BURO HAPPOLD

Etihad North Stand

SuDS Maintenance and Management Report

0053810-BHE-XX-XX-RP-C-0010

0053810

11 December 2025

Revision P01

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Revision	Description	Issued by	Date	Checked
P01	Issued for Information	CM	11.12.2025	NH

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date	**11.12.2025**

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1 Introduction

Buro Happold have prepared the following Maintenance and Management Report to sit alongside the proposed detailed drainage strategy for the MCFC North Stand Development. at the Etihad Campus. This report is for the use of Manchester City Football Club in the maintenance and upkeep of the SuDS systems installed as part of this development.

The site is located within the Etihad Campus in the east of Manchester. It is approximately 3.5ha and is bordered by the Etihad Stadium to the south, the National Squash Centre to the west, the Metrolink Tram Line to the north and Alan Turing Way to the east. The immediate surrounding area comprises mainly of the Etihad Campus including Sports infrastructure, the Metrolink Tram Line and Ashton Canal.

The development comprises of an expanded North Stand, an expanded and covered 'City Square' fan zone adjacent to the North Stand with associated food and drink facilities workspace, a new club shop and club museum, and a hotel. A vehicular access route from Alan Turing Way provides a drop-off point for the operation of the hotel.

The surface water drainage strategy comprises of a traditional gravity drainage network sized to convey flows from hardstanding areas and buildings to a geocellular storage tank, located in the northern area of the City Square, prior to being discharged to the United Utilities sewer network at maximum rate of 38.2l/s for a 1 in 100 year +40% climate change rainfall event. SuDS including an attenuation tank, permeable paving and a bioretention system are incorporated into the landscape plan and used for water quality, conveyance and attenuation where possible.

The drainage strategy has been undertaken in accordance with local and national standards, best practice and the requirements of MCC and United Utilities.

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2 Site Plan

See **Appendix A** for Site Plan and SuDS locations.

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3 Method Statement

3.1 Attenuation Storage Tanks

Graff EcoBloc Maxx Geocellular units have been used to create a below ground void space located below City Square for temporary storage of surface water before controlled release to the United Utilities Sewer Network.

The operation and maintenance requirements are given in the table below.

Please see **Appendix B** for further product information.

Table 3—1 Attenuation Storage Tank Maintenance Requirements

Maintenance Schedule	Required Action	Recommended Frequency
Regular Maintenance	Inspect and identify any areas that are not operating correctly. If required take remedial action.	Monthly for 3 months then Annually
	Remove debris from the catchment surface (where it may cause risks to performance).	Monthly
	Remove sediment from pre-treatment structures and/or internal forebays.	Minimum of Annually but more frequently if required
Remedial Actions	Repair/Rehabilitate inlets, outlets, overflows, and vents.	As required following monitoring
Monitoring	Inspect/check all inlets, outlets, vents, and overflows to ensure they are in good condition and operating as designed.	Annually
	Survey inside of tank for sediment buildup and remove if necessary.	5 years (min) or more frequently if required.

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3.2 Vortex Flow Control/Orifice Flow Control

A Crown Water 215mm QR5 Vortex Flow Control is located downstream of the attenuation tank located within City Square to restrict the discharge of surface water into the United Utilities surface water network.

Please see **Appendix C** for further product information.

A FlowBrake Orifice Plate is used downstream of the permeable paving located adjacent to squash centre to restrict the discharge of surface water into the United Utilities surface water network.

The operation and maintenance requirements are given in the table below.

Table 3—2 Flow Control Maintenance Requirements

Maintenance Schedule	Required Action	Recommended Frequency
Regular Maintenance	Remove litter and debris (including any vegetation/grass cuttings) from the upstream SuDS to prevent these being washed into the control.	Quarterly
	Inspection of control chamber and removal of any sediments, debris etc.	Monthly during first six months of operation, then as established by this monitoring (min quarterly)
Remedial Actions	Check the flow control fixings to manhole chamber and access into the control chamber is functional.	Quarterly or as required following monitoring
Monitoring	Inspect flow controls and overflows and check flow are not impeded.	Annually

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3.3 Pervious Paving

Both permeable block paving and permeable tarmac have been used within the Etihad North Stand development. Permeable block paving allows water to infiltrate through gaps between the blocks into a layer of gravel, whereas permeable tarmac allows water to permeate through the tarmac via gaps within the surface layer.

Water is then either captured within a gravel layer surrounded by an impermeable membrane before being discharged into the site surface water network or is allowed to infiltrate into the ground, dependant on where in the development the paving is located.

Where an impermeable membrane is used the gravel layer is utilised as additional attenuation volume by the sitewide drainage strategy.

The operation and maintenance requirements are given in the table below:

Table 3—3 Pervious Paving Maintenance Requirements

Maintenance Schedule	Required Action	Recommended Frequency
Regular Maintenance	Sweeping - Note: Any jointing material between the blocks that is lost or displaced as a result of sweeping must be replaced. New jointing material must be the same type as that removed or a suitable replacement	Three times a year at the end of winter, mid-summer and after autumn leaf fall. Also as required based on site-specific observations
Occasional Maintenance	Stabilise and mow contributing and adjacent areas to prevent excess sediment being washed into the paving	As required
	Removal of weeds	As required – once per year on less frequently used pavements
Remedial Actions	Remedial work to any depressions, rutting and cracked or broken blocks considered detrimental to the structural performance or a hazard to users	As required
	Rehabilitation of surface and underlying sand and geotextile	As required (if infiltration performance is significantly reduced as a result of significant clogging).
Monitoring	Initial inspection	Monthly for three months after installation
	Inspect for evidence of poor operation and/or weed growth – if required, take remediation action	Three monthly, 48 hr after large storms in first six months
	Inspect silt accumulation rates and establish appropriate brushing frequencies	Three monthly, 48 hr after large storms in first six months
	Monitor Inspection Chambers	Annually

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3.4 Bioretention System

A bioretention system is used within the Hotel drop-off turning circle within the Etihad North Stand development. The system consists of a shallow landscaped depressions that captures flows from the adjacent hardstanding, providing treatment and reducing runoff rates through the use of engineered soils and vegetation.

The operation and maintenance requirements are given in the table below:

Table 3—4 Bioretention System Maintenance Requirements

Maintenance Schedule	Required Action	Recommended Frequency
Regular Inspections	Inspect infiltration surfaces for silting and ponding, record de-watering time of the facility and assess standing water levels in underdrain (if appropriate) to determine if maintenance is necessary.	Quarterly
	Check operation of underdrains by inspection of flows after rain.	Annually
	Assess plants for disease infection, poor growth, invasive species etc and replace as necessary.	Quarterly
	Inspect inlets and outlets for blockage.	Quarterly
Regular Maintenance	Remove litter and surface debris and weeds.	Quarterly (or more frequently for tidiness or aesthetic reasons)
	Replace plants, to maintain planting density.	As required following inspections
	Remove sediment, litter and debris build-up from around inlets or from forebays.	Quarterly to biannually
Occasional Maintenance	Infill any holes or scour in the filter medium, improve erosion protection if required.	As required
	Repair minor accumulations of silt by raking away surface mulch, scarifying surface of medium and replacing mulch.	As required
Remedial Actions	Remove and replace filter medium and vegetation above.	As required but likely to be > 20yrs

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3.5 Petrol Interceptors

Petrol interceptors are used onsite to remove pollutants and sediments from surface water runoff, prior to entry into the attenuation tank. Pollutants are removed by allowing non-aqueous phase liquids (oils/hydrocarbons) to float and large sediment particles to sink, using baffles, coalescers or skimmers to improve performance.

A Kingspan NBSE030 Bypass Separator is located upstream of the attenuation tank in the north of City Square, please see **Appendix D** for further product information.

A SPEL 300 Series Stormceptor is located east of the hotel and is used to treat flows coming from the Orange Car Park, please see **Appendix E** for further product information.

The operation and maintenance requirements are given in the table below:

Table 3—5 Petrol Interceptor Maintenance Requirements

Maintenance Schedule	Required Action	Recommended Frequency
Routine Maintenance	Remove litter and debris and inspect for sediment, and oil accumulation	Six Monthly
	Remove sediment, oil and floatables	As required by system inspections or immediately following spill.
	Assess plants for disease infection, poor growth, invasive species etc and replace as necessary.	Quarterly
	Inspect inlets and outlets for blockage.	Quarterly
Remedial Actions	Replace malfunctioning or worn parts	As required following inspection or manufacturers product guidance
Monitoring	Inspect for evidence of poor operation	Six Monthly
	Inspect sediment accumulation rates and establish appropriate removal frequencies.	Monthly during first six months of operation, then as established by this monitoring (min six monthly).

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4 Design Life

The design life of the development is likely to exceed the design life of each of the SuDS components listed above.

During the routine inspections of any drainage components it may become apparent that they have reached the end of their functional lifetime. In the interest of sustainability repairs should be the first choice solution where practicable. If this is not the case then it will be necessary for the property owners to undertake complete replacement of the component in question.

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Appendix A Site Plan

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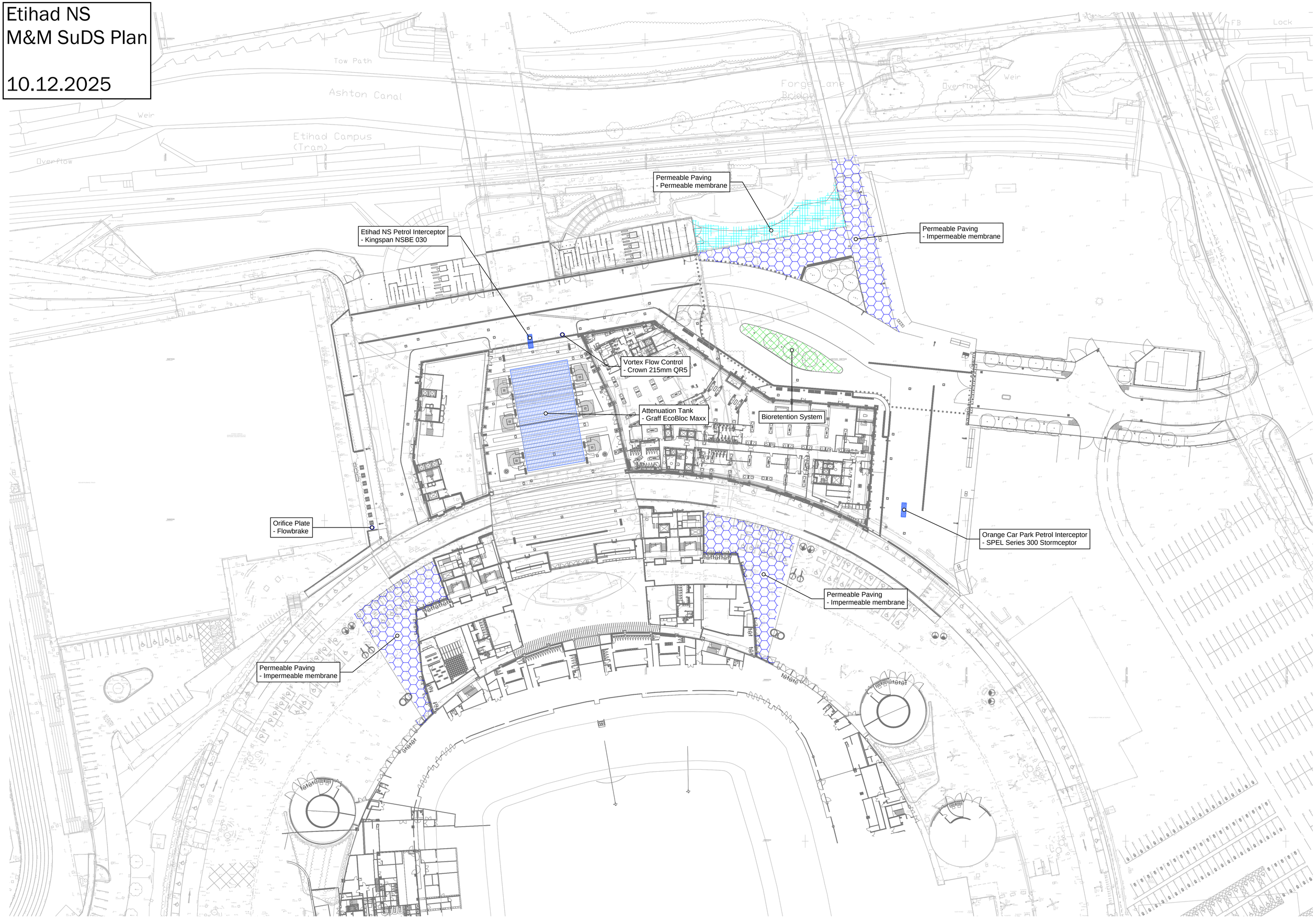
Etihad NS
M&M SuDS Plan

