

Global Variables

Region	FSR - England & Wales
Return Period (yrs)	1
M5-60 (mm)	18.800
Ratio R	0.400
Volumetric Runoff Coef	0.750
Profile Type	Summer
PIMP (%)	100
Areal Reduction Factor	1.000
Storm Duration (mins)	15
Hot Start (mins)	0
Hot Start Level (mm)	0
Manhole Headloss Coefficient	0.500
MADD Factor * 10m ³ /ha Storage	2.000
Foul Sewage/Hectare (l/s)	0.00
Additional Flow - % of Total Flow	0
Inlet Coefficient	0.800
Number of Input Hydrographs	0
Number of Time/Area Diagrams	0
Number of Bifurcations	0
Number of Overflows	0
Number of Off-Line Controls	3
Number of On-Line Controls	4

Starting Storm file name

J:\11321\2002\Windes\Networks june 2010\compatibility\North.ews

Freely Discharging Outfalls

Outfall Pipe Number	Outfall MH/No	C.Level (m)	I.Level (m)	D,L (mm)	B (mm)
80.008	O/F 1	40.200	38.200	1200	0

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Date 01.07.2010	Designed By VH	
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On-Line Controls (Non Return Valve)

US/PN	Volume (m ³)	Ctrl MH Name
80.007	2.472	21

On-Line Controls (Hydro-Brake®)

US/PN	Volume (m ³)	Ctrl MH Name	Invert (m)	Type	Dia (m)	D.Head (m)	D.Flow (l/s)	Headloss (m)	Flow (l/s)
80.005	4.369	6	38.310	Md3	0.100	1.500	12.0	0.1	3.6
								0.2	5.6
								0.3	5.4
								0.4	6.2
								0.5	6.9
								0.6	7.5
								0.7	8.2
								0.8	8.7
								0.9	9.2
								1.0	9.7
								1.2	10.7
								1.4	11.5
								1.6	12.3
83.004	2.495	6	38.310	Md3	0.100	1.500	12.0	1.8	13.1
								2.0	13.8
								0.1	3.6
								0.2	5.6
								0.3	5.4
								0.4	6.2
								0.5	6.9
								0.6	7.5
								0.7	8.2
								0.8	8.7
								0.9	9.2
								1.0	9.7
								1.2	10.7
								1.4	11.5
86.000	0.263	6	38.310	Md3	0.100	1.500	12.0	1.6	12.3
								1.8	13.1
								2.0	13.8
								0.1	3.6
								0.2	5.6
								0.3	5.4
								0.4	6.2
								0.5	6.9
								0.6	7.5
								0.7	8.2
								0.8	8.7
								0.9	9.2
								1.0	9.7
								1.2	10.7
								1.4	11.5
								1.6	12.3
								1.8	13.1
								2.0	13.8

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Off-line Weir Controls

DS/PN	Loop PN	MH Loss	Height above DS PN (m)	Width (m)	Discharge Coefficient
80.006	86.000	0.500	0.150	1.350	0.544

Off-line Flap Controls

DS/PN	Loop PN	MH Loss	Height above DS PN (m)	Diameter (m)	Coef of Contraction
80.006	80.006	0.500	0.000	0.100	0.600

Infiltration Systems

Warning:- Volume should always be included unless the upstream pipe is being used for storage and/or as a carrier.

DS/PN	MH Loss	Height above DS PN (m)	Filename	Type	Include Volume
86.000	0.500	0.000	north.SRC	Cellular Storage	Yes (capped) (lvl 39.615m)

Cellular Storage Details

Infil Coef - Base (m/hr) 0.000000 Porosity 0.95
 Infil Coef - Sides (m/hr) 0.000000 Invert Level (m) 0.000
 Safety Factor 2.0 Ground Level (m) 1.950

Depth (m)	Area (m ²)	Infil. Area (m ²)	Depth (m)	Area (m ²)	Infil. Area (m ²)	Depth (m)	Area (m ²)	Infil. Area (m ²)	Depth (m)	Area (m ²)	Infil. Area (m ²)
0.00	376.0	376.0	0.70	376.0	431.3	1.40	0.0	470.8	2.10	0.0	470.8
0.10	376.0	383.9	0.80	376.0	439.2	1.50	0.0	470.8	2.20	0.0	470.8
0.20	376.0	391.8	0.90	376.0	447.1	1.60	0.0	470.8	2.30	0.0	470.8
0.30	376.0	399.7	1.00	376.0	455.0	1.70	0.0	470.8	2.40	0.0	470.8
0.40	376.0	407.6	1.10	376.0	462.9	1.80	0.0	470.8	2.50	0.0	470.8
0.50	376.0	415.5	1.20	376.0	470.8	1.90	0.0	470.8			
0.60	376.0	423.4	1.30	0.0	470.8	2.00	0.0	470.8			

