Manchester Business Park

DISCHARGE OF CONDITION 35 LLFA RESPONSE

Drainage Technical Note

DOCUMENT CONTROL SHEET

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Client: Ask Real Estate

Project: Manchester Business Park

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Title: Discharge of Condition 35 LLFA Response

Status: P01

Date: 29/09/2026

Prepared By: Benny Prescott, Civil Engineer, BEng

Checked By: Jack Williams, Civils Director, CEng MICE MCIHT

Document Revision Record

Version Number	Date	Revision Details
P01	29/09/2026	First Issue

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Introduction

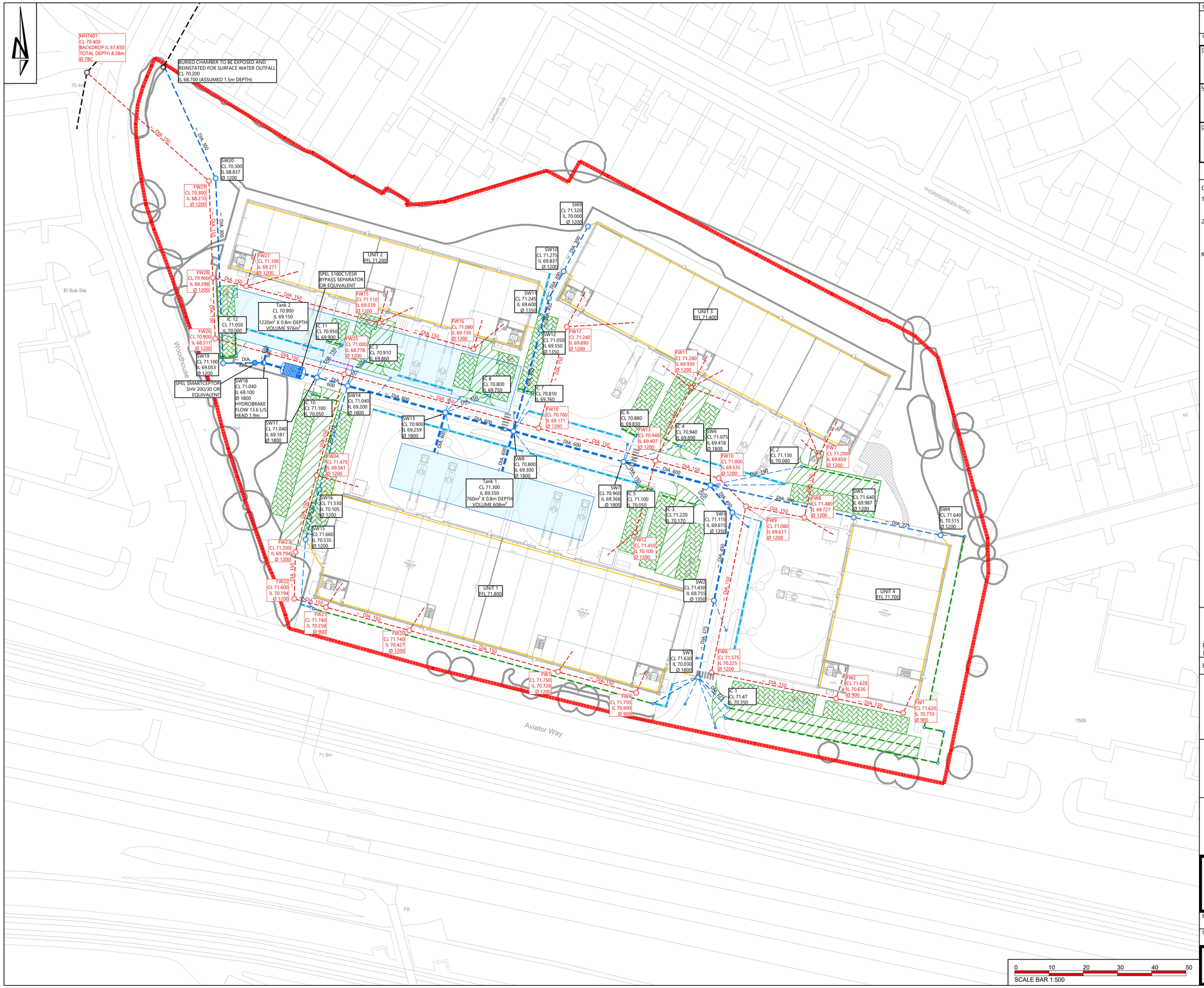
This technical note has been prepared by Burrows Graham Ltd. on behalf of Ask Real Estate in response to the LLFA CDN Consultation Response in relation to condition 35 of the decision notice ref. 144691/FO/2025

RESPONSE TO LLFA COMMENTS

LLFA Observations and Advice	Burrows Graham Response
Where surface water is connected to the ordinary watercourse, agreement in principle from Manchester City Council as Lead Local Flood Authority is required. Please note that all new connections to the watercourses shall comply with reduction of flows to Greenfield runoff rates. An email of acceptance of proposed flows and/or new connection will suffice.	• Not applicable, a section 106 shall be sought with United Utilities before the connection into public sewer system is made.
A finalised drainage layout showing all components, outfalls, levels and connectivity.	• Drainage layout provided within the appendices of this document which includes the relevant information.
An existing and proposed impermeable areas drawing to accompany all discharge rate calculations.	• Drawings provided within the appendices of this document. • Final discharge rate has been proposed in accordance with the consented drainage strategy, approved in 2025.
Hydraulic calculations of the proposed drainage system, including all design parameters. Calculations must Include Critical Storm Events for the 1 in 2, 1 in 30 and 1 in 100 + 45% Climate Change. Results must demonstrate no surcharge for the 1 in 2, no flooding in the 1 in 30 and no flooding of buildings for the 1 in 100 + 45% Climate Change.	• Hydraulic calculations for the relevant rainfall events and climate change allowances are provided within the appendices of this document. • Sufficient attenuation is provided to ensure flooding does not occur within any of the stated rainfall events. Manhole 18 is shown as surcharged in the 1:2 year event as a result of the flow restriction. • The calculations have been updated to include the inspection chambers within the permeable paving 'IC'. Note that the 'CP' references in the calculations relate to the car park permeable paving areas.
Construction details of flow control and SuDS elements.	• Construction details provided within appendices of this document.
A plan indicating easements. SuDS features (including attenuation tanks) should be appropriately positioned, including a 2.5m	• Suds easements plan provided within the appendices of this document.

easement from the existing highway and a 5m easement from any dwellings, guaranteeing accessibility for future maintenance and contingency for asset failure. This practice is in accordance with SuDS Manual (C753).	

APPENDIX A – BELOW GROUND DRAINAGE GENERAL ARRANGEMENT



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SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING

CONSTRUCTION

MAINTENANCE

DEMOLITION

IT IS ASSUMED THAT ALL WORKS WILL BE CARRIED OUT BY A COMPETENT CONTRACTOR WORKING, WHERE APPROPRIATE, TO AN APPROVED METHOD STATEMENT

GENERAL NOTES:

1. This drawing shall be read in conjunction with all the relevant architects, engineers' and service engineers drawings & specifications.
2. All units in millimeters U.O.N. on the drawing. Do not scale off the drawing.

KEY:

- Surface Water drainage
- Siphonic Roof Drainage (by others)
- Channel Drain
- Kerb Drain
- Foul Water Drainage
- Existing Drainage
- Watercourse Diversion (to be confirmed)
- Filter Drain with 600dia inspection chambers (IC)
- Permeable Paving
- Underground Attenuation Tank

REV	DATE	BY	DESCRIPTION	CHKD
P02	29.09.2026	BP	Issued for Information	JW
P01	23.07.2026	BP	Issued for Information	JW

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CLIENT

ask

PROJECT

MANCHESTER BUSINESS PARK

DRAWING TITLE

BELOW GROUND DRAINAGE GENERAL ARRANGEMENT

BGL PROJECT NUMBER	DRAWING STATUS	OFFICE	
30546	PRELIMINARY	NORTH	
SCALE @ A1	DATE	DRAWN BY	CHECKED BY
1:500	23.07.2026	BP	JW

DRAWING No

30546-BGL-XX-XX-DR-C-00001

REV

P02

0 10 20 30 40 50

SCALE BAR 1:500

APPENDIX B – HYDRAULIC CALCULATIONS

Design Settings

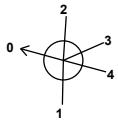
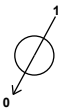
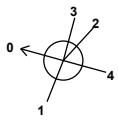
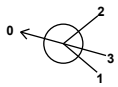
Rainfall Methodology	FEH-22	Minimum Velocity (m/s)	1.00
Return Period (years)	100	Connection Type	Level Soffits
Additional Flow (%)	45	Minimum Backdrop Height (m)	0.200
CV	0.750	Preferred Cover Depth (m)	0.900
Time of Entry (mins)	5.00	Include Intermediate Ground	✓
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	x
Maximum Rainfall (mm/hr)	50.0		

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
CP1	382678.112	385538.769	71.475	0.350		0	1.000	71.125	225
1	382669.361	385547.702	71.630	1.600	1350	1	1.001	70.153	225
						0	1.002	70.030	375
2	382673.976	385570.110	71.430	1.675	1350	1	1.002	69.830	375
						0	1.003_1	69.755	450
3	382679.336	385595.772	71.115	1.500	1350	1	1.003_1	69.615	450
						0	1.003	69.615	450
4	382740.154	385589.159	71.640	1.125	1200	0	2.000	70.515	225
5	382714.768	385594.367	71.640	1.653	1200	1	2.000	70.362	225
						0	2.001	69.987	300
CP2	382699.652	385609.225	71.130	0.350		0	3.000	70.780	150
CP3	382668.335	385598.196	71.220	0.350		0	4.000	70.870	150
6	382672.974	385603.790	71.075	1.657	1350	1	4.001	70.089	150
						2	3.001	69.825	150
						3	2.001	69.718	300
						4	1.003	69.568	450
						0	1.004	69.418	600
CP4	382663.978	385615.296	70.940	0.350		0	5.000	70.590	150

