


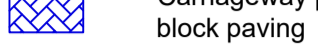
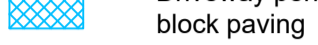
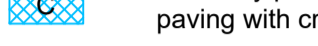
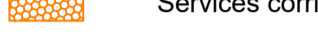
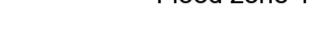

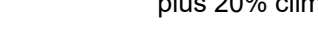
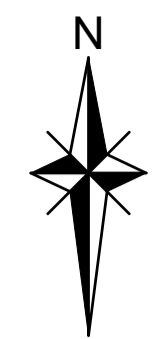


NOTES

-  Route of modeled permeable block paving (no chambers)
-  Route of modeled piped network (with chambers)
-  Route of swale from outfall headwall to existing ditch
-  Carriageway permeable block paving
-  Driveway permeable block paving
-  Driveway permeable block paving with crates under
-  Services corridor
-  Flood zone 1 and 2 boundary
-  Flood zone 2 and 3 boundary
-  Environment Agency 100 year plus 20% climate change model

See drawing 23-015-03 for indicative details  
 See drawing 23-015-04 for overland flow paths



A	Levels review	GW	GAC	GAC	Mar 23
Rev	Amendments	Dm	Chk	App	Date

**Charles & Associates**

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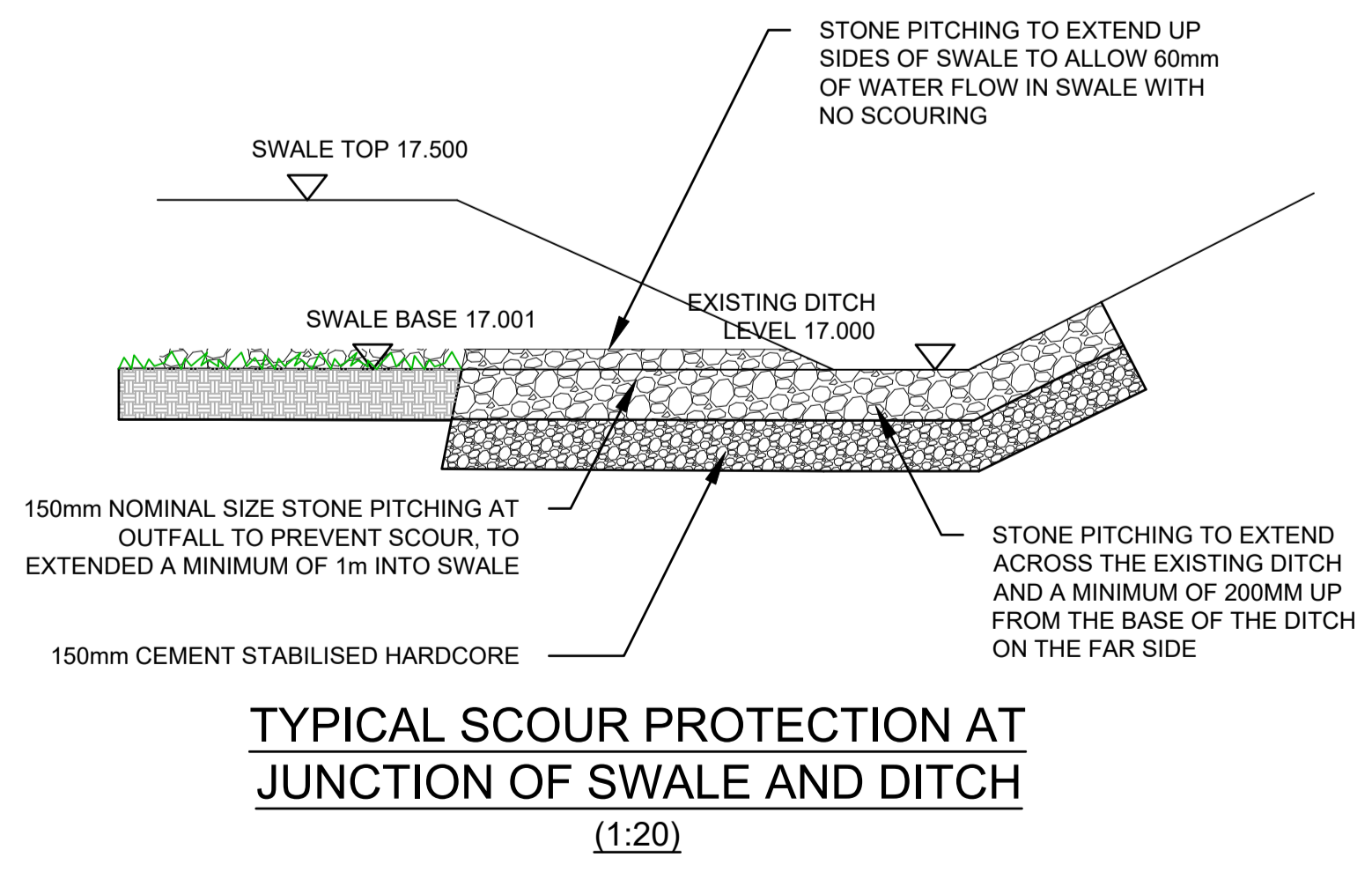
