

Calcs Ref.	20652-CALC-0201
Sheet	1 of 14
Engineer	M. Webb
Date	December 2024
Revision	B

DESIGN CALCULATIONS FRONT SHEET

SCHEME	Chapel Lane, Witherley
CLIENT	A.R. Cartwright
ASPECTS OF SCHEME TO BE DESIGNED	1. Surface Water Sewers design 2. 1 in 2, 30-year + 35% climate change and 100 year + 45% climate change design simulations 3. Foul Water Sewers design
CODES OF PRACTICE, DESIGN SPECIFICATIONS & BRITISH STANDARDS	1. Wallingford Procedure. 2. Sewer Sector Guidance Appendix C. 3. CIRIA C753 (2015) The SuDS Manual.
NOTES	Calculations carried out using Flow. Max surface water discharge 3.6l/s in accordance with the FRA. Refer to design drawing 20652_02_020_01 for sewer layout.

INDEX

Pages	Calculations	Checked by	Date
2–10	Surface Water Sewer design details and 1:2, 1:30-year + 35% climate change & 1:100 year +45% climate change simulation results.	DMH	10/12/2024
11	Hydro-international - hydrobrake design drawing / ref. SHE-0070-2700-1600-2700	DMH	10/12/2024
12	Hydro-international – hydrobrake hydraulic characteristics / ref. SHE-0070-2700-1600-2700	DMH	10/12/2024



M-EC
The Old Chapel, Station Road
Hugglescote, Coalville
LE67 2GB

File: REV b.PFD
Network: Storm Network 1
Michael Webb
10.12.2024

Page 2
Chapel Lane
Witherley
A.R. Cartwright LTD

Design Settings

Rainfall Methodology	FEH-22	Minimum Velocity (m/s)	1.00
Return Period (years)	100	Connection Type	Level Soffits
Additional Flow (%)	0	Minimum Backdrop Height (m)	0.200
CV	0.750	Preferred Cover Depth (m)	1.200
Time of Entry (mins)	5.00	Include Intermediate Ground	✓
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	x
Maximum Rainfall (mm/hr)	50.0		

Adoptable Manhole Type

Max Width (mm)	Diameter (mm)	Max Width (mm)	Diameter (mm)
374	1200	749	1500
499	1350	900	1800

>900 Link+900 mm

Max Depth (m)	Diameter (mm)	Max Depth (m)	Diameter (mm)
1.500	1050	99.999	1200

Nodes

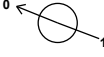
Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
1		5.00	72.180	460	432996.140	297531.676	0.830
2			72.150	460	433003.538	297549.876	0.996
3	0.100	5.00	72.063	460	432990.157	297554.941	1.052
4			71.950	460	432980.602	297558.788	1.042
5	0.037	5.00	72.055	460	432973.678	297561.531	1.221
6			72.050	460	432962.738	297567.024	1.338
7	0.026	5.00	72.000	460	432950.312	297572.355	1.423
8		5.00	71.416	460	432915.381	297584.487	0.616
9			71.416	460	432920.085	297583.459	0.664
10	0.007	5.00	71.579	460	432929.284	297581.083	0.922
11			71.780	460	432934.856	297579.503	1.181
12	0.030	5.00	71.780	460	432943.694	297575.680	1.277
S1			72.000	1200	432938.292	297562.688	1.927
S2			71.010	1200	432931.125	297544.601	1.002
S3			71.032	1200	432929.236	297539.928	1.041
S4			70.300		432881.860	297459.583	0.620