10.12.2025



Appendix B Graff EcoBloc Maxx Geocellular units

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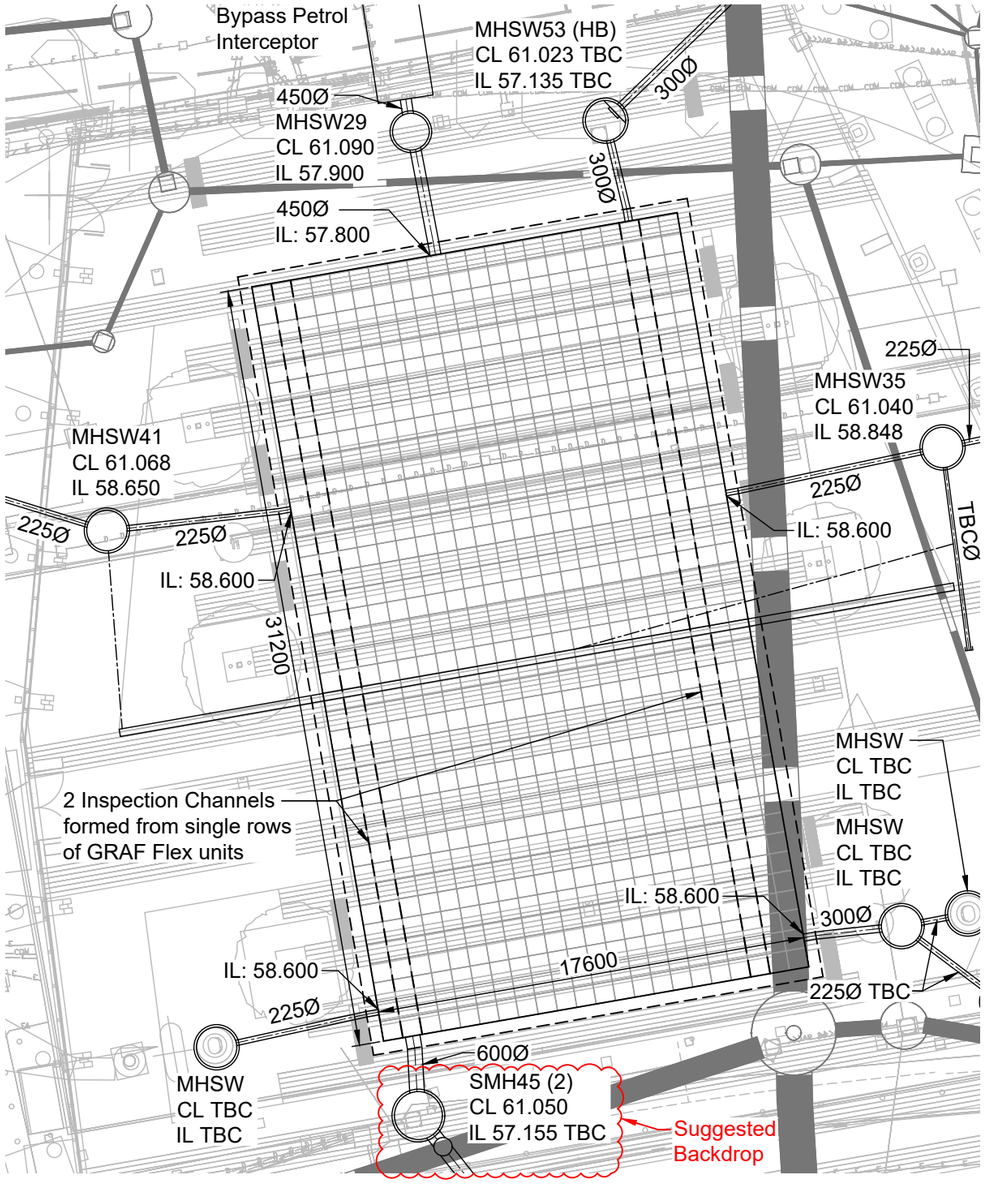
A3



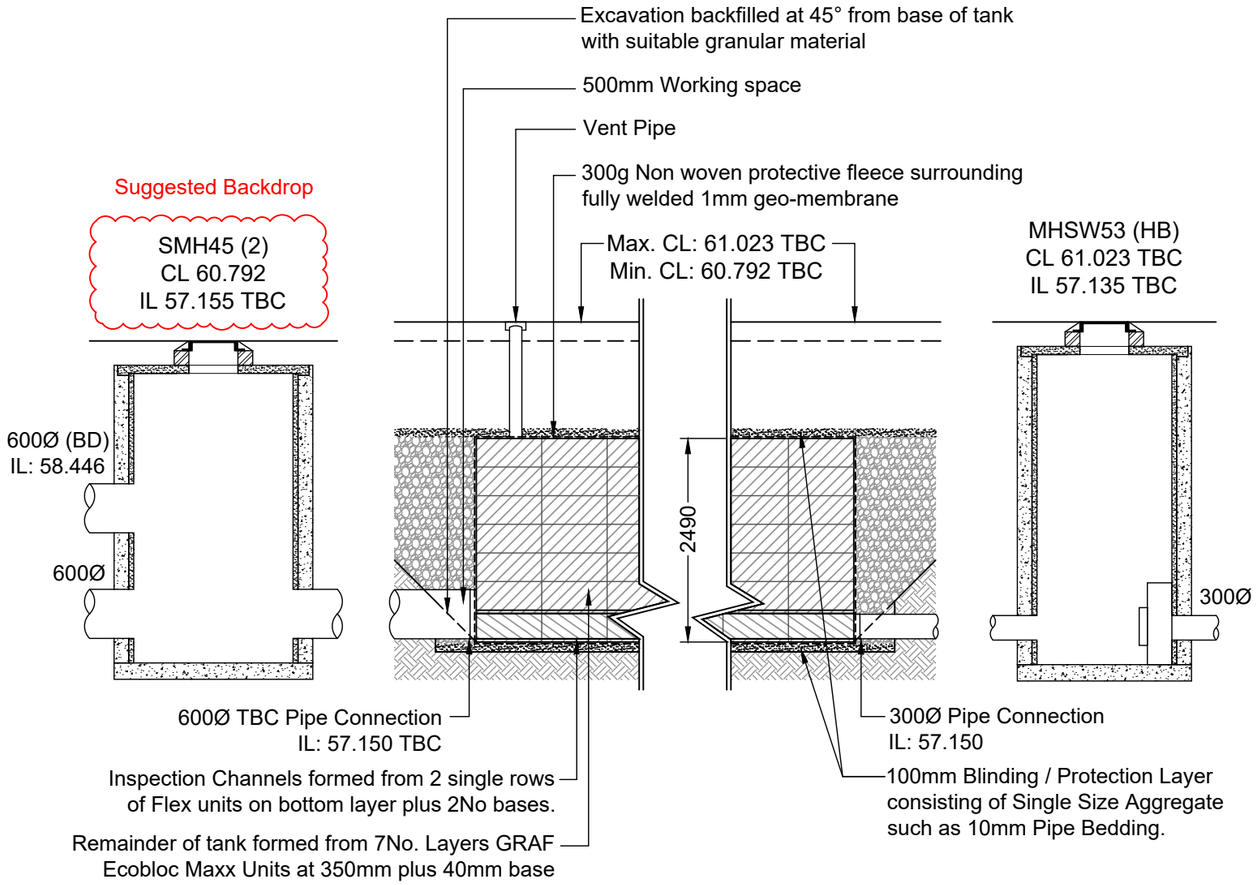
Proposed Plan
(Scale 1:250)

31.2 x 17.6 x 2.49m deep
Total Vol = 1367.309m^3
Net Vol ≈ 1315.351m^3
At 96.2% min Void Ratio
5928 GRAF Ecobloc Maxx units
858 Maxx base units
78 GRAF Ecobloc Flex units
78 Flex base units
425 Maxx & 2 Flex end units (pairs)

Extents of excavation to be an additional 500mm around the perimeter of the tank

NOTES

1. Proposed Hydro WMS layout.
2. All dimensions are in millimetres, all elevations in metres unless otherwise stated.
3. All temporary and enabling works by others.
4. All dimensions of fabricated items are nominal and may vary within manufacturing tolerances.



Proposed Section
(Scale 1:75)

REV	AMENDMENT	DATE
A	UPDATE DRAINAGE LAYOUT & LEVELS	19/12/2023

HydroWMS
Complete Water Management Solutions

HYDRO WMS LTD
RANDOLPH HOUSE 3
7-41 LONGSHUT LANE WEST
STOCKPORT
SK2 6RX
Tel/Fax: 0161 4563476
brian.byrne@hydro-wms.co.uk
www.hydro-wms.co.uk

CLIENT: -	STATUS: FOR APPROVAL	DATE: 24/11/2023	DRAWN: WS / CHECKED:
JOB TITLE: MCFC North Stand	DRAWING TITLE: Proposed Attenuation Tank Details	SCALE: 1:250@ A3	PROJECT No.:
		DRAWING No.: 001	REV.: A

Inspection & Maintenance of GRAF Underground Stormwater Tanks

The owner of the structure is responsible for maintenance.

For small soakaways/attenuation tank to individual houses, the only necessary maintenance of the system is to keep all gullies clear of debris such as leaves.

