
3.002	12	
6.000	13	10
6.001	14	
1.006	15	

©1982-2020 Innovyze

Input Hydrograph Manhole 1, DS/PN 1.000 (Storm)
120 minute 1 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	2.669
M5-60 (mm)	19.900	SAAR (mm)	1677
Ratio R	0.223	CWI	125.383
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	96.700	SPR	47.000
H(85%) (m)	189.500	LAG (hrs)	0.000
H(10%) (m)	174.500	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	31	Q (l/s)	106.8	PR (%)	47.096
T (mins)	4	TB (mins)	83	S1085 (m/km)	206.825
TPt (mins)	33	Base Flow (l/s)	1.3		

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	1.5	44	10.2	84	52.0	124	32.5	164	5.3	204	1.3
8	1.7	48	11.9	88	55.3	128	28.2	168	4.4	208	1.3
12	2.1	52	14.1	92	56.8	132	23.9	172	3.6	212	1.3
16	2.6	56	17.0	96	56.6	136	19.9	176	3.0	216	1.3
20	3.2	60	20.8	100	54.8	140	16.4	180	2.5	220	1.3
24	4.1	64	25.6	104	52.0	144	13.5	184	2.1	224	1.3
28	5.1	68	31.0	108	48.6	148	11.1	188	1.8	228	1.3
32	6.2	72	36.7	112	44.9	152	9.2	192	1.6	232	1.3
36	7.5	76	42.3	116	40.8	156	7.6	196	1.4	236	1.3
40	8.8	80	47.6	120	36.7	160	6.3	200	1.3	240	1.3

Input Hydrograph Manhole 2, DS/PN 1.001 (Storm)
120 minute 1 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	0.321
M5-60 (mm)	19.900	SAAR (mm)	1677
Ratio R	0.223	CWI	125.383
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	104.000	SPR	47.000
H(85%) (m)	188.000	LAG (hrs)	0.000
H(10%) (m)	170.000	Base Flow (l/s)	(Calculated)

Output Variables

©1982-2020 Innovyze

Input Hydrograph Manhole 2, DS/PN 1.001 (Storm)
120 minute 1 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

TP(0) (mins) 30 Q (l/s) 13.1 PR (%) 47.096
T (mins) 4 TB (mins) 82 S1085 (m/km) 230.769
TPt (mins) 32 Base Flow (l/s) 0.2

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	0.2	44	1.3	84	6.4	124	3.8	164	0.6	204	0.2
8	0.2	48	1.5	88	6.8	128	3.3	168	0.5	208	0.2
12	0.3	52	1.7	92	6.9	132	2.8	172	0.4	212	0.2
16	0.3	56	2.1	96	6.9	136	2.3	176	0.3	216	0.2
20	0.4	60	2.6	100	6.6	140	1.9	180	0.3	220	0.2
24	0.5	64	3.2	104	6.3	144	1.6	184	0.2	224	0.2
28	0.6	68	3.8	108	5.8	148	1.3	188	0.2	228	0.2
32	0.8	72	4.5	112	5.3	152	1.1	192	0.2	232	0.2
36	0.9	76	5.2	116	4.8	156	0.9	196	0.2	236	0.2
40	1.1	80	5.8	120	4.3	160	0.7	200	0.2	240	0.2

Input Hydrograph Manhole 4, DS/PN 2.000 (Storm)
120 minute 1 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	1.511
M5-60 (mm)	19.900	SAAR (mm)	1677
Ratio R	0.223	CWI	125.383
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	105.000	SPR	47.000
H(85%) (m)	190.000	LAG (hrs)	0.000
H(10%) (m)	168.000	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins) 29 Q (l/s) 65.2 PR (%) 47.096
T (mins) 4 TB (mins) 77 S1085 (m/km) 279.365
TPt (mins) 31 Base Flow (l/s) 0.8

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	0.8	20	2.0	36	4.7	52	8.7	68	19.3	84	31.8
8	1.0	24	2.5	40	5.5	56	10.4	72	22.8	88	33.3
12	1.2	28	3.2	44	6.3	60	12.8	76	26.2	92	33.6
16	1.6	32	3.9	48	7.3	64	15.9	80	29.3	96	32.7

©1982-2020 Innovyze

Input Hydrograph Manhole 4, DS/PN 2.000 (Storm)
120 minute 1 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
100	31.2	124	16.2	148	5.4	172	1.7	196	0.8	220	0.8
104	29.1	128	13.7	152	4.4	176	1.4	200	0.8	224	0.8
108	26.7	132	11.3	156	3.7	180	1.1	204	0.8	228	0.8
112	24.2	136	9.3	160	3.0	184	1.0	208	0.8	232	0.8
116	21.5	140	7.7	164	2.5	188	0.8	212	0.8	236	0.8
120	18.9	144	6.5	168	2.1	192	0.8	216	0.8	240	0.8

Input Hydrograph Manhole 6, DS/PN 1.004 (Storm)
960 minute 1 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	2.101
M5-60 (mm)	19.900	SAAR (mm)	1677
Ratio R	0.223	CWI	125.383
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	143.000	SPR	47.000
H(85%) (m)	188.000	LAG (hrs)	0.000
H(10%) (m)	167.000	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	35	Q (l/s)	65.2	PR (%)	48.537
T (mins)	16	TB (mins)	107	S1085 (m/km)	195.804
TPt (mins)	43	Base Flow (l/s)	1.1		

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
16	1.4	224	4.6	432	14.8	640	11.4	848	4.3	1056	1.1
32	1.9	240	4.7	448	17.3	656	9.8	864	4.2	1072	1.1
48	2.7	256	4.9	464	20.1	672	8.5	880	4.1	1088	1.1
64	3.2	272	5.1	480	23.2	688	7.5	896	4.0	1104	1.1
80	3.6	288	5.4	496	26.3	704	6.8	912	4.0	1120	1.1
96	3.8	304	5.7	512	28.2	720	6.2	928	3.9	1136	1.1
112	3.9	320	6.1	528	28.3	736	5.8	944	3.8	1152	1.1
128	3.9	336	6.6	544	26.7	752	5.5	960	3.8	1168	1.1
144	4.0	352	7.3	560	24.1	768	5.2	976	3.4	1184	1.1
160	4.1	368	8.2	576	21.1	784	5.0	992	2.8	1200	1.1
176	4.2	384	9.3	592	18.2	800	4.8	1008	2.1	1216	1.1
192	4.3	400	10.8	608	15.6	816	4.6	1024	1.5	1232	1.1
208	4.4	416	12.7	624	13.3	832	4.5	1040	1.2	1248	1.1