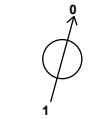
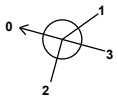
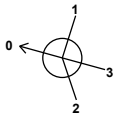
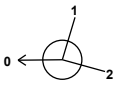
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Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
CP6	382650.998	385618.291	70.880	0.350					
						0	6.000	70.530	150
CP5	382651.926	385603.540	71.100	0.350					
						0	7.000	70.750	150
7	382647.564	385610.629	70.960	1.594	1500		7.001	69.816	150
							6.001	69.740	150
							5.001	69.746	150
							1.004	69.366	600
							1.006_1	69.366	600
9	382637.179	385679.327	71.320	1.320	1200				
						0	8.000	70.000	300
10	382630.065	385666.229	71.275	1.438	1200		8.000	69.837	300
						0	8.001	69.837	300
11	382625.804	385658.383	71.245	1.645	1350		8.001	69.750	300
						0	8.002	69.600	450
12	382623.294	385649.058	71.050	1.500	1350		8.002	69.550	450
						0	8.003	69.550	450
CP7	382620.994	385630.804	70.810	0.350					
						0	9.000	70.460	150
8	382615.395	385619.459	70.800	1.500	1500		10.000	69.300	600
							9.001	69.618	150
							8.003	69.450	450
							1.006_1	69.300	600
							1.006	69.300	600
CP8	382608.294	385629.998	70.800	0.350					
						0	11.000	70.450	150
13	382595.515	385624.974	70.900	1.641	1500		12.000	69.259	600
							11.001	69.609	150
							1.006	69.259	600
							1.007	69.259	600
Tank 1	382612.040	385611.006	71.300	1.950					
						0-1	10.000	69.350	600
						0-2	12.000	69.350	600

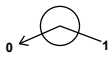
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Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
15	382554.716	385587.921	71.660	1.125	1200				
						0	13.000	70.535	225
16	382558.690	385602.446	71.530	1.425	1200		1	13.000	70.405	225
							0	13.001	70.105	225
14	382566.990	385632.778	71.040	1.840	1500		1	14.001	69.650	150
							2	13.001	69.575	225
							3	1.007	69.200	600
							0	1.008	69.200	600
CP10	382556.711	385630.340	71.100	0.350					
						0	15.000	70.750	150
17	382558.014	385635.234	71.040	1.859	1800		1	16.001	69.631	150
							2	15.001	69.981	150
							3	1.008	69.181	600
							0	1.009	69.181	600
CP12	382534.416	385641.596	71.050	0.350					
						0	17.000	70.700	150
Tank 2	382546.498	385653.080	70.900	1.750			1	17.001	69.847	150
							0	17.002	69.150	600
18	382542.446	385639.531	71.040	1.940	1800		1	17.002	69.100	600
							2	1.009	69.100	600
							0	1.010	69.100	225
19	382530.613	385639.404	71.100	2.047	1800		1	1.010	69.053	225
							0	1.011	69.053	225
20	382528.461	385693.391	70.300	1.463	1200		1	1.011	68.837	225
							0	1.013	68.837	225
OUTFALL	382512.530	385722.191	70.200	1.500	1200		1	1.013	68.700	225
CP9	382572.120	385639.904	70.910	0.350					
						0	14.000	70.560	150
CP11	382565.024	385644.911	70.950	0.350					
						0	16.000	70.600	150

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Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
IC1	382678.693	385541.862	71.475	1.125	1200	1	1.000	70.425	225
									
						0	1.001	70.350	225
IC2	382695.006	385612.332	71.130	1.050	1200	1	3.000	70.080	150
									
						0	3.001	70.080	150
IC3	382665.085	385600.309	71.220	1.050	1200	1	4.000	70.170	150
									
						0	4.001	70.170	150
IC5	382647.415	385603.721	71.100	1.050	1200	1	7.000	70.050	150
									
						0	7.001	70.050	150
IC4	382660.864	385616.467	70.940	1.050	1200	1	5.000	69.890	150
									
						0	5.001	69.890	150
IC6	382648.155	385619.644	70.880	1.050	1200	1	6.000	69.830	150
									
						0	6.001	69.830	150
IC7	382625.043	385629.980	70.810	1.050	1200	1	9.000	69.760	150
									
						0	9.001	69.760	150
IC8	382604.028	385631.859	70.800	1.050	1200	1	11.000	69.750	150
									
						0	11.001	69.750	150
IC9	382575.699	385638.986	70.910	1.050	1200	1	14.000	69.860	150
									
						0	14.001	69.860	150
IC11	382561.171	385645.245	70.950	1.050	1200	1	16.000	69.900	150
									
						0	16.001	69.900	150
IC10	382560.198	385628.706	71.100	1.050	1200	1	15.000	70.050	150
									
						0	15.001	70.050	150
IC12	382533.978	385644.089	71.050	1.050	1200	1	17.000	70.000	150
									
						0	17.001	70.000	150

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Simulation Settings

Rainfall Methodology	FEH-13	Analysis Speed	Detailed	Starting Level (m)	
Rainfall Events	Singular	Skip Steady State	x	Check Discharge Rate(s)	x
Summer CV	0.750	Drain Down Time (mins)	240	Check Discharge Volume	x
Winter CV	0.840	Additional Storage (m³/ha)	20.0		

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	40	0	0
100	45	0	0

Node 18 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Downstream Link	1.010	Sump Available	✓
Replaces Downstream Link	✓	Product Number	CTL-SHE-0154-1360-1900-1360
Invert Level (m)	69.100	Min Outlet Diameter (m)	0.225
Design Depth (m)	1.900	Min Node Diameter (mm)	1500
Design Flow (l/s)	13.6		

Node Tank 2 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	69.150
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.90	Time to half empty (mins)	

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	1220.0	0.0	0.800	1220.0	0.0	0.801	0.0	0.0

Node CP1 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	71.125	Slope (1:X)	40.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	5	Depth (m)	0.250
Safety Factor	2.0	Width (m)	11.000	Inf Depth (m)	
Porosity	0.30	Length (m)	57.000		

Node CP3 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	70.870	Slope (1:X)	60.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	6	Depth (m)	0.250
Safety Factor	2.0	Width (m)	16.000	Inf Depth (m)	
Porosity	0.30	Length (m)	22.750		

Node CP2 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	70.780	Slope (1:X)	30.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	4	Depth (m)	0.250
Safety Factor	2.0	Width (m)	11.000	Inf Depth (m)	
Porosity	0.30	Length (m)	27.000		

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Node CP4 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	70.590	Slope (1:X)	48.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	5	Depth (m)	0.250
Safety Factor	2.0	Width (m)	15.500	Inf Depth (m)	
Porosity	0.30	Length (m)	19.500		

Node CP6 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	70.530	Slope (1:X)	48.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	5	Depth (m)	0.250
Safety Factor	2.0	Width (m)	5.000	Inf Depth (m)	
Porosity	0.30	Length (m)	17.500		

Node CP5 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	70.750	Slope (1:X)	38.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	0	Depth (m)	0.250
Safety Factor	2.0	Width (m)	5.000	Inf Depth (m)	
Porosity	0.30	Length (m)	20.500		

Node CP7 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	70.460	Slope (1:X)	49.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	6	Depth (m)	0.250
Safety Factor	2.0	Width (m)	5.000	Inf Depth (m)	
Porosity	0.30	Length (m)	23.000		

Node CP8 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	70.450	Slope (1:X)	41.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	6	Depth (m)	0.250
Safety Factor	2.0	Width (m)	16.000	Inf Depth (m)	
Porosity	0.30	Length (m)	14.000		

Node CP10 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	70.750	Slope (1:X)	60.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	9	Depth (m)	0.250
Safety Factor	2.0	Width (m)	16.500	Inf Depth (m)	
Porosity	0.30	Length (m)	39.000		

Node CP9 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	70.560	Slope (1:X)	60.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	6	Depth (m)	0.250
Safety Factor	2.0	Width (m)	16.000	Inf Depth (m)	
Porosity	0.30	Length (m)	11.000		

Node CP11 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	70.600	Slope (1:X)	60.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	0	Depth (m)	0.250
Safety Factor	2.0	Width (m)	5.000	Inf Depth (m)	
Porosity	0.30	Length (m)	7.500		

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Node Tank 1 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	69.350
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	760.0	0.0	0.800	760.0	0.0	0.801	0.0	0.0

Node CP12 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	70.700	Slope (1:X)	60.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	0	Depth (m)	0.250
Safety Factor	2.0	Width (m)	5.000	Inf Depth (m)	
Porosity	1.00	Length (m)	20.000		