For large installations or where the receiving waters are environmentally sensitive, a system of regular inspections should be established to prevent siltation of the system which, if allowed to develop could reduce effectiveness. They should also be inspected after every major storm event.

It is recommended that silt traps, filters or other means of reducing the amount of silt and solids entering the system to a minimum, should be incorporated into the pipework at the inlet of the tank. There must be a maintenance plan that ensures regular cleaning of the trap to ensure correct performance.

For all flow control devices, it is sensible to incorporate access (via a manhole or similar) to the location of the pipe entry, orifice or vortex control. This will enable easy removal of any blockage. The orifice itself may be protected by a debris screen.

Paved surface areas above an installation should be inspected at the same time to ensure the units continue to provide the required structural support.

Silt traps prior to inlet pipework should be routinely inspected and cleaned out to minimise debris reaching the tank. It is important to prevent construction silt from entering the tank structure.

It is recommended that any system be inspected no less frequently than at monthly intervals for the first 3 months and thereafter at 6 monthly intervals. In addition, it is suggested that the installation is inspected immediately following the first storm event, whenever this should occur post installation.

Individual maintenance schedules should be drawn up using the information obtained from the initial inspections. It should also be noted that more regular inspections may be required should the catchpit(s) fill more frequently and/or if the initial inspections reveal that maintenance/cleaning will be required more regularly than at six month intervals.

OPERATION & MAINTENANCE REQUIREMENTS

Regular inspection and maintenance is required to ensure the effective long-term operation of below ground modular storage systems. Maintenance responsibility should be placed with a responsible organisation. Maintenance requirements for modular systems are described in Table 1.0 below.

Specific maintenance needs of the system should be monitored, and maintenance schedules adjusted to suit requirements.

Table 1.0 Modular systems – operation and maintenance requirements

Maintenance schedule	**Required action**	**Recommended frequency**
Regular maintenance	Inspect and identify any areas that are not operating correctly. If required, take remedial action.	Monthly for 3 months, then six monthly
	Debris removal from catchment surface (where may cause risks to performance)	Monthly
	Where rainfall infiltrates into blocs from above, check surface of filter for blockage by silt, algae or other matter. Remove and replace surface infiltration medium as necessary.	Monthly (and after large storms)
	Remove sediment from pre-treatment structures, i.e. Silt Trap/Catchpit Manholes.	Annually, or as required
Remedial actions	Repair/rehabilitation of inlets, outlet, overflows and vents	As required
Monitoring	Inspect/check all inlets, outlets, vents and overflows to ensure that they are in good condition and operating as designed.	Annually and after large storms

Appendix C Crown Water 215 QR5 Vortex Flow Control

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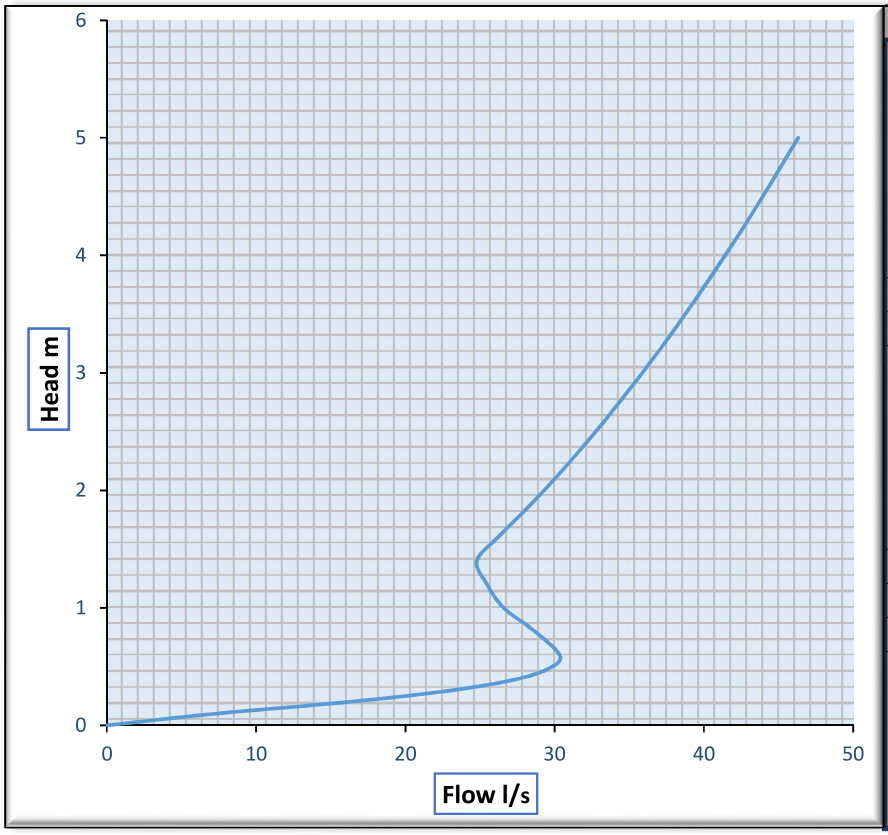
CROWN WATER Data Sheet

215 mm QR5 Type Vortex Flow Control

Job Ref : 26030424

Client Name		Date	04/04/2024
Project Name	24_21_1791	For the attention of	



Head m	Flow l/s
0	0.000
0.1	7.340
0.2	16.260
0.3	23.240
0.4	27.680
0.5	29.850
0.6	30.330
0.8	28.680
1	26.590
1.2	25.470
1.4	24.790
1.6	26.200
1.8	27.790
2	29.300
2.2	30.730
2.4	32.090
2.6	33.400
3	35.880
3.4	38.200
3.8	40.380
4.2	42.460
4.6	44.430
5	46.320

Design Flow	38.2 l/s	Flush Flow	30.36 l/s
Design Head	3.4 m	At Head	0.571 m
Minimum PipePipe	Curved 300 mm	Kickback Flow	24.82 l/s
Sump Depth	510 mm	At Head	1.394 m

Note: Surface Water Only

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sales@crownwater.com
Company Registration Number *9514593*

ISO 9001 REGISTERED FIRM

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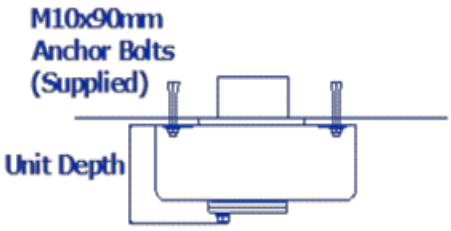
CROWN WATER

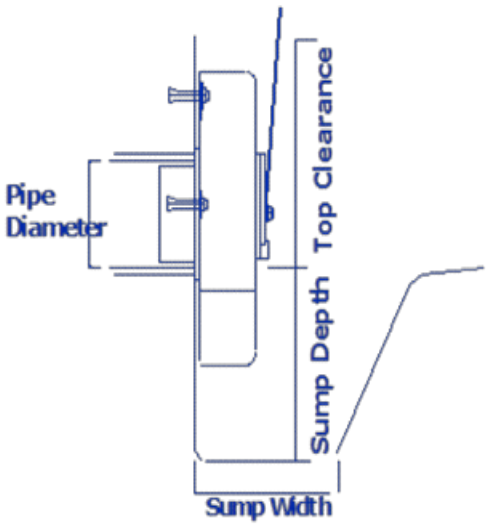
Job Ref	26030424

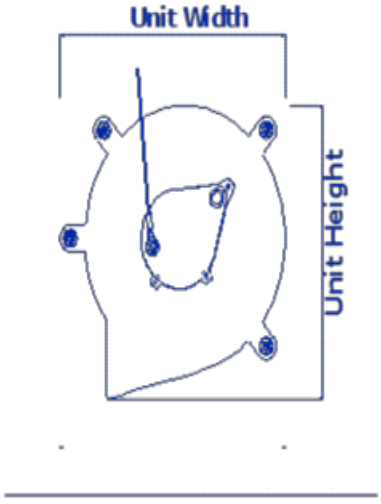
215 mm QR5 Type Vortex Flow Control

Client Name		Date	04/04/2024
Project Name	24_21_1791	For the attention of	

Crown Water Radial Type Vortex Flow Control Unit Installation Guide







Unit Outlet Diameter	215mm	Sump Depth (Min)	510 mm
Unit Height	1090 mm	Sump Width (Min)	400 mm
Unit Width	1040 mm	Pipe Diameter (Min)	Curved 300mm
Unit Depth	250 mm	Top Clearance(Min)	645 mm

Note: Surface Water Only

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Crown Water Vortex Flow Control (Radial and Conical) Operation and Maintenance Instructions

Operation

The Vortex Flow Control unit is a Water Regulator.

It is entirely self-activating and requires no manual intervention.

Maintenance

The unit requires no routine maintenance.

In the event of the blockage, it can be removed after the system has been drained down by pulling on the lifting cable located at the access.

Inspection

The chamber containing the unit should be inspected in line with normal practice. Any debris or silt should be removed.

Any visible fixing bolts should be checked.

If an internal blockage is suspected, the vortex flow control unit can be removed and inspected internally through the inlet or outlet hole.

If the unit has been removed, it must be replaced to its original location and securely fitted before the unit becomes operational.

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Registration Number *09514593*

Citation ISO Certification
Quality management ISO 9001: 2015
REGISTERED
Certificate No:71592021

Certificate of Conformity

Manufacture
All Crown Water Flow Controls are Manufactured as follows:-

Material Used
304 Grade Stainless Steel as Standard (Other materials available on request)

Plate Thickness
Generally made in 3mm thick Stainless Steel (Thicker Material to be used where necessary)

Welding
All welded seems to be continuous for maximum Strength

Rodding Access & Drain Down
Each unit is fitted with a By Pass Door, Operated from Cover Level by means of a wire rope to allow the system to drain down.
This is also used when Rodding and will give access to the downstream pipe

How Long Will they Last?
Crown Vortex Flow Controls have no moving parts to wear or fail.
Made from Stainless Steel Plate they will resist scour, degradation and chemical attack
A Crown Vortex Flow Control Should easily outlasts the sewer in which it is installed
Product is guaranteed for 120 Years

Quality Assurance
Crown Water Ltd has been assessed and approved by QMS International PLC to ISO 9001: 2015
The Approved Quality Management system applies to the provision of Flow Control Devices

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Registration Number *09514593*

Citation ISO Certification
Quality management ISO 9001: 2015
REGISTERED
Certificate No:71592021