©1982-2020 Innovyze

Input Hydrograph Manhole 6, DS/PN 1.004 (Storm)
960 minute 1 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
1264	1.1	1376	1.1	1488	1.1	1600	1.1	1712	1.1	1824	1.1
1280	1.1	1392	1.1	1504	1.1	1616	1.1	1728	1.1	1840	1.1
1296	1.1	1408	1.1	1520	1.1	1632	1.1	1744	1.1	1856	1.1
1312	1.1	1424	1.1	1536	1.1	1648	1.1	1760	1.1	1872	1.1
1328	1.1	1440	1.1	1552	1.1	1664	1.1	1776	1.1	1888	1.1
1344	1.1	1456	1.1	1568	1.1	1680	1.1	1792	1.1	1904	1.1
1360	1.1	1472	1.1	1584	1.1	1696	1.1	1808	1.1	1920	1.1

Input Hydrograph Manhole 8, DS/PN 3.000 (Storm)
240 minute 1 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	0.355
M5-60 (mm)	19.900	SAAR (mm)	1677
Ratio R	0.223	CWI	125.383
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	112.000	SPR	47.000
H(85%) (m)	178.000	LAG (hrs)	0.000
H(10%) (m)	169.000	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	40	Q (l/s)	11.2	PR (%)	47.096
T (mins)	4	TB (mins)	105	S1085 (m/km)	107.143
TPt (mins)	42	Base Flow (l/s)	0.2		

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	0.2	52	0.8	100	1.8	148	5.9	196	4.6	244	1.5
8	0.2	56	0.9	104	1.9	152	6.2	200	4.3	248	1.5
12	0.2	60	0.9	108	2.1	156	6.5	204	3.9	252	1.4
16	0.2	64	1.0	112	2.3	160	6.6	208	3.5	256	1.3
20	0.3	68	1.1	116	2.6	164	6.7	212	3.2	260	1.2
24	0.3	72	1.1	120	2.9	168	6.6	216	2.9	264	1.1
28	0.4	76	1.2	124	3.3	172	6.5	220	2.6	268	1.1
32	0.4	80	1.3	128	3.7	176	6.3	224	2.3	272	1.0
36	0.5	84	1.4	132	4.2	180	6.0	228	2.1	276	0.9
40	0.6	88	1.4	136	4.6	184	5.7	232	1.9	280	0.8
44	0.7	92	1.5	140	5.1	188	5.4	236	1.8	284	0.7
48	0.7	96	1.6	144	5.5	192	5.0	240	1.7	288	0.6

©1982-2020 Innovyze

Input Hydrograph Manhole 8, DS/PN 3.000 (Storm)
240 minute 1 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
292	0.6	324	0.2	356	0.2	388	0.2	420	0.2	452	0.2
296	0.5	328	0.2	360	0.2	392	0.2	424	0.2	456	0.2
300	0.5	332	0.2	364	0.2	396	0.2	428	0.2	460	0.2
304	0.4	336	0.2	368	0.2	400	0.2	432	0.2	464	0.2
308	0.4	340	0.2	372	0.2	404	0.2	436	0.2	468	0.2
312	0.3	344	0.2	376	0.2	408	0.2	440	0.2	472	0.2
316	0.3	348	0.2	380	0.2	412	0.2	444	0.2	476	0.2
320	0.3	352	0.2	384	0.2	416	0.2	448	0.2	480	0.2

Input Hydrograph Manhole 10, DS/PN 4.000 (Storm)
120 minute 1 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	0.683
M5-60 (mm)	19.900	SAAR (mm)	1677
Ratio R	0.223	CWI	125.383
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	102.000	SPR	47.000
H(85%) (m)	185.000	LAG (hrs)	0.000
H(10%) (m)	169.000	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	31	Q (l/s)	27.1	PR (%)	47.096
T (mins)	4	TB (mins)	84	S1085 (m/km)	209.150
TPt (mins)	33	Base Flow (l/s)	0.3		

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	0.4	44	2.6	84	13.2	124	8.4	164	1.4	204	0.3
8	0.4	48	3.0	88	14.0	128	7.3	168	1.1	208	0.3
12	0.5	52	3.6	92	14.5	132	6.2	172	1.0	212	0.3
16	0.7	56	4.3	96	14.4	136	5.2	176	0.8	216	0.3
20	0.8	60	5.3	100	14.0	140	4.3	180	0.7	220	0.3
24	1.0	64	6.5	104	13.3	144	3.5	184	0.5	224	0.3
28	1.3	68	7.9	108	12.5	148	2.9	188	0.5	228	0.3
32	1.6	72	9.3	112	11.5	152	2.4	192	0.4	232	0.3
36	1.9	76	10.7	116	10.5	156	2.0	196	0.4	236	0.3
40	2.2	80	12.1	120	9.5	160	1.6	200	0.3	240	0.3

©1982-2020 Innovyze

Input Hydrograph Manhole 11, DS/PN 5.000 (Storm)
120 minute 1 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	0.642
M5-60 (mm)	19.900	SAAR (mm)	1677
Ratio R	0.223	CWI	125.383
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	123.000	SPR	47.000
H(85%) (m)	188.000	LAG (hrs)	0.000
H(10%) (m)	170.000	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	33	Q (l/s)	23.9	PR (%)	47.096
T (mins)	4	TB (mins)	89	S1085 (m/km)	195.122
TPt (mins)	35	Base Flow (l/s)	0.3		

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	0.3	44	2.3	84	11.6	124	8.5	164	1.5	204	0.3
8	0.4	48	2.6	88	12.4	128	7.6	168	1.3	208	0.3
12	0.5	52	3.1	92	13.0	132	6.6	172	1.1	212	0.3
16	0.6	56	3.8	96	13.2	136	5.7	176	0.9	216	0.3
20	0.7	60	4.6	100	13.0	140	4.8	180	0.7	220	0.3
24	0.9	64	5.6	104	12.5	144	3.9	184	0.6	224	0.3
28	1.1	68	6.8	108	11.9	148	3.2	188	0.5	228	0.3
32	1.3	72	8.1	112	11.1	152	2.6	192	0.4	232	0.3
36	1.6	76	9.3	116	10.3	156	2.2	196	0.4	236	0.3
40	1.9	80	10.5	120	9.4	160	1.8	200	0.4	240	0.3