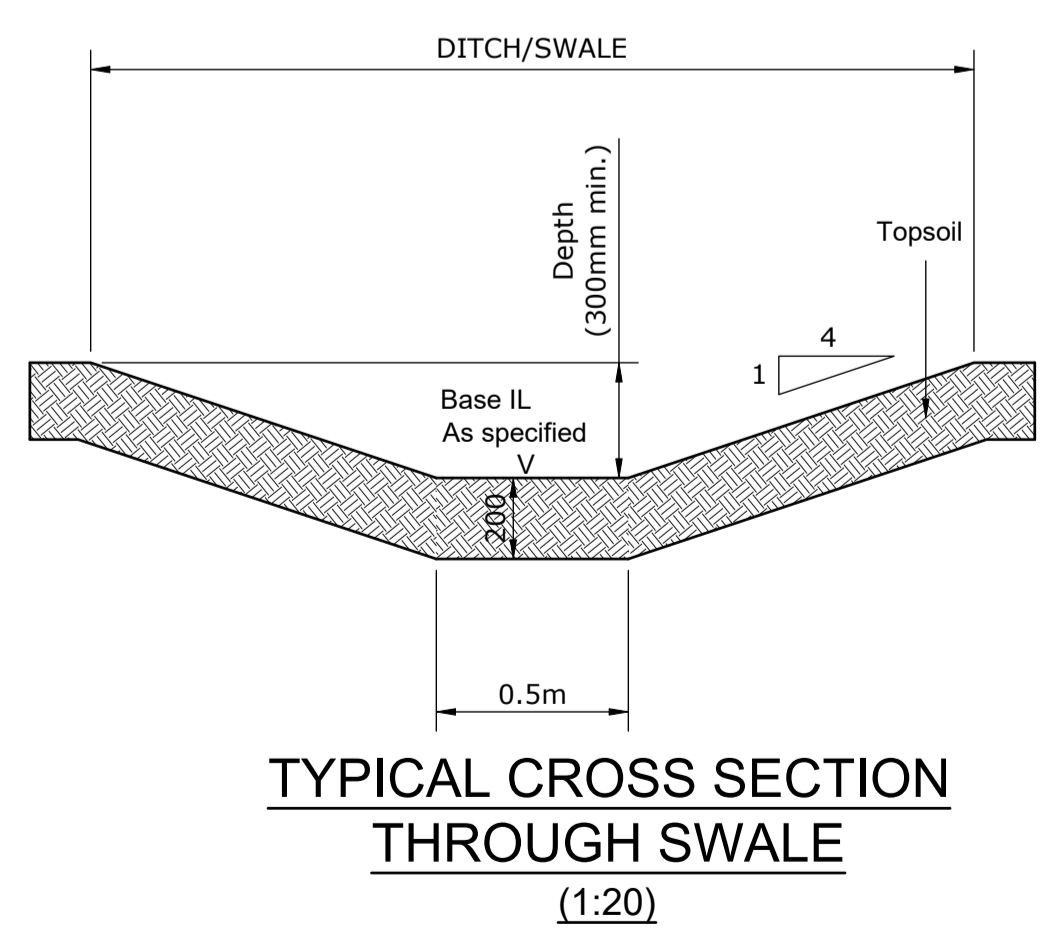
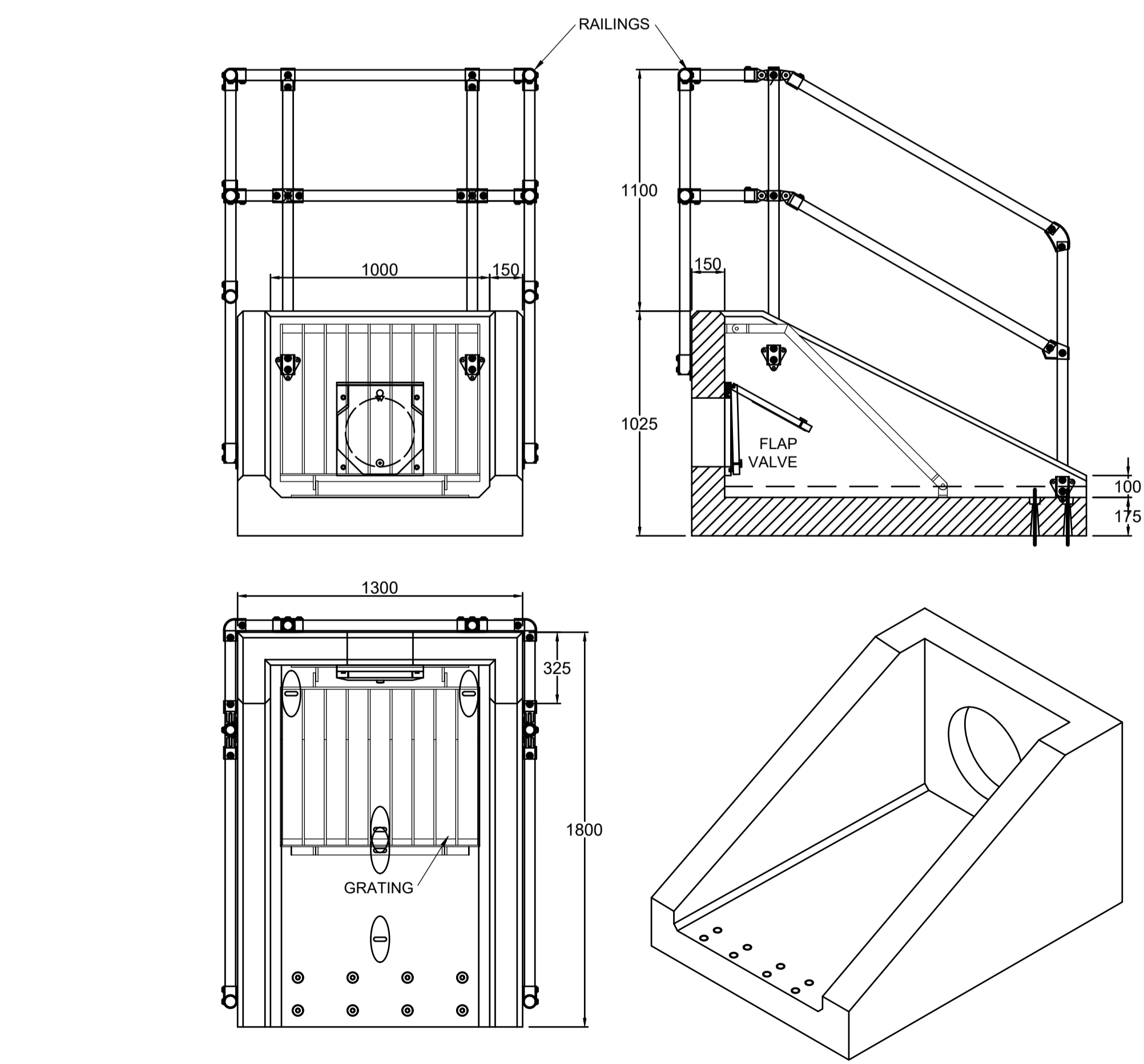
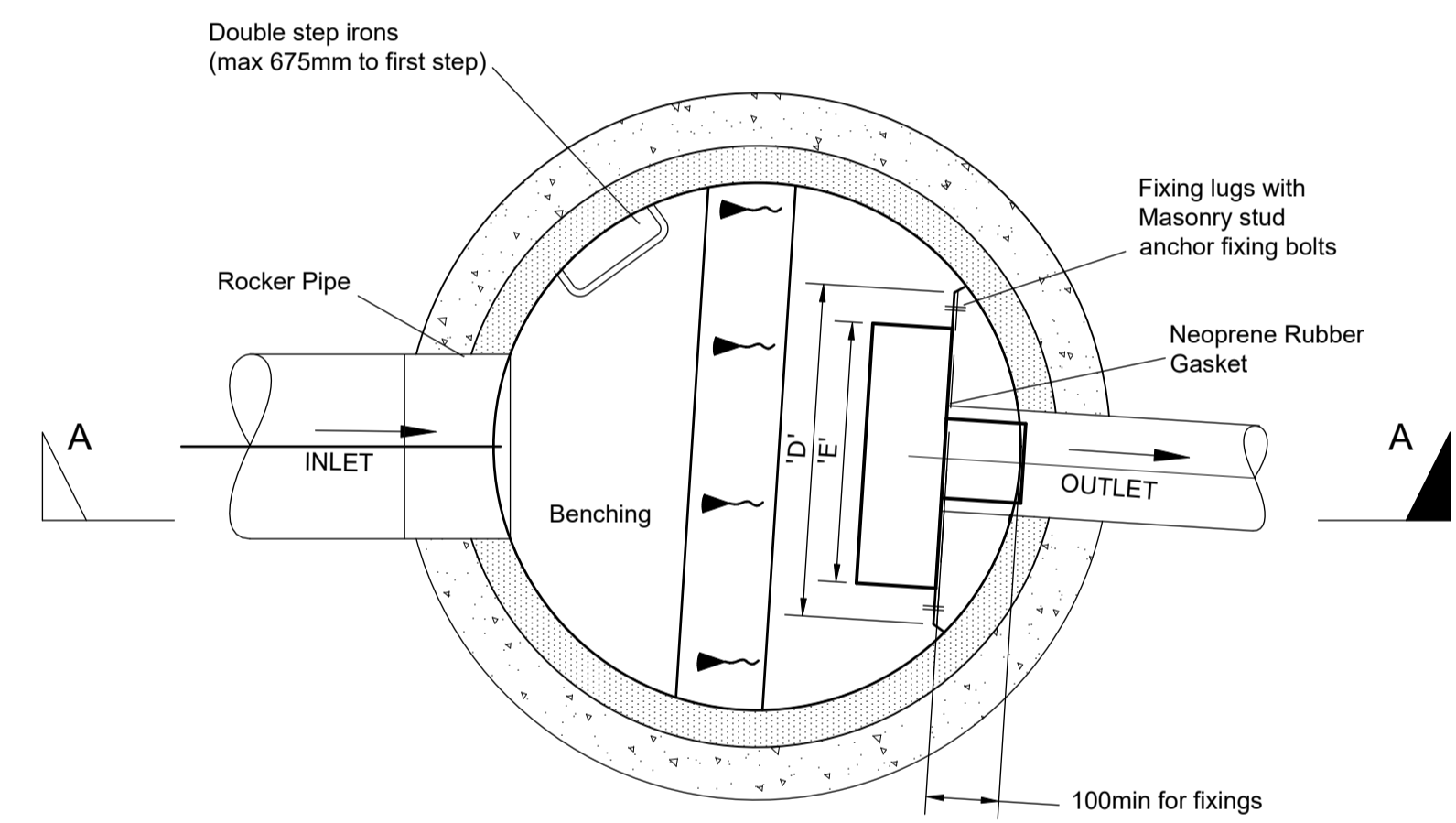
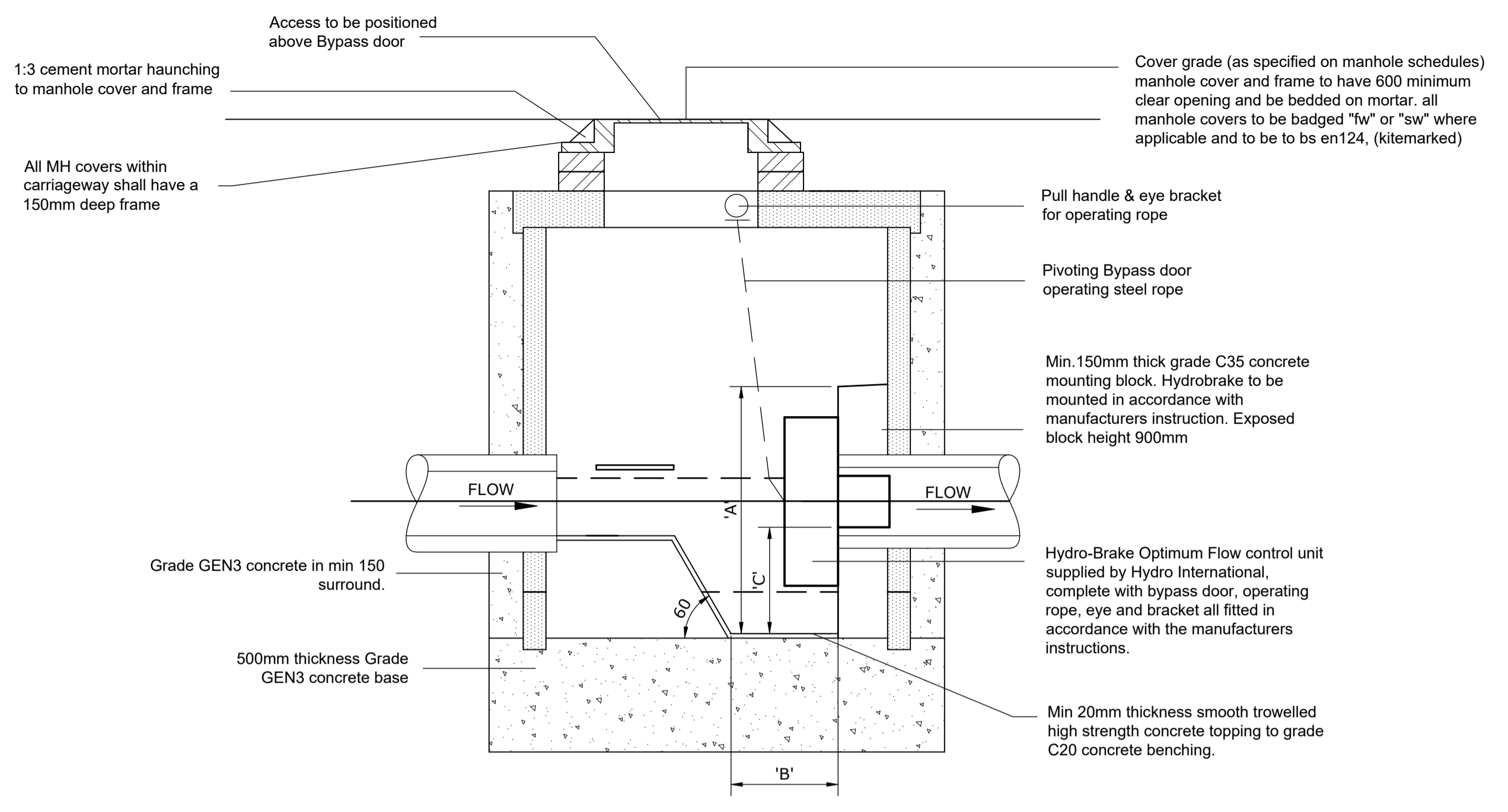
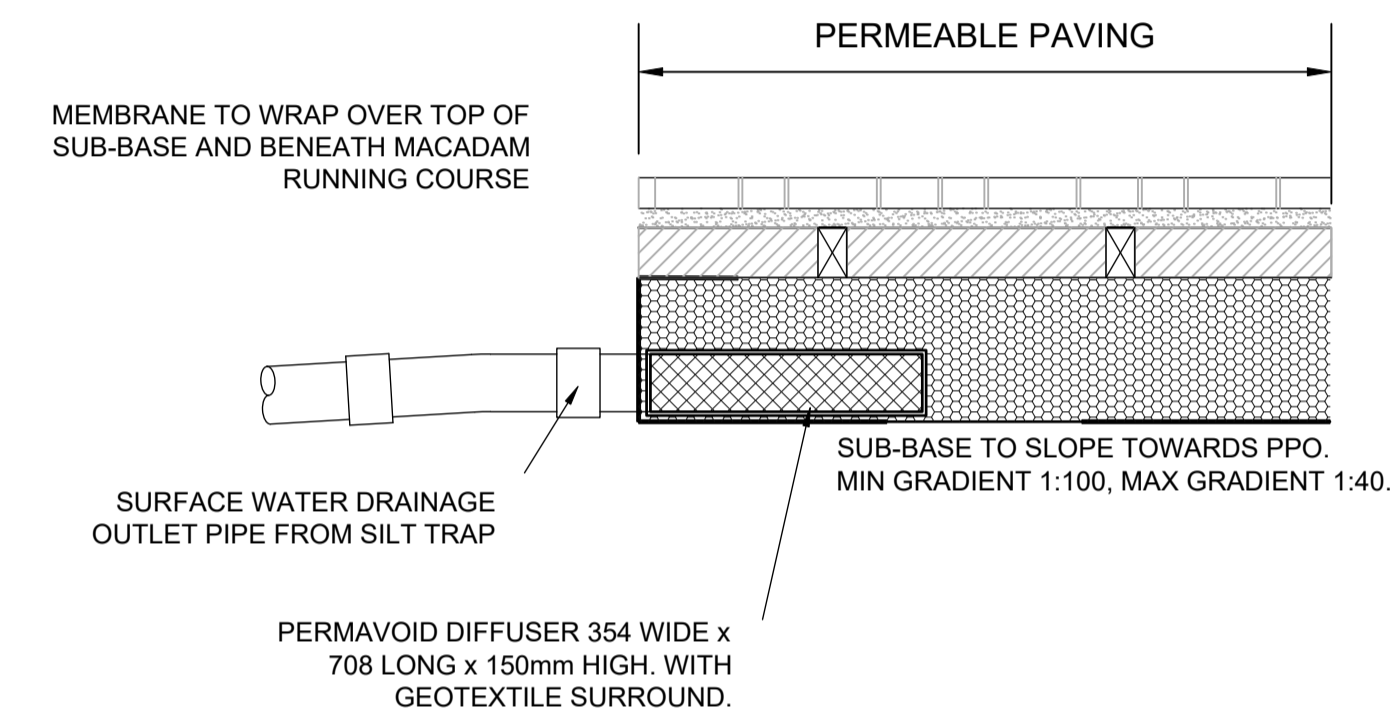
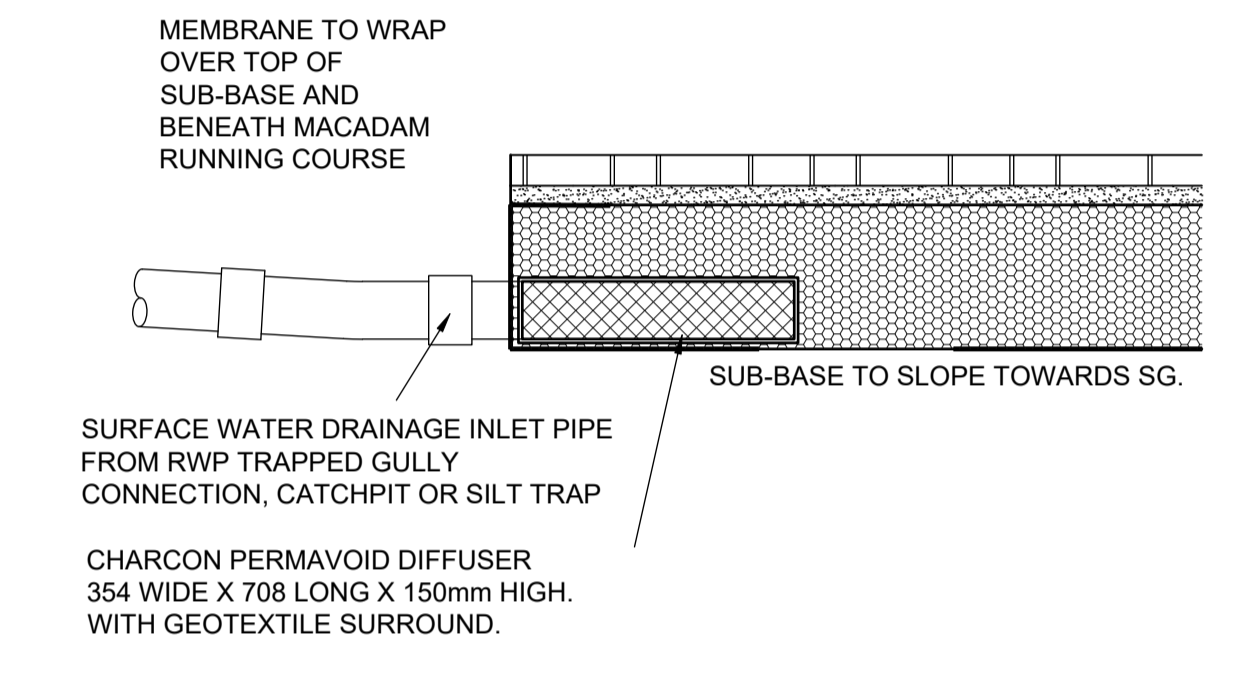
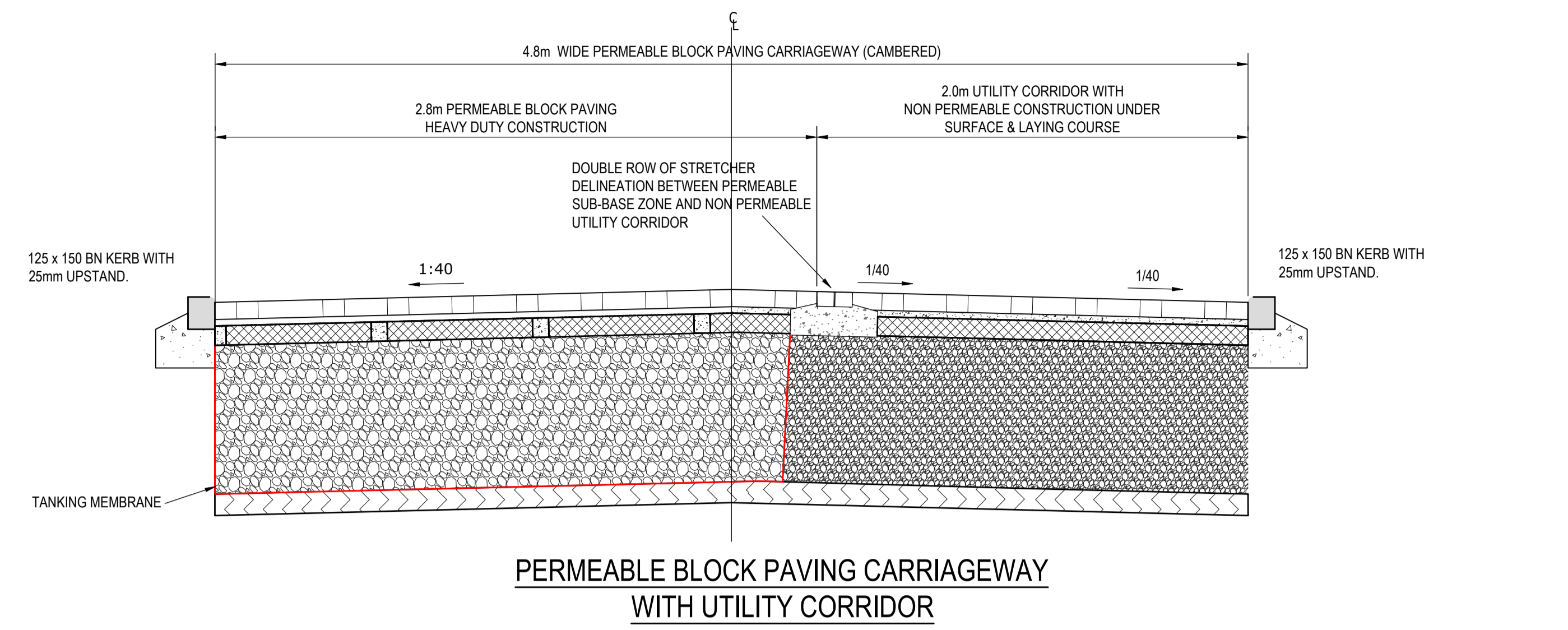
Job Title  
**Claygate House  
 Claygate, Surrey**