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Results for 2 year Critical Storm Duration. Lowest mass balance: 95.75%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	CP1	10	71.166	0.041	13.4	0.2464	0.0000	OK
15 minute winter	1	10	70.145	0.115	35.4	0.3894	0.0000	OK
15 minute winter	2	10	69.902	0.147	51.0	0.4131	0.0000	OK
15 minute winter	3	11	69.812	0.197	73.5	0.7121	0.0000	OK
15 minute winter	4	10	70.606	0.091	13.4	0.2550	0.0000	OK
15 minute winter	5	11	70.095	0.108	23.9	0.2235	0.0000	OK
15 minute winter	CP2	10	70.811	0.031	6.1	0.0937	0.0000	OK
15 minute winter	CP3	11	70.912	0.042	5.9	0.2671	0.0000	OK
15 minute winter	6	11	69.719	0.301	119.4	0.7220	0.0000	OK
15 minute winter	CP4	11	70.631	0.041	5.7	0.2152	0.0000	OK
15 minute winter	CP6	10	70.558	0.028	2.6	0.0512	0.0000	OK
15 minute summer	CP5	1	70.750	0.000	0.0	0.0000	0.0000	OK
15 minute winter	7	11	69.678	0.312	147.4	1.1392	0.0000	OK
15 minute winter	9	10	70.095	0.095	23.3	0.3430	0.0000	OK
15 minute winter	10	10	69.980	0.143	41.7	0.4237	0.0000	OK
15 minute winter	11	10	69.788	0.188	58.6	0.5522	0.0000	OK
15 minute winter	12	11	69.753	0.203	71.7	0.5540	0.0000	OK
15 minute winter	CP7	10	70.493	0.033	3.5	0.0696	0.0000	OK
15 minute winter	8	11	69.588	0.288	236.4	0.9240	0.0000	OK
15 minute winter	CP8	11	70.485	0.034	4.0	0.1444	0.0000	OK
15 minute winter	13	11	69.518	0.259	156.8	1.0347	0.0000	OK
30 minute winter	Tank 1	28	69.446	0.096	133.8	72.8379	0.0000	OK
15 minute winter	15	10	70.620	0.085	13.6	0.2413	0.0000	OK
15 minute winter	16	10	70.200	0.095	24.3	0.2116	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	CP1	1.000	IC1	13.2	2.742	0.068	0.0242	
15 minute winter	1	1.002	2	34.7	1.274	0.185	0.6259	
15 minute winter	2	1.003_1	3	50.7	0.914	0.215	1.4577	
15 minute winter	3	1.003	6	73.5	1.185	0.337	0.6349	
15 minute winter	4	2.000	5	13.0	0.888	0.326	0.3786	
15 minute winter	5	2.001	6	23.6	1.053	0.269	0.9603	
15 minute winter	CP2	3.000	IC2	6.1	1.355	0.095	0.0257	
15 minute winter	CP3	4.000	IC3	5.6	1.049	0.168	0.1093	
15 minute winter	6	1.004	7	119.3	0.825	0.393	3.8093	
15 minute winter	CP4	5.000	IC4	5.5	1.078	0.165	0.1044	
15 minute winter	CP6	6.000	IC6	2.5	0.869	0.076	0.0591	
15 minute summer	CP5	7.000	IC5	0.0	0.000	0.000	0.0000	
15 minute winter	7	1.006_1	8	146.7	1.058	0.482	4.6932	
15 minute winter	9	8.000	10	23.0	0.887	0.198	0.3886	
15 minute winter	10	8.001	11	41.0	1.346	0.374	0.2725	
15 minute winter	11	8.002	12	57.9	0.884	0.250	0.6376	
15 minute winter	12	8.003	8	71.9	1.098	0.391	2.0053	
15 minute winter	CP7	9.000	IC7	3.4	0.955	0.103	0.0731	
15 minute winter	8	1.006	13	128.6	1.029	0.422	2.5776	
15 minute winter	CP8	11.000	IC8	3.9	1.029	0.116	0.0766	
15 minute winter	13	1.007	14	85.9	0.721	0.281	3.7228	
15 minute winter	Tank 1	10.000	8	-107.7	-1.769	-0.314	1.3993	
15 minute winter	Tank 1	12.000	13	-70.3	-1.311	-0.158	1.3407	
15 minute winter	15	13.000	16	13.3	1.009	0.276	0.1987	
15 minute winter	16	13.001	14	23.9	1.536	0.353	0.4894	

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Results for 2 year Critical Storm Duration. Lowest mass balance: 95.75%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	14	11	69.491	0.291	116.1	0.5725	0.0000	OK
15 minute winter	CP10	11	70.810	0.060	11.9	0.5045	0.0000	OK
15 minute winter	17	11	69.448	0.267	138.2	0.8869	0.0000	OK
15 minute winter	CP12	10	70.715	0.015	2.0	0.0382	0.0000	OK
480 minute winter	Tank 2	376	69.374	0.224	27.8	246.0734	0.0000	OK
15 minute winter	18	11	69.393	0.293	137.6	0.7452	0.0000	SURCHARGED
15 minute winter	19	11	69.149	0.096	12.2	0.2439	0.0000	OK
15 minute winter	20	12	68.933	0.096	12.2	0.1085	0.0000	OK
15 minute winter	OUTFALL	13	68.790	0.090	12.1	0.0000	0.0000	OK
15 minute winter	CP9	11	70.594	0.034	4.0	0.2263	0.0000	OK
15 minute winter	CP11	10	70.615	0.015	1.7	0.0230	0.0000	OK
15 minute winter	IC1	10	70.420	0.070	13.2	0.0796	0.0000	OK
15 minute winter	IC2	11	70.140	0.060	6.1	0.0678	0.0000	OK
15 minute winter	IC3	11	70.233	0.063	5.6	0.0707	0.0000	OK
15 minute summer	IC5	1	70.050	0.000	0.0	0.0000	0.0000	OK
15 minute winter	IC4	11	69.950	0.060	5.5	0.0674	0.0000	OK
15 minute winter	IC6	11	69.869	0.039	2.5	0.0446	0.0000	OK
15 minute winter	IC7	11	69.806	0.046	3.4	0.0518	0.0000	OK
15 minute winter	IC8	11	69.796	0.046	3.9	0.0523	0.0000	OK
15 minute winter	IC9	11	69.901	0.041	3.8	0.0462	0.0000	OK
15 minute winter	IC11	10	69.925	0.025	1.7	0.0283	0.0000	OK
15 minute winter	IC10	11	70.147	0.097	11.4	0.1094	0.0000	OK
15 minute winter	IC12	11	70.033	0.033	1.9	0.0379	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	14	1.008	17	115.4	0.902	0.425	1.5373	
15 minute winter	CP10	15.000	IC10	11.4	1.241	0.342	0.1866	
15 minute winter	17	1.009	18	137.6	1.076	0.283	2.0789	
15 minute winter	CP12	17.000	IC12	1.9	1.170	0.021	0.0048	
15 minute winter	Tank 2	17.002	18	-125.4	-2.150	-0.307	0.9842	
15 minute winter	18	Hydro-Brake®	19	12.2				
15 minute winter	19	1.011	20	12.2	0.829	0.372	0.8706	
15 minute winter	20	1.013	OUTFALL	12.1	0.782	0.363	0.5102	92.0
15 minute winter	CP9	14.000	IC9	3.8	1.107	0.114	0.0689	
15 minute winter	CP11	16.000	IC11	1.7	1.188	0.022	0.0056	
15 minute winter	IC1	1.001	1	13.1	1.297	0.188	0.1113	
15 minute winter	IC2	3.001	6	6.0	0.922	0.323	0.1526	
15 minute winter	IC3	4.001	6	5.6	0.841	0.326	0.0575	
15 minute summer	IC5	7.001	7	0.0	0.000	0.000	0.0000	
15 minute winter	IC4	5.001	7	5.5	0.866	0.311	0.0922	
15 minute winter	IC6	6.001	7	2.5	0.696	0.141	0.0325	
15 minute winter	IC7	9.001	8	3.4	0.763	0.192	0.0636	
15 minute winter	IC8	11.001	13	3.9	0.862	0.192	0.0491	
15 minute winter	IC9	14.001	14	3.8	0.996	0.150	0.0404	
15 minute winter	IC11	16.001	17	1.6	0.869	0.058	0.0199	
15 minute winter	IC10	15.001	17	11.5	1.012	0.645	0.0780	
15 minute winter	IC12	17.001	Tank 2	1.9	0.656	0.108	0.0448	

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Results for 30 year +40% CC Critical Storm Duration. Lowest mass balance: 95.75%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	CP1	10	71.204	0.079	44.9	0.5051	0.0000	OK
15 minute winter	1	11	70.571	0.541	118.7	1.8340	0.0000	SURCHARGED
15 minute winter	2	11	70.459	0.704	172.8	1.9733	0.0000	SURCHARGED
15 minute winter	3	11	70.351	0.736	250.0	2.6656	0.0000	SURCHARGED
15 minute winter	4	11	70.765	0.250	47.1	0.7014	0.0000	SURCHARGED
15 minute winter	5	11	70.502	0.515	82.8	1.0631	0.0000	SURCHARGED
15 minute winter	CP2	11	70.844	0.064	21.6	0.2188	0.0000	OK
15 minute winter	CP3	11	70.953	0.083	20.8	0.8595	0.0000	OK
15 minute winter	6	11	70.224	0.806	407.9	1.9332	0.0000	SURCHARGED
15 minute winter	CP4	11	70.674	0.084	20.2	0.6857	0.0000	OK
15 minute winter	CP6	10	70.583	0.053	9.1	0.1299	0.0000	OK
15 minute summer	CP5	1	70.750	0.000	0.0	0.0000	0.0000	OK
15 minute winter	7	11	70.078	0.712	505.2	2.6018	0.0000	SURCHARGED
15 minute winter	9	11	70.501	0.501	82.2	1.8120	0.0000	SURCHARGED
15 minute winter	10	11	70.392	0.555	140.6	1.6476	0.0000	SURCHARGED
15 minute winter	11	11	70.139	0.539	199.8	1.5843	0.0000	SURCHARGED
15 minute winter	12	11	70.061	0.511	246.2	1.3917	0.0000	SURCHARGED
15 minute winter	CP7	10	70.523	0.063	12.4	0.1712	0.0000	OK
15 minute winter	8	11	69.814	0.514	813.3	1.6527	0.0000	OK
15 minute winter	CP8	11	70.517	0.067	14.1	0.4320	0.0000	OK
480 minute winter	13	464	69.790	0.531	69.1	2.1206	0.0000	OK
480 minute winter	Tank 1	464	69.790	0.440	37.6	334.3530	0.0000	OK
15 minute winter	15	11	70.797	0.262	48.1	0.7435	0.0000	SURCHARGED
15 minute winter	16	11	70.650	0.545	84.8	1.2109	0.0000	SURCHARGED