Appendix D Kingspan NSBE030 Bypass Separator

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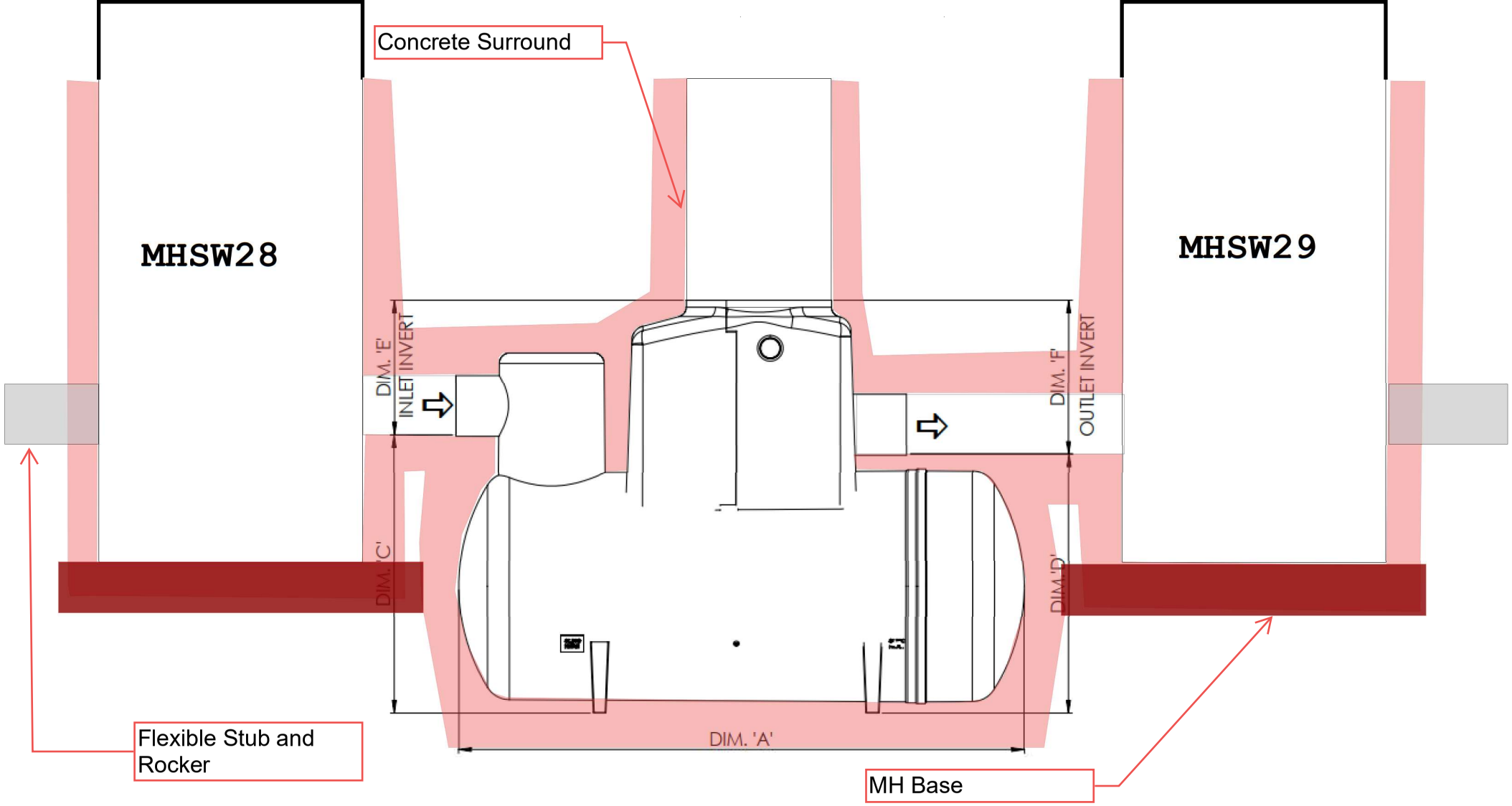

UNIT	NOMINAL FLOW (l/sec.)	DIM.'A'	DIM.'B'	DIM.'C'	DIM.'D'	DIM.'E'	DIM.'F'	DIM.'G'	DIM.'H'	STD. PIPE Ø	APPROX. EMPTY WEIGHT (kg)	FALL ACROSS UNIT
NSBE030	30.0	4265	2263	1680	1580	700	800	2380	1420	450	325	100

Please check with Kingspan Environmental that this drawing is the latest issue

Issue	Date	Drawn by	Approved by	Description
05	24.06.13	T.Kelly		CC1131 - Case Feet Changed
04	13.02.13	T.Kelly		CC981 Phase 2 - NSBE025 & 030 Added

All dimensions in mm

Scale: Not to scale

R:\Drawing Data\02 - Sales Drawings\DS\DS - 11\DS1155

Material : Various	Tolerance :
Finish :	Thickness : n/a
Weight :	Surface Area :

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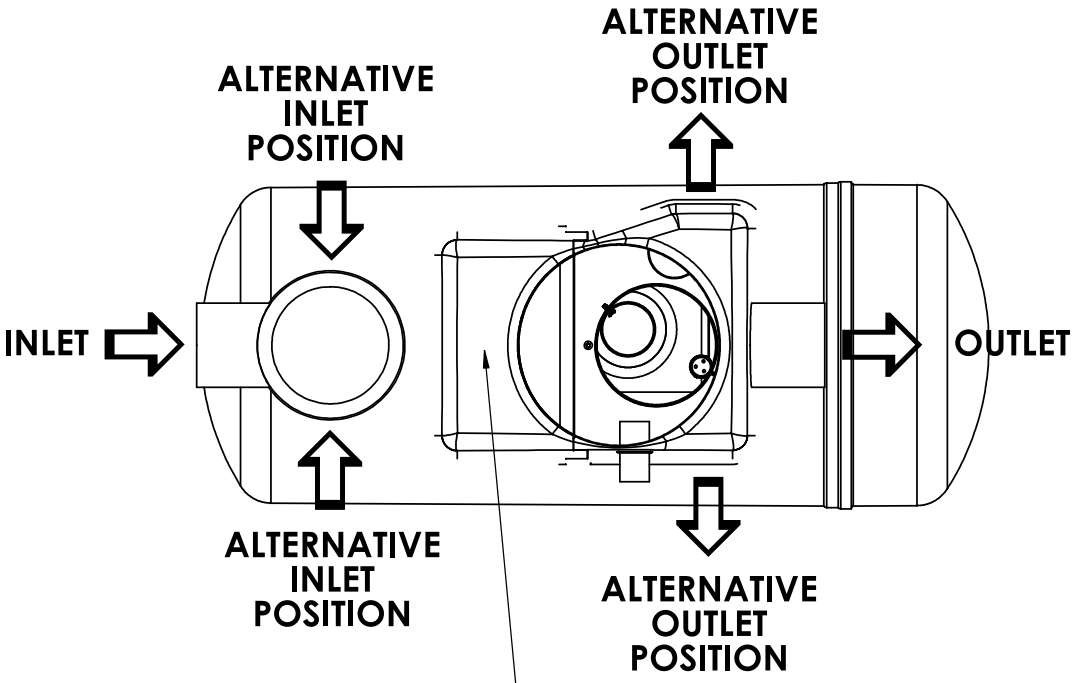
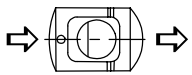
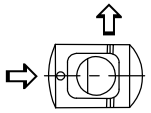
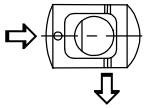
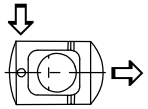
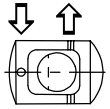
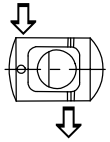
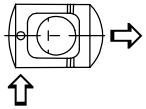
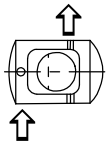
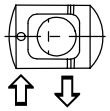
Drawing : DS1155

NSBE010 - NSBE030 Bypass Separators

Kingspan Environmental



Please Note:-
Due to the physically small size of the NSBE010, the inlet pipe, all orientation options, is fitted directly into this turret.

Pipe Orientation Options		
OPTION A 	OPTION B 	OPTION C 
OPTION D 	OPTION E 	OPTION F 
OPTION G 	OPTION H 	OPTION K 

Material : Various	Tolerance (unless stated) :	**Drawing : DS1155** Page 2 of 2
Finish :	Thickness : n/a	
Weight : 229.91 Kg	Surface Area : m²	NSBE010 - 030 BYPASS SEPARATORS
Modelled By :		

All Dimensions In mm | Scale: Do Not Scale | Third Angle Projection

R:\Drawing Data\02 - Sales Drawings\DS\DS - 11\DS1155

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Kingspan Environmental

015319
NSBE010-NSBE125 Class 1 Bypass Separator Installation & Maintenance Guidelines

Kingspan Environmental Service Contact Numbers:

GB: 0844 846 0500

NI: 028 3025 4077

IRL: 048 3025 4077

Enclosed Documents

DS1155	**NSBE010-NSBE030 Class 1 Bypass Separators**
DS1254	**NSBE036 Class 1 Bypass Separator**
DS1224	**NSBE040 & NSBE050 Class 1 Bypass Separators**
DS1225	**NSBE075-NSBE125 Class 1 Bypass Separators**

Issue	Description	Date
05	CC1405 – Coalescer Chains were Pipes	Feb 2018

HEALTH & SAFETY

These warnings are provided in the interest of safety. You must read them carefully before installing or using the equipment.

It is important that this document is retained with the equipment for future reference. Should the equipment be transferred to a new owner, always ensure that all relevant documents are supplied in order that the new owner can be acquainted with the functioning of the equipment and the relevant warnings.

Installation should only be carried out by a suitably experienced contractor, following these guidelines.

We recommend the use of a dust mask and gloves when cutting GRP components.

Electrical work should be carried out by a qualified electrician.

Contaminated surface water can contain substances harmful to human health. Any person carrying out maintenance on the equipment should wear suitable protective clothing, including gloves. Good hygiene practice should also be observed.

Access covers should be selected with reference to the location of the unit and traffic loads to be accommodated. These are not (normally) part of the Separator supply.

When covers are removed precautions must be taken against personnel falling into the unit.

Should you wish to inspect the operation of the equipment, please observe all necessary precautions, including those listed below, which apply to maintenance procedures.

Ensure that you are familiar with the safe working areas and accesses. Ensure that the working area is adequately lit.

Take care to maintain correct posture, particularly when lifting. Use appropriate lifting equipment when necessary. Keep proper footing and balance at all times. Avoid any sharp edges.

OIL ALARM SYSTEMS

PPG3 requires that the oil level alarm be fitted, tested and commissioned by a competent Installer. This is to ensure that the excessive oil probe is calibrated correctly, raising an alarm when 90% of the recommended maximum oil storage volume is reached. Should the oil level alarm fail to provide an early warning, excessive oil could pass through the separator, thus polluting the environment. This could result in substantial cleanup costs and legal action being taken under the water resources act 1991.

MAINTENANCE

The correct ongoing maintenance is essential for the proper operation of the equipment. Operators who rely on oil level alarms to prompt them to service separators between maintenance intervals run the risk of polluting should the alarms not work, hence the ongoing functional assessment of the oil alarm systems is fundamental if pollution incidents are to be avoided.

The removal of sediment and retained oil/grease should be carried out by a contractor holding the relevant permits to transport and dispose of such waste. The contractor must refer to the guidelines in this document.