Pipeline Schedule

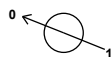
Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.000	19.646	100.0	150	Circular_Default Sewer Type	72.180	71.350	0.680	72.150	71.154	0.846
1.001	14.308	100.0	150	Circular_Default Sewer Type	72.150	71.154	0.846	72.063	71.011	0.902
1.002	10.300	100.0	150	Circular_Default Sewer Type	72.063	71.011	0.902	71.950	70.908	0.892
1.003	7.448	100.0	150	Circular_Default Sewer Type	71.950	70.908	0.892	72.055	70.834	1.071
1.004	12.242	100.0	150	Circular_Default Sewer Type	72.055	70.834	1.071	72.050	70.712	1.188
1.005	13.521	100.0	150	Circular_Default Sewer Type	72.050	70.712	1.188	72.000	70.577	1.273
1.006	7.406	100.0	150	Circular_Default Sewer Type	72.000	70.577	1.273	71.780	70.503	1.127
2.000	4.815	100.0	150	Circular_Default Sewer Type	71.416	70.800	0.466	71.416	70.752	0.514
2.001	9.501	100.0	150	Circular_Default Sewer Type	71.416	70.752	0.514	71.579	70.657	0.772
2.002	5.792	100.0	150	Circular_Default Sewer Type	71.579	70.657	0.772	71.780	70.599	1.031
2.003	9.629	100.0	150	Circular_Default Sewer Type	71.780	70.599	1.031	71.780	70.503	1.127
1.007	14.070	50.3	150	Circular_Default Sewer Type	71.780	70.503	1.127	72.000	70.223	1.627
1.008	19.455	300.0	300	Circular_Default Sewer Type	72.000	70.073	1.627	71.010	70.008	0.702
1.009	5.040	300.0	300	Circular_Default Sewer Type	71.010	70.008	0.702	71.032	69.991	0.741
1.010	93.273	300.0	300	Circular_Default Sewer Type	71.032	69.991	0.741	70.300	69.680	0.320

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	1	460	Manhole	Adoptable	2	460	Manhole	Adoptable
1.001	2	460	Manhole	Adoptable	3	460	Manhole	Adoptable
1.002	3	460	Manhole	Adoptable	4	460	Manhole	Adoptable
1.003	4	460	Manhole	Adoptable	5	460	Manhole	Adoptable
1.004	5	460	Manhole	Adoptable	6	460	Manhole	Adoptable
1.005	6	460	Manhole	Adoptable	7	460	Manhole	Adoptable
1.006	7	460	Manhole	Adoptable	12	460	Manhole	Adoptable
2.000	8	460	Manhole	Adoptable	9	460	Manhole	Adoptable
2.001	9	460	Manhole	Adoptable	10	460	Manhole	Adoptable
2.002	10	460	Manhole	Adoptable	11	460	Manhole	Adoptable
2.003	11	460	Manhole	Adoptable	12	460	Manhole	Adoptable
1.007	12	460	Manhole	Adoptable	S1	1200	Manhole	Adoptable
1.008	S1	1200	Manhole	Adoptable	S2	1200	Manhole	Adoptable
1.009	S2	1200	Manhole	Adoptable	S3	1200	Manhole	Adoptable
1.010	S3	1200	Manhole	Adoptable	S4		Junction	

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
1	432996.140	297531.676	72.180	0.830	460				
						0	1.000	71.350	150
2	433003.538	297549.876	72.150	0.996	460		1	1.000	71.154
						0	1.001	71.154	150
3	432990.157	297554.941	72.063	1.052	460		1	1.001	71.011
						0	1.002	71.011	150

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
4	432980.602	297558.788	71.950	1.042	460	 1	1.002	70.908	150	
						0	1.003	70.908	150	
5	432973.678	297561.531	72.055	1.221	460	 1	1.003	70.834	150	
						0	1.004	70.834	150	
6	432962.738	297567.024	72.050	1.338	460	 1	1.004	70.712	150	
						0	1.005	70.712	150	
7	432950.312	297572.355	72.000	1.423	460	 1	1.005	70.577	150	
						0	1.006	70.577	150	
8	432915.381	297584.487	71.416	0.616	460	 0				
						0	2.000	70.800	150	
9	432920.085	297583.459	71.416	0.664	460	 1	1	2.000	70.752	150
						0	2.001	70.752	150	
10	432929.284	297581.083	71.579	0.922	460	 1	1	2.001	70.657	150
						0	2.002	70.657	150	
11	432934.856	297579.503	71.780	1.181	460	 1	1	2.002	70.599	150
						0	2.003	70.599	150	
12	432943.694	297575.680	71.780	1.277	460	 1	1	2.003	70.503	150
						2	1.006	70.503	150	
						0	1.007	70.503	150	
S1	432938.292	297562.688	72.000	1.927	1200	 1	1	1.007	70.223	150
						0	1.008	70.073	300	
S2	432931.125	297544.601	71.010	1.002	1200	 1	1	1.008	70.008	300
						0	1.009	70.008	300	
S3	432929.236	297539.928	71.032	1.041	1200	 1	1	1.009	69.991	300
						0	1.010	69.991	300	
S4	432881.860	297459.583	70.300	0.620		 1	1	1.010	69.680	300