Orifice Outflow Control

Diameter (m) 0.800 Discharge Coefficient 0.600 Invert Level (m) 0.000

Weir / Flume Overflow Control

Discharge Coef 0.544 Width (m) 1.200 Crest Level (m) 0.150

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Micro Drainage		
Simulation W.11.4		

Network Details

* - Indicates pipe has been modified outside of WinDes's Storm/Foul & Schedules

PN	Length (m)	Fall (m)	Slope (1:x)	Area (ha)	T.E. (mins)	Rain Pro	k (mm)	Hyd Sect	Dia (mm)
80.000	20.12	0.082	245.4	0.054	4.00	1	0.600	o	300
80.001	32.04	0.131	244.6	0.046	0.00	1	0.600	o	300
80.002	44.07	0.180	244.8	0.090	0.00	1	0.600	o	300
81.000	25.26	0.103	245.3	0.014	4.00	1	0.600	o	300
81.001	27.09	0.111	244.1	0.031	0.00	1	0.600	o	300
81.002	32.90	0.134	245.5	0.046	0.00	1	0.600	o	300
80.003	68.25	0.166	411.1	0.095	0.00	1	0.600	o	450
80.004	31.47	0.077	408.7	0.067	0.00	1	0.600	o	450
82.000	30.89	0.126	245.2	0.016	4.00	1	0.600	o	300
82.001	25.19	0.103	244.6	0.056	0.00	1	0.600	o	300
82.002	37.04	0.151	245.3	0.029	0.00	1	0.600	o	300
82.003	31.07	0.127	244.6	0.084	0.00	1	0.600	o	300
80.005	28.82	0.070	411.7	0.063	0.00	1	0.600	o	450
83.000	38.88	0.159	244.5	0.060	4.00	1	0.600	o	300
84.000	42.08	0.172	244.6	0.069	4.00	1	0.600	o	300
83.001	27.49	0.112	245.4	0.032	0.00	1	0.600	o	300
83.002	45.95	0.188	244.4	0.048	0.00	1	0.600	o	300
83.003	24.24	0.059	410.9	0.052	0.00	1	0.600	o	450
85.000	26.05	0.106	245.7	0.032	4.00	1	0.600	o	300
83.004	16.96	0.042	403.8	0.000	0.00	1	0.600	o	450
86.000	5.00	0.005	1000.6	0.000	4.00	1	0.600	o	300

PN	USMH No.	US/CL (m)	US/IL (m)	US C.Depth (m)	DS/CL (m)	DS/IL (m)	DS C.Depth (m)	Ctrl No.	US/MH (mm)
80.000	1	40.366	39.166	0.900	40.284	39.084	0.900		1200
80.001	2	40.284	39.084	0.900	40.200	38.953	0.947		1200
80.002	2	40.200	38.953	0.947	40.200	38.773	1.127		1200
81.000	3	40.321	39.121	0.900	40.218	39.018	0.900		1200
81.001	3	40.218	39.018	0.900	40.200	38.907	0.993		1200
81.002	3	40.200	38.907	0.993	40.200	38.773	1.127		1200
80.003	3	40.200	38.623	1.127	40.200	38.457	1.293		1200
80.004	4	40.200	38.457	1.293	40.200	38.380	1.370		1350
82.000	5	40.237	39.037	0.900	40.200	38.911	0.989		1200
82.001	5	40.200	38.911	0.989	40.200	38.808	1.092		1200
82.002	5	40.200	38.808	1.092	40.200	38.657	1.243		1200
82.003	5	40.200	38.657	1.243	40.200	38.530	1.370		1200
80.005	5	40.200	38.380	1.370	40.260	38.310	1.500		1350
83.000	6	40.220	39.020	0.900	40.200	38.861	1.039		1200
84.000	11	40.233	39.033	0.900	40.200	38.861	1.039		1200
83.001	11	40.200	38.861	1.039	40.200	38.749	1.151		1200
83.002	6	40.200	38.749	1.151	40.200	38.561	1.339		1200
83.003	6	40.200	38.411	1.339	40.200	38.352	1.398		1200
85.000	6	40.200	38.608	1.292	40.200	38.502	1.398		1200
83.004	20	40.200	38.352	1.398	40.260	38.310	1.500		1200
86.000	21	40.415	38.315	1.800	40.260	38.310	1.650		1200