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	CP1	1.000	IC1	49.9	3.739	0.255	0.1271	
15 minute winter	1	1.002	2	118.5	1.476	0.634	2.5234	
15 minute winter	2	1.003_1	3	172.4	1.088	0.731	4.1538	
15 minute winter	3	1.003	6	249.9	1.577	1.144	1.6217	
15 minute winter	4	2.000	5	45.4	1.165	1.139	0.9521	
15 minute winter	5	2.001	6	82.0	1.167	0.933	3.0170	
15 minute winter	CP2	3.000	IC2	21.4	1.730	0.338	0.0691	
15 minute winter	CP3	4.000	IC3	19.8	1.348	0.593	0.2762	
15 minute winter	6	1.004	7	407.9	1.448	1.342	7.4121	
15 minute winter	CP4	5.000	IC4	19.2	1.361	0.574	0.2776	
15 minute winter	CP6	6.000	IC6	9.0	1.168	0.268	0.2318	
15 minute summer	CP5	7.000	IC5	0.0	0.000	0.000	0.0000	
15 minute winter	7	1.006_1	8	503.7	1.798	1.656	8.9877	
15 minute winter	9	8.000	10	78.3	1.112	0.674	1.0496	
15 minute winter	10	8.001	11	141.3	2.007	1.288	0.6287	
15 minute winter	11	8.002	12	200.4	1.265	0.864	1.5301	
15 minute winter	12	8.003	8	246.9	1.584	1.343	4.5332	
15 minute winter	CP7	9.000	IC7	12.2	1.342	0.365	0.2042	
15 minute winter	8	1.006	13	336.0	1.404	1.102	4.9153	
15 minute winter	CP8	11.000	IC8	13.6	1.393	0.406	0.1973	
30 minute winter	13	1.007	14	262.2	1.074	0.858	7.2866	
15 minute winter	Tank 1	10.000	8	-476.5	-2.869	-1.391	4.0318	
15 minute winter	Tank 1	12.000	13	-289.5	-2.101	-0.650	4.4414	
15 minute winter	15	13.000	16	45.8	1.302	0.949	0.5989	
15 minute winter	16	13.001	14	80.7	2.029	1.193	1.2380	

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Results for 30 year +40% CC Critical Storm Duration. Lowest mass balance: 95.75%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
480 minute winter	14	464	69.790	0.590	76.3	1.1615	0.0000	OK
15 minute winter	CP10	12	70.960	0.210	42.0	3.5384	0.0000	FLOOD RISK
480 minute winter	17	464	69.790	0.609	84.1	2.0255	0.0000	SURCHARGED
15 minute winter	CP12	10	70.727	0.027	6.9	0.1069	0.0000	OK
480 minute winter	Tank 2	464	69.790	0.640	70.5	702.4077	0.0000	SURCHARGED
480 minute winter	18	464	69.790	0.690	83.5	1.7553	0.0000	SURCHARGED
480 minute winter	19	688	69.155	0.102	13.6	0.2596	0.0000	OK
480 minute summer	20	384	68.939	0.102	13.6	0.1159	0.0000	OK
480 minute summer	OUTFALL	384	68.796	0.096	13.6	0.0000	0.0000	OK
15 minute winter	CP9	11	70.626	0.066	14.1	0.7350	0.0000	OK
15 minute winter	CP11	10	70.629	0.029	6.1	0.0592	0.0000	OK
15 minute winter	IC1	11	70.688	0.338	49.9	0.3827	0.0000	SURCHARGED
15 minute winter	IC2	11	70.554	0.474	21.4	0.5364	0.0000	SURCHARGED
15 minute winter	IC3	11	70.359	0.189	19.8	0.2138	0.0000	SURCHARGED
15 minute winter	IC5	11	70.078	0.028	1.5	0.0312	0.0000	OK
15 minute winter	IC4	11	70.262	0.372	19.2	0.4210	0.0000	SURCHARGED
15 minute winter	IC6	11	70.108	0.278	10.5	0.3142	0.0000	SURCHARGED
15 minute winter	IC7	11	69.868	0.108	12.2	0.1225	0.0000	OK
15 minute winter	IC8	11	69.848	0.098	13.6	0.1108	0.0000	OK
15 minute winter	IC9	11	69.944	0.084	13.3	0.0949	0.0000	OK
15 minute winter	IC11	10	69.949	0.049	6.1	0.0553	0.0000	OK
30 minute winter	IC10	18	70.385	0.335	29.3	0.3792	0.0000	SURCHARGED
15 minute winter	IC12	10	70.065	0.065	6.8	0.0737	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
30 minute winter	14	1.008	17	288.3	1.263	1.061	2.7386	
15 minute winter	CP10	15.000	IC10	29.5	1.689	0.884	0.3521	
30 minute winter	17	1.009	18	319.9	1.559	0.658	3.5331	
15 minute winter	CP12	17.000	IC12	6.8	1.521	0.072	0.0120	
30 minute winter	Tank 2	17.002	18	-307.3	-2.664	-0.753	3.2271	
180 minute winter	18	Hydro-Brake®	19	13.6				
480 minute summer	19	1.011	20	13.6	0.774	0.415	0.9473	
480 minute summer	20	1.013	OUTFALL	13.6	0.807	0.407	0.5540	497.3
15 minute winter	CP9	14.000	IC9	13.3	1.516	0.398	0.1757	
15 minute winter	CP11	16.000	IC11	6.1	1.683	0.079	0.0141	
15 minute summer	IC1	1.001	1	44.7	1.693	0.641	0.4378	
15 minute winter	IC2	3.001	6	20.2	1.145	1.093	0.4160	
15 minute winter	IC3	4.001	6	19.2	1.095	1.116	0.1481	
15 minute winter	IC5	7.001	7	-1.5	-0.122	-0.044	0.0685	
15 minute winter	IC4	5.001	7	19.3	1.094	1.089	0.2557	
15 minute winter	IC6	6.001	7	9.7	0.782	0.548	0.1590	
15 minute winter	IC7	9.001	8	11.6	0.855	0.657	0.2228	
15 minute winter	IC8	11.001	13	13.6	1.174	0.676	0.1272	
15 minute winter	IC9	14.001	14	13.2	1.370	0.530	0.1034	
15 minute winter	IC11	16.001	17	6.0	1.243	0.210	0.0506	
30 minute winter	IC10	15.001	17	29.1	1.651	1.635	0.1200	
15 minute winter	IC12	17.001	Tank 2	6.7	0.927	0.379	0.1114	

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Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 95.75%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	CP1	12	71.444	0.319	67.6	2.9205	0.0000	FLOOD RISK
15 minute winter	1	11	71.223	1.193	159.8	4.0462	0.0000	SURCHARGED
15 minute winter	2	11	71.042	1.287	229.4	3.6104	0.0000	SURCHARGED
15 minute winter	3	11	70.858	1.243	338.1	4.5030	0.0000	FLOOD RISK
15 minute winter	4	11	71.530	1.015	67.6	2.8448	0.0000	FLOOD RISK
15 minute winter	5	11	71.125	1.138	110.7	2.3516	0.0000	SURCHARGED
15 minute winter	CP2	12	71.063	0.283	30.9	1.8215	0.0000	FLOOD RISK
15 minute winter	CP3	12	71.012	0.142	29.7	2.2686	0.0000	OK
15 minute winter	6	11	70.629	1.211	538.3	2.9024	0.0000	SURCHARGED
15 minute winter	CP4	13	70.763	0.173	28.9	2.4542	0.0000	FLOOD RISK
15 minute winter	CP6	11	70.596	0.066	13.1	0.1811	0.0000	OK
15 minute summer	CP5	1	70.750	0.000	0.0	0.0000	0.0000	OK
15 minute winter	7	11	70.376	1.010	667.8	3.6880	0.0000	SURCHARGED
15 minute winter	9	11	71.253	1.253	117.8	4.5302	0.0000	FLOOD RISK
15 minute winter	10	11	71.042	1.205	198.0	3.5753	0.0000	FLOOD RISK
15 minute winter	11	11	70.551	0.951	280.4	2.7937	0.0000	SURCHARGED
15 minute winter	12	11	70.397	0.847	345.4	2.3092	0.0000	SURCHARGED
15 minute winter	CP7	10	70.537	0.077	17.7	0.2314	0.0000	OK
360 minute winter	8	344	70.182	0.882	159.6	2.8326	0.0000	SURCHARGED
15 minute winter	CP8	11	70.532	0.082	20.2	0.6239	0.0000	OK
360 minute winter	13	344	70.181	0.922	110.4	3.6805	0.0000	SURCHARGED
360 minute winter	Tank 1	320	70.204	0.854	75.9	608.3800	0.0000	SURCHARGED
15 minute winter	15	11	71.573	1.038	69.0	2.9455	0.0000	FLOOD RISK
15 minute winter	16	11	71.314	1.209	111.3	2.6870	0.0000	FLOOD RISK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	CP1	1.000	IC1	67.0	3.654	0.342	0.1989	
15 minute winter	1	1.002	2	153.3	1.474	0.820	2.5234	
15 minute winter	2	1.003_1	3	227.0	1.433	0.963	4.1538	
15 minute winter	3	1.003	6	337.4	2.130	1.545	1.6217	
15 minute winter	4	2.000	5	60.5	1.522	1.520	1.0307	
15 minute winter	5	2.001	6	108.9	1.547	1.240	3.0170	
15 minute summer	CP2	3.000	IC2	25.2	1.732	0.397	0.0984	
15 minute winter	CP3	4.000	IC3	25.6	1.480	0.765	0.3487	
15 minute winter	6	1.004	7	537.8	1.909	1.769	7.4121	
15 minute winter	CP4	5.000	IC4	24.2	1.384	0.723	0.3521	
15 minute winter	CP6	6.000	IC6	12.9	1.186	0.386	0.2502	
15 minute summer	CP5	7.000	IC5	0.0	0.000	0.000	0.1761	
15 minute winter	7	1.006_1	8	667.1	2.369	2.193	9.3965	
15 minute winter	9	8.000	10	108.8	1.545	0.936	1.0496	
15 minute winter	10	8.001	11	196.7	2.793	1.793	0.6287	
15 minute winter	11	8.002	12	279.8	1.766	1.206	1.5301	
15 minute winter	12	8.003	8	344.9	2.177	1.876	4.8539	
15 minute winter	CP7	9.000	IC7	17.4	1.407	0.522	0.2670	
15 minute winter	8	1.006	13	432.9	1.560	1.420	5.8096	
15 minute winter	CP8	11.000	IC8	19.4	1.456	0.581	0.2746	
30 minute winter	13	1.007	14	363.4	1.290	1.189	8.3300	
15 minute winter	Tank 1	10.000	8	-667.3	-3.114	-1.949	5.4969	
15 minute winter	Tank 1	12.000	13	-390.8	-2.320	-0.878	5.9499	
15 minute winter	15	13.000	16	59.7	1.501	1.237	0.5989	
15 minute winter	16	13.001	14	107.3	2.699	1.587	1.2406	