Drawing Title  
**Surface Water Strategy**

Client  
**Claygate House Investments Ltd  
 and MJS Investments Ltd**

Scale	Date	Designed
1:500 @ A1	Feb 23	GPW
Drawn	Checked	Approved
GPW	GAC	GAC
Job No	Drawing No	Rev
23-015	23-015-01	A





Rev	Amendments	Dim	Chk	App	Date

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Job Title

**Claygate House Claygate, Surrey**

**Indicative Details**

**Client: Claygate House Investments Ltd and MJS Investments Ltd**

Scale	Date	Designed
1:500 @ A1	Feb 23	GPW
Drawn	Checked	Approved
GPW	GAC	GAC
Job No	Drawing No	Rev
23-015	23-015-03	-



A	Levels review	GW	GAC	GAC	Mar 23
Rev	Amendments	Dm	Chk	App	Date

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Job Title  
**Claygate House  
 Claygate, Surrey**

Drawing Title  
**Exceedance Flow Plan**

Client  
**Claygate House Investments Ltd  
 and MJS Investments Ltd**

Scale	Date	Designed
1:500 @ A1	Feb 23	GPW

Drawn	Checked	Approved
GPW	GAC	GAC

Job No	Drawing No	Rev
23-015	23-015-04	A

## Appendix I Surface Water Calculations

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STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for NET1.SWS

Pipe Sizes STANDARD Manhole Sizes STANDARD

FEH Rainfall Model

Return Period (years)	100
FEH Rainfall Version	2013
Site Location GB 514900 164650 TQ 14900 64650	
Data Type	Catchment
Maximum Rainfall (mm/hr)	50
Maximum Time of Concentration (mins)	30
Foul Sewage (l/s/ha)	0.000
Volumetric Runoff Coeff.	0.750
PIMP (%)	100
Add Flow / Climate Change (%)	0
Minimum Backdrop Height (m)	0.200
Maximum Backdrop Height (m)	0.000
Min Design Depth for Optimisation (m)	0.500
Min Vel for Auto Design only (m/s)	0.75
Min Slope for Optimisation (1:X)	500

Designed with Level Inverts

Network Design Table for NET1.SWS

« - 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
S1.000	11.887	0.070	169.8	0.007	5.00	0.0	0.600	o	225	Pipe/Conduit	
S1.001	38.562	0.227	170.0	0.008	0.00	0.0	0.600	o	225	Pipe/Conduit	
S1.002	10.329	0.061	169.3	0.027	0.00	0.0	0.600	o	225	Pipe/Conduit	
S1.003	14.102	0.050	282.0	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
S2.000	12.146	0.024	506.1	0.000	5.00	0.0	0.600	o	225	Pipe/Conduit	
S2.001	5.149	0.010	514.9	0.000	0.00	0.0	0.600	o	225	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)
S1.000	50.00	5.20	17.712	0.007	0.0	0.0	0.0	1.00	39.8	0.9
S1.001	50.00	5.84	17.642	0.015	0.0	0.0	0.0	1.00	39.8	2.0
S1.002	50.00	6.01	17.415	0.042	0.0	0.0	0.0	1.00	39.8	5.7
S1.003	50.00	6.32	17.354	0.042	0.0	0.0	0.0	0.77	30.8	5.7
S2.000	50.00	5.35	17.478	0.000	0.0	0.0	0.0	0.57	22.8	0.0
S2.001	50.00	5.50	17.454	0.000	0.0	0.0	0.0	0.57	22.6	0.0

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Network Design Table for NET1.SWS

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
S2.002	20.745	0.041	506.0	0.012	0.00	0.0	0.600	o	225	Pipe/Conduit		
S2.003	5.808	0.012	484.0	0.025	0.00	0.0	0.600	o	225	Pipe/Conduit		
S2.004	4.215	0.008	526.9	0.003	0.00	0.0	0.600	o	225	Pipe/Conduit		
S2.005	10.678	0.021	508.5	0.025	0.00	0.0	0.600	o	225	Pipe/Conduit		
S2.006	29.058	0.058	501.0	0.026	0.00	0.0	0.600	o	225	Pipe/Conduit		
S1.004	19.306	0.039	495.0	0.096	0.00	0.0	0.600	o	225	Pipe/Conduit		
S1.005	10.145	0.020	507.3	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit		
S1.006	12.309	0.025	492.4	0.082	0.00	0.0	0.600	o	225	Pipe/Conduit		
S1.007	4.371	0.009	485.7	0.020	0.00	0.0	0.600	o	225	Pipe/Conduit		
S1.008	5.867	0.012	488.9	0.005	0.00	0.0	0.600	o	225	Pipe/Conduit		
S1.009	14.629	0.029	504.4	0.010	0.00	0.0	0.600	o	225	Pipe/Conduit		
S1.010	15.419	0.031	497.4	0.016	0.00	0.0	0.600	o	225	Pipe/Conduit		
S1.011	16.518	0.033	500.5	0.032	0.00	0.0	0.600	o	225	Pipe/Conduit		
S3.000	9.974	0.020	498.7	0.000	5.00	0.0	0.600	o	225	Pipe/Conduit		
S3.001	26.453	0.053	499.1	0.019	0.00	0.0	0.600	o	225	Pipe/Conduit		
S3.002	42.407	0.085	498.9	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit		
S3.003	8.860	0.018	492.2	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit		
S1.012	5.076	0.010	507.6	0.190	0.00	0.0	0.600	o	225	Pipe/Conduit		
S1.013	16.984	0.034	499.5	0.012	0.00	0.0	0.600	o	225	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)
S2.002	50.00	6.10	17.444	0.012	0.0	0.0	0.0	0.57	22.8	1.6
S2.003	50.00	6.27	17.403	0.037	0.0	0.0	0.0	0.59	23.4	5.0
S2.004	50.00	6.39	17.391	0.040	0.0	0.0	0.0	0.56	22.4	5.4
S2.005	50.00	6.70	17.383	0.065	0.0	0.0	0.0	0.57	22.8	8.8
S2.006	50.00	7.54	17.362	0.091	0.0	0.0	0.0	0.58	23.0	12.3
S1.004	50.00	8.10	17.304	0.229	0.0	0.0	0.0	0.58	23.1«	31.0
S1.005	50.00	8.39	17.265	0.229	0.0	0.0	0.0	0.57	22.8«	31.0
S1.006	50.00	8.74	17.245	0.311	0.0	0.0	0.0	0.58	23.2«	42.1
S1.007	50.00	8.87	17.220	0.331	0.0	0.0	0.0	0.59	23.3«	44.8
S1.008	50.00	9.04	17.211	0.336	0.0	0.0	0.0	0.58	23.2«	45.5
S1.009	50.00	9.46	17.199	0.346	0.0	0.0	0.0	0.58	22.9«	46.9
S1.010	50.00	9.90	17.170	0.362	0.0	0.0	0.0	0.58	23.0«	49.0
S1.011	50.00	10.38	17.139	0.394	0.0	0.0	0.0	0.58	23.0«	53.4
S3.000	50.00	5.29	17.282	0.000	0.0	0.0	0.0	0.58	23.0	0.0
S3.001	50.00	6.05	17.262	0.019	0.0	0.0	0.0	0.58	23.0	2.6
S3.002	50.00	7.27	17.209	0.019	0.0	0.0	0.0	0.58	23.0	2.6
S3.003	50.00	7.52	17.124	0.019	0.0	0.0	0.0	0.58	23.2	2.6
S1.012	50.00	10.53	17.106	0.603	0.0	0.0	0.0	0.57	22.8«	81.7
S1.013	50.00	11.02	17.096	0.615	0.0	0.0	0.0	0.58	23.0«	83.3