Simulation Settings

Rainfall Methodology	FEH-22	Drain Down Time (mins)	240	100 year (l/s)	0.0
Summer CV	0.750	Additional Storage (m³/ha)	0.0	Check Discharge Volume	✓
Winter CV	0.840	Check Discharge Rate(s)	✓	100 year 360 minute (m³)	
Analysis Speed	Normal	2 year (l/s)	0.0		
Skip Steady State	✓	30 year (l/s)	0.0		

Storm Durations

15 | 30 | 60 | 120 | 180 | 240 | 360 | 480 | 600 | 720 | 960 | 1440

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
2	0	0	0
30	35	0	0
100	40	0	0

Pre-development Discharge Rate

Site Makeup	Greenfield	Growth Factor 30 year	1.95
Greenfield Method	IH124	Growth Factor 100 year	2.48
Positively Drained Area (ha)		Betterment (%)	0
SAAR (mm)		QBar	
Soil Index	1	Q 1 year (l/s)	
SPR	0.10	Q 30 year (l/s)	
Region	1	Q 100 year (l/s)	
Growth Factor 1 year	0.85		

Pre-development Discharge Volume

Site Makeup	Greenfield	Return Period (years)	100
Greenfield Method	FSR/FEH	Climate Change (%)	0
Positively Drained Area (ha)		Storm Duration (mins)	360
Soil Index	1	Betterment (%)	0
SPR	0.10	PR	
CWI		Runoff Volume (m³)	

Node S1 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Downstream Link	1.008	Sump Available	✓
Replaces Downstream Link	✓	Product Number	CTL-SHE-0086-4000-1600-4000
Invert Level (m)	70.073	Min Outlet Diameter (m)	0.100
Design Depth (m)	1.600	Min Node Diameter (mm)	1200
Design Flow (l/s)	4.0		

Node 3 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	71.011	Slope (1:X)	60.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	19	Depth (m)	0.450
Safety Factor	2.0	Width (m)	13.600	Inf Depth (m)	
Porosity	0.30	Length (m)	10.000		

Node 5 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	70.884	Slope (1:X)	60.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	75	Depth (m)	0.450
Safety Factor	2.0	Width (m)	10.000	Inf Depth (m)	
Porosity	0.30	Length (m)	11.000		

Node 12 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	70.503	Slope (1:X)	60.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	0.450
Safety Factor	2.0	Width (m)	6.700	Inf Depth (m)	
Porosity	0.30	Length (m)	10.000		

Node 12 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	70.503
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Time to half empty (mins)	

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	37.6	0.0	0.800	37.6	0.0	0.801	0.0	0.0

Node 10 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	70.657	Slope (1:X)	60.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	0.450
Safety Factor	2.0	Width (m)	4.700	Inf Depth (m)	
Porosity	0.30	Length (m)	10.000		

Node 8 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	70.800	Slope (1:X)	60.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	276	Depth (m)	0.450
Safety Factor	2.0	Width (m)	4.000	Inf Depth (m)	
Porosity	0.30	Length (m)	10.000		

Node 8 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	70.800
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Time to half empty (mins)	

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	16.0	0.0	0.800	16.0	0.0	0.801	0.0	0.0