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Separator Maintenance Log

CE

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College Road North
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Buckinghamshire
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United Kingdom

13

En 858 : Separator systems for light liquids

GRP Glass Reinforced Plastic Tank

Bypass Separators NSB003 - NSB150

Class 1

Watertightness	Passed
Structural Testing	Passed
Hydraulic Efficiency	Passed

1 Introduction

1.1.1 These Guidelines represent Best Practice for the installation of the above Separator Units. Many years of specialist experience has led to the successful installation of thousands of separator units. It must be noted, however, that these Guidelines are necessarily of a general nature. It is the responsibility of others to verify that they are appropriate for the specific ground conditions and in-service loads of each installation. Similarly, any information or advice given by our employees or agents regarding the design of an installation must be verified by a qualified specialist (e.g. Civil engineering consultant).

1.1.2 For guidance of Separator selection and application, please refer to the most recent issue of Environment Agency Guidelines pollution prevention guidelines No. 3 (PPG3).and BS En 858

1.2 Handling & Storage

1.2.1 Care must be taken to ensure that units are not damaged during delivery and handling on site. Please take care and place unit so that it cannot fall and become damaged

1.2.2 The design requirements of these products will frequently mean that the centre of gravity of the unit is “offset”. Care must therefore be taken to ensure that the unit is stable when lifting. Rainwater may also collect inside units, particularly if they have been stored on site prior to installation, adding weight and increasing instability. Check units before lifting and pump out any excess water.

1.2.3 When lifting units, use webbing slings of a suitable specification. Do not use chains.

1.2.4 A suitable spreader bar should be used to ensure that units are stable and that loads are evenly distributed during lifting. When lifting separators, a spreader bar should be used where the slings would otherwise be at an angle > 30 degrees to the vertical.

1.2.5 Lifting equipment should be selected by taking into account the unit weight, length and the distance of lift required on site.

1.2.6 We accept no responsibility for the selection of lifting equipment.

1.2.7 Whenever units are stored or moved on site, ensure that the storage location is free of rock, debris and any sharp objects, which may damage the unit. The units must be placed on ground, which is flat, and level and the unit orientated onto its side with even support. Do not roll separators.

1.3 Site Planning

The following points should be considered before installation of the equipment:

1.3.1 The discharge must have the consent of the relevant Environmental Regulator.

1.3.2 The installation should have Planning and Building Control approval.

1.3.3 Consider installing flow cut-off valves to isolate the separator in an emergency or during site cleaning operations. See Environment Agency Guidelines PPG3.

1.3.4 We will fit a tube to receive the alarm probe. This tube provides protection and ensures that the probe is positioned at the correct level to sense the oil build up. The tube design and probe level setting assumes the use of our standard oil alarm system and may not be suitable for other alarm supplier’s equipment. The probe tube may be fitted either within the neck or within the body of the unit. It should be extended to ground level when fitted in the body of the tank and you should make provision to extend the tube to the required height before backfilling. Consult the alarm supplier’s instructions for their detailed fitting installation instructions.

1.3.5 Consider venting of the unit. Comply with local regulations. In the UK, comply with the following regulations. For Petrol Stations: Health and Safety Guidance Note 41 (HS(G)41). For other applications: BS8301: 1985 (obsolescent) BS EN 752 Building Drainage. Adequate ventilation should be provided to the separator. The ventilation pipe should be as short as is practicable and be terminated not less than 2.5m above paving nor less than 1m above the head of an openable window or other opening into a building within a horizontal distance of 3m. Each neck should be vented independently, we advise against joining these below ground prior to their rising as vent stacks.

1.3.6 Consider installation of a sampling point downstream of the separator. There is no suitable facility to effectively sample the wastewater from inside the unit.

1.3.7 Uncontaminated run off such as roof water should be excluded from separators. (EA Guidelines PPG3.)

1.3.8 Ground conditions and water table level should be assessed. If the water table will be above the base of the units at any time of the year, adequate concrete backfill must be provided to avoid flotation. In poorly draining ground, consideration should also be given to the likelihood of flotation due to surface water collecting in the backfill, and an appropriate installation method devised to avoid this.

1.3.9 If the discharge is to a soakaway, a porosity test should be carried out as part of the assessment of suitability for sub-soil drainage.

1.3.10 The separator must be installed at a level, which will allow connection to the incoming drain and a free discharge at the system outlet. The water table must be below the discharge outlet.

1.3.11 Do not install the unit deeper than necessary, ensure that you purchase extension shaft kits. The minimum invert depth of the unit is shown on the customer drawing.

1.3.12 Adequate access must be provided for routine maintenance. Vehicles should not be permitted within a distance equal to the depth of the unit, unless suitable structural protection is provided to the installation.

1.3.13 There must be at least 1 metre of clear, level ground all around the access covers to allow for routine maintenance.

1.3.14 It is essential that a mains water supply is accessible for routine cleansing and refilling after removal of waste material and liquid.

1.3.15 Provide electrical supply for alarm system.

1.3.16 Installation should only be carried out by suitably qualified and experienced contractors in accordance with current Health and Safety Regulations. Electrical work should be carried out by a qualified electrician, working to the latest edition of IEE wiring regulations.

1.3.17 This unit is designed to operate with gravity in and out flows. The unit is not designed to operate with a pumped influent.

2 Installation

2.1 Installation – General

2.1.1 When units are installed in unstable ground conditions where movement of the surrounding material and/or unit may occur, the connecting pipework should be designed to minimise the risk of damage from differential movement of the unit(s) and/or surrounding material.

2.1.2 For separators with burial depths greater than 1000mm from cover level to the top of the unit, specific site conditions should be taken into consideration and the backfill designed to bear any loads which may be applied during and after installation to prevent the tank being subjected to these loads.

2.1.3 The excavation must be deep enough to provide bedding and cover depth as determined by the type of surface pavement and loading. Asphalt and concrete pads should extend a minimum of 300mm horizontally beyond the unit in all directions.

2.1.4 In situations where the excavation will not maintain a vertical wall, it will be necessary to shore up the sidewalks of the excavation with suitable trench sheets and bracing systems to maintain a vertical wall from the bottom to the top of the excavation. DO NOT completely remove the shoring system until the backfilling is complete, but before the concrete fully hardens.

2.1.5 In areas where the water table is above the bottom of the excavation and/or the excavation is liable to flood, the excavation should be dewatered using suitable pumping equipment and this should continue until the installation is complete.

2.1.6 During installation care must be taken to ensure that the body of the unit is uniformly supported so that point loads through the unit are avoided.

2.1.7 The concrete Specification is not a site specific installation design.

GENERAL CONCRETE SPECIFICATION IN ACCORDANCE WITH BS EN 206-1 (BS 8500-1)		
TYPE OF MIX		(DC) DESIGN
PERMITTED TYPE OF CEMENT		BS 12 (OPC): BS 12 (RHPC): BS 4027 (SRPC)
PERMITTED TYPE OF AGGREGATE (coarse & fine)		BS 882
NOMINAL MAXIMUM SIZE OF AGGREGATE		20 mm
GRADES:	C25 /30 C25 /30 C16 /20	REINFORCED & ABOVE GROUND WITH HOLDING DOWN BOLTS REINFORCED (EG. FOR HIGH WATER TABLE) UNREINFORCED (NORMAL CONDITIONS)
MINIMUM CEMENT CONTENT	C30 C20	270 - 280 Kg/M^3 220 - 230 Kg/M^3
SLUMP CLASS		S1 (25mm)
RATE OF SAMPLING		READY MIX CONCRETE SHOULD BE SUPPLIED COMPLETE WITH APPROPRIATE DELIVERY TICKET IN ACCORDANCE WITH BS EN 12350-1
NOTE: STANDARD MIXES SHOULD NOT BE USED WHERE SULPHATES OR OTHER AGGRESSIVE CHEMICALS EXIST IN GROUND WATER		

2.2 Separator Installation

2.2.1 Excavate a hole of sufficient length and width to accommodate the tank and a minimum 225mm concrete surround and to a depth, which allows for the burial depth of the unit plus concrete base slab and haunch.

2.2.2 Construct a suitable concrete base slab appropriate to site conditions. Ensure that the slab is flat and level.

2.2.3 When the concrete base slab has set enough to support the installed load, add a concrete haunch so as to provide even support under the unit and then lower the unit onto the haunch using suitable webbing slings and lifting equipment.

2.2.4 **Pour no more than 300-mm depth of clean water into the unit, avoiding shock loads. For units with more than one chamber, add water to each chamber simultaneously. DO NOT OVERFILL; the unit is not designed to hold water whilst unsupported.**

2.2.5 **Place concrete backfill to approximately 300mm depth under and to the sides of the tank ensuring good compaction to remove voids. DO NOT use vibrating pokers. Continue adding concrete backfill, simultaneously keeping the internal water level no more than 200 mm above the backfill level at all times, until the backfill is just below the underside of the outlet drain, giving sufficient room to connect the inlet and outlet pipework.**

2.2.6 Connect inlet and outlet drains and vent pipes when safe access to the backfill can be gained.

2.3 Pipework Connections

2.3.1 In all cases, ensure that the outlet pipework level is maintained for correct operation. (Unless specified on the order, the fall across the unit will be as per the customer drawings).

2.3.2 Small units are generally fitted with **PVCu spigots** to both the outlet and the inlet.

2.3.3 Connect using the same size PVCu socket or a suitable reducer.

2.3.4 Larger units are generally fitted with **Our GRP** manufactured sockets.

2.3.5 The connecting pipework should be pushed into the socket. Ensure that the seal is secure and watertight before backfilling the pipe.

2.3.6 Alternatively, proprietary **flex seal couplings** can be obtained to fit over the outside of the site pipework and the outside of the GRP socket. When using this connection method, please be aware that the outside GRP laminate is not perfectly regular and that you may need to use a sealant on the outside diameter of the GRP. Take care not to over tighten the coupling when connecting to the GRP and ensure that the seal is secure before backfilling the pipe. Drawing 403144 provides the ID of our Bypass GRP sockets. The OD is variable, as the wall thickness can be up to 15-20 mm. If purchasing a flexseal coupling for use with clay /concrete, we suggest that a size 110 mm larger than the ID is selected.

2.4 Oil Level Alarm Neck Fitting

2.4.1 We will fit a tube to receive the oil alarm probe. This provides protection and ensures that the probe is positioned at the correct level to sense oil build up.

2.4.2 See alarm supplier information and ensure that the probe is placed within the tube and can be accessed from ground level.

2.4.3 Continue backfilling with concrete over the tank body to the required level. Build up a shell of concrete, minimum 225mm thick, around the access shaft(s). Temporarily strut the access shaft to avoid distortion.

2.4.4 Where we supply an extension shaft to meet a deeper invert requirement, a coalescer extension chain will be required. When fitting, ensure that the chain is fitted to just below the surface so that the coalescer can easily be removed. Remove the coalescer from the unit before adding the extension chain. When refitting, ensure that the coalescer is correctly inserted and fully pushed into the base fitting. This is important and you must ensure that the coalescer is correctly located before putting the unit in to operation.