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Network Design Table for NET1.SWS

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
S4.000	41.323	0.068	607.7	0.005	5.00	0.0	0.600	o	225	Pipe/Conduit	
S4.001	22.123	0.037	597.9	0.070	0.00	0.0	0.600	o	225	Pipe/Conduit	
S4.002	7.448	0.013	572.9	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
S4.003	4.410	0.008	551.3	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
S4.004	11.240	0.019	591.6	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
S4.005	25.746	0.043	598.7	0.066	0.00	0.0	0.600	o	225	Pipe/Conduit	
S1.014	4.050	0.008	506.3	0.067	0.00	0.0	0.600	o	450	Pipe/Conduit	
S1.015	0.934	0.002	467.0	0.000	0.00	0.0	0.600	o	450	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)
S4.000	50.00	6.32	17.250	0.005	0.0	0.0	0.0	0.52	20.8	0.7
S4.001	50.00	7.01	17.182	0.075	0.0	0.0	0.0	0.53	21.0	10.2
S4.002	50.00	7.25	17.145	0.075	0.0	0.0	0.0	0.54	21.4	10.2
S4.003	50.00	7.38	17.132	0.075	0.0	0.0	0.0	0.55	21.9	10.2
S4.004	50.00	7.73	17.124	0.075	0.0	0.0	0.0	0.53	21.1	10.2
S4.005	50.00	8.55	17.105	0.141	0.0	0.0	0.0	0.53	21.0	19.1
S1.014	50.00	11.09	17.062	0.823	0.0	0.0	0.0	0.90	142.6	111.4
S1.015	50.00	11.11	17.054	0.823	0.0	0.0	0.0	0.93	148.6	111.4

Surcharged Outfall Details for NET1.SWS

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
------------------------	-----------------	-----------------	-----------------	------------------------	-------------	-----------

S1.015            S    18.200    17.052    0.000    450    0

Datum (m) -0.512 Offset (mins) 0

Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)
24	17.640	216	17.641	408	17.642	600	17.645	792	17.712	984	18.007
48	17.640	240	17.641	432	17.642	624	17.645	816	17.763	1008	18.027
72	17.641	264	17.641	456	17.642	648	17.645	840	17.809	1032	18.044
96	17.641	288	17.641	480	17.643	672	17.646	864	17.851	1056	18.058
120	17.641	312	17.641	504	17.643	696	17.646	888	17.890	1080	18.070
144	17.641	336	17.641	528	17.643	720	17.646	912	17.925	1104	18.080
168	17.641	360	17.641	552	17.644	744	17.647	936	17.956	1128	18.090
192	17.641	384	17.642	576	17.644	768	17.661	960	17.983	1152	18.098



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Surcharged Outfall Details for NET1.SWS

Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)	Time (mins)	Depth (m)
1176	18.105	1464	18.155	1752	18.104	2040	18.053	2328	18.003	2616	17.951
1200	18.113	1488	18.150	1776	18.099	2064	18.049	2352	17.999	2640	17.947
1224	18.120	1512	18.146	1800	18.095	2088	18.045	2376	17.994	2664	17.943
1248	18.127	1536	18.142	1824	18.091	2112	18.041	2400	17.990	2688	17.938
1272	18.134	1560	18.137	1848	18.087	2136	18.036	2424	17.986	2712	17.934
1296	18.141	1584	18.133	1872	18.082	2160	18.032	2448	17.982	2736	17.930
1320	18.147	1608	18.129	1896	18.078	2184	18.028	2472	17.978	2760	17.926
1344	18.153	1632	18.125	1920	18.074	2208	18.024	2496	17.973	2784	17.922
1368	18.158	1656	18.120	1944	18.070	2232	18.020	2520	17.969	2808	17.918
1392	18.161	1680	18.116	1968	18.066	2256	18.015	2544	17.965	2832	17.914
1416	18.162	1704	18.112	1992	18.062	2280	18.011	2568	17.960	2856	17.910
1440	18.159	1728	18.108	2016	18.057	2304	18.007	2592	17.956	2880	17.905

Simulation Criteria for NET1.SWS

Volumetric Runoff Coeff 0.750      Additional Flow - % of Total Flow 0.000  
Areal Reduction Factor 1.000      MADD Factor \* 10m<sup>3</sup>/ha Storage 2.000  
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 Storage Structures 28  
Number of Online Controls 2      Number of Time/Area Diagrams 0  
Number of Offline Controls 0      Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FEH  
Return Period (years) 100  
FEH Rainfall Version 1999  
Site Location GB 573000 174150 TQ 73000 74150  
C (1km) -0.024  
D1 (1km) 0.280  
D2 (1km) 0.396  
D3 (1km) 0.223  
E (1km) 0.314  
F (1km) 2.608  
Summer Storms Yes  
Winter Storms No  
Cv (Summer) 0.750  
Cv (Winter) 0.840  
Storm Duration (mins) 30

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Online Controls for NET1.SWS

Complex Manhole: S13, DS/PN: S1.014, Volume (m<sup>3</sup>): 1.9

Hydro-Brake® Optimum

Unit Reference MD-SHE-0062-1800-1100-1800  
 Design Head (m) 1.100  
 Design Flow (l/s) 1.8  
 Flush-Flo™ Calculated  
 Objective Minimise upstream storage  
 Application Surface  
 Sump Available Yes  
 Diameter (mm) 62  
 Invert Level (m) 17.062  
 Minimum Outlet Pipe Diameter (mm) 75  
 Suggested Manhole Diameter (mm) 1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.100	1.8
Flush-Flo™	0.272	1.6
Kick-Flo®	0.554	1.3
Mean Flow over Head Range	-	1.5

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	1.4	1.200	1.9	3.000	2.8	7.000	4.2
0.200	1.6	1.400	2.0	3.500	3.1	7.500	4.4
0.300	1.6	1.600	2.1	4.000	3.3	8.000	4.5
0.400	1.6	1.800	2.2	4.500	3.4	8.500	4.6
0.500	1.5	2.000	2.4	5.000	3.6	9.000	4.8
0.600	1.4	2.200	2.5	5.500	3.8	9.500	4.9
0.800	1.6	2.400	2.6	6.000	3.9		
1.000	1.7	2.600	2.7	6.500	4.1		

Hydro-Brake® Optimum

Unit Reference MD-SHE-0112-4900-0457-4900  
 Design Head (m) 0.457  
 Design Flow (l/s) 4.9  
 Flush-Flo™ Calculated  
 Objective Minimise upstream storage  
 Application Surface  
 Sump Available Yes  
 Diameter (mm) 112  
 Invert Level (m) 17.650

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Hydro-Brake® Optimum

Minimum Outlet Pipe Diameter (mm) 150  
Suggested Manhole Diameter (mm) 1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	0.457	4.9
Flush-Flo™	0.173	4.9
Kick-Flo®	0.346	4.3
Mean Flow over Head Range	-	4.0