Node 10 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	70.599
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Time to half empty (mins)	

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	16.0	0.0	0.800	16.0	0.0	0.801	0.0	0.0



Approval Settings

Node Size	✓	Minimum Full Bore Velocity (m/s)	
Node Losses	✓	Maximum Full Bore Velocity (m/s)	3.000
Link Size	✓	Proportional Velocity	✓
Minimum Diameter (mm)	150	Return Period (years)	
Link Length	✓	Minimum Proportional Velocity (m/s)	0.750
Maximum Length (m)	100.000	Maximum Proportional Velocity (m/s)	3.000
Coordinates	✓	Surcharged Depth	✓
Accuracy (m)	1.000	Return Period (years)	
Crossings	✓	Maximum Surcharged Depth (m)	0.100
Cover Depth	✓	Flooding	✓
Minimum Cover Depth (m)		Return Period (years)	30
Maximum Cover Depth (m)	3.000	Time to Half Empty	x
Backdrops	✓	Discharge Rates	✓
Minimum Backdrop Height (m)		Discharge Volume	✓
Maximum Backdrop Height (m)	1.500	100 year 360 minute (m³)	
Full Bore Velocity	✓		

Results for 2 year Critical Storm Duration. Lowest mass balance: 99.09%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	1	1	71.350	0.000	0.0	0.0000	0.0000	OK
15 minute summer	2	1	71.154	0.000	0.0	0.0000	0.0000	OK
15 minute winter	3	12	71.106	0.095	13.5	1.1364	0.0000	OK
15 minute winter	4	12	71.009	0.101	11.4	0.0167	0.0000	OK
15 minute winter	5	12	70.951	0.117	15.8	0.4228	0.0000	OK
15 minute winter	6	13	70.827	0.115	15.0	0.0191	0.0000	OK
15 minute winter	7	13	70.713	0.136	17.5	0.0227	0.0000	OK
15 minute summer	8	1	70.800	0.000	0.0	0.0000	0.0000	OK
15 minute summer	9	1	70.752	0.000	0.0	0.0000	0.0000	OK
120 minute winter	10	90	70.705	0.048	1.0	0.8328	0.0000	OK
120 minute winter	11	90	70.705	0.106	0.9	0.0176	0.0000	OK
120 minute winter	12	90	70.705	0.202	9.6	9.6235	0.0000	SURCHARGED
120 minute winter	S1	90	70.698	0.625	5.3	0.7074	0.0000	SURCHARGED
720 minute summer	S2	390	70.059	0.051	3.6	0.0578	0.0000	OK
720 minute summer	S3	390	70.040	0.049	3.6	0.0550	0.0000	OK
720 minute summer	S4	390	69.724	0.044	3.6	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	1	1.000	2	0.0	0.000	0.000	0.0000	
15 minute summer	2	1.001	3	0.0	0.000	0.000	0.0812	
15 minute winter	3	1.002	4	11.4	0.937	0.641	0.1256	
15 minute winter	4	1.003	5	11.4	0.838	0.643	0.1014	
15 minute winter	5	1.004	6	15.0	1.026	0.843	0.1786	
15 minute winter	6	1.005	7	14.9	0.959	0.841	0.2119	
15 minute winter	7	1.006	12	17.4	1.403	0.979	0.1242	
15 minute summer	8	2.000	9	0.0	0.000	0.000	0.0000	
15 minute summer	9	2.001	10	0.0	0.000	0.000	0.0048	
120 minute winter	10	2.002	11	-0.8	0.365	-0.048	0.0526	
120 minute winter	11	2.003	12	-0.9	0.066	-0.052	0.1488	
120 minute winter	12	1.007	S1	5.3	0.986	0.209	0.2477	
120 minute winter	S1	Hydro-Brake®	S2	3.6				
720 minute summer	S2	1.009	S3	3.6	0.465	0.056	0.0386	
720 minute summer	S3	1.010	S4	3.6	0.517	0.056	0.6446	45.3