Flow+ v12.0 Copyright © 1988-2026 Causeway Technologies Ltd

Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 95.75%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
600 minute winter	14	480	70.172	0.972	77.7	1.9139	0.0000	SURCHARGED
15 minute winter	CP10	13	71.099	0.349	60.2	8.6627	0.0000	FLOOD RISK
720 minute winter	17	555	70.173	0.992	75.9	3.2993	0.0000	SURCHARGED
15 minute winter	CP12	10	70.732	0.032	9.9	0.1467	0.0000	OK
600 minute winter	Tank 2	480	70.185	1.035	73.3	878.9490	0.0000	SURCHARGED
600 minute winter	18	480	70.181	1.081	86.5	2.7521	0.0000	SURCHARGED
60 minute summer	19	278	69.155	0.102	13.6	0.2596	0.0000	OK
30 minute winter	20	117	68.939	0.102	13.6	0.1159	0.0000	OK
30 minute winter	OUTFALL	117	68.796	0.096	13.6	0.0000	0.0000	OK
15 minute winter	CP9	11	70.641	0.081	20.2	1.0757	0.0000	OK
15 minute winter	CP11	10	70.634	0.034	8.8	0.0796	0.0000	OK
15 minute winter	IC1	12	71.353	1.003	67.0	1.1349	0.0000	FLOOD RISK
15 minute winter	IC2	12	70.963	0.883	24.9	0.9991	0.0000	FLOOD RISK
15 minute winter	IC3	11	70.773	0.603	25.6	0.6818	0.0000	SURCHARGED
15 minute winter	IC5	11	70.375	0.325	10.1	0.3674	0.0000	SURCHARGED
15 minute winter	IC4	11	70.539	0.649	24.2	0.7335	0.0000	SURCHARGED
15 minute winter	IC6	11	70.430	0.600	12.9	0.6784	0.0000	SURCHARGED
600 minute winter	IC7	480	70.177	0.417	1.5	0.4711	0.0000	SURCHARGED
720 minute winter	IC8	555	70.178	0.428	3.0	0.4838	0.0000	SURCHARGED
600 minute winter	IC9	480	70.169	0.309	3.7	0.3494	0.0000	SURCHARGED
600 minute winter	IC11	510	70.177	0.277	3.2	0.3130	0.0000	SURCHARGED
15 minute winter	IC10	14	70.416	0.366	30.8	0.4137	0.0000	SURCHARGED
360 minute winter	IC12	320	70.168	0.168	1.3	0.1902	0.0000	SURCHARGED

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
30 minute winter	14	1.008	17	404.5	1.440	1.488	3.3479	
15 minute winter	CP10	15.000	IC10	30.8	1.747	0.921	0.3521	
30 minute winter	17	1.009	18	454.2	1.778	0.934	4.4680	
15 minute winter	CP12	17.000	IC12	9.8	1.608	0.103	0.0157	
30 minute winter	Tank 2	17.002	18	-439.8	-2.900	-1.078	3.9736	
30 minute winter	18	Hydro-Brake®	19	13.6				
60 minute summer	19	1.011	20	13.6	0.824	0.415	0.9473	
60 minute summer	20	1.013	OUTFALL	13.6	0.807	0.407	0.5540	235.0
15 minute winter	CP9	14.000	IC9	18.9	1.630	0.566	0.2319	
15 minute winter	CP11	16.000	IC11	8.7	1.847	0.115	0.0186	
15 minute winter	IC1	1.001	1	70.2	1.764	1.007	0.4378	
15 minute winter	IC2	3.001	6	27.5	1.564	1.493	0.4160	
15 minute winter	IC3	4.001	6	28.2	1.604	1.642	0.1518	
15 minute winter	IC5	7.001	7	-10.1	-0.675	-0.309	0.1216	
15 minute summer	IC4	5.001	7	25.3	1.437	1.431	0.2557	
15 minute winter	IC6	6.001	7	12.8	0.777	0.720	0.1590	
15 minute winter	IC7	9.001	8	16.6	0.944	0.938	0.2513	
15 minute summer	IC8	11.001	13	18.3	1.088	0.906	0.1920	
15 minute winter	IC9	14.001	14	18.8	1.445	0.755	0.1608	
15 minute winter	IC11	16.001	17	8.6	1.366	0.302	0.0771	
15 minute winter	IC10	15.001	17	30.7	1.746	1.730	0.1200	
15 minute winter	IC12	17.001	Tank 2	9.6	1.014	0.543	0.1460	

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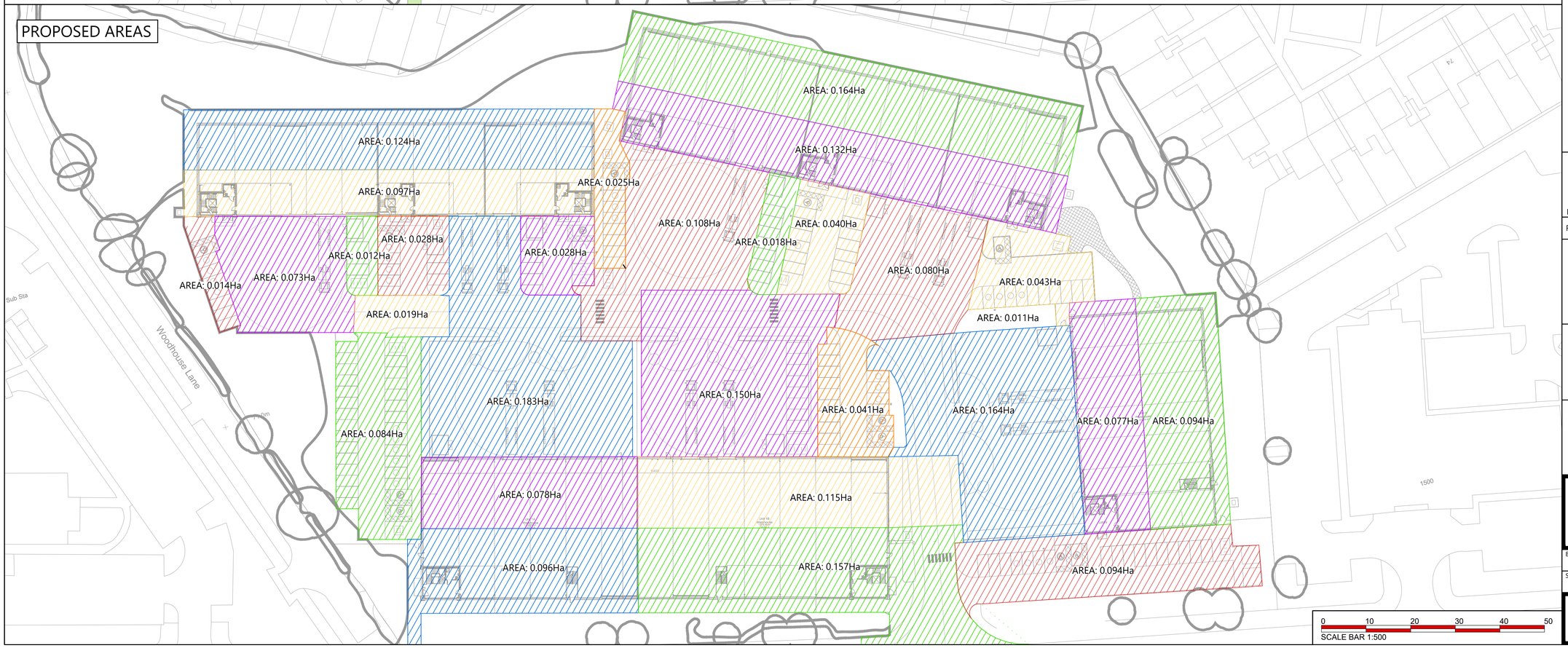
APPENDIX C – CATCHMENT AREAS

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EXISTING AREAS



PROPOSED AREAS



0 10 20 30 40 50
SCALE BAR 1:500

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING

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DEMOLITION

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2. All units in millimeters U.O.N. on the drawing. Do not scale off the drawing.