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	3.9	1.200	7.7	3.000	11.9	7.000	17.9
0.200	4.9	1.400	8.3	3.500	12.8	7.500	18.5
0.300	4.6	1.600	8.8	4.000	13.6	8.000	19.1
0.400	4.6	1.800	9.3	4.500	14.4	8.500	19.7
0.500	5.1	2.000	9.8	5.000	15.1	9.000	20.3
0.600	5.6	2.200	10.2	5.500	15.8	9.500	20.8
0.800	6.4	2.400	10.7	6.000	16.5		
1.000	7.1	2.600	11.1	6.500	17.2		

Non Return Valve Manhole: S14, DS/PN: S1.015, Volume (m³): 2.1

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Storage Structures for NET1.SWS

Complex Manhole: S4, DS/PN: S1.003

Porous Car Park

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	3.3
Membrane Percolation (mm/hr)	1000	Length (m)	4.8
Max Percolation (l/s)	4.4	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	17.354	Membrane Depth (mm)	0

Porous Car Park Manhole: S4, DS/PN: S2.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	4.8
Membrane Percolation (mm/hr)	1000	Length (m)	2.0
Max Percolation (l/s)	2.7	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	17.478	Membrane Depth (mm)	0

Porous Car Park Manhole: S5, DS/PN: S2.001

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	3.3
Membrane Percolation (mm/hr)	1000	Length (m)	12.2
Max Percolation (l/s)	11.2	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	17.454	Membrane Depth (mm)	0

Porous Car Park Manhole: S20, DS/PN: S2.002

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	3.3
Membrane Percolation (mm/hr)	1000	Length (m)	5.1
Max Percolation (l/s)	4.7	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	17.444	Membrane Depth (mm)	0

Complex Manhole: S21, DS/PN: S2.003

Porous Car Park

Infiltration Coefficient Base (m/hr)	0.00000	Porosity	0.30
Membrane Percolation (mm/hr)	1000	Invert Level (m)	17.403
Max Percolation (l/s)	19.0	Width (m)	3.3
Safety Factor	2.0	Length (m)	20.7

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Porous Car Park

Slope (1:X) 500.0 Evaporation (mm/day) 3  
Depression Storage (mm) 5 Membrane Depth (mm) 0

Porous Car Park

Infiltration Coefficient Base (m/hr) 0.00000	Width (m) 4.8	
Membrane Percolation (mm/hr) 1000	Length (m) 9.6	
Max Percolation (l/s) 12.8	Slope (1:X) 500.0	
Safety Factor 2.0	Depression Storage (mm) 5	
Porosity 0.30	Evaporation (mm/day) 3	
Invert Level (m) 17.453	Membrane Depth (mm) 0	

Porous Car Park Manhole: S22, DS/PN: S2.004

Infiltration Coefficient Base (m/hr) 0.00000	Width (m) 3.3	
Membrane Percolation (mm/hr) 1000	Length (m) 5.8	
Max Percolation (l/s) 5.3	Slope (1:X) 500.0	
Safety Factor 2.0	Depression Storage (mm) 5	
Porosity 0.30	Evaporation (mm/day) 3	
Invert Level (m) 17.391	Membrane Depth (mm) 0	

Porous Car Park Manhole: S23, DS/PN: S2.005

Infiltration Coefficient Base (m/hr) 0.00000	Width (m) 3.3	
Membrane Percolation (mm/hr) 1000	Length (m) 4.2	
Max Percolation (l/s) 3.9	Slope (1:X) 500.0	
Safety Factor 2.0	Depression Storage (mm) 5	
Porosity 0.30	Evaporation (mm/day) 3	
Invert Level (m) 17.383	Membrane Depth (mm) 0	

Complex Manhole: S24, DS/PN: S2.006

Porous Car Park

Infiltration Coefficient Base (m/hr) 0.00000	Width (m) 3.3	
Membrane Percolation (mm/hr) 1000	Length (m) 10.7	
Max Percolation (l/s) 9.8	Slope (1:X) 500.0	
Safety Factor 2.0	Depression Storage (mm) 5	
Porosity 0.30	Evaporation (mm/day) 3	
Invert Level (m) 17.362	Membrane Depth (mm) 0	

Porous Car Park

Infiltration Coefficient Base (m/hr) 0.00000	Width (m) 4.8	
Membrane Percolation (mm/hr) 1000	Length (m) 13.6	
Max Percolation (l/s) 18.1	Slope (1:X) 500.0	
Safety Factor 2.0	Depression Storage (mm) 5	
Porosity 0.30	Evaporation (mm/day) 3	
Invert Level (m) 17.412	Membrane Depth (mm) 0	

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Complex Manhole: S4, DS/PN: S1.004

Porous Car Park

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	3.3
Membrane Percolation (mm/hr)	1000	Length (m)	43.1
Max Percolation (l/s)	39.5	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	17.304	Membrane Depth (mm)	0

Porous Car Park

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	4.8
Membrane Percolation (mm/hr)	1000	Length (m)	4.8
Max Percolation (l/s)	6.4	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	17.354	Membrane Depth (mm)	0

Complex Manhole: S12, DS/PN: S1.005

Porous Car Park

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	3.3
Membrane Percolation (mm/hr)	1000	Length (m)	17.0
Max Percolation (l/s)	15.6	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	17.265	Membrane Depth (mm)	0

Porous Car Park

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	3.0
Membrane Percolation (mm/hr)	1000	Length (m)	12.5
Max Percolation (l/s)	10.4	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	17.315	Membrane Depth (mm)	0

Porous Car Park Manhole: S5, DS/PN: S1.006

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	3.3
Membrane Percolation (mm/hr)	1000	Length (m)	10.1
Max Percolation (l/s)	9.3	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	17.245	Membrane Depth (mm)	0

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Complex Manhole: S6, DS/PN: S1.007

Porous Car Park

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	3.3
Membrane Percolation (mm/hr)	1000	Length (m)	12.3
Max Percolation (l/s)	11.3	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	17.220	Membrane Depth (mm)	0

Porous Car Park

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	2.4
Membrane Percolation (mm/hr)	1000	Length (m)	12.4
Max Percolation (l/s)	8.3	Slope (1:X)	0.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	17.270	Membrane Depth (mm)	0

Porous Car Park Manhole: S7, DS/PN: S1.008

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	3.3
Membrane Percolation (mm/hr)	1000	Length (m)	4.4
Max Percolation (l/s)	4.0	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	17.211	Membrane Depth (mm)	0

Complex Manhole: S8, DS/PN: S1.009

Porous Car Park

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	3.3
Membrane Percolation (mm/hr)	1000	Length (m)	5.8
Max Percolation (l/s)	5.3	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	17.199	Membrane Depth (mm)	0

Complex Manhole: S9, DS/PN: S1.010

Porous Car Park

Infiltration Coefficient Base (m/hr)	0.00000	Porosity	0.30
Membrane Percolation (mm/hr)	1000	Invert Level (m)	17.170
Max Percolation (l/s)	13.4	Width (m)	3.3
Safety Factor	2.0	Length (m)	14.6

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Porous Car Park

Slope (1:X) 500.0 Evaporation (mm/day) 3  
 Depression Storage (mm) 5 Membrane Depth (mm) 0