Results for 30 year +35% CC Critical Storm Duration. Lowest mass balance: 99.09%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	1	1	71.350	0.000	0.0	0.0000	0.0000	OK
15 minute winter	2	15	71.327	0.173	2.7	0.0288	0.0000	SURCHARGED
15 minute winter	3	15	71.327	0.316	45.1	9.5350	0.0000	SURCHARGED
30 minute winter	4	25	71.247	0.339	15.6	0.0563	0.0000	SURCHARGED
30 minute winter	5	28	71.196	0.362	26.5	7.3478	0.0000	SURCHARGED
120 minute winter	6	116	71.139	0.427	12.3	0.0710	0.0000	SURCHARGED
180 minute winter	7	172	71.134	0.557	13.5	0.0924	0.0000	SURCHARGED
180 minute winter	8	176	71.131	0.331	3.4	8.0698	0.0000	FLOOD RISK
180 minute winter	9	176	71.131	0.379	3.5	0.0629	0.0000	FLOOD RISK
180 minute winter	10	176	71.131	0.474	6.9	12.4622	0.0000	SURCHARGED
180 minute winter	11	176	71.131	0.532	6.4	0.0883	0.0000	SURCHARGED
180 minute winter	12	176	71.131	0.628	16.3	29.9265	0.0000	SURCHARGED
180 minute winter	S1	176	71.125	1.052	4.2	1.1898	0.0000	SURCHARGED
180 minute winter	S2	44	70.059	0.051	3.6	0.0578	0.0000	OK
180 minute winter	S3	44	70.040	0.049	3.6	0.0550	0.0000	OK
180 minute winter	S4	44	69.724	0.044	3.6	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	1	1.000	2	0.0	0.000	0.000	0.1681	
15 minute winter	2	1.001	3	-2.7	-0.183	-0.149	0.2519	
15 minute winter	3	1.002	4	16.6	0.976	0.934	0.1813	
30 minute winter	4	1.003	5	14.6	0.858	0.823	0.1311	
30 minute winter	5	1.004	6	16.1	1.034	0.906	0.2155	
120 minute winter	6	1.005	7	12.1	0.820	0.681	0.2380	
180 minute winter	7	1.006	12	13.3	0.989	0.751	0.1304	
180 minute winter	8	2.000	9	-3.4	-0.342	-0.191	0.0848	
180 minute winter	9	2.001	10	-3.5	-0.207	-0.200	0.1673	
180 minute winter	10	2.002	11	-6.3	-0.355	-0.352	0.1020	
180 minute winter	11	2.003	12	-6.4	-0.362	-0.359	0.1695	
180 minute winter	12	1.007	S1	4.2	0.991	0.166	0.2477	
180 minute winter	S1	Hydro-Brake®	S2	3.6				
180 minute winter	S2	1.009	S3	3.6	0.465	0.056	0.0386	
180 minute winter	S3	1.010	S4	3.6	0.517	0.056	0.6443	75.6