Input Hydrograph Manhole 12, DS/PN 3.002 (Storm)
480 minute 1 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	0.962
M5-60 (mm)	19.900	SAAR (mm)	1677
Ratio R	0.223	CWI	125.383
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	116.000	SPR	47.000
H(85%) (m)	176.000	LAG (hrs)	0.000
H(10%) (m)	168.000	Base Flow (l/s)	(Calculated)

Output Variables

©1982-2020 Innovyze

Input Hydrograph Manhole 12, DS/PN 3.002 (Storm)
480 minute 1 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

TP(0) (mins) 42 Q (l/s) 27.5 PR (%) 47.096
T (mins) 8 TB (mins) 116 S1085 (m/km) 91.954
TPt (mins) 46 Base Flow (l/s) 0.5

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
8	0.5	168	3.3	328	11.5	488	2.4	648	0.5	808	0.5
16	0.6	176	3.6	336	10.1	496	2.2	656	0.5	816	0.5
24	0.7	184	3.9	344	8.8	504	2.1	664	0.5	824	0.5
32	0.9	192	4.2	352	7.6	512	1.9	672	0.5	832	0.5
40	1.1	200	4.7	360	6.6	520	1.6	680	0.5	840	0.5
48	1.4	208	5.3	368	5.8	528	1.4	688	0.5	848	0.5
56	1.6	216	6.1	376	5.1	536	1.2	696	0.5	856	0.5
64	1.8	224	7.0	384	4.5	544	1.0	704	0.5	864	0.5
72	2.0	232	8.1	392	4.1	552	0.8	712	0.5	872	0.5
80	2.1	240	9.4	400	3.8	560	0.7	720	0.5	880	0.5
88	2.2	248	10.8	408	3.5	568	0.6	728	0.5	888	0.5
96	2.4	256	12.3	416	3.3	576	0.5	736	0.5	896	0.5
104	2.5	264	13.6	424	3.1	584	0.5	744	0.5	904	0.5
112	2.5	272	14.7	432	3.0	592	0.5	752	0.5	912	0.5
120	2.6	280	15.5	440	2.9	600	0.5	760	0.5	920	0.5
128	2.7	288	15.7	448	2.8	608	0.5	768	0.5	928	0.5
136	2.8	296	15.5	456	2.7	616	0.5	776	0.5	936	0.5
144	2.9	304	14.8	464	2.6	624	0.5	784	0.5	944	0.5
152	3.0	312	13.9	472	2.5	632	0.5	792	0.5	952	0.5
160	3.2	320	12.8	480	2.5	640	0.5	800	0.5	960	0.5

©1982-2020 Innovyze

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000
Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 2.000
Hot Start Level (mm) 0 Inlet Coeffiecient 0.800
Manhole Headloss Coeff (Global) 0.500 Flow per Person per Day (l/per/day) 0.000
Foul Sewage per hectare (l/s) 0.000

Number of Input Hydrographs 8 Number of Storage Structures 6
Number of Online Controls 4 Number of Time/Area Diagrams 1
Number of Offline Controls 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR Ratio R 0.223
Region England and Wales Cv (Summer) 0.600
M5-60 (mm) 19.900 Cv (Winter) 0.600

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years) 1, 30, 100
Climate Change (%) 0, 0, 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
1.000	1	120 Summer	30	+0%				
1.001	2	120 Summer	30	+0%				
1.002	3	960 Summer	30	+0%	30/60 Summer			
2.000	4	120 Summer	30	+0%				
1.003	5	1440 Summer	30	+0%	1/120 Summer			
1.004	6	240 Summer	30	+0%				
1.005	7	240 Summer	30	+0%	1/60 Summer			
3.000	8	120 Summer	30	+0%				
3.001	9	960 Summer	30	+0%				
4.000	10	120 Summer	30	+0%				
5.000	11	120 Summer	30	+0%				
3.002	12	480 Summer	30	+0%	1/240 Summer			
6.000	13	120 Summer	30	+0%				
6.001	14	360 Summer	30	+0%	1/60 Summer			
1.006	15	360 Summer	30	+0%	100/120 Summer			

©1982-2020 Innovyze

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status
1.000	1	174.200	-0.300	0.000	0.18			127.0	FLOOD RISK*
1.001	2	169.634	-0.366	0.000	0.09			142.4	OK
1.002	3	163.923	0.198	0.000	1.28			38.3	SURCHARGED*
2.000	4	165.673	-0.327	0.000	0.14			76.6	OK
1.003	5	163.086	0.461	0.000	3.35			42.2	SURCHARGED
1.004	6	162.574	-0.288	0.000	0.20			107.6	FLOOD RISK
1.005	7	160.596	0.432	0.000	3.76			102.6	SURCHARGED*
3.000	8	164.931	-0.482	0.000	0.07			15.0	OK*
3.001	9	164.578	-0.222	0.000	0.15			6.8	OK
4.000	10	174.553	-0.447	0.000	0.02			33.0	OK
5.000	11	166.491	-0.379	0.000	0.08			29.9	OK
3.002	12	163.857	0.382	0.000	0.43			38.8	SURCHARGED
6.000	13	165.525	-0.316	0.000	0.63			382.9	OK*
6.001	14	165.163	0.863	0.000	0.38			122.8	SURCHARGED
1.006	15	159.942	-0.158	0.000	0.81			257.5	OK

PN	US/MH Name	Level Exceeded
1.000	1	
1.001	2	
1.002	3	
2.000	4	
1.003	5	
1.004	6	
1.005	7	
3.000	8	
3.001	9	
4.000	10	
5.000	11	
3.002	12	
6.000	13	10
6.001	14	
1.006	15	

©1982-2020 Innovyze

Input Hydrograph Manhole 1, DS/PN 1.000 (Storm)
120 minute 30 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	2.669
M5-60 (mm)	19.900	SAAR (mm)	1677
Ratio R	0.223	CWI	125.383
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	96.700	SPR	47.000
H(85%) (m)	189.500	LAG (hrs)	0.000
H(10%) (m)	174.500	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	31	Q (l/s)	106.8	PR (%)	47.484
T (mins)	4	TB (mins)	83	S1085 (m/km)	206.825
TPt (mins)	33	Base Flow (l/s)	1.3		

