

Jelson Limited		Page 0
370 Loughborough Road	HINCKLEY	
Leicester	WIDER SW NETWORK (PH7)	
LE4 5PR	BLOORS MODEL WITH JELSON AREAS	
Date 28/05/2025	Designed by EG	
File 2025-05-28 BLOORS MODEL WITH	Checked by EG	
Micro Drainage	Network 2019.1	

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Surface Network 8

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales			
Return Period (years)	2	PIMP (%)	100
M5-60 (mm)	19.400	Add Flow / Climate Change (%)	0
Ratio R	0.413	Minimum Backdrop Height (m)	0.200
Maximum Rainfall (mm/hr)	50	Maximum Backdrop Height (m)	1.500
Maximum Time of Concentration (mins)	30	Min Design Depth for Optimisation (m)	1.200
Foul Sewage (l/s/ha)	0.000	Min Vel for Auto Design only (m/s)	1.00
Volumetric Runoff Coeff.	0.750	Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Time Area Diagram for Surface Network 8

Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.520	4-8	1.440	8-12	0.455	12-16	0.084

Total Area Contributing (ha) = 2.500

Total Pipe Volume (m³) = 116.898

Network Design Table for Surface Network 8

« - Indicates pipe capacity < flow

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
1.000	15.635	0.284	55.1	0.927	5.00	0.0	0.600	o	525	Pipe/Conduit	
1.001	30.561	0.110	277.8	0.053	0.00	0.0	0.600	o	525	Pipe/Conduit	
1.002	19.656	0.160	122.8	0.023	0.00	0.0	0.600	o	525	Pipe/Conduit	
2.000	17.264	0.126	137.0	0.640	5.00	0.0	0.600	o	525	Pipe/Conduit	
1.003	41.865	0.075	556.0	0.047	0.00	0.0	0.600	o	525	Pipe/Conduit	
1.004	34.997	0.110	319.0	0.219	0.00	0.0	0.600	o	600	Pipe/Conduit	
1.005	32.331	0.546	59.2	0.031	0.00	0.0	0.600	o	600	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	9.09	99.883	0.927	0.0	0.0	0.0	3.02	654.5	125.5
1.001	50.00	9.47	99.570	0.980	0.0	0.0	0.0	1.34	289.8	132.7
1.002	50.00	9.63	99.460	1.003	0.0	0.0	0.0	2.02	437.2	135.8
2.000	50.00	5.15	99.426	0.640	0.0	0.0	0.0	1.91	413.9	86.7
1.003	48.42	10.37	99.300	1.691	0.0	0.0	0.0	0.94	204.1«	221.7
1.004	47.36	10.80	99.150	1.909	0.0	0.0	0.0	1.36	383.9	244.9
1.005	46.95	10.97	99.040	1.940	0.0	0.0	0.0	3.17	895.9	246.7

Jelson Limited		Page 1
370 Loughborough Road	HINCKLEY	
Leicester	WIDER SW NETWORK (PH7)	
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Network Design Table for Surface Network 8

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
3.000	58.521	0.246	238.0	0.110	5.00	0.0	0.600	o	300	Pipe/Conduit	
1.006	6.746	0.124	54.4	0.140	0.00	0.0	0.600	o	600	Pipe/Conduit	
1.007	21.383	0.350	61.1	0.045	0.00	0.0	0.600	o	600	Pipe/Conduit	
1.008	13.269	0.160	82.9	0.035	0.00	0.0	0.600	o	600	Pipe/Conduit	
1.009	37.757	0.380	99.4	0.031	0.00	0.0	0.600	o	600	Pipe/Conduit	
1.010	47.054	1.100	42.8	0.117	0.00	0.0	0.600	o	600	Pipe/Conduit	
1.011	18.622	0.046	404.8	0.082	0.00	0.0	0.600	o	600	Pipe/Conduit	
1.012	32.337	0.015	2155.8	0.000	0.00	0.0	0.600	\	28	Pipe/Conduit	
1.013	8.995	0.100	89.9	0.000	0.00	0.0	0.600	o	600	Pipe/Conduit	
1.014	20.322	0.300	67.7	0.000	0.00	0.0	0.600	o	600	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)
3.000	50.00	5.96	99.040	0.110	0.0	0.0	0.0	1.01	71.7	15.0
1.006	46.87	11.00	98.494	2.191	0.0	0.0	0.0	3.31	935.2	278.1
1.007	46.60	11.12	98.370	2.235	0.0	0.0	0.0	3.12	882.0	282.1
1.008	46.41	11.20	98.020	2.270	0.0	0.0	0.0	2.68	756.5	285.3
1.009	45.83	11.46	97.860	2.301	0.0	0.0	0.0	2.44	690.8	285.6
1.010	45.36	11.67	97.480	2.418	0.0	0.0	0.0	3.73	1054.8	297.1
1.011	44.81	11.92	96.380	2.500	0.0	0.0	0.0	1.20	340.4	303.4
1.012	43.34	12.65	96.315	2.500	0.0	0.0	0.0	0.75	403.2	303.4
1.013	43.23	12.70	96.300	2.500	0.0	0.0	0.0	2.57	726.2	303.4
1.014	43.01	12.82	96.200	2.500	0.0	0.0	0.0	2.96	837.4	303.4