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.09%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute winter	1	24	71.456	0.106	1.7	0.0176	0.0000	OK
30 minute winter	2	24	71.455	0.301	2.7	0.0500	0.0000	SURCHARGED
30 minute winter	3	25	71.456	0.445	45.5	14.8182	0.0000	SURCHARGED
30 minute winter	4	27	71.369	0.461	16.0	0.0766	0.0000	SURCHARGED
60 minute winter	5	49	71.327	0.493	23.9	11.6655	0.0000	SURCHARGED
180 minute winter	6	176	71.311	0.599	11.2	0.0994	0.0000	SURCHARGED
180 minute winter	7	176	71.307	0.730	13.8	0.1212	0.0000	SURCHARGED
180 minute winter	8	176	71.304	0.504	4.2	12.1522	0.0000	FLOOD RISK
180 minute winter	9	176	71.304	0.552	4.3	0.0916	0.0000	FLOOD RISK
180 minute winter	10	176	71.304	0.647	8.8	15.1133	0.0000	FLOOD RISK
180 minute winter	11	176	71.304	0.705	7.9	0.1170	0.0000	SURCHARGED
180 minute winter	12	176	71.304	0.801	17.9	36.1109	0.0000	SURCHARGED
180 minute winter	S1	176	71.297	1.224	4.8	1.3840	0.0000	SURCHARGED
1440 minute summer	S2	1200	70.059	0.051	3.6	0.0577	0.0000	OK
1440 minute winter	S3	600	70.040	0.049	3.6	0.0550	0.0000	OK
1440 minute winter	S4	600	69.724	0.044	3.6	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
30 minute winter	1	1.000	2	-1.7	-0.139	-0.093	0.3037	
30 minute winter	2	1.001	3	-2.7	-0.158	-0.152	0.2519	
30 minute winter	3	1.002	4	16.0	0.969	0.899	0.1813	
30 minute winter	4	1.003	5	15.1	0.861	0.851	0.1311	
60 minute winter	5	1.004	6	14.7	1.025	0.829	0.2155	
180 minute winter	6	1.005	7	11.1	0.802	0.626	0.2380	
180 minute winter	7	1.006	12	13.6	1.033	0.767	0.1304	
180 minute winter	8	2.000	9	-4.2	-0.344	-0.234	0.0848	
180 minute winter	9	2.001	10	-4.3	-0.245	-0.243	0.1673	
180 minute winter	10	2.002	11	-7.8	-0.442	-0.438	0.1020	
180 minute winter	11	2.003	12	-7.9	-0.451	-0.447	0.1695	
180 minute winter	12	1.007	S1	4.8	0.966	0.193	0.2477	
180 minute winter	S1	Hydro-Brake®	S2	3.6				
1440 minute summer	S2	1.009	S3	3.6	0.465	0.056	0.0386	
1440 minute winter	S3	1.010	S4	3.6	0.517	0.056	0.6444	184.5

Technical Specification

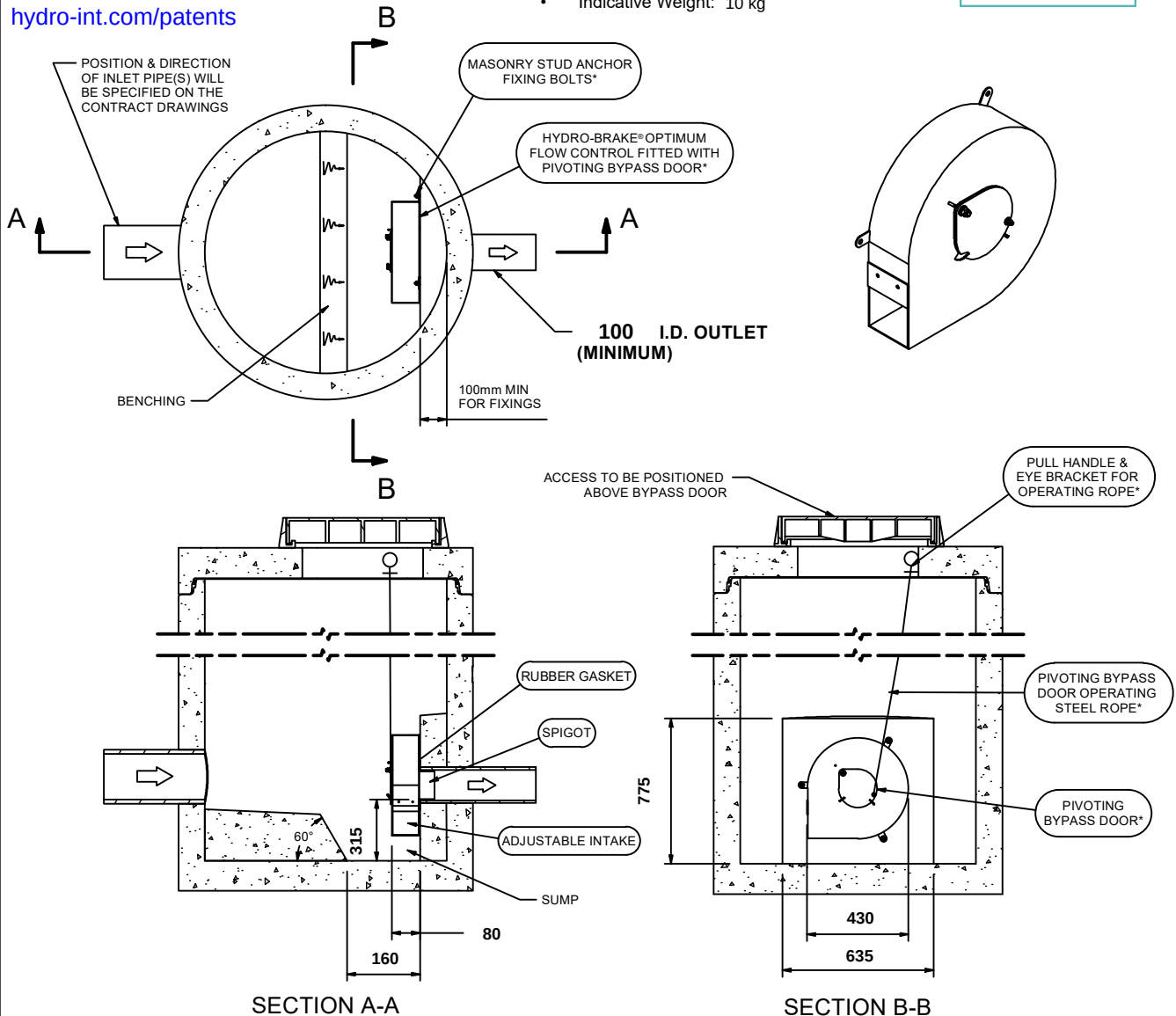
Control Point	Head (m)	Flow (l/s)
Primary Design	1.600	2.700
Flush-Flo™	0.307	2.180
Kick-Flo®	0.626	1.760
Mean Flow		2.117