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	1.6	44	21.9	84	118.8	124	73.5	164	10.5	204	1.3
8	2.2	48	25.9	88	126.3	128	63.5	168	8.4	208	1.3
12	3.1	52	30.9	92	130.0	132	53.7	172	6.7	212	1.3
16	4.2	56	37.5	96	129.3	136	44.4	176	5.2	216	1.3
20	5.8	60	46.4	100	125.2	140	36.2	180	4.0	220	1.3
24	7.6	64	57.6	104	118.9	144	29.4	184	3.1	224	1.3
28	9.9	68	70.1	108	111.0	148	24.0	188	2.3	228	1.3
32	12.7	72	83.3	112	102.2	152	19.5	192	1.8	232	1.3
36	15.6	76	96.3	116	92.9	156	15.9	196	1.5	236	1.3
40	18.6	80	108.5	120	83.3	160	12.9	200	1.3	240	1.3

Input Hydrograph Manhole 2, DS/PN 1.001 (Storm)
120 minute 30 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	0.321
M5-60 (mm)	19.900	SAAR (mm)	1677
Ratio R	0.223	CWI	125.383
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	104.000	SPR	47.000
H(85%) (m)	188.000	LAG (hrs)	0.000
H(10%) (m)	170.000	Base Flow (l/s)	(Calculated)

Output Variables

©1982-2020 Innovyze

Input Hydrograph Manhole 2, DS/PN 1.001 (Storm)
120 minute 30 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

TP(0) (mins) 30 Q (l/s) 13.1 PR (%) 47.484
T (mins) 4 TB (mins) 82 S1085 (m/km) 230.769
TPt (mins) 32 Base Flow (l/s) 0.2

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	0.2	44	2.7	84	14.6	124	8.6	164	1.2	204	0.2
8	0.3	48	3.2	88	15.5	128	7.4	168	1.0	208	0.2
12	0.4	52	3.8	92	15.8	132	6.2	172	0.8	212	0.2
16	0.5	56	4.6	96	15.7	136	5.1	176	0.6	216	0.2
20	0.7	60	5.7	100	15.1	140	4.2	180	0.4	220	0.2
24	0.9	64	7.1	104	14.3	144	3.4	184	0.3	224	0.2
28	1.2	68	8.6	108	13.3	148	2.8	188	0.3	228	0.2
32	1.6	72	10.3	112	12.2	152	2.2	192	0.2	232	0.2
36	1.9	76	11.9	116	11.0	156	1.8	196	0.2	236	0.2
40	2.3	80	13.3	120	9.8	160	1.5	200	0.2	240	0.2

Input Hydrograph Manhole 4, DS/PN 2.000 (Storm)
120 minute 30 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	1.511
M5-60 (mm)	19.900	SAAR (mm)	1677
Ratio R	0.223	CWI	125.383
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	105.000	SPR	47.000
H(85%) (m)	190.000	LAG (hrs)	0.000
H(10%) (m)	168.000	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins) 29 Q (l/s) 65.2 PR (%) 47.484
T (mins) 4 TB (mins) 77 S1085 (m/km) 279.365
TPt (mins) 31 Base Flow (l/s) 0.8

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	0.9	20	3.7	36	9.8	52	19.1	68	43.7	84	72.6
8	1.3	24	4.9	40	11.6	56	23.2	72	51.9	88	76.1
12	1.9	28	6.4	44	13.6	60	28.8	76	59.8	92	76.8
16	2.7	32	8.1	48	16.0	64	35.8	80	66.9	96	74.9

©1982-2020 Innovyze

Input Hydrograph Manhole 4, DS/PN 2.000 (Storm)
120 minute 30 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
100	71.2	124	36.6	148	11.4	172	2.9	196	0.8	220	0.8
104	66.4	128	30.6	152	9.3	176	2.2	200	0.8	224	0.8
108	60.9	132	25.2	156	7.5	180	1.6	204	0.8	228	0.8
112	55.0	136	20.6	160	6.0	184	1.2	208	0.8	232	0.8
116	48.9	140	16.9	164	4.8	188	0.9	212	0.8	236	0.8
120	42.7	144	13.9	168	3.8	192	0.8	216	0.8	240	0.8

Input Hydrograph Manhole 6, DS/PN 1.004 (Storm)
240 minute 30 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	2.101
M5-60 (mm)	19.900	SAAR (mm)	1677
Ratio R	0.223	CWI	125.383
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	143.000	SPR	47.000
H(85%) (m)	188.000	LAG (hrs)	0.000
H(10%) (m)	167.000	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	35	Q (l/s)	75.9	PR (%)	49.770
T (mins)	4	TB (mins)	92	S1085 (m/km)	195.804
TPt (mins)	37	Base Flow (l/s)	1.1		

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	1.2	56	12.1	108	29.9	160	94.6	212	32.3	264	12.6
8	1.4	60	13.0	112	33.6	164	93.1	216	29.0	268	11.4
12	1.8	64	14.0	116	38.1	168	90.3	220	26.2	272	10.2
16	2.3	68	14.9	120	43.6	172	86.4	224	23.9	276	8.9
20	2.9	72	15.8	124	49.9	176	81.6	228	22.1	280	7.7
24	3.6	76	16.7	128	56.8	180	76.2	232	20.6	284	6.6
28	4.5	80	17.6	132	64.0	184	70.4	236	19.4	288	5.7
32	5.6	84	18.6	136	71.1	188	64.4	240	18.4	292	4.8
36	6.7	88	19.7	140	77.8	192	58.3	244	17.5	296	4.0
40	7.9	92	21.0	144	83.9	196	52.3	248	16.6	300	3.4
44	9.0	96	22.5	148	88.9	200	46.5	252	15.6	304	2.8
48	10.1	100	24.4	152	92.6	204	41.2	256	14.7	308	2.3
52	11.1	104	26.8	156	94.5	208	36.4	260	13.6	312	1.9

©1982-2020 Innovyze

Input Hydrograph Manhole 6, DS/PN 1.004 (Storm)
240 minute 30 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
316	1.5	344	1.1	372	1.1	400	1.1	428	1.1	456	1.1
320	1.3	348	1.1	376	1.1	404	1.1	432	1.1	460	1.1
324	1.1	352	1.1	380	1.1	408	1.1	436	1.1	464	1.1
328	1.1	356	1.1	384	1.1	412	1.1	440	1.1	468	1.1
332	1.1	360	1.1	388	1.1	416	1.1	444	1.1	472	1.1
336	1.1	364	1.1	392	1.1	420	1.1	448	1.1	476	1.1
340	1.1	368	1.1	396	1.1	424	1.1	452	1.1	480	1.1

