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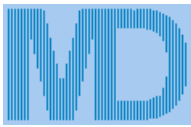
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Job No.
Sheet no. 1
Date 24/09/10
By IJ
Checked
Approved

MasterDrain SW 7.0

Project
Title FSR Rainfall intensities for BECKENHAM

Mins\Yrs	1	2	5	10	20	30	50	100	200	500
1	87.7	111.7	144.2	163.0	184.3	198.0	216.8	245.1	277.1	325.9
2	76.2	97.1	125.4	142.4	161.7	174.2	191.3	217.2	246.6	291.7
3	66.6	86.3	111.5	127.1	144.8	156.3	172.1	196.2	223.6	265.7
4	60.1	77.9	100.7	115.1	131.6	142.4	157.1	179.6	205.4	245.2
5	54.9	71.2	92.0	105.5	121.0	131.1	145.0	166.2	190.6	228.4
6	50.7	65.6	84.9	97.6	112.2	121.8	134.9	155.1	178.3	214.3
7	47.1	61.0	79.0	91.0	104.8	113.9	126.4	145.7	167.8	202.4
8	44.1	57.1	73.9	85.3	98.5	107.2	119.1	137.6	158.8	192.1
9	42.1	54.3	69.5	80.4	93.0	101.2	112.7	130.3	150.8	182.7
10	39.8	51.3	65.7	76.0	88.0	95.9	106.9	123.7	143.3	173.9
11	37.7	48.7	62.3	72.2	83.7	91.2	101.7	117.8	136.6	166.0
12	35.9	46.3	59.3	68.8	79.8	87.0	97.1	112.6	130.6	158.8
13	34.3	44.2	56.6	65.7	76.3	83.2	92.9	107.8	125.1	152.4
14	32.8	42.3	54.2	62.9	73.1	79.8	89.1	103.5	120.2	146.5
15	31.5	40.6	52.0	60.4	70.2	76.7	85.6	99.5	115.7	141.1
16	30.3	39.1	50.0	58.1	67.6	73.8	82.5	95.9	111.5	136.1
17	29.2	37.6	48.2	56.0	65.2	71.2	79.6	92.6	107.7	131.6
18	28.1	36.3	46.5	54.1	62.9	68.8	76.9	89.5	104.2	127.3
19	27.2	35.1	44.9	52.3	60.9	66.6	74.5	86.7	100.9	123.4
20	26.3	34.0	43.5	50.6	59.0	64.5	72.2	84.0	97.9	119.8
21	25.5	32.9	42.1	49.1	57.2	62.6	70.0	81.6	95.1	116.3
22	24.7	31.9	40.9	47.7	55.6	60.8	68.0	79.3	92.4	113.1
23	24.0	31.0	39.7	46.3	54.0	59.1	66.1	77.1	89.9	110.1
24	24.1	30.5	38.6	45.1	52.5	57.5	64.4	75.1	87.6	107.3
25	23.5	29.7	37.6	43.9	51.2	56.0	62.7	73.2	85.4	104.6
26	22.9	29.0	36.6	42.8	49.9	54.6	61.2	71.4	83.3	102.1
27	22.3	28.3	35.7	41.7	48.7	53.3	59.7	69.7	81.3	99.7
28	21.8	27.6	34.9	40.7	47.5	52.0	58.3	68.1	79.4	97.5
29	21.3	26.9	34.1	39.8	46.4	50.8	57.0	66.5	77.7	95.3
30	20.8	26.3	33.3	38.9	45.4	49.7	55.7	65.1	76.0	93.3