Hydro-Brake® Optimum Flow Control including:

- 3 mm grade 304L stainless steel
- Integral stainless steel pivoting by-pass door allowing clear line of sight through to outlet, c/w stainless steel operating rope
- Beed blasted finish to maximise corrosion resistance
- Stainless steel fixings
- Rubber gasket to seal outlet
- Variable flow rate post installation via adjustable inlet
- Indicative Weight: 10 kg



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IMPORTANT: ○ LIMIT OF HYDRO INTERNATIONAL SUPPLY
 THE DEVICE WILL BE HANDED TO SUIT SITE CONDITIONS
 FOR SITE SPECIFIC DETAILS AND MINIMUM CHAMBER SIZE REFER TO HYDRO INTERNATIONAL
 ALL CIVIL AND INSTALLATION WORK BY OTHERS
 * WHERE SUPPLIED
 HYDRO-BRAKE® FLOW CONTROL & HYDRO-BRAKE® OPTIMUM FLOW CONTROL ARE REGISTERED TRADEMARKS FOR FLOW
 CONTROLS DESIGNED AND MANUFACTURED EXCLUSIVELY BY HYDRO INTERNATIONAL

THIS DESIGN LAYOUT IS FOR ILLUSTRATIVE PURPOSES ONLY. NOT TO SCALE.

DESIGN ADVICE



The head/flow characteristics of this SHE-0070-2700-1600-2700 Hydro-Brake® Optimum Flow Control are unique. Dynamic hydraulic modelling evaluates the full head/flow characteristic curve.
The use of any other flow control will invalidate any design based on this data and could constitute a flood risk.