Porous Car Park

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	4.8
Membrane Percolation (mm/hr)	1000	Length (m)	13.8
Max Percolation (l/s)	18.4	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	17.395	Membrane Depth (mm)	0

Complex Manhole: S10, DS/PN: S1.011

Porous Car Park

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	3.3
Membrane Percolation (mm/hr)	1000	Length (m)	15.5
Max Percolation (l/s)	14.2	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	17.139	Membrane Depth (mm)	0

Porous Car Park

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	4.8
Membrane Percolation (mm/hr)	1000	Length (m)	13.0
Max Percolation (l/s)	17.3	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	17.364	Membrane Depth (mm)	0

Porous Car Park Manhole: S16, DS/PN: S3.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	4.8
Membrane Percolation (mm/hr)	1000	Length (m)	1.8
Max Percolation (l/s)	2.4	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	17.282	Membrane Depth (mm)	0

Porous Car Park Manhole: S30, DS/PN: S3.001

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	3.3
Membrane Percolation (mm/hr)	1000	Length (m)	15.5
Max Percolation (l/s)	14.2	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	17.262	Membrane Depth (mm)	0



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Complex Manhole: S20, DS/PN: S3.002

Porous Car Park

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	3.3
Membrane Percolation (mm/hr)	1000	Length (m)	26.4
Max Percolation (l/s)	24.2	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	17.209	Membrane Depth (mm)	0

Porous Car Park

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	20.0
Membrane Percolation (mm/hr)	1000	Length (m)	17.2
Max Percolation (l/s)	95.6	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.95	Evaporation (mm/day)	3
Invert Level (m)	17.209	Cap Volume Depth (m)	0.400

Porous Car Park

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	4.8
Membrane Percolation (mm/hr)	1000	Length (m)	14.4
Max Percolation (l/s)	19.2	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	17.259	Membrane Depth (mm)	0

Porous Car Park

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	20.0
Membrane Percolation (mm/hr)	1000	Length (m)	17.2
Max Percolation (l/s)	95.6	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	17.659	Membrane Depth (mm)	0

Complex Manhole: S17, DS/PN: S3.003

Porous Car Park

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	3.3
Membrane Percolation (mm/hr)	1000	Length (m)	42.4
Max Percolation (l/s)	38.9	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	17.124	Membrane Depth (mm)	0

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Porous Car Park

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	2.4
Membrane Percolation (mm/hr)	1000	Length (m)	43.8
Max Percolation (l/s)	29.2	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	17.174	Membrane Depth (mm)	0

Porous Car Park

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	3.0
Membrane Percolation (mm/hr)	1000	Length (m)	10.5
Max Percolation (l/s)	8.8	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	17.174	Membrane Depth (mm)	0

Porous Car Park

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	4.8
Membrane Percolation (mm/hr)	1000	Length (m)	19.2
Max Percolation (l/s)	25.6	Slope (1:X)	450.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	17.349	Membrane Depth (mm)	0

Porous Car Park Manhole: S11, DS/PN: S1.012

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	3.3
Membrane Percolation (mm/hr)	1000	Length (m)	25.3
Max Percolation (l/s)	23.2	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	17.106	Membrane Depth (mm)	0

Porous Car Park Manhole: S12, DS/PN: S1.013

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	3.3
Membrane Percolation (mm/hr)	1000	Length (m)	5.0
Max Percolation (l/s)	4.6	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	17.096	Membrane Depth (mm)	0

Complex Manhole: S41, DS/PN: S4.001

Porous Car Park

Infiltration Coefficient Base (m/hr)	0.00000	Max Percolation (l/s)	31.9
Membrane Percolation (mm/hr)	1000	Safety Factor	2.0

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Porous Car Park

Porosity	0.30	Slope (1:X)	500.0
Invert Level (m)	17.277	Depression Storage (mm)	5
Width (m)	2.8	Evaporation (mm/day)	3
Length (m)	41.0	Membrane Depth (mm)	0

Porous Car Park

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	6.5
Membrane Percolation (mm/hr)	1000	Length (m)	30.0
Max Percolation (l/s)	54.2	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.95	Evaporation (mm/day)	3
Invert Level (m)	17.327	Cap Volume Depth (m)	0.400

Porous Car Park

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	8.5
Membrane Percolation (mm/hr)	1000	Length (m)	10.0
Max Percolation (l/s)	23.6	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	17.327	Membrane Depth (mm)	0

Porous Car Park

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	6.5
Membrane Percolation (mm/hr)	1000	Length (m)	30.0
Max Percolation (l/s)	54.2	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	17.727	Membrane Depth (mm)	0

Complex Manhole: S26, DS/PN: S4.002

Porous Car Park

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	2.8
Membrane Percolation (mm/hr)	1000	Length (m)	22.1
Max Percolation (l/s)	17.2	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	17.159	Membrane Depth (mm)	0

Porous Car Park

Infiltration Coefficient Base (m/hr)	0.00000	Porosity	0.95
Membrane Percolation (mm/hr)	1000	Invert Level (m)	17.209
Max Percolation (l/s)	22.1	Width (m)	4.8
Safety Factor	2.0	Length (m)	16.6

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Porous Car Park

Slope (1:X) 500.0 Evaporation (mm/day) 3  
 Depression Storage (mm) 5 Cap Volume Depth (m) 0.400

Porous Car Park

Infiltration Coefficient Base (m/hr) 0.00000	Width (m) 4.8	
Membrane Percolation (mm/hr) 1000	Length (m) 16.6	
Max Percolation (l/s) 22.1	Slope (1:X) 500.0	
Safety Factor 2.0	Depression Storage (mm) 5	
Porosity 0.30	Evaporation (mm/day) 3	
Invert Level (m) 17.609	Membrane Depth (mm) 0	

Complex Manhole: S25, DS/PN: S4.003

Porous Car Park

Infiltration Coefficient Base (m/hr) 0.00000	Width (m) 2.8	
Membrane Percolation (mm/hr) 1000	Length (m) 7.4	
Max Percolation (l/s) 5.8	Slope (1:X) 500.0	
Safety Factor 2.0	Depression Storage (mm) 5	
Porosity 0.30	Evaporation (mm/day) 3	
Invert Level (m) 17.144	Membrane Depth (mm) 0	

Porous Car Park

Infiltration Coefficient Base (m/hr) 0.00000	Width (m) 2.0	
Membrane Percolation (mm/hr) 1000	Length (m) 11.2	
Max Percolation (l/s) 6.2	Slope (1:X) 500.0	
Safety Factor 2.0	Depression Storage (mm) 5	
Porosity 0.30	Evaporation (mm/day) 3	
Invert Level (m) 17.194	Membrane Depth (mm) 0	

Porous Car Park Manhole: S26, DS/PN: S4.004

Infiltration Coefficient Base (m/hr) 0.00000	Width (m) 2.8	
Membrane Percolation (mm/hr) 1000	Length (m) 4.4	
Max Percolation (l/s) 3.4	Slope (1:X) 500.0	
Safety Factor 2.0	Depression Storage (mm) 5	
Porosity 0.30	Evaporation (mm/day) 3	
Invert Level (m) 17.135	Membrane Depth (mm) 0	

Complex Manhole: S42, DS/PN: S4.005

Porous Car Park

Infiltration Coefficient Base (m/hr) 0.00000 Max Percolation (l/s) 8.7  
 Membrane Percolation (mm/hr) 1000 Safety Factor 2.0