Input Hydrograph Manhole 8, DS/PN 3.000 (Storm)
120 minute 30 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	0.355
M5-60 (mm)	19.900	SAAR (mm)	1677
Ratio R	0.223	CWI	125.383
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	112.000	SPR	47.000
H(85%) (m)	178.000	LAG (hrs)	0.000
H(10%) (m)	169.000	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	40	Q (l/s)	11.2	PR (%)	47.484
T (mins)	4	TB (mins)	105	S1085 (m/km)	107.143
TPt (mins)	42	Base Flow (l/s)	0.2		

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	0.2	44	2.1	84	11.7	124	12.1	164	2.9	204	0.4
8	0.2	48	2.5	88	12.9	128	11.2	168	2.3	208	0.3
12	0.3	52	3.0	92	13.8	132	10.3	172	1.9	212	0.2
16	0.4	56	3.7	96	14.6	136	9.4	176	1.5	216	0.2
20	0.5	60	4.5	100	15.0	140	8.4	180	1.3	220	0.2
24	0.7	64	5.5	104	15.0	144	7.4	184	1.0	224	0.2
28	0.9	68	6.7	108	14.8	148	6.4	188	0.9	228	0.2
32	1.1	72	8.0	112	14.3	152	5.5	192	0.7	232	0.2
36	1.4	76	9.3	116	13.6	156	4.5	196	0.6	236	0.2
40	1.7	80	10.5	120	12.9	160	3.7	200	0.5	240	0.2

©1982-2020 Innovyze

Input Hydrograph Manhole 10, DS/PN 4.000 (Storm)
120 minute 30 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	0.683
M5-60 (mm)	19.900	SAAR (mm)	1677
Ratio R	0.223	CWI	125.383
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	102.000	SPR	47.000
H(85%) (m)	185.000	LAG (hrs)	0.000
H(10%) (m)	169.000	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	31	Q (l/s)	27.1	PR (%)	47.484
T (mins)	4	TB (mins)	84	S1085 (m/km)	209.150
TPt (mins)	33	Base Flow (l/s)	0.3		

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	0.4	44	5.6	84	30.1	124	19.0	164	2.7	204	0.3
8	0.6	48	6.6	88	32.1	128	16.5	168	2.2	208	0.3
12	0.8	52	7.8	92	33.1	132	14.0	172	1.7	212	0.3
16	1.1	56	9.5	96	33.0	136	11.6	176	1.4	216	0.3
20	1.5	60	11.8	100	32.0	140	9.5	180	1.1	220	0.3
24	1.9	64	14.6	104	30.4	144	7.7	184	0.8	224	0.3
28	2.5	68	17.8	108	28.5	148	6.3	188	0.6	228	0.3
32	3.2	72	21.1	112	26.3	152	5.1	192	0.5	232	0.3
36	3.9	76	24.4	116	23.9	156	4.1	196	0.4	236	0.3
40	4.7	80	27.5	120	21.5	160	3.4	200	0.3	240	0.3

Input Hydrograph Manhole 11, DS/PN 5.000 (Storm)
120 minute 30 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	0.642
M5-60 (mm)	19.900	SAAR (mm)	1677
Ratio R	0.223	CWI	125.383
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	123.000	SPR	47.000
H(85%) (m)	188.000	LAG (hrs)	0.000
H(10%) (m)	170.000	Base Flow (l/s)	(Calculated)

Output Variables

©1982-2020 Innovyze

Input Hydrograph Manhole 11, DS/PN 5.000 (Storm)
120 minute 30 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

TP(0) (mins)	33	Q (l/s)	23.9	PR (%)	47.484
T (mins)	4	TB (mins)	89	S1085 (m/km)	195.122
TPt (mins)	35	Base Flow (l/s)	0.3		

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	0.4	44	4.8	84	26.4	124	19.3	164	3.0	204	0.3
8	0.5	48	5.7	88	28.4	128	17.2	168	2.5	208	0.3
12	0.7	52	6.8	92	29.7	132	15.0	172	2.0	212	0.3
16	0.9	56	8.3	96	30.1	136	12.8	176	1.6	216	0.3
20	1.2	60	10.2	100	29.7	140	10.7	180	1.3	220	0.3
24	1.6	64	12.7	104	28.6	144	8.7	184	1.0	224	0.3
28	2.1	68	15.4	108	27.1	148	7.1	188	0.8	228	0.3
32	2.7	72	18.3	112	25.3	152	5.7	192	0.6	232	0.3
36	3.4	76	21.2	116	23.4	156	4.6	196	0.5	236	0.3
40	4.0	80	23.9	120	21.4	160	3.7	200	0.4	240	0.3

Input Hydrograph Manhole 12, DS/PN 3.002 (Storm)
480 minute 30 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	0.962
M5-60 (mm)	19.900	SAAR (mm)	1677
Ratio R	0.223	CWI	125.383
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	116.000	SPR	47.000
H(85%) (m)	176.000	LAG (hrs)	0.000
H(10%) (m)	168.000	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	42	Q (l/s)	27.5	PR (%)	51.687
T (mins)	8	TB (mins)	116	S1085 (m/km)	91.954
TPt (mins)	46	Base Flow (l/s)	0.5		

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
8	0.6	40	1.9	72	3.8	104	4.9	136	5.6	168	6.9
16	0.8	48	2.4	80	4.1	112	5.1	144	5.9	176	7.4
24	1.0	56	2.9	88	4.4	120	5.2	152	6.1	184	8.0
32	1.4	64	3.4	96	4.7	128	5.4	160	6.5	192	8.8