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International**
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DATE 09/08/2024 13:25

SITE Chapel Lane

DESIGNER Michael Webb

REF 20652

SHE-0070-2700-1600-2700

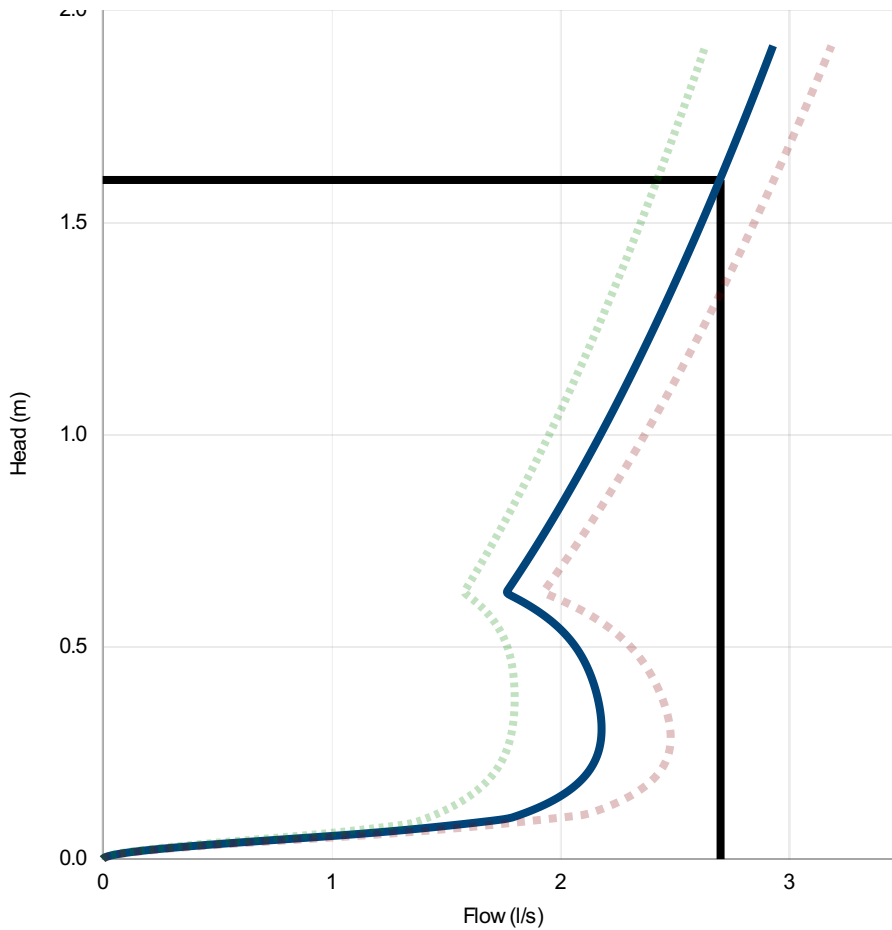
Hydro-Brake® Optimum

Technical Specification

	Original Setting		Minimum Setting		Maximum Setting	
Control Point	Head (m)	Flow (l/s)	Head (m)	Flow (l/s)	Head (m)	Flow (l/s)
Primary Design	1.600	2.700	1.600	2.423	1.600	2.933
Flush-Flo™	0.307	2.180	0.379	1.800	0.286	2.482
Kick-Flo®	0.626	1.760	0.627	1.577	0.627	1.922
Mean Flow		2.117		1.853		2.334



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Head (m)	Flow (l/s)
0.000	0.000
0.055	1.019
0.110	1.854
0.166	2.047
0.221	2.140
0.276	2.176
0.331	2.178
0.386	2.160
0.441	2.126
0.497	2.071
0.552	1.980
0.607	1.833
0.662	1.805
0.717	1.871
0.772	1.935
0.828	1.996
0.883	2.055
0.938	2.113
0.993	2.168
1.048	2.222
1.103	2.275
1.159	2.326
1.214	2.376
1.269	2.425
1.324	2.472
1.379	2.519
1.434	2.564
1.490	2.609
1.545	2.653
1.600	2.696

DESIGN ADVICE



The head/flow characteristics of this SHE-0070-2700-1600-2700 Hydro-Brake® Optimum Flow Control are unique. Dynamic hydraulic modelling evaluates the full head/flow characteristic curve.

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