2.4.5 It is advisable to seal the joints on the extension shafts (particularly on sites with high ground water) with proprietary sealant or by GRP lamination. Temporarily strut the extension neck(s) to avoid distortion during back filling. Where more than one neck section is required to suit a deep invert, consider back-filling section by section. If the extension neck is too long, it can be trimmed using a fine-toothed saw. The original fixing hole bolting the coalescer to the neck should be sealed.

2.4.6 Ensure that the vent socket if cut out, is replaced elsewhere. The maximum recommended inlet invert is 2000mm (using 500mm long extension sections). If you are installing a unit deeper than this then you must make your own arrangements for removing and replacing the coalescer. Consideration must be given to the depth of lift involved.

2.4.7 Continue back-filling, ensuring minimum 225mm concrete thickness around the access shaft/ extension neck and alarm access tube (as applicable).

2.4.8 Mains powered Alarm Systems. See alarm suppliers installation instructions. Lay 82mm diameter PVCu underground ducting between the alarm panel location and the alarm probe position. The ducting should be 500mm below ground level and fitted with a drawstring for later cable insertion. Any changes of direction should be by long radius bend. If necessary, drill a suitable hole in the access shaft adjacent to the alarm probe terminal box, to accept the ducting and seal.

2.4.9 In traffic areas a suitable top slab must be constructed. The top slab should bear on a suitable foundation to prevent superimposed loads being transmitted to the unit and access shafts. Loads applied to covers and frames must bear on the top slab, not the access shaft.

2.4.10 The unit should be filled with clean water up to the invert level of the outlet pipe. Ensure the unit identification is placed/ marked inside the neck for future information. The unit is now ready for use.

2.5 Alarm Installation

2.5.1 Install the alarm probe and control panel, as per the Suppliers Alarm Installation Guidelines. Ensure that the probe is positioned correctly for the required storage of oil. The table below indicates the maximum volume of oil to be stored and the depth of floating oil expected in the separation chamber.

Unit	Required Minimum Oil Storage volumes in litres	Max. (100%)Depth of floating oil (Static)
NSBE010	150 litres	320mm
NSBE015	225 litres	335mm
NSBE020	300 litres	335mm
NSBE025	375 litres	385mm
NSBE030	450 litres	385mm
NSBE040	600 litres	420mm
NSBE050	750 litres	430mm
NSBE075	1125 litres	430mm
NSBE100	1500 litres	435mm
NSBE125	1875 litres	435mm

3 Operation

3.1.1 The unit is sized on treating a defined area and rainfall (5 mm/hour) EN.858 Part 1 and using the factor provided in the Environment agency guidelines PPG3. (0.0018 = 6.5mm/hr) The unit will treat the entire flow i.e. NSBE015 will treat a flow of 15 litres per second. If the flow is greater than this then the excess flow will bypass the main treatment chamber. A NSBE015 unit will work in bypass mode over 15 and up to 150 litres per second. Flows in excess of this will back up on to the site. During a storm, the rain falls and flushes any surface debris, silt or oil into the tank. This first flush, up to the maximum rated flow is fully treated. As the severity of the storm increases, so does the rate of flow increase. The liquid entering the separator after the first flush tends to be cleaner and so, in lower risk applications, is allowed to bypass the oil separation chamber for directly discharge.

3.1.2 The bypass unit has three chambers. The entire flow up to the units listed flow rating is fully treated and passes through all chambers. (E.g. NSBE015 treats 15 litres per second.)

3.1.3 Flows in excess of this rating will bypass the separation chamber and the liquid passes untreated to the outlet chamber.

3.1.4 The first chamber will accumulate silt and grit. The maximum volume that can be retained is the rating x 100 e.g. a NSBE015 is capable of holding 1500 litres of silt.

3.1.5 The second / separating chamber is sized to separate oil at the rated flow rate and to accumulate the required oil storage volume. A NSBE015 maximum oil storage volume is 225 litres. An oil probe should be positioned to detect the accumulation of oil when there is no or low flow conditions. The probe should be positioned so that the alarm operates at 90% of the rated oil storage volume.

3.1.6 In bypass flow conditions, the flow moves directly from the inlet to the outlet chamber avoiding the separating chamber.

3.1.7 Separators are purchased as Class 1 units. Class 1 Bypass Separators are fitted with a removable coalescer which also includes media to further improve the discharge quality. The coalescer media requires maintenance.

3.1.8 Bypass Class 1 Separators are not effective for the removal of soluble or emulsified pollutants such as oil/detergent mixes found in vehicle wash effluents. With permission such discharges should be drained to the foul sewer. Consult our technical department for Separation equipment to meet these applications.

4 Maintenance

4.1 Waste Removal and Servicing

4.1.1 Separated light liquid **must** be removed from separator when the oil capacity has been reached.

4.1.2 An oil level alarm system is available for purchase which gives warning when the separated light liquid/water interface level reaches 90% of the maximum recommended oil storage volume.

4.1.3 Separators should be inspected at least every six months or more frequently if experience dictates. A log should be maintained detailing the depth of oil found, any oil volume removed and any silt removal or cleaning carried out. A specimen maintenance log is included in the appendices.

4.1.4 Every site is different, in respect to the amount and type of silt generated by the drain design and installation. Frequently, the construction programme itself generates large and perhaps unusual quantities of silt and grit. We do recommend that following the initial installation, an inspection of the separator contents be made to check that building rubble has not entered the unit. Further inspections at 3 and 6 months should be made so as to be able to assess the volumes of silt and oil accumulated. The inspection and emptying programme can then be defined following the first 6 months site experience. We recommend leaving a maximum interval between inspections of 6 months.

4.1.5 Alarm probes should be removed and cleaned with water whenever waste material is removed from the separator. Please note the alarm may alert until the liquid level is replaced.

4.1.6 **Separator waste is a "special waste" under the terms of The Waste Management Code of Practice. The Code imposes a duty of care on the waste producer to ensure that the Cleansing contractor is registered with the Environment Agency and that the final disposal of the waste is to a licensed facility.**

4.1.7 You should consider the purchase of a maintenance service, which includes bi-annual inspections, removal of oil and silt, cleaning of the alarm probe and cleaning or replacement of the coalescer (where appropriate).

4.2 Waste Removal Procedure – Oil & Silt

4.2.1 **Oil can only be effectively removed when there is no flow entering the unit. Isolate the unit and prevent flow from entering. Always remove the oil before attempting to remove the coalescer. If this is not done, when the coalescer is withdrawn the oil can coat the media surface and when replaced the oil may be forced through the media, contaminating the effluent.**

4.2.2 Remove the access cover and lower the desludging hose in to the separation chamber. Draw off the surface oil.

4.2.3 If removing the silt, lower the desludge hose to the base of the tank and empty the contents of the chamber. Ensure that you access and clean both the inlet and the separation compartments.

4.2.4 Remove the alarm probe, if fitted, clean with water and replace.

4.2.5 Consider the period of time that the coalescer has been installed and consider removing and inspecting (cleaning or replacing) the coalescer media. If removed, ensure that it is correctly replaced into position. Replace the access covers. It is best to lower the water level to aid re-fitting.

4.2.6 Re-fill the separator with clean water up to the outlet level.

4.2.7 If an alarm is fitted, it will display an alarm condition until the separator is re-filled. Check alarm operation when unit full.

4.3 Checking the Coalescer Assembly

4.3.1 Coalescers, where fitted, may be cleaned periodically to maintain efficiency. Coalescers should be checked following a major incident and replaced if necessary. Please contact us if you wish to purchase the coalescer media.

4.3.2 Identify the type and size of separator (shown on labels inside the access neck).

4.3.3 Assemblies weighing less than 25 Kg may be removed by hand. Heavier assemblies should be lifted by mechanical means. Any lifting device employed must be capable of lifting:

4.3.3.a In excess of the maximum assembly weight.

4.3.3.b The assembly completely out of the access shaft.

4.3.3.c Giving a smooth and controlled lift.

4.3.3.d Swinging the assembly to one side clear of the access shaft.

Unit	Dry Weight (Kg)	Wet Weight (Kg)	Silted Weight (Kg)	Number Within unit	Replacement Media Part No.
NSBE010	5.7 kg	≈50 kg	≈60 kg	1	402862
NSBE015	6.2 kg	≈55 kg	≈65 kg	1	402864
NSBE020	6.2 kg	≈55 kg	≈65 kg	1	402864
NSBE025	12.0 kg	≈65 kg	≈75 kg	1	402866
NSBE030	12.0 kg	≈65 kg	≈75 kg	1	402866
NSBE040	21.0 kg	≈100 kg	≈200 kg	1	402885
NSBE050	21.0 kg	≈100 kg	≈200 kg	1	402885
NSBE075	21.0 kg	≈100 kg	≈200 kg	2	402885
NSBE100	21.0 kg	≈100 kg	≈200 kg	2	402885
NSBE125	21.0 kg	≈100 kg	≈200 kg	3	402885

4.3.4 Ensure that the area around the access shaft is clear and that there is space to place the assembly once removed. If space is not available it will be necessary to support the assembly over the access shaft. e.g. by scaffold poles and platform.

4.3.5 Only remove the access cover when necessary to remove the assembly. Do not leave the access shaft uncovered and unattended.

4.4 Removing the coalescer assembly.

4.4.1 Undo and remove the bracket which secures the coalescer to the access shaft.

4.4.2 Lift the assembly with a smooth and steady motion. Coalescers will become lighter as water drains from the exposed media. Allow the water to drain completely. Assemblies blocked with fine silt may be very heavy.

4.4.3 Fully extract the assembly and set it down adjacent to the access shaft.

4.5 Cleaning the coalescer assembly/ Media Replacement.

4.5.1 Hose down the assembly using clean water at normal pressure. If the media is heavily contaminated with oil and silt, it may not be possible to clean it effectively by hosing. Do not allow untreated cleaning water to pass out of the unit. Continue hosing until the water runs clear.

4.5.2 To replace the media, undo the banding. Slide media off the core tube and slide new media on. Ensure all the apertures on the core tube are covered by the media. Re-secure or replace banding. Consider replacing media and banding every two years.

4.6 Replacing the coalescer assembly.

4.6.1 Position it over the access shaft.

4.6.2 Lower the assembly steadily into the access shaft ensuring that the end locates within the sump at the bottom of the tank.

4.6.3 Replace the access cover.

5 Emergencies

5.1.1 At sites where there is a high risk of spillage, spill kits containing drain seals, absorbent materials, disposal containers and other appropriate equipment should be held. In the event of a spillage on site, the material should be contained, (if a spill kit is not available, sand or soil may be used) and the Environment Agency notified immediately using the appropriate emergency hotline number listed in the Agency Guideline PPG3. Year 2011 **- 0800 80 70 60**

6 Warranty

The company will replace or, at its option, properly repair without charge any goods which are found to be defective and which cause failure in normal circumstances of use **within a period of twelve months from the date of delivery.**

This warranty is conditional upon:

(a) the Buyer notifying the Company of any claim within Seven days of the failure becoming discernible.

(b) the Company being allowed a reasonable opportunity to inspect the goods so as to confirm that they are defective.

(c) the goods not having been modified, mishandled or misused and being used strictly in accordance with any relevant instructions issued by the Company.