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Burrows Graham

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PROJECT

MANCHESTER BUSINESS PARK

DRAWING TITLE

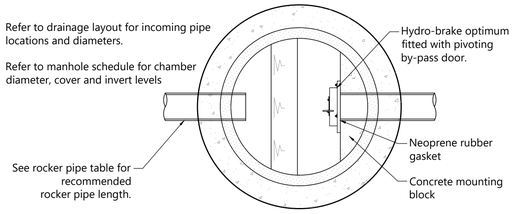
DRAINAGE CATCHMENTS

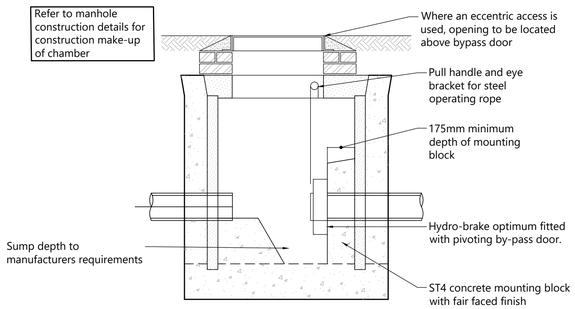
BGL PROJECT NUMBER	DRAWING STATUS	OFFICE	
30546	PRELIMINARY	NORTH	
SCALE @ A1	DATE	DRAWN BY	CHECKED BY
1:500	29.09.2026	BP	JW

DRAWING No: 30546-BGL-XX-XX-DR-C-00002

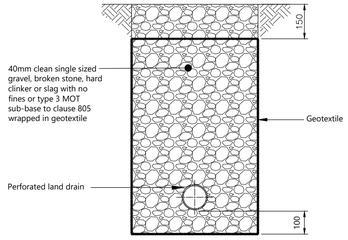
REV: P01

APPENDIX D – CONSTRUCTION DETAILS



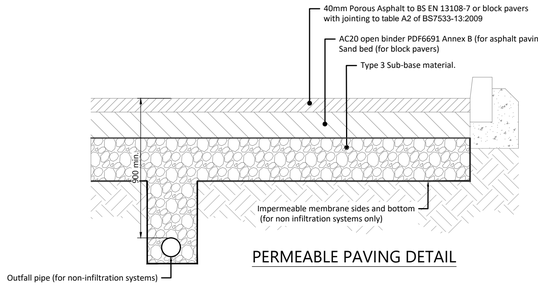


TYPICAL FLOW CONTROL MANHOLE

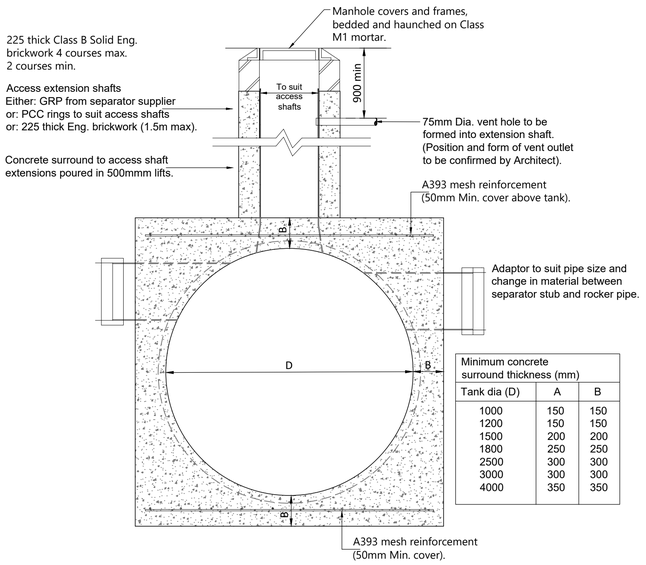


FILTER DRAIN DETAIL

(Excavation and backfill material to be wrapped with Geotextile)



PERMEABLE PAVING DETAIL

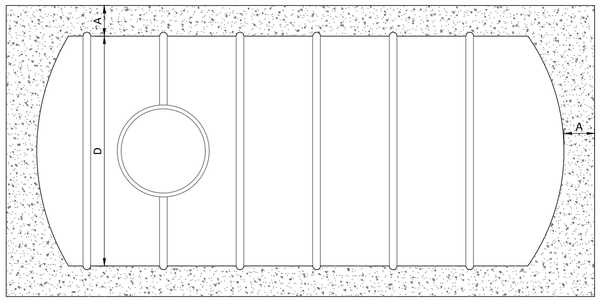


Minimum concrete surround thickness (mm)		
Tank dia (D)	A	B
1000	150	150
1200	150	150
1500	200	200
1800	250	250
2500	300	300
3000	300	300
4000	350	350

UNDERGROUND TANK DETAIL

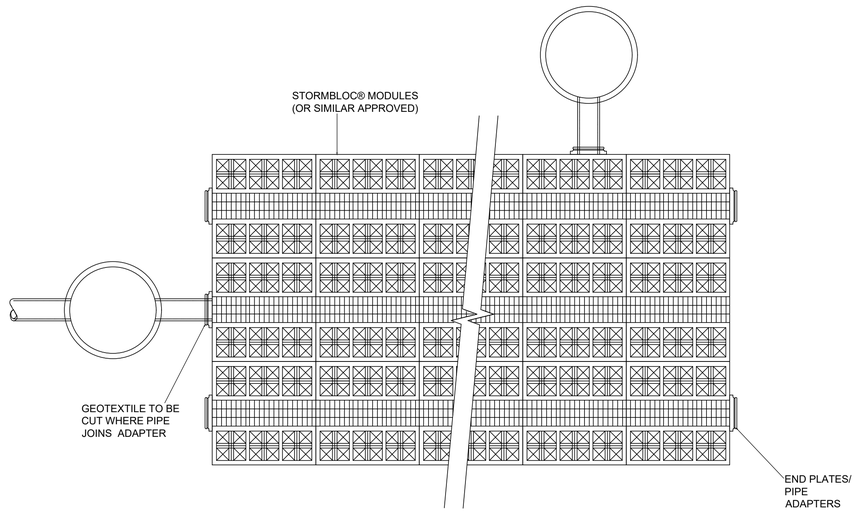
(To be installed in accordance with the Manufacturers instructions)

Detail applicable where concrete surround is stipulated by tank supplier or where tank is subject to construction traffic loads

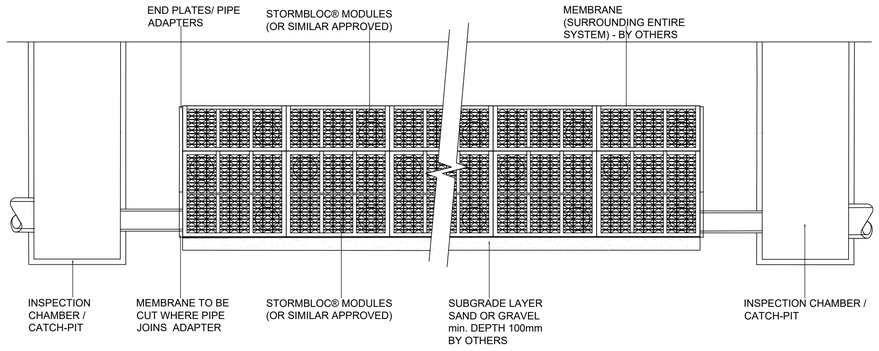


UNDERGROUND TANK DETAIL PLAN

(To be installed in accordance with the Manufacturers instructions)



TYPICAL UNDERGROUND ATTENUATION TANK PLAN



TYPICAL UNDERGROUND ATTENUATION TANK SECTION

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2. All units in millimeters U.O.N. on the drawing. Do not scale off the drawing.

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PROJECT

MANCHESTER BUSINESS PARK

DRAWING TITLE

CONSTRUCTION DETAILS

BGL PROJECT NUMBER	DRAWING STATUS	OFFICE	
30546	PRELIMINARY	NORTH	
SCALE @ A1	DATE	DRAWN BY	CHECKED BY
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DRAWING No: 30546-BGL-XX-XX-DR-C-00003

REV: P01

Technical Specification

Control Point	Head (m)	Flow (l/s)
Primary Design	1.900	13.600
Flush-Flo™	0.556	13.574
Kick-Flo®	1.160	10.771
Mean Flow		11.873

This Hydro-Brake® Optimum includes:

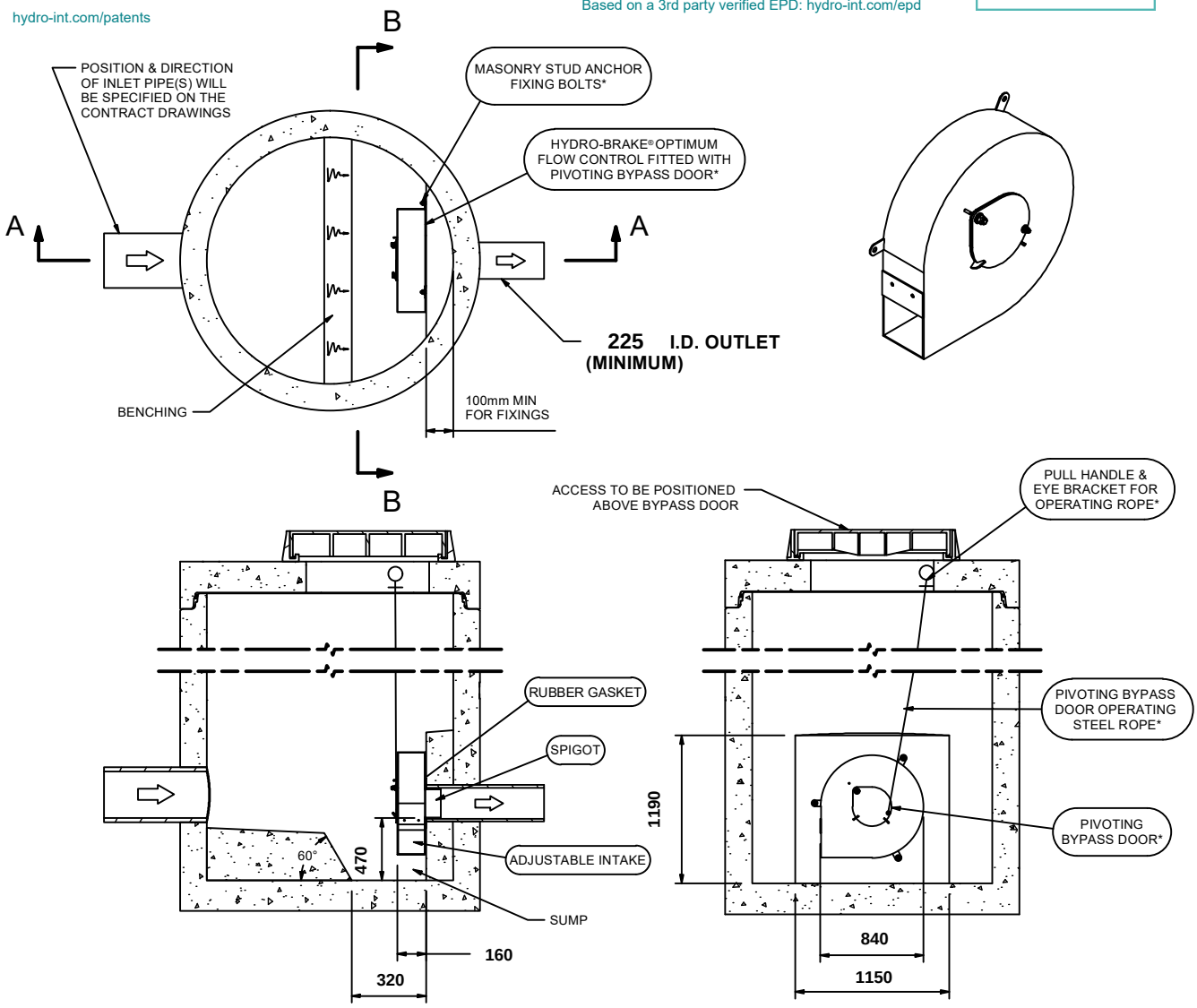
- •All in 5 mm Grade 304L stainless steel
- • Integral pivoting by-pass door allowing clear line of sight through to outlet, c/w operating rope
- • Media blasted for corrosion resistance
- • Variable flow rate post installation via adjustable inlet (if necessary)
- • Indicative Weight: 65 kg
- • Product Carbon Footprint: 279.11 kgCO2e