Manhole Schedules for Surface Network 8										
MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., L*W (mm)	PN	Pipe Out Invert Level (m)	Diameter (mm)	PN	Pipes In Invert Level (m)	Diameter (mm)
S8009 - Jelson Connection	101.884	2.001	Open Manhole	1500	1.000	99.883	525			
S8010	101.812	2.242	Open Manhole	1500	1.001	99.570	525	1.000	99.599	
S8011	102.025	2.565	Open Manhole	1500	1.002	99.460	525	1.001	99.460	
S8022 Jelson Connection	102.020	2.594	Open Manhole	1500	2.000	99.426	525			
S8023	101.917	2.617	Open Manhole	1500	1.003	99.300	525	1.002	99.300	
								2.000	99.300	
S8025	102.086	2.936	Open Manhole	1500	1.004	99.150	600	1.003	99.225	
S8026	101.629	2.589	Open Manhole	1500	1.005	99.040	600	1.004	99.040	
S8068	100.752	1.712	Open Manhole	1350	3.000	99.040	300			
S8028	101.119	2.624	Open Manhole	1500	1.006	98.494	600	1.005	98.494	
								3.000	98.794	
S8029	100.900	2.530	Open Manhole	1500	1.007	98.370	600	1.006	98.370	
S8030	100.399	2.379	Open Manhole	1500	1.008	98.020	600	1.007	98.020	
S8031	100.127	2.267	Open Manhole	1500	1.009	97.860	600	1.008	97.860	
S8034	99.539	2.059	Open Manhole	1500	1.010	97.480	600	1.009	97.480	
S8037	98.200	1.820	Open Manhole	1500	1.011	96.380	600	1.010	96.380	
S8039 - Headwall	98.000	1.685	Open Manhole	10000	1.012	96.315	28	1.011	96.334	
S8051 - Headwall	98.000	1.700	Open Manhole	10000	1.013	96.300	600	1.012	96.300	
S8052 Control Chamber	98.224	2.024	Open Manhole	3000	1.014	96.200	600	1.013	96.200	
S8053 - Headwall	97.000	1.100	Open Manhole	0		OUTFALL		1.014	95.900	

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
S8009 - Jelson Connection	440546.492	294885.409	440546.492	294885.409	Required	
S8010	440541.880	294870.470	440541.880	294870.470	Required	
S8011	440512.595	294879.210	440512.595	294879.210	Required	
S8022 Jelson Connection	440487.277	294893.134	440487.277	294893.134	Required	
S8023	440493.079	294876.874	440493.079	294876.874	Required	
S8025	440461.662	294849.203	440461.662	294849.203	Required	
S8026	440436.193	294825.200	440436.193	294825.200	Required	
S8068	440371.282	294827.874	440371.282	294827.874	Required	

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Jelson Limited		Page 3
370 Loughborough Road Leicester LE4 5PR	HINCKLEY WIDER SW NETWORK (PH7) BLOORS MODEL WITH JELSON AREAS	
Date 28/05/2025	Designed by EG	
File 2025-05-28 BLOORS MODEL WITH	Checked by EG	
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Manhole Schedules for Surface Network 8

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
S8028	440420.838	294796.748	440420.838	294796.748	Required	
S8029	440425.131	294791.544	440425.131	294791.544	Required	
S8030	440443.101	294779.956	440443.101	294779.956	Required	
S8031	440455.943	294776.614	440455.943	294776.614	Required	
S8034	440493.698	294776.286	440493.698	294776.286	Required	
S8037	440493.600	294729.232	440493.600	294729.232	Required	
S8039 - Headwall	440477.696	294719.544	440477.696	294719.544	Required	
S8051 - Headwall	440469.952	294688.148	440469.952	294688.148	Required	
S8052 Control Chamber	440476.872	294682.402	440476.872	294682.402	Required	
S8053 - Headwall	440492.573	294669.499			No Entry	