The Company's liability under this Clause is limited to the repair or replacement of the defective goods, and does not cover costs of transport, installation or associated site costs, if applicable.

The Company's liability to replace or repair the goods is in lieu of and excludes all other warranties and conditions, and in particular (but without limitation) the Company shall have no liability of any kind for consequential loss or damage.

For any further advice, please us.

A warranty form is included in this package, to register your unit for warranty. Please complete ALL sections of the form, and return it at your earliest convenience.

SEPARATOR MAINTENANCE LOG

Site address/location .....

.....

Separator location .....

.....

Type of separator .....

Nominal Flow .....

Total capacity .....

Inspection/ Maintenance Date	Comments	Waste Volumes Removed (if appropriate)

Appendix E SPEL 300 Series Stormceptor

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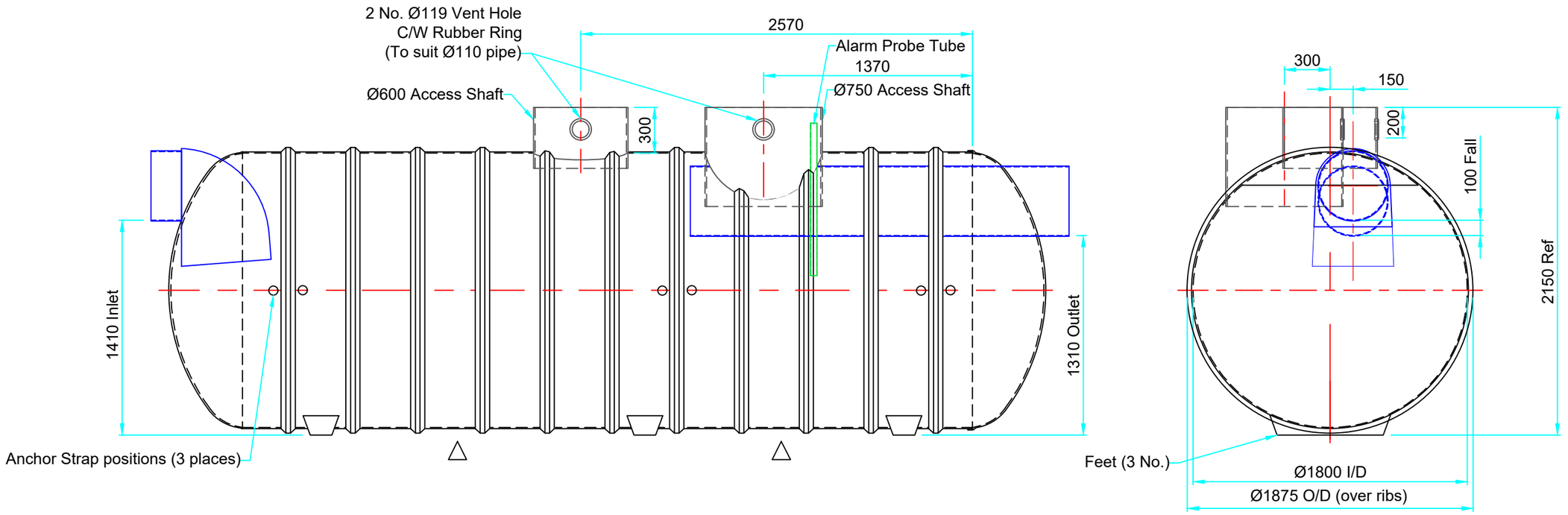
CUSTOMER INFORMATION



Orientation: A
Inlet: Ø450 GRP Plain Spigot
Outlet: Ø450 GRP Plain Spigot

NOTE:-
This Tank is to be supplied with:
1 No. Ø600 Access Shaft Extension - 2500mm High
1 No. Ø750 Access Shaft Extension - 2500mm High
C/W 1 No. Guide Rail Top Bracket, 1 No Chain Hook
1 No. Ø25 Extension Tube 2500mm Long
1 No. Coalescer Lifting Cable 4000mm Long

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

Distribution	Date	Rev	Issued only for purpose indicated:	BY:
	20.02.24	B	Anchor Strap Locations Shown, Issued for INFO	CM
	08.02.24	A	Issued for APPROVAL	SB

This drawing is confidential and must not be copied, reproduced or passed to a third party without written permission from
SPEL PRODUCTS

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 300 Series Stormceptor 340C1/SC - Orientation (A)

Contract:
Wolseley (Leeds)
Manchester City Football Club, North Stand
Order No.:QBG/930743/1

Capacity 13,650 Ltrs
Tank Specification HEAVY
Laminate Specification GP

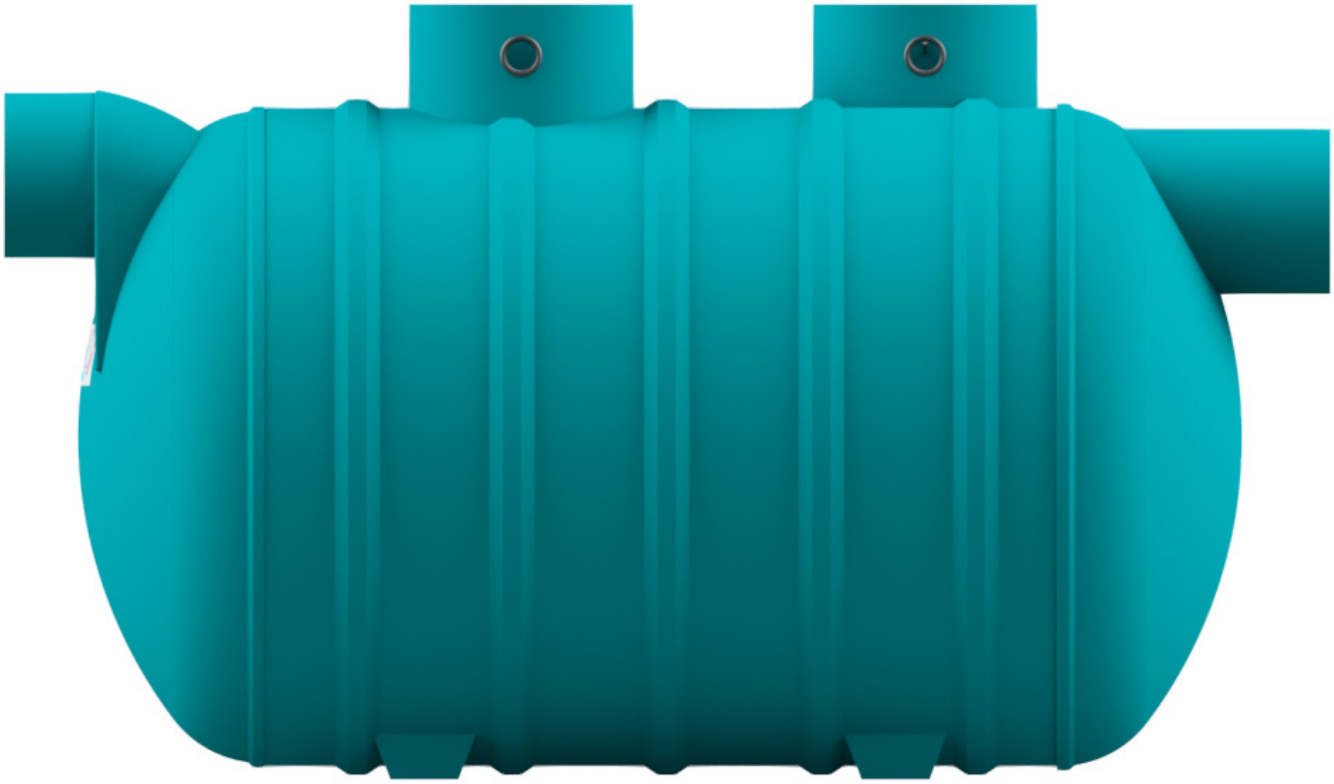
All sizes in mm
If in doubt ASK!

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

Drawn CGM
Checked SRB
Date 09.02.24
Scale 1:30 Sheet A3
Revision B

TANK SERIAL No. 32274
INTERNAL ORDER No. 25479/001

SPEL
Life in Water



SPEL Stormceptor®

Class 1 Bypass Separator

Operation & Maintenance Manual

SPEL Stormceptor® Operation & Maintenance

Introduction

With correct and consistent care, and by following a few simple guidelines, your system will give you many years of dependable service.

BS EN 858 CERTIFIED

25 YEAR TANK SHELL WARRANTY

IN EXCESS OF 50 YEAR TANK SHELL LIFE EXPECTANCY

Installation

For installation guidance, see SPEL Data Manual, Section 7.

All applicable health and safety regulations must be followed.

IMPORTANT

In the unlikely event of the chamber having to be entered ensure absolutely that all Workplace Health & Safety directives and Confined Space Regulations are strictly adhered to.

SPELGuard Maintenance Available:

SPEL offer technical support, site visits, commissioning and servicing/maintenance on equipment.
Contact the SPEL technical team:

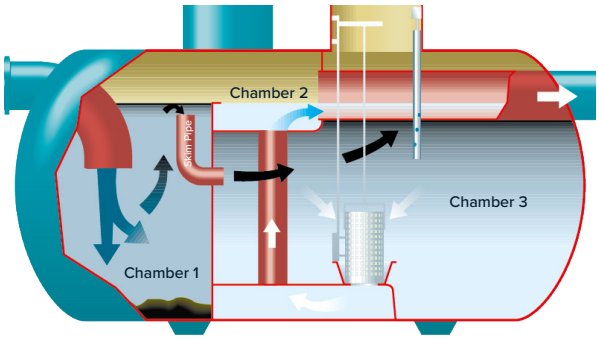
01743 445 200 **sales@spelproducts.co.uk** **spelproducts.co.uk**

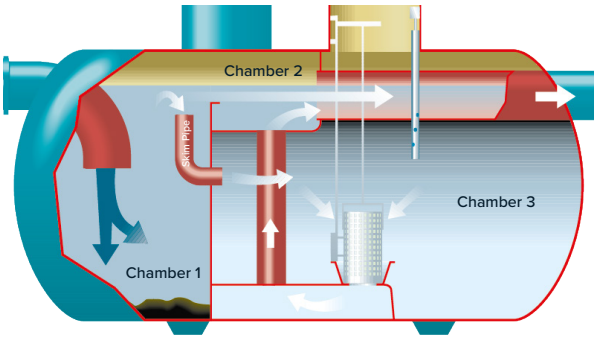
SPEL Stormceptor® Class 1 Bypass Separator

Operation

The SPEL Stormceptor® Bypass Separator is designed to treat up to the 1 in 1 year return storm event with the excess flow being allowed to bypass the treatment stage (see diagrams below). Engineers will have specified our SPEL Stormceptor® Bypass Separator to cope with and treat the flow from the connected catchment area, with the complete operation being contained within the SPEL system.

The installation of your SPEL Stormceptor® should have included commissioning by a qualified person, SPEL can offer a full commissioning service and/or a post-commissioning system check, together with relevant certification.