©1982-2020 Innovyze

Input Hydrograph Manhole 12, DS/PN 3.002 (Storm)
480 minute 30 year Summer I+0%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
200	9.9	328	25.0	456	5.3	584	0.5	712	0.5	840	0.5
208	11.2	336	22.0	464	5.2	592	0.5	720	0.5	848	0.5
216	12.9	344	19.1	472	5.0	600	0.5	728	0.5	856	0.5
224	15.0	352	16.4	480	4.9	608	0.5	736	0.5	864	0.5
232	17.4	360	14.2	488	4.7	616	0.5	744	0.5	872	0.5
240	20.4	368	12.3	496	4.4	624	0.5	752	0.5	880	0.5
248	23.6	376	10.8	504	4.0	632	0.5	760	0.5	888	0.5
256	26.8	384	9.5	512	3.6	640	0.5	768	0.5	896	0.5
264	29.8	392	8.6	520	3.1	648	0.5	776	0.5	904	0.5
272	32.3	400	7.8	528	2.5	656	0.5	784	0.5	912	0.5
280	33.9	408	7.2	536	2.0	664	0.5	792	0.5	920	0.5
288	34.5	416	6.7	544	1.6	672	0.5	800	0.5	928	0.5
296	33.9	424	6.4	552	1.3	680	0.5	808	0.5	936	0.5
304	32.5	432	6.0	560	1.0	688	0.5	816	0.5	944	0.5
312	30.4	440	5.8	568	0.8	696	0.5	824	0.5	952	0.5
320	27.9	448	5.5	576	0.6	704	0.5	832	0.5	960	0.5

©1982-2020 Innovyze

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000
Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 2.000
Hot Start Level (mm) 0 Inlet Coeffiecient 0.800
Manhole Headloss Coeff (Global) 0.500 Flow per Person per Day (l/per/day) 0.000
Foul Sewage per hectare (l/s) 0.000

Number of Input Hydrographs 8 Number of Storage Structures 6
Number of Online Controls 4 Number of Time/Area Diagrams 1
Number of Offline Controls 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR Ratio R 0.223
Region England and Wales Cv (Summer) 0.600
M5-60 (mm) 19.900 Cv (Winter) 0.600

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years) 1, 30, 100
Climate Change (%) 0, 0, 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
1.000	1	120 Summer	100	+40%				
1.001	2	120 Summer	100	+40%				
1.002	3	960 Summer	100	+40%	30/60 Summer			
2.000	4	120 Summer	100	+40%				
1.003	5	1440 Summer	100	+40%	1/120 Summer			
1.004	6	240 Summer	100	+40%				
1.005	7	240 Summer	100	+40%	1/60 Summer			
3.000	8	120 Summer	100	+40%				
3.001	9	480 Summer	100	+40%				
4.000	10	120 Summer	100	+40%				
5.000	11	120 Summer	100	+40%				
3.002	12	480 Summer	100	+40%	1/240 Summer			
6.000	13	60 Summer	100	+40%				
6.001	14	360 Summer	100	+40%	1/60 Summer			
1.006	15	360 Summer	100	+40%	100/120 Summer			

©1982-2020 Innovyze

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status
1.000	1	174.296	-0.204	0.000	0.36			256.3	FLOOD RISK*
1.001	2	169.700	-0.300	0.000	0.18			287.2	FLOOD RISK*
1.002	3	164.269	0.544	0.000	1.97			58.9	SURCHARGED*
2.000	4	165.759	-0.241	0.000	0.28			154.6	FLOOD RISK*
1.003	5	163.647	1.022	0.000	4.83			60.7	SURCHARGED
1.004	6	162.668	-0.194	0.000	0.39			209.4	FLOOD RISK
1.005	7	161.777	1.613	0.000	6.78			185.2	FLOOD RISK*
3.000	8	164.969	-0.444	0.000	0.14			30.3	OK*
3.001	9	164.624	-0.176	0.000	0.36			16.0	OK
4.000	10	174.579	-0.421	0.000	0.04			66.5	OK
5.000	11	166.553	-0.317	0.000	0.15			60.4	OK
3.002	12	164.451	0.976	0.000	0.63			56.6	SURCHARGED
6.000	13	165.841	0.000	0.000	1.00			606.4	FLOOD RISK*
6.001	14	165.944	1.644	0.000	0.50			162.3	FLOOD RISK
1.006	15	160.279	0.179	0.000	1.19			380.1	FLOOD RISK

PN	US/MH Name	Level Exceeded
1.000	1	
1.001	2	
1.002	3	
2.000	4	
1.003	5	
1.004	6	
1.005	7	
3.000	8	
3.001	9	
4.000	10	
5.000	11	
3.002	12	
6.000	13	10
6.001	14	
1.006	15	

©1982-2020 Innovyze

Input Hydrograph Manhole 1, DS/PN 1.000 (Storm)
120 minute 100 year Summer I+40%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	2.669
M5-60 (mm)	19.900	SAAR (mm)	1677
Ratio R	0.223	CWI	125.383
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	96.700	SPR	47.000
H(85%) (m)	189.500	LAG (hrs)	0.000
H(10%) (m)	174.500	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	31	Q (l/s)	106.8	PR (%)	52.501
T (mins)	4	TB (mins)	83	S1085 (m/km)	206.825
TPt (mins)	33	Base Flow (l/s)	1.3		

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	1.9	44	43.1	84	239.5	124	147.6	164	19.8	204	1.3
8	3.0	48	51.1	88	254.9	128	127.3	168	15.7	208	1.3
12	4.8	52	61.3	92	262.2	132	107.5	172	12.1	212	1.3
16	7.2	56	74.7	96	260.8	136	88.7	176	9.2	216	1.3
20	10.3	60	92.8	100	252.6	140	72.1	180	6.8	220	1.3
24	14.1	64	115.4	104	239.7	144	58.3	184	4.9	224	1.3
28	18.8	68	140.9	108	223.7	148	47.3	188	3.4	228	1.3
32	24.3	72	167.6	112	205.9	152	38.2	192	2.3	232	1.3
36	30.2	76	194.0	116	187.0	156	30.8	196	1.6	236	1.3
40	36.3	80	218.6	120	167.6	160	24.8	200	1.3	240	1.3

Input Hydrograph Manhole 2, DS/PN 1.001 (Storm)
120 minute 100 year Summer I+40%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	0.321
M5-60 (mm)	19.900	SAAR (mm)	1677
Ratio R	0.223	CWI	125.383
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	104.000	SPR	47.000
H(85%) (m)	188.000	LAG (hrs)	0.000
H(10%) (m)	170.000	Base Flow (l/s)	(Calculated)

Output Variables

©1982-2020 Innovyze

Input Hydrograph Manhole 2, DS/PN 1.001 (Storm)
120 minute 100 year Summer I+40%
Input Hydrograph Type: FSR Dynamic

TP(0) (mins) 30 Q (l/s) 13.1 PR (%) 52.501
T (mins) 4 TB (mins) 82 S1085 (m/km) 230.769
TPt (mins) 32 Base Flow (l/s) 0.2