31	20.3	25.7	32.6	38.0	44.4	48.6	54.5	63.7	74.4	91.3
32	19.9	25.2	31.9	37.2	43.5	47.6	53.4	62.4	72.9	89.5
33	19.5	24.7	31.2	36.5	42.6	46.7	52.3	61.1	71.4	87.7
34	19.1	24.2	30.6	35.7	41.7	45.7	51.3	59.9	70.0	86.0
35	18.7	23.7	30.0	35.0	40.9	44.8	50.3	58.8	68.7	84.4
36	18.4	23.2	29.4	34.4	40.2	44.0	49.3	57.7	67.4	82.8
37	18.0	22.8	28.8	33.7	39.4	43.2	48.4	56.6	66.2	81.4
38	17.7	22.4	28.3	33.1	38.7	42.4	47.6	55.6	65.0	79.9
39	17.4	22.0	27.8	32.5	38.0	41.7	46.7	54.6	63.9	78.6
40	17.1	21.6	27.3	32.0	37.4	40.9	45.9	53.7	62.8	77.2
41	16.8	21.2	26.9	31.4	36.7	40.3	45.2	52.8	61.8	76.0
42	16.5	20.9	26.4	30.9	36.1	39.6	44.4	52.0	60.8	74.7
43	16.2	20.5	26.0	30.4	35.5	38.9	43.7	51.1	59.8	73.6
44	16.0	20.2	25.6	29.9	35.0	38.3	43.0	50.3	58.9	72.4
45	15.7	19.9	25.2	29.4	34.4	37.7	42.4	49.6	58.0	71.3
46	15.5	19.6	24.8	29.0	33.9	37.2	41.7	48.8	57.1	70.3
47	15.2	19.3	24.4	28.5	33.4	36.6	41.1	48.1	56.3	69.2
48	15.0	19.0	24.0	28.1	32.9	36.1	40.5	47.4	55.4	68.2
49	14.8	18.7	23.7	27.7	32.4	35.6	39.9	46.7	54.7	67.3
50	14.6	18.5	23.4	27.3	32.0	35.1	39.4	46.1	53.9	66.3
51	14.4	18.2	23.0	27.0	31.5	34.6	38.8	45.4	53.2	65.4
52	14.2	17.9	22.7	26.6	31.1	34.1	38.3	44.8	52.4	64.6
53	14.0	17.7	22.4	26.2	30.7	33.6	37.8	44.2	51.8	63.7
54	13.8	17.5	22.1	25.9	30.3	33.2	37.3	43.6	51.1	62.9
55	13.6	17.2	21.8	25.5	29.9	32.8	36.8	43.1	50.4	62.1
56	13.4	17.0	21.5	25.2	29.5	32.4	36.3	42.5	49.8	61.3
57	13.3	16.8	21.3	24.9	29.1	32.0	35.9	42.0	49.2	60.6
58	13.1	16.6	21.0	24.6	28.8	31.6	35.4	41.5	48.6	59.8
59	13.0	16.4	20.8	24.3	28.4	31.2	35.0	41.0	48.0	59.1
60	12.8	16.2	20.5	24.0	28.1	30.8	34.6	40.5	47.4	58.4
61	13.0	16.2	20.3	23.7	27.8	30.4	34.2	40.0	46.9	57.7
62	12.9	16.0	20.0	23.4	27.4	30.1	33.8	39.6	46.3	57.1
63	12.7	15.8	19.8	23.2	27.1	29.8	33.4	39.1	45.8	56.4
64	12.6	15.7	19.6	22.9	26.8	29.4	33.0	38.7	45.3	55.8
65	12.5	15.5	19.4	22.7	26.5	29.1	32.7	38.3	44.8	55.2
66	12.3	15.3	19.1	22.4	26.2	28.8	32.3	37.8	44.3	54.6
67	12.2	15.1	18.9	22.2	26.0	28.5	32.0	37.4	43.8	54.0