Network Details

PN	Length (m)	Fall (m)	Slope (1:x)	Area (ha)	T.E. (mins)	Rain Pro	k (mm)	Hyd Sect	Dia (mm)
80.006	7.12	0.017	418.8	0.045	0.00	1	0.600	o	450
80.007	16.37	0.040	409.2	0.000	0.00	1	0.600	o	450
80.008	1.00	0.003	333.5	0.000	0.00	1	0.600	o	450

PN	USMH No.	US/CL (m)	US/IL (m)	US C.Depth (m)	DS/CL (m)	DS/IL (m)	DS C.Depth (m)	Ctrl No.	US/MH (mm)
80.006	6	40.260	38.310	1.500	40.200	38.293	1.457	9	1350
80.007	21	40.200	38.243	1.507	40.200	38.203	1.547		450
80.008	21	40.200	38.203	1.547	40.200	38.200	1.550	3	1200

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Date 01.07.2010	Designed By VH	
File NORTH.SUM	Checked By	
Micro Drainage		Simulation W.11.4

Summary Wizard of "CRITICAL BY RETURN PERIOD"(Rank 1 by Max Level)
Results for Design Storms

Margin for Flood Risk warning (mm) 300
DTS Status ON
DVD Status ON
Inertia Status OFF
Analysis Time Step 2.5 second increment (extended)

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

PN	Storm	Return Period	Climate Change	Rank	First X Surchage	First Y Flood	First Z Overflow	O/F Act
80.000	15 Summer	30	0%	1				
80.001	15 Winter	30	0%	1				
80.002	15 Winter	30	0%	1	100/15 Summer			
81.000	15 Summer	30	0%	1				
81.001	15 Summer	30	0%	1				
81.002	15 Summer	30	0%	1				
80.003	15 Winter	30	0%	1	100/240 Summer			
80.004	240 Winter	30	0%	1	30/120 Winter			
82.000	15 Winter	30	0%	1				
82.001	15 Summer	30	0%	1				
82.002	240 Winter	30	0%	1	100/120 Winter			
82.003	240 Winter	30	0%	1	30/240 Winter			
80.005	240 Winter	30	0%	1	30/120 Summer			
83.000	15 Summer	30	0%	1				
84.000	15 Summer	30	0%	1				
83.001	15 Winter	30	0%	1	100/240 Winter			
83.002	15 Winter	30	0%	1	100/15 Summer			
83.003	240 Winter	30	0%	1	30/240 Summer			
85.000	240 Winter	30	0%	1	30/120 Winter			
83.004	240 Winter	30	0%	1	30/120 Summer			
86.000	240 Winter	30	0%	1	30/15 Summer			0
80.006	240 Winter	30	0%	1	30/60 Summer		30/15 Summer	36
80.007	240 Winter	30	0%	1				
80.008	240 Winter	30	0%	1				

Lvl Ex.	PN	Water Lvl. (m)	Surcharged Depth (m)	Flooded Vol (m³)	Flow/ Capacity	Overflow (l/s)	Pipe Flow (l/s)	Status
	80.000	39.288	-0.178	0.000	0.30	0.0	18.3	0 K
	80.001	39.242	-0.142	0.000	0.50	0.0	32.6	0 K
	80.002	39.183	-0.070	0.000	0.90	0.0	59.3	0 K
	81.000	39.177	-0.244	0.000	0.07	0.0	4.7	0 K
	81.001	39.117	-0.201	0.000	0.23	0.0	14.8	0 K
	81.002	39.052	-0.155	0.000	0.45	0.0	29.2	0 K
	80.003	38.981	-0.092	0.000	0.69	0.0	101.0	0 K
	80.004	38.960	0.053	0.000	0.16	0.0	22.2	SURCH'ED
	82.000	39.098	-0.239	0.000	0.08	0.0	5.4	0 K
	82.001	39.040	-0.171	0.000	0.37	0.0	23.3	0 K
	82.002	38.962	-0.146	0.000	0.09	0.0	6.2	0 K
	82.003	38.961	0.004	0.000	0.17	0.0	11.1	SURCH'ED
	80.005	38.963	0.133	0.000	0.25	0.0	34.5	SURCH'ED
	83.000	39.135	-0.185	0.000	0.30	0.0	19.8	0 K
	84.000	39.157	-0.176	0.000	0.34	0.0	22.6	0 K
	83.001	39.065	-0.096	0.000	0.79	0.0	50.2	0 K
	83.002	38.984	-0.065	0.000	0.93	0.0	61.7	0 K
	83.003	38.960	0.099	0.000	0.11	0.0	15.0	SURCH'ED
	85.000	38.961	0.053	0.000	0.03	0.0	1.8	SURCH'ED
	83.004	38.963	0.161	0.000	0.13	0.0	14.8	SURCH'ED
	86.000	38.956	0.341	0.000	0.19	0.0	8.7	SURCH'ED
	80.006	38.963	0.203	0.000	0.08	31.4	7.7	SURCH'ED
	80.007	38.323	-0.370	0.000	0.07	0.0	7.7	0 K
	80.008	38.273	-0.380	0.000	0.06	0.0	7.7	0 K