Based on a 3rd party verified EPD: hydro-int.com/epd

BBA APPROVAL INSPECTION TESTING CERTIFICATION CERTIFICATE 08/4596

wrc approved PT/503/0422 Valid: 01/04/2022 - 31/03/2027

hydro-int.com/patents



SECTION A-A SECTION B-B

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® IS A REGISTERED TRADEMARK 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-0154-1360-1900-1360 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.

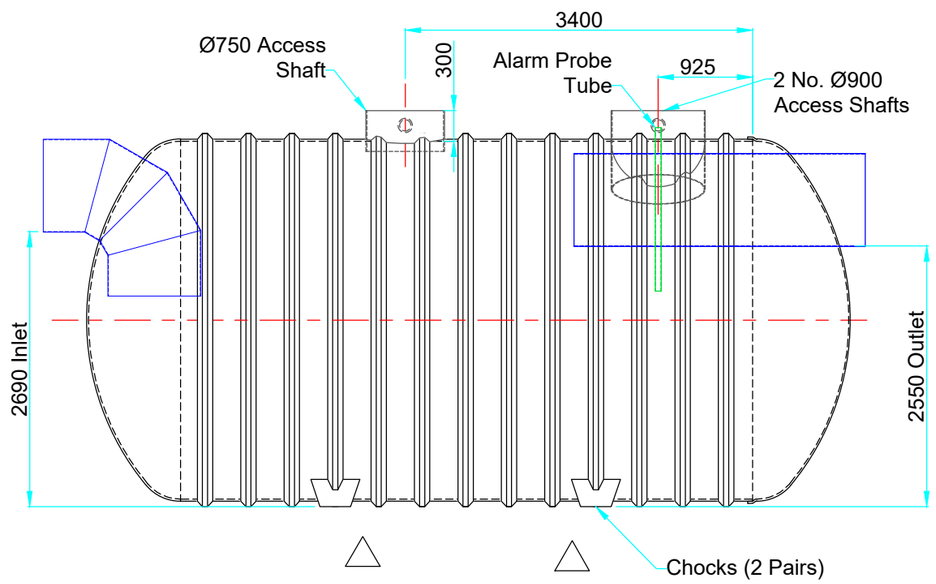
Hydro International A CRH COMPANY

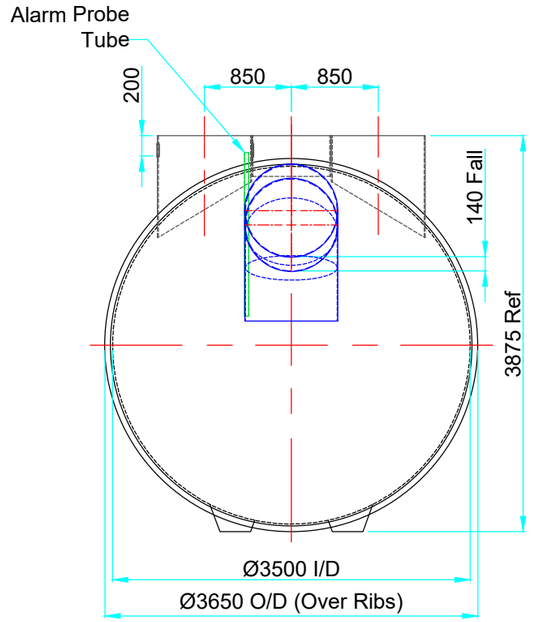
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SITE	Manchester B.P.
DESIGNER	benny prescott
REF	30546-MBP

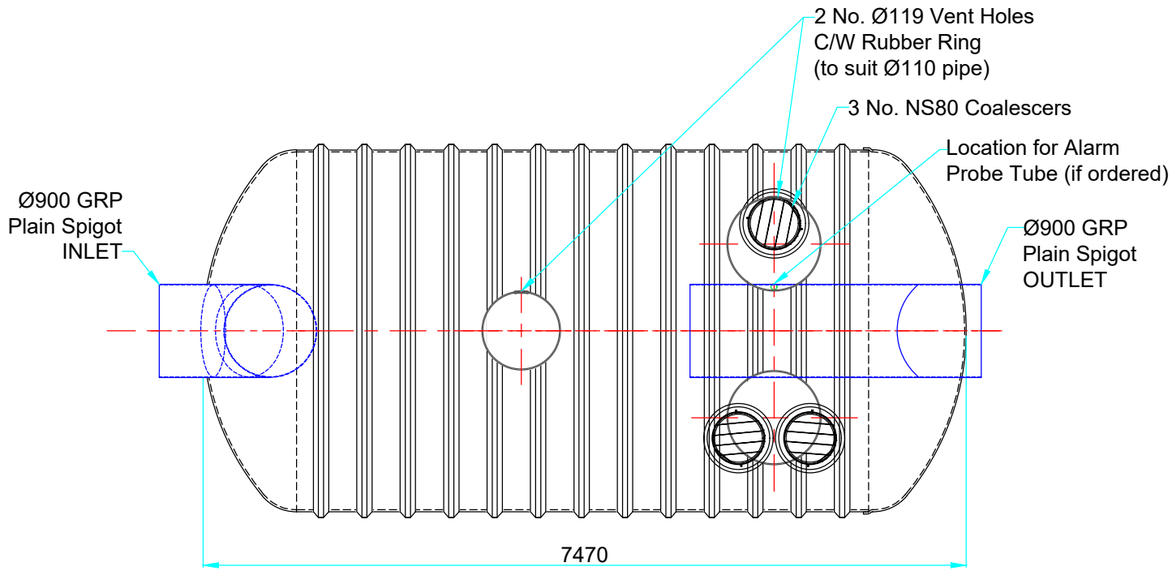
SHE-0154-1360-1900-1360
Hydro-Brake® Optimum

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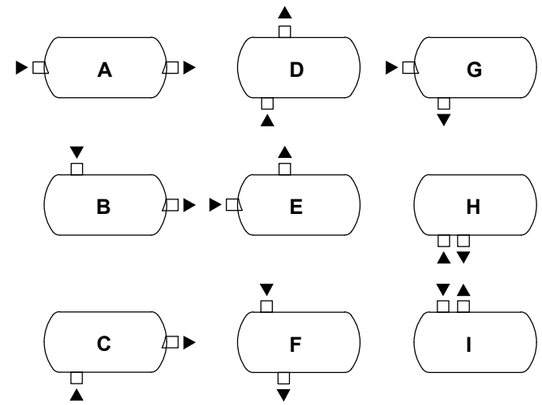
bennyprescott@burrowsgraham.com







Orientation: A
INLET: Ø900 GRP Plain Spigot
OUTLET: Ø900 GRP Plain Spigot



Nine Inlet/Outlet options are available to assist with design and installation

Access shafts subject to change depending on pipe orientation

Key to Symbols: △ Lifting Point | Hold- down strap rib locations where mechanical anchoring is required | Manufacturing Joint | ◯ BoQ's reference no.

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DIMENSIONS ARE SUBJECT TO DIMENSIONAL TOLERANCES. If critical, check physically prior to installation

Water table & Burial Depth: The customer must check tank specification is compatible with ground water table level (in winter) and burial depth. If in doubt refer to SPEL Data Manual Section 13 or contact SPEL Products Sales or Technical Department

Title: SPEL 500 Series Stormceptor 5180C1/ESR - Orientation (A-I)

Contract:

Gross Capacity 65,000 ltrs

Tank Specification

Laminate Specification

All sizes in mm
If in doubt ASK!