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	0.2	44	5.3	84	29.4	124	17.3	164	2.3	204	0.2
8	0.4	48	6.3	88	31.2	128	14.8	168	1.8	208	0.2
12	0.6	52	7.5	92	32.0	132	12.4	172	1.4	212	0.2
16	0.9	56	9.2	96	31.6	136	10.2	176	1.0	216	0.2
20	1.3	60	11.4	100	30.5	140	8.3	180	0.7	220	0.2
24	1.8	64	14.2	104	28.8	144	6.7	184	0.5	224	0.2
28	2.3	68	17.4	108	26.8	148	5.5	188	0.4	228	0.2
32	3.0	72	20.7	112	24.5	152	4.4	192	0.2	232	0.2
36	3.7	76	23.9	116	22.2	156	3.5	196	0.2	236	0.2
40	4.5	80	26.9	120	19.7	160	2.8	200	0.2	240	0.2

Input Hydrograph Manhole 4, DS/PN 2.000 (Storm)
120 minute 100 year Summer I+40%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	1.511
M5-60 (mm)	19.900	SAAR (mm)	1677
Ratio R	0.223	CWI	125.383
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	105.000	SPR	47.000
H(85%) (m)	190.000	LAG (hrs)	0.000
H(10%) (m)	168.000	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins) 29 Q (l/s) 65.2 PR (%) 52.501
T (mins) 4 TB (mins) 77 S1085 (m/km) 279.365
TPt (mins) 31 Base Flow (l/s) 0.8

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	1.1	20	6.6	36	19.1	52	37.9	68	87.8	84	146.5
8	1.9	24	9.2	40	22.8	56	46.2	72	104.4	88	153.5
12	3.0	28	12.2	44	26.9	60	57.6	76	120.5	92	154.9
16	4.6	32	15.7	48	31.7	64	71.8	80	135.0	96	151.1

©1982-2020 Innovyze

Input Hydrograph Manhole 4, DS/PN 2.000 (Storm)
120 minute 100 year Summer I+40%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
100	143.7	124	73.4	148	22.4	172	5.1	196	0.8	220	0.8
104	133.9	128	61.4	152	18.1	176	3.7	200	0.8	224	0.8
108	122.7	132	50.3	156	14.5	180	2.5	204	0.8	228	0.8
112	110.7	136	41.0	160	11.5	184	1.7	208	0.8	232	0.8
116	98.3	140	33.5	164	9.0	188	1.1	212	0.8	236	0.8
120	85.9	144	27.5	168	6.8	192	0.8	216	0.8	240	0.8

Input Hydrograph Manhole 6, DS/PN 1.004 (Storm)
240 minute 100 year Summer I+40%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	2.101
M5-60 (mm)	19.900	SAAR (mm)	1677
Ratio R	0.223	CWI	125.383
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	143.000	SPR	47.000
H(85%) (m)	188.000	LAG (hrs)	0.000
H(10%) (m)	167.000	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	35	Q (l/s)	75.9	PR (%)	54.556
T (mins)	4	TB (mins)	92	S1085 (m/km)	195.804
TPt (mins)	37	Base Flow (l/s)	1.1		

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	1.3	56	22.9	108	58.0	160	186.1	212	63.0	264	23.8
8	1.8	60	24.8	112	65.4	164	183.2	216	56.3	268	21.6
12	2.5	64	26.6	116	74.4	168	177.6	220	50.8	272	19.2
16	3.5	68	28.4	120	85.2	172	169.9	224	46.3	276	16.6
20	4.7	72	30.2	124	97.7	176	160.5	228	42.7	280	14.3
24	6.2	76	32.0	128	111.4	180	149.8	232	39.7	284	12.1
28	7.9	80	33.9	132	125.5	184	138.3	236	37.3	288	10.2
32	10.0	84	35.8	136	139.6	188	126.3	240	35.4	292	8.5
36	12.3	88	38.0	140	152.9	192	114.2	244	33.5	296	6.9
40	14.6	92	40.4	144	164.9	196	102.4	248	31.7	300	5.6
44	16.8	96	43.5	148	174.9	200	91.1	252	29.9	304	4.4
48	18.9	100	47.3	152	182.1	204	80.5	256	28.0	308	3.5
52	20.9	104	52.1	156	185.9	208	71.1	260	26.0	312	2.6

©1982-2020 Innovyze

Input Hydrograph Manhole 6, DS/PN 1.004 (Storm)
240 minute 100 year Summer I+40%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
316	2.0	344	1.1	372	1.1	400	1.1	428	1.1	456	1.1
320	1.5	348	1.1	376	1.1	404	1.1	432	1.1	460	1.1
324	1.2	352	1.1	380	1.1	408	1.1	436	1.1	464	1.1
328	1.1	356	1.1	384	1.1	412	1.1	440	1.1	468	1.1
332	1.1	360	1.1	388	1.1	416	1.1	444	1.1	472	1.1
336	1.1	364	1.1	392	1.1	420	1.1	448	1.1	476	1.1
340	1.1	368	1.1	396	1.1	424	1.1	452	1.1	480	1.1

Input Hydrograph Manhole 8, DS/PN 3.000 (Storm)
120 minute 100 year Summer I+40%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	0.355
M5-60 (mm)	19.900	SAAR (mm)	1677
Ratio R	0.223	CWI	125.383
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	112.000	SPR	47.000
H(85%) (m)	178.000	LAG (hrs)	0.000
H(10%) (m)	169.000	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	40	Q (l/s)	11.2	PR (%)	52.501
T (mins)	4	TB (mins)	105	S1085 (m/km)	107.143
TPt (mins)	42	Base Flow (l/s)	0.2		

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	0.2	44	4.0	84	23.6	124	24.3	164	5.7	204	0.6
8	0.3	48	4.9	88	25.9	128	22.6	168	4.5	208	0.4
12	0.5	52	5.9	92	27.9	132	20.7	172	3.6	212	0.3
16	0.7	56	7.2	96	29.4	136	18.8	176	2.9	216	0.2
20	0.9	60	8.9	100	30.2	140	16.9	180	2.4	220	0.2
24	1.2	64	11.1	104	30.3	144	14.9	184	1.9	224	0.2
28	1.6	68	13.5	108	29.7	148	12.9	188	1.6	228	0.2
32	2.1	72	16.0	112	28.7	152	10.9	192	1.2	232	0.2
36	2.6	76	18.6	116	27.5	156	9.0	196	1.0	236	0.2
40	3.3	80	21.2	120	26.0	160	7.2	200	0.7	240	0.2