Summary Wizard of "CRITICAL BY RETURN PERIOD"(Rank 1 by Max Level)
Results for Design Storms

Margin for Flood Risk warning (mm) 300
DTS Status ON
DVD Status ON
Inertia Status OFF
Analysis Time Step 2.5 second increment (extended)

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

PN	Storm	Return Period	Climate Change	Rank	First X Surchage	First Y Flood	First Z Overflow	O/F Act
80.000	15 Winter	100	0%	1				
80.001	15 Winter	100	0%	1				
80.002	15 Winter	100	0%	1	100/15 Summer			
81.000	15 Summer	100	0%	1				
81.001	240 Winter	100	0%	1				
81.002	240 Winter	100	0%	1				
80.003	240 Winter	100	0%	1	100/240 Summer			
80.004	240 Winter	100	0%	1	30/120 Winter			
82.000	240 Winter	100	0%	1				
82.001	240 Winter	100	0%	1				
82.002	240 Winter	100	0%	1	100/120 Winter			
82.003	240 Winter	100	0%	1	30/240 Winter			
80.005	240 Winter	100	0%	1	30/120 Summer			
83.000	240 Winter	100	0%	1				
84.000	15 Winter	100	0%	1				
83.001	240 Winter	100	0%	1	100/240 Winter			
83.002	240 Winter	100	0%	1	100/15 Summer			
83.003	240 Winter	100	0%	1	30/240 Summer			
85.000	240 Winter	100	0%	1	30/120 Winter			
83.004	240 Winter	100	0%	1	30/120 Summer			
86.000	240 Winter	100	0%	1	30/15 Summer			0
80.006	240 Winter	100	0%	1	30/60 Summer		30/15 Summer	36
80.007	240 Winter	100	0%	1				
80.008	240 Winter	100	0%	1				

Lvl Ex.	PN	Water Lvl. (m)	Surcharged Depth (m)	Flooded Vol (m³)	Flow/ Capacity	Overflow (l/s)	Pipe Flow (l/s)	Status
	80.000	39.354	-0.112	0.000	0.37	0.0	22.7	0 K
	80.001	39.328	-0.056	0.000	0.59	0.0	37.9	0 K
	80.002	39.279	0.026	0.000	1.06	0.0	69.9	SURCH'ED
	81.000	39.186	-0.235	0.000	0.10	0.0	6.1	0 K
	81.001	39.182	-0.136	0.000	0.06	0.0	3.6	0 K
	81.002	39.182	-0.025	0.000	0.11	0.0	7.2	0 K
	80.003	39.181	0.108	0.000	0.20	0.0	29.7	SURCH'ED
	80.004	39.178	0.271	0.000	0.25	0.0	34.9	SURCH'ED
	82.000	39.181	-0.156	0.000	0.02	0.0	1.3	0 K
	82.001	39.181	-0.030	0.000	0.09	0.0	5.8	0 K
	82.002	39.180	0.072	0.000	0.12	0.0	8.1	SURCH'ED
	82.003	39.178	0.221	0.000	0.23	0.0	14.8	SURCH'ED
	80.005	39.176	0.346	0.000	0.39	0.0	52.9	SURCH'ED
	83.000	39.181	-0.139	0.000	0.07	0.0	4.8	0 K
	84.000	39.188	-0.145	0.000	0.45	0.0	29.5	0 K
	83.001	39.180	0.019	0.000	0.20	0.0	12.9	SURCH'ED
	83.002	39.178	0.129	0.000	0.25	0.0	16.7	SURCH'ED
	83.003	39.175	0.314	0.000	0.16	0.0	20.8	SURCH'ED
	85.000	39.174	0.266	0.000	0.04	0.0	2.6	SURCH'ED
	83.004	39.175	0.373	0.000	0.20	0.0	22.5	SURCH'ED
	86.000	39.173	0.558	0.000	0.17	0.0	7.9	SURCH'ED
	80.006	39.175	0.415	0.000	0.09	43.7	8.9	SURCH'ED
	80.007	38.330	-0.363	0.000	0.08	0.0	8.9	0 K
	80.008	38.279	-0.374	0.000	0.07	0.0	8.9	0 K