Jelson Limited		Page 4
370 Loughborough Road	HINCKLEY	
Leicester	WIDER SW NETWORK (PH7)	
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Date 28/05/2025	Designed by EG	
File 2025-05-28 BLOORS MODEL WITH	Checked by EG	
Micro Drainage	Network 2019.1	

Area Summary for Surface Network 8

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	-	-	100	0.927	0.927	0.927
1.001	User	-	100	0.053	0.053	0.053
1.002	User	-	100	0.023	0.023	0.023
2.000	-	-	100	0.640	0.640	0.640
1.003	User	-	100	0.038	0.038	0.038
	User	-	100	0.010	0.010	0.047
1.004	User	-	100	0.028	0.028	0.028
	User	-	100	0.027	0.027	0.055
	User	-	100	0.072	0.072	0.127
	User	-	100	0.044	0.044	0.171
	User	-	100	0.047	0.047	0.219
1.005	User	-	100	0.031	0.031	0.031
3.000	User	-	100	0.053	0.053	0.053
	User	-	100	0.036	0.036	0.089
	User	-	100	0.021	0.021	0.110
1.006	User	-	100	0.067	0.067	0.067
	User	-	100	0.027	0.027	0.094
	User	-	100	0.046	0.046	0.140
1.007	User	-	100	0.045	0.045	0.045
1.008	User	-	100	0.022	0.022	0.022
	User	-	100	0.013	0.013	0.035
1.009	User	-	100	0.018	0.018	0.018
	User	-	100	0.013	0.013	0.031
1.010	User	-	100	0.050	0.050	0.050
	User	-	100	0.021	0.021	0.072
	User	-	100	0.045	0.045	0.117
1.011	User	-	100	0.043	0.043	0.043
	User	-	100	0.024	0.024	0.067
	User	-	100	0.014	0.014	0.082
1.012	-	-	100	0.000	0.000	0.000
1.013	-	-	100	0.000	0.000	0.000
1.014	-	-	100	0.000	0.000	0.000
				Total	Total	Total
				2.500	2.500	2.500

Free Flowing Outfall Details for Surface Network 8

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
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1.014	S8053 - Headwall	97.000	95.900	0.000	0	0
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Simulation Criteria for Surface Network 8

Volumetric Runoff Coeff	0.750	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m³/ha Storage	0.000
Hot Start (mins)	0	Inlet Coefficient	0.800
Hot Start Level (mm)	0	Flow per Person per Day (l/per/day)	0.000
Manhole Headloss Coeff (Global)	0.500	Run Time (mins)	60
Foul Sewage per hectare (l/s)	0.000	Output Interval (mins)	1

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

Synthetic Rainfall Details

Jelson Limited		Page 5
370 Loughborough Road	HINCKLEY	
Leicester	WIDER SW NETWORK (PH7)	
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Date 28/05/2025	Designed by EG	
File 2025-05-28 BLOORS MODEL WITH	Checked by EG	
Micro Drainage	Network 2019.1	

Synthetic Rainfall Details

Rainfall Model	FSR	Profile Type	Summer
Return Period (years)	2	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.400	Storm Duration (mins)	30
Ratio R	0.413		

Online Controls for Surface Network 8

Crown Vortex Valve® Manhole: S8052 Control Chamber, DS/PN: 1.014, Volume (m³): 15.0

Design Head (m) 1.400 Vortex Valve® Type R1 SW Only Invert Level (m) 96.200
 Design Flow (l/s) 11.9 Diameter (mm) 130

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	2.3	0.800	8.9	2.000	14.1	4.000	20.0	7.000	26.4
0.200	5.0	1.000	10.0	2.200	14.8	4.500	21.2	7.500	27.4
0.300	5.7	1.200	10.9	2.400	15.5	5.000	22.3	8.000	28.3
0.400	6.3	1.400	11.8	2.600	16.1	5.500	23.4	8.500	29.1
0.500	7.1	1.600	12.6	3.000	17.3	6.000	24.5	9.000	30.0
0.600	7.7	1.800	13.4	3.500	18.7	6.500	25.5	9.500	30.8

Jelson Limited		Page 7
370 Loughborough Road	HINCKLEY	
Leicester	WIDER SW NETWORK (PH7)	
LE4 5PR	BLOORS MODEL WITH JELSON AREAS	
Date 28/05/2025	Designed by EG	
File 2025-05-28 BLOORS MODEL WITH	Checked by EG	
Micro Drainage	Network 2019.1	

Storage Structures for Surface Network 8

Tank or Pond Manhole: S8052 Control Chamber, DS/PN: 1.014

Invert Level (m) 96.200

Depth (m)	Area (m²)	Depth (m)	Area (m²)
0.000	713.0	1.700	1628.0