©1982-2020 Innovyze

Input Hydrograph Manhole 10, DS/PN 4.000 (Storm)
120 minute 100 year Summer I+40%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	0.683
M5-60 (mm)	19.900	SAAR (mm)	1677
Ratio R	0.223	CWI	125.383
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	102.000	SPR	47.000
H(85%) (m)	185.000	LAG (hrs)	0.000
H(10%) (m)	169.000	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	31	Q (l/s)	27.1	PR (%)	52.501
T (mins)	4	TB (mins)	84	S1085 (m/km)	209.150
TPt (mins)	33	Base Flow (l/s)	0.3		

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	0.5	44	10.9	84	60.7	124	38.2	164	5.2	204	0.3
8	0.8	48	13.0	88	64.7	128	33.1	168	4.1	208	0.3
12	1.2	52	15.5	92	66.7	132	28.0	172	3.2	212	0.3
16	1.8	56	18.9	96	66.5	136	23.2	176	2.4	216	0.3
20	2.6	60	23.5	100	64.5	140	18.8	180	1.8	220	0.3
24	3.6	64	29.2	104	61.3	144	15.2	184	1.3	224	0.3
28	4.7	68	35.7	108	57.4	148	12.3	188	0.9	228	0.3
32	6.1	72	42.4	112	52.9	152	9.9	192	0.6	232	0.3
36	7.6	76	49.1	116	48.1	156	8.0	196	0.4	236	0.3
40	9.2	80	55.4	120	43.3	160	6.5	200	0.3	240	0.3

Input Hydrograph Manhole 11, DS/PN 5.000 (Storm)
120 minute 100 year Summer I+40%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	0.642
M5-60 (mm)	19.900	SAAR (mm)	1677
Ratio R	0.223	CWI	125.383
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	123.000	SPR	47.000
H(85%) (m)	188.000	LAG (hrs)	0.000
H(10%) (m)	170.000	Base Flow (l/s)	(Calculated)

Output Variables

©1982-2020 Innovyze

Input Hydrograph Manhole 11, DS/PN 5.000 (Storm)
120 minute 100 year Summer I+40%
Input Hydrograph Type: FSR Dynamic

TP(0) (mins)	33	Q (l/s)	23.9	PR (%)	52.501
T (mins)	4	TB (mins)	89	S1085 (m/km)	195.122
TPt (mins)	35	Base Flow (l/s)	0.3		

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
4	0.4	44	9.4	84	53.2	124	38.9	164	5.8	204	0.3
8	0.7	48	11.2	88	57.2	128	34.5	168	4.7	208	0.3
12	1.0	52	13.5	92	59.9	132	30.0	172	3.7	212	0.3
16	1.5	56	16.5	96	60.7	136	25.6	176	2.9	216	0.3
20	2.2	60	20.4	100	59.8	140	21.3	180	2.3	220	0.3
24	3.0	64	25.3	104	57.6	144	17.3	184	1.7	224	0.3
28	4.0	68	30.9	108	54.6	148	14.0	188	1.3	228	0.3
32	5.1	72	36.7	112	51.1	152	11.2	192	0.9	232	0.3
36	6.5	76	42.6	116	47.2	156	9.0	196	0.6	236	0.3
40	7.9	80	48.2	120	43.1	160	7.2	200	0.4	240	0.3

Input Hydrograph Manhole 12, DS/PN 3.002 (Storm)
480 minute 100 year Summer I+40%
Input Hydrograph Type: FSR Dynamic

Input Variables

Region	England and Wales	Area (Ha)	0.962
M5-60 (mm)	19.900	SAAR (mm)	1677
Ratio R	0.223	CWI	125.383
Areal Reduction Factor	1.000	Urban	0.000
Main Stream Length (m)	116.000	SPR	47.000
H(85%) (m)	176.000	LAG (hrs)	0.000
H(10%) (m)	168.000	Base Flow (l/s)	(Calculated)

Output Variables

TP(0) (mins)	42	Q (l/s)	27.5	PR (%)	56.747
T (mins)	8	TB (mins)	116	S1085 (m/km)	91.954
TPt (mins)	46	Base Flow (l/s)	0.5		

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
8	0.7	40	3.2	72	6.9	104	9.1	136	10.5	168	12.9
16	1.0	48	4.2	80	7.5	112	9.4	144	10.9	176	13.9
24	1.6	56	5.2	88	8.1	120	9.7	152	11.5	184	15.1
32	2.3	64	6.1	96	8.6	128	10.1	160	12.1	192	16.7

©1982-2020 Innovyze

Input Hydrograph Manhole 12, DS/PN 3.002 (Storm)
480 minute 100 year Summer I+40%
Input Hydrograph Type: FSR Dynamic

Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)	Time (mins)	Flow (l/s)
200	18.8	328	48.2	456	9.9	584	0.6	712	0.5	840	0.5
208	21.4	336	42.3	464	9.6	592	0.5	720	0.5	848	0.5
216	24.7	344	36.7	472	9.3	600	0.5	728	0.5	856	0.5
224	28.7	352	31.5	480	9.0	608	0.5	736	0.5	864	0.5
232	33.5	360	27.1	488	8.6	616	0.5	744	0.5	872	0.5
240	39.1	368	23.5	496	8.1	624	0.5	752	0.5	880	0.5
248	45.4	376	20.5	504	7.4	632	0.5	760	0.5	888	0.5
256	51.7	384	18.1	512	6.5	640	0.5	768	0.5	896	0.5
264	57.6	392	16.2	520	5.5	648	0.5	776	0.5	904	0.5
272	62.4	400	14.7	528	4.4	656	0.5	784	0.5	912	0.5
280	65.5	408	13.6	536	3.5	664	0.5	792	0.5	920	0.5
288	66.6	416	12.7	544	2.7	672	0.5	800	0.5	928	0.5
296	65.6	424	11.9	552	2.0	680	0.5	808	0.5	936	0.5
304	62.8	432	11.3	560	1.5	688	0.5	816	0.5	944	0.5
312	58.8	440	10.8	568	1.0	696	0.5	824	0.5	952	0.5
320	53.8	448	10.3	576	0.7	704	0.5	832	0.5	960	0.5

©1982-2020 Innovyze