Summary Wizard of "CRITICAL BY RETURN PERIOD"(Rank 1 by Max Level)
Results for Design Storms

Margin for Flood Risk warning (mm) 300
DTS Status ON
DVD Status ON
Inertia Status OFF
Analysis Time Step 2.5 second increment (extended)

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

PN	Storm	Return Period	Climate Change	Rank	First X Surchage	First Y Flood	First Z Overflow	O/F Act
80.000	15 Winter	100	30%	1	100/15 Summer			
80.001	15 Winter	100	30%	1	100/15 Summer			
80.002	15 Winter	100	30%	1	100/15 Summer			
81.000	360 Winter	100	30%	1	100/240 Winter			
81.001	360 Winter	100	30%	1	100/240 Summer			
81.002	360 Winter	100	30%	1	100/15 Summer			
80.003	360 Winter	100	30%	1	100/15 Summer			
80.004	360 Winter	100	30%	1	100/15 Summer			
82.000	360 Winter	100	30%	1	100/120 Winter			
82.001	360 Winter	100	30%	1	100/15 Summer			
82.002	360 Winter	100	30%	1	100/15 Summer			
82.003	360 Winter	100	30%	1	100/15 Summer			
80.005	360 Winter	100	30%	1	100/15 Summer			
83.000	360 Winter	100	30%	1	100/15 Summer			
84.000	360 Winter	100	30%	1	100/15 Summer			
83.001	360 Winter	100	30%	1	100/15 Summer			
83.002	360 Winter	100	30%	1	100/15 Summer			
83.003	360 Winter	100	30%	1	100/30 Summer			
85.000	360 Winter	100	30%	1	100/30 Summer			
83.004	360 Winter	100	30%	1	100/15 Summer			
86.000	360 Winter	100	30%	1	100/15 Summer			0
80.006	360 Winter	100	30%	1	100/15 Summer		100/15 Summer	18
80.007	240 Winter	100	30%	1				
80.008	240 Winter	100	30%	1				

Lvl Ex.	PN	Water Lvl. (m)	Surcharged Depth (m)	Flooded Vol (m³)	Flow/ Capacity	Overflow (l/s)	Pipe Flow (l/s)	Status
	80.000	39.720	0.254	0.000	0.41	0.0	25.5	SURCH'ED
	80.001	39.655	0.271	0.000	0.68	0.0	44.0	SURCH'ED
	80.002	39.574	0.321	0.000	1.27	0.0	83.9	SURCH'ED
	81.000	39.497	0.076	0.000	0.02	0.0	1.1	SURCH'ED
	81.001	39.498	0.180	0.000	0.05	0.0	3.4	SURCH'ED
	81.002	39.497	0.290	0.000	0.11	0.0	6.8	SURCH'ED
	80.003	39.496	0.423	0.000	0.19	0.0	27.9	SURCH'ED
	80.004	39.493	0.586	0.000	0.23	0.0	31.6	SURCH'ED
	82.000	39.496	0.159	0.000	0.02	0.0	1.2	SURCH'ED
	82.001	39.496	0.285	0.000	0.08	0.0	5.3	SURCH'ED
	82.002	39.495	0.387	0.000	0.11	0.0	7.0	SURCH'ED
	82.003	39.493	0.536	0.000	0.20	0.0	12.7	SURCH'ED
	80.005	39.491	0.661	0.000	0.34	0.0	45.6	SURCH'ED
	83.000	39.496	0.176	0.000	0.07	0.0	4.5	SURCH'ED
	84.000	39.496	0.163	0.000	0.08	0.0	5.2	SURCH'ED
	83.001	39.495	0.334	0.000	0.18	0.0	11.5	SURCH'ED
	83.002	39.493	0.444	0.000	0.22	0.0	14.8	SURCH'ED
	83.003	39.490	0.629	0.000	0.14	0.0	18.4	SURCH'ED
	85.000	39.489	0.581	0.000	0.03	0.0	2.2	SURCH'ED
	83.004	39.489	0.687	0.000	0.17	0.0	19.0	SURCH'ED
	86.000	39.487	0.872	0.000	0.19	0.0	8.9	SURCH'ED
	80.006	39.488	0.728	0.000	0.11	40.7	10.4	SURCH'ED
	80.007	38.337	-0.356	0.000	0.09	0.0	10.4	0 K
	80.008	38.286	-0.367	0.000	0.08	0.0	10.4	0 K