SPEL Life in Water
Lancaster Road, Shrewsbury
Shropshire, SY1 3NQ, England
Telephone: +44 (0)1743 445200
www.spelproducts.co.uk

Drawn

Checked

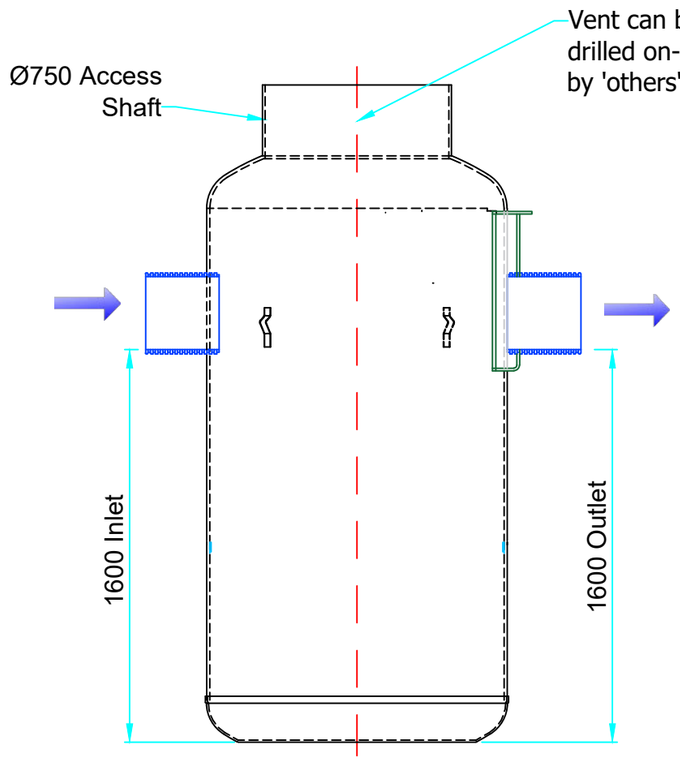
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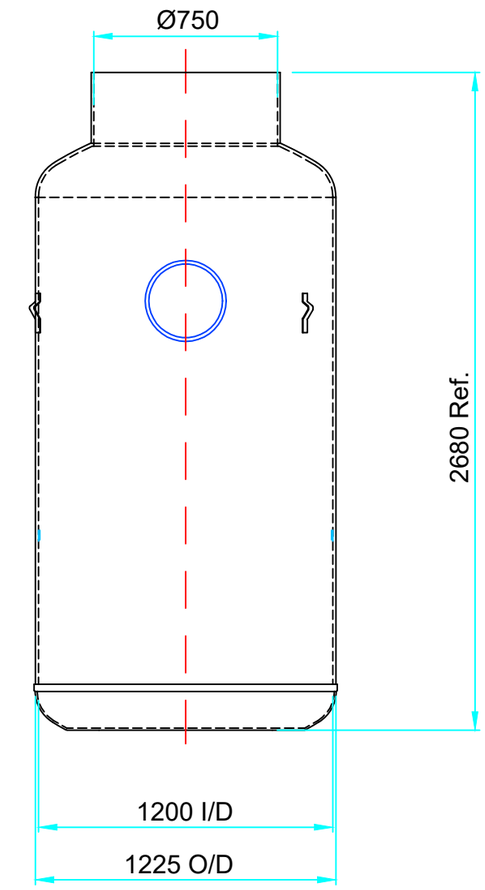
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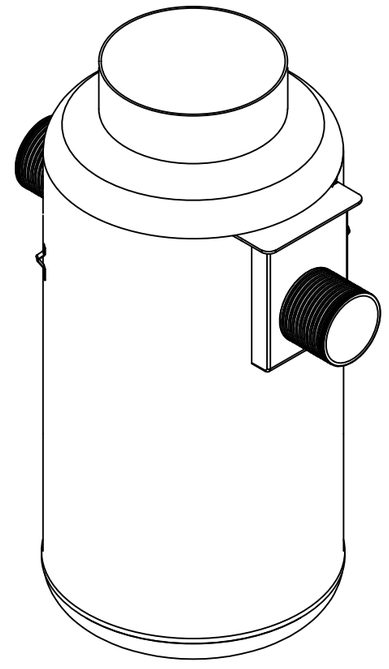
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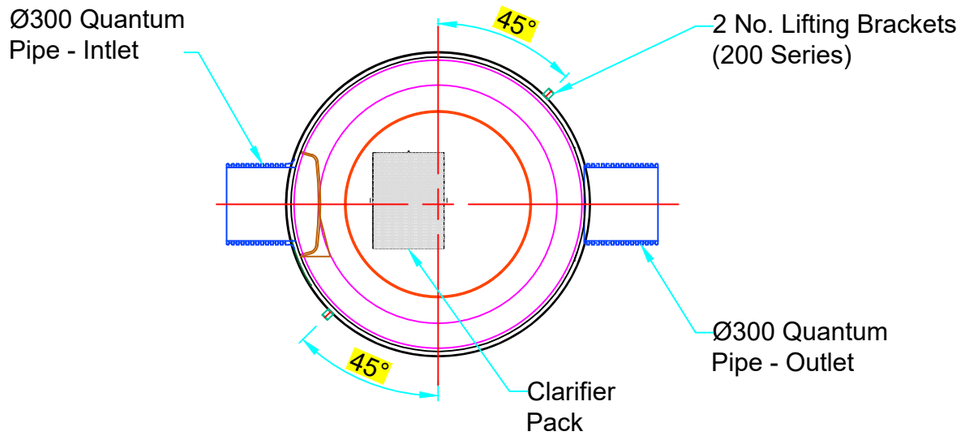
TANK SERIAL No.

INTERNAL ORDER No.









Key to Symbols: △ Lifting Point | ∘ ∘ Hold- down strap rib locations where mechanical anchoring is required | Manufacturing Joint | ◯ BoQ's reference no.

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Water table & Burial Depth: The customer must check tank specification is compatible with ground water table level (in winter) and burial depth. If in doubt refer to SPEL Data Manual Section 7 or contact SPEL Products Sales or Technical Department

Title: SPEL 200 Series Smartceptor Hydrodynamic Vortex Separator SHV200/30

Contract:

Capacity --

Tank Specification

Laminate Specification

All sizes in mm
If in doubt ASK!

SPEL Life in Water
Lancaster Road, Shrewsbury
Shropshire, SY1 3NQ, England
Telephone: +44 (0)1743 445200
www.spelproducts.co.uk

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Checked

Date

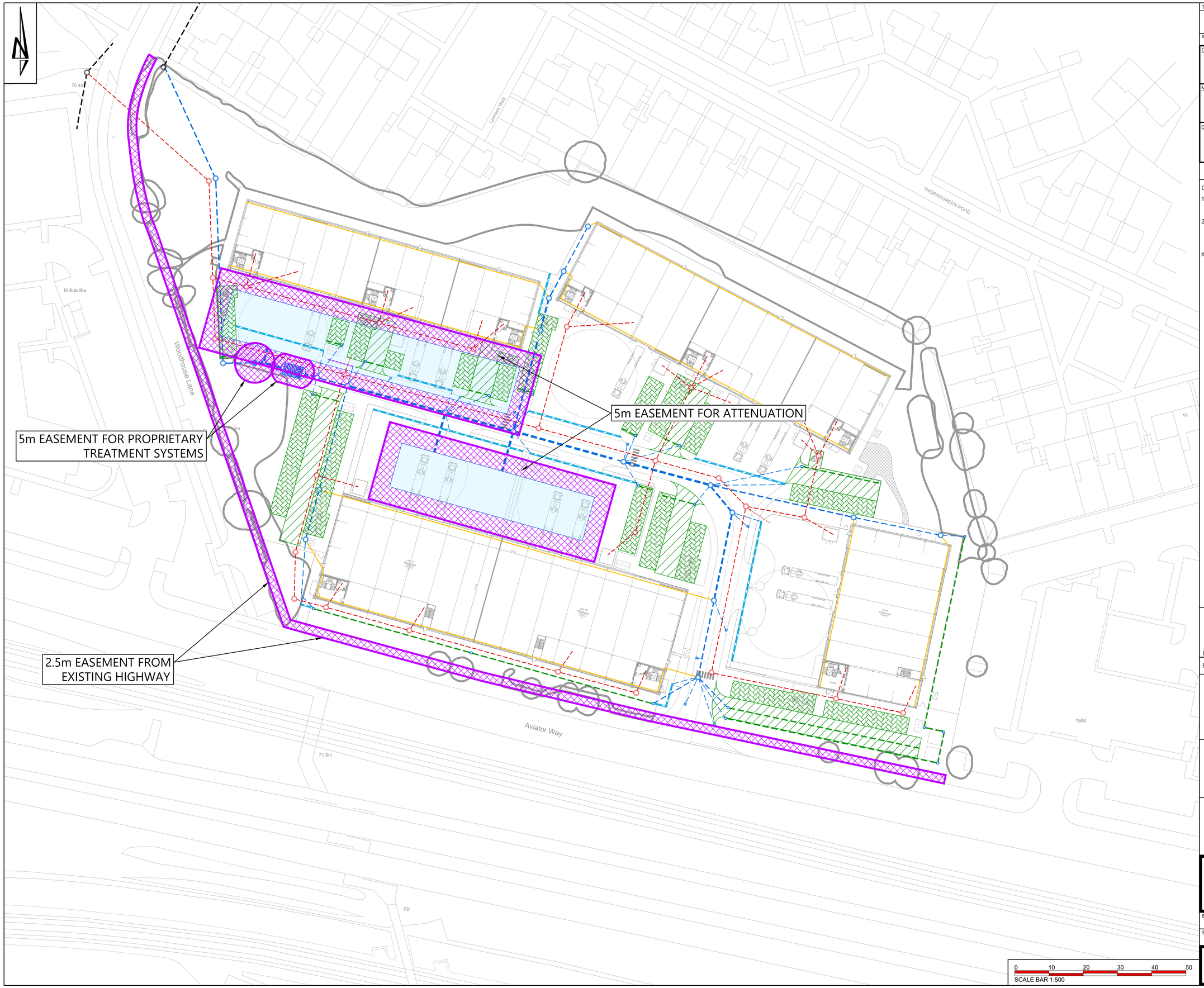
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TANK SERIAL No.

INTERNAL ORDER No.

Revision

APPENDIX E – SUDS EASEMENTS



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KEY:

SuDS Easement

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High Street, Berkhamsted HP4 2BL
Tel: +44 (0)1442 508 402

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PROJECT

MANCHESTER BUSINESS PARK

DRAWING TITLE

SUDS EASEMENTS

BGL PROJECT NUMBER	DRAWING STATUS	OFFICE	
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SCALE @ A1	DATE	DRAWN BY	CHECKED BY
1:500	29.09.2026	BP	JW

DRAWING No: 30546-BGL-XX-XX-DR-C-00004

REV: P01

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