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Job No.	
Sheet no.	2
Date	24/09/10
By	IJ
Checked	
Approved	

MasterDrain
SW 7.0

Project	
Title	FSR Rainfall intensities for BECKENHAM

Mins\Yrs	1	2	5	10	20	30	50	100	200	500
68	12.1	15.0	18.7	21.9	25.7	28.2	31.6	37.0	43.4	53.4
69	11.9	14.8	18.5	21.7	25.4	27.9	31.3	36.7	42.9	52.9
70	11.8	14.7	18.3	21.5	25.1	27.6	31.0	36.3	42.5	52.3
71	11.7	14.5	18.2	21.3	24.9	27.3	30.7	35.9	42.0	51.8
72	11.6	14.4	18.0	21.0	24.6	27.0	30.4	35.5	41.6	51.3
73	11.5	14.2	17.8	20.8	24.4	26.8	30.1	35.2	41.2	50.8
74	11.3	14.1	17.6	20.6	24.2	26.5	29.8	34.8	40.8	50.3
75	11.2	14.0	17.4	20.4	23.9	26.2	29.5	34.5	40.4	49.8
76	11.1	13.8	17.3	20.2	23.7	26.0	29.2	34.2	40.0	49.3
77	11.0	13.7	17.1	20.0	23.5	25.7	28.9	33.9	39.6	48.8
78	10.9	13.6	17.0	19.9	23.2	25.5	28.6	33.5	39.3	48.4
79	10.8	13.4	16.8	19.7	23.0	25.3	28.4	33.2	38.9	47.9
80	10.7	13.3	16.6	19.5	22.8	25.0	28.1	32.9	38.6	47.5
81	10.6	13.2	16.5	19.3	22.6	24.8	27.9	32.6	38.2	47.1
82	10.5	13.1	16.3	19.1	22.4	24.6	27.6	32.3	37.9	46.6
83	10.4	13.0	16.2	19.0	22.2	24.4	27.4	32.0	37.5	46.2
84	10.3	12.8	16.1	18.8	22.0	24.2	27.1	31.8	37.2	45.8
85	10.2	12.7	15.9	18.6	21.8	23.9	26.9	31.5	36.9	45.4
86	10.2	12.6	15.8	18.5	21.6	23.7	26.7	31.2	36.6	45.0
87	10.1	12.5	15.7	18.3	21.5	23.5	26.4	31.0	36.3	44.7
88	10.0	12.4	15.5	18.2	21.3	23.3	26.2	30.7	35.9	44.3
89	9.9	12.3	15.4	18.0	21.1	23.1	26.0	30.4	35.6	43.9
90	9.8	12.2	15.3	17.9	20.9	23.0	25.8	30.2	35.4	43.6
91	9.7	12.1	15.1	17.7	20.8	22.8	25.6	30.0	35.1	43.2
92	9.7	12.0	15.0	17.6	20.6	22.6	25.4	29.7	34.8	42.9
93	9.6	11.9	14.9	17.5	20.4	22.4	25.2	29.5	34.5	42.5
94	9.5	11.8	14.8	17.3	20.3	22.2	25.0	29.2	34.2	42.2
95	9.4	11.7	14.7	17.2	20.1	22.1	24.8	29.0	34.0	41.8
96	9.4	11.6	14.6	17.0	20.0	21.9	24.6	28.8	33.7	41.5
97	9.3	11.6	14.4	16.9	19.8	21.7	24.4	28.6	33.4	41.2
98	9.2	11.5	14.3	16.8	19.7	21.6	24.2	28.4	33.2	40.9
99	9.2	11.4	14.2	16.7	19.5	21.4	24.0	28.1	32.9	40.6
100	9.1	11.3	14.1	16.5	19.4	21.2	23.9	27.9	32.7	40.3
110	8.5	10.5	13.2	15.4	18.0	19.8	22.2	26.0	30.4	37.5
120	7.9	9.9	12.3	14.4	16.9	18.5	20.8	24.4	28.5	35.1
130	7.5	9.3	11.6	13.6	15.9	17.5	19.6	22.9	26.8	33.0
140	7.3	8.9	11.0	12.9	15.1	16.5	18.5	21.7	25.3	31.2
160	6.6	8.1	10.0	11.6	13.6	14.9	16.7	19.6	22.9	28.1
180	6.0	7.4	9.1	10.7	12.4	13.6	15.3	17.9	20.9	25.6
210	5.4	6.6	8.1	9.5	11.1	12.1	13.6	15.8	18.5	22.7
240	4.9	5.9	7.3	8.6	10.0	10.9	12.2	14.2	16.6	20.3
270	4.5	5.4	6.7	7.8	9.1	9.9	11.1	13.0	15.1	18.5
300	4.2	5.1	6.2	7.2	8.4	9.2	10.2	11.9	13.9	16.9
330	3.9	4.7	5.8	6.7	7.8	8.5	9.5	11.1	12.8	15.7
360	3.7	4.4	5.4	6.3	7.3	8.0	8.9	10.3	12.0	14.6
390	3.5	4.2	5.1	5.9	6.8	7.5	8.3	9.7	11.2	13.7
420	3.3	3.9	4.8	5.6	6.5	7.1	7.9	9.1	10.6	12.9

Rainfall depths for BECKENHAM at standard return periods in mm

Time\Yrs	1	2	5	10	20	30	50	100	200	500
3 min	3.3	4.3	5.6	6.4	7.2	7.8	8.6	9.8	11.2	13.3
30 min	10.4	13.2	16.6	19.4	22.7	24.9	27.9	32.5	38.0	46.6
1 hr	12.8	16.2	20.5	24.0	28.1	30.8	34.6	40.5	47.4	58.4
2 hr	15.9	19.7	24.7	28.9	33.8	37.1	41.6	48.7	57.0	70.2
5 hr	21.2	25.4	31.0	36.1	41.9	45.8	51.2	59.6	69.3	84.7
10 hr	25.0	30.0	36.6	42.3	49.0	53.3	59.4	68.7	79.5	96.4
24 hr	31.6	37.4	44.9	51.6	59.2	64.2	71.1	81.6	93.7	112.4
48 hr	39.3	45.0	52.8	60.2	68.6	74.1	81.6	93.0	106.0	126.1
5 day	48.7	55.7	65.3	73.6	83.0	89.1	97.3	109.8	123.8	145.1

The above figures are calculated in accordance with the protocol set out in the 'Wallingford Procedure' from data derived from the Wallingford maps :-

M5-60min	=	20.00	r	=	0.41
WRAP	=	1	SAAR	=	660
NG ref	=	TQ3769	Soil index	=	0.15