Flows according to nominal size (NSB)

The polluted surface water first enters the primary chamber where silt settles out and is retained. The fuel, oil and other pollutants lighter than water, rise to the surface and are efficiently skimmed off and transferred to the separation chamber.

In normal conditions all the flow is through the separation chamber, where the quiescent conditions allow the pollutants to separate out efficiently. Water from the cleanest zone in the separation chamber flows through a coalescer unit, to remove smaller globules of oil, up to the junction chamber and thence to the outlet

Storm flows above NSB

During a storm the level in the primary chamber rises and the stormwater passes over the weir into the junction chamber and to the outlet.

The design keeps the turbulence within the separation chamber to a minimum which avoids disturbing the contaminants retained.

Chamber 1

The inlet connects directly into chamber 1 - the primary chamber where silt and other heavy pollutants are deposited and light liquids are skimmed off to be transferred to the main separation chamber, chamber 3.

Maintenance requires the removal of accumulated silt and other heavy pollutants, checking the skim pipe is not blocked and removing floating debris.

Chamber 2

This is the junction chamber where the clean water passing out of the main separation chamber and the storm flow over the weir from the primary chamber meet and pass to the outlet. This chamber is an approved sampling point if samples are required for analysis. As it is mainly clean water passing through the chamber, maintenance is confined to checking the weir plate is free of debris.

Chamber 3

The main separation chamber is where the light liquids are retained and, in the case of SPEL Stormceptor® Separators, where the coalescer units are incorporated.

The coalescer units should be removed and cleaned in accordance with the requirements set out on Page 5.

Retained light liquids should be removed from the top and any sediment from the bottom. Smaller Bypass separators generally need to be completely emptied.

SPEL Stormceptor® Class 1 Bypass Separator

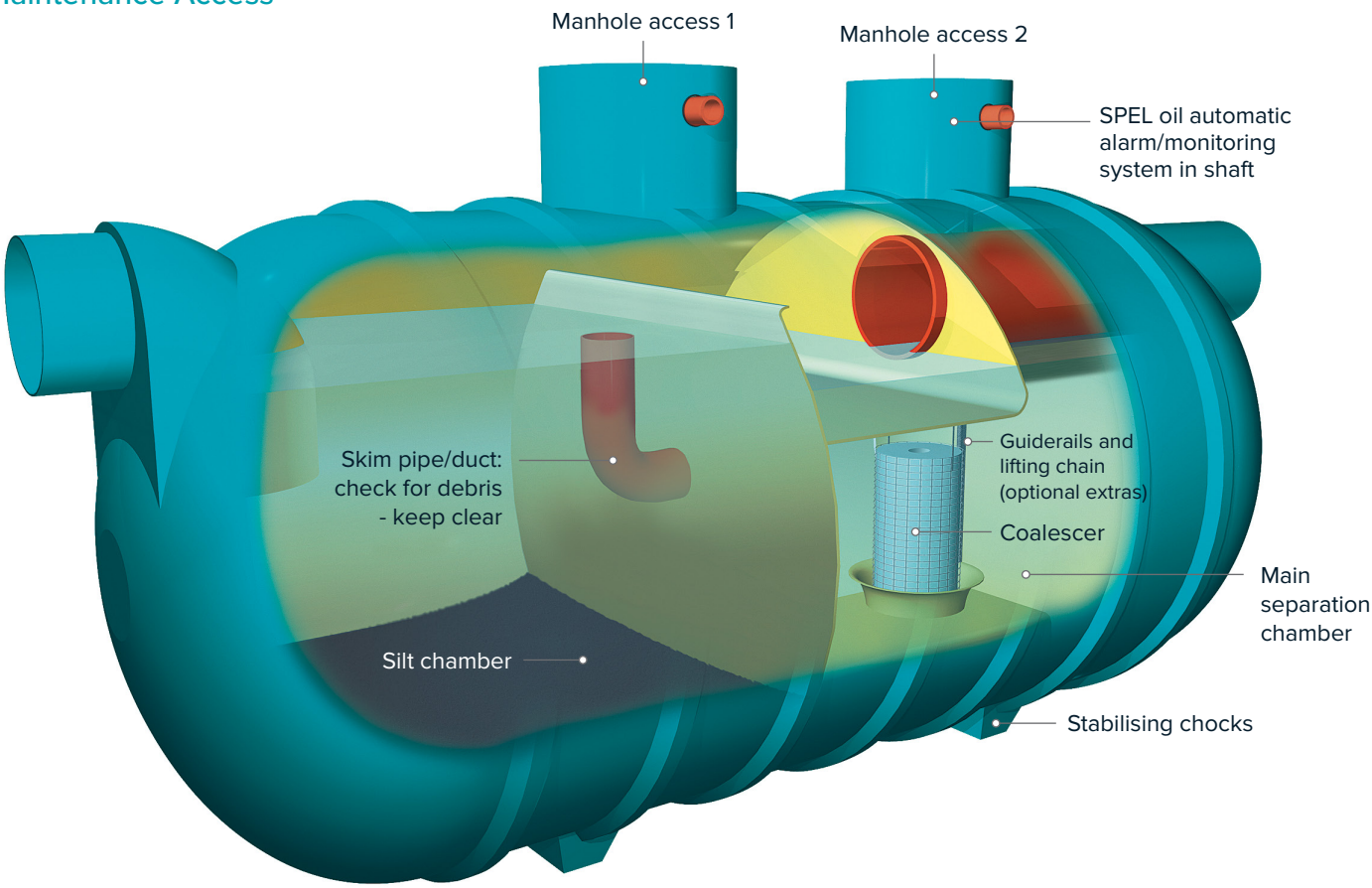
The SPEL Stormceptor® has been certified to the British and European Standard BS EN 858 by HR Wallingford. SPEL Stormceptor® Separators are designed for long term performance and with SPEL high volume coalescer units, low maintenance.

SPEL Stormceptor® Separators are manufactured in class 1 models and with silt capacity in accordance with BS EN 858-1. The range of models is listed in the SPEL Data Manual or on the SPEL website.

SPEL automatic alarm/monitoring systems will automatically warn you when the SPEL Stormceptor® requires emptying of light liquids and/or silts (depending on the alarm system chosen). However, regular inspections are recommended at intervals to suit the site conditions. We recommend the SPEL Stormceptor® is checked at 3, 6, or 12 monthly intervals to ensure correct operation of the treatment device, alarm and check the pollutant levels.

Where a SPEL automatic alarm/monitoring system is not fitted, the SPEL Stormceptor® should be checked at 3, 6, 12 monthly intervals, depending upon site conditions, to determine the depth of retained pollutants. When the depth of light liquids retained has reached the predetermined design level in accordance with the European Standard BS EN 858-1, or if excessive silt has accumulated, it should be emptied.

Maintenance Access



A wide range of SPEL Stormceptor® Separators are available incorporating coalescer unit/s for small to large catchment areas.

When emptying ensure both chambers (primary – chamber 1 and separation – chamber 3) are emptied equally to prevent unequal pressure on the internal partition.

Manhole access 1

This is the access to the primary chamber for removal of silt, the inspection of the skim pipe and clearing of any floating debris.

This also provides access to the junction chamber which is suitable as a sampling point for the final discharge.

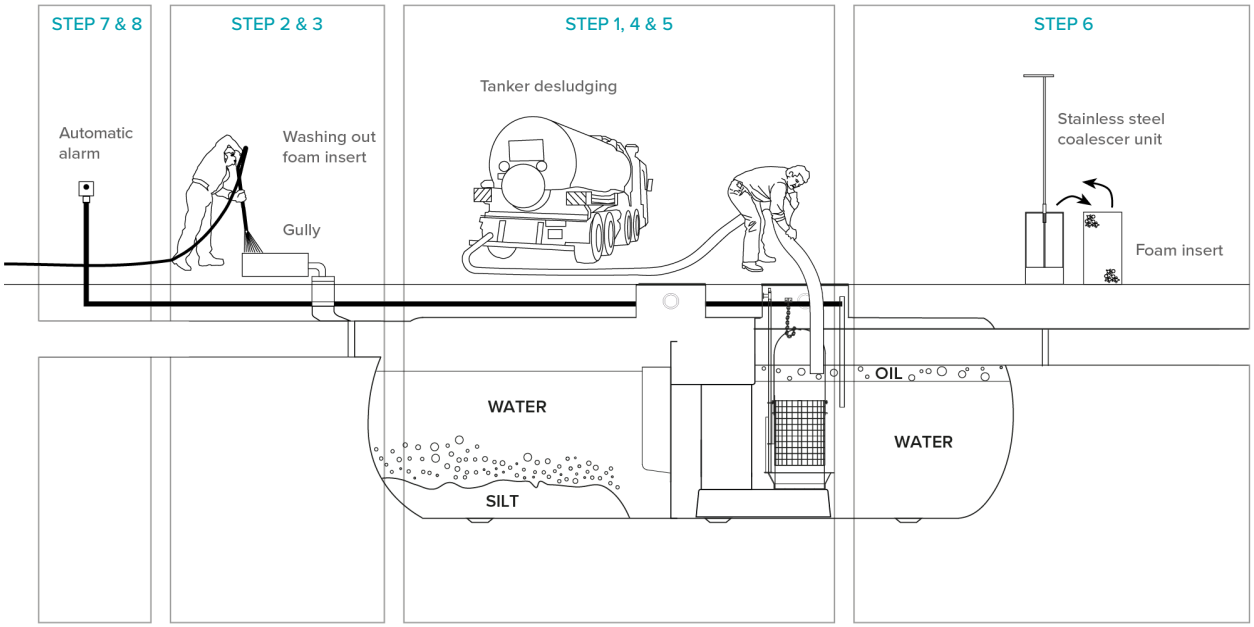
Manhole access 2

This provides access for the inspection, the removal and reinsertion of the coalescer units and the removal of hydrocarbons and silt. The SPEL automatic oil alarm/monitoring system probe is generally situated in a probe protection tube in this access shaft (see section on alarms).

This is an example, exact number and location of access shafts will depend on exact model chosen.

SPEL Stormceptor® Class 1 Bypass Separator

Maintenance



Important Note: When emptying, ensure both chambers are emptied equally starting with the silt retention chamber and then the coalescer chamber and back again until empty.

STEP 1 Sucking out oil/fuel	Suck off as much retained oil from both chambers of the SPEL Stormceptor® as possible. This prevents oil coating the surface of the coalescer if this is removed first.
STEP 2 Coalescer Unit	Using the lifting handle, chain or wire rope, lift the coalescer unit out of the tank and place upstream of the SPEL Stormceptor®.
STEP 3 Cleaning Foam Insert	Remove foam insert and wash with normal water pressure ensuring the dirty water runs into the SPEL Stormceptor®.
STEP 4 Sucking out silt	For Intermediate Maintenance, the use of a tanker with a rigid suction pipe can suck out the silt from the base of the system, without the need to empty the complete unit. *Note: For Intermediate Maintenance, go to Step 6.*
STEP 5 Sucking out complete contents (if necessary)	For a Full Maintenance (at least once every 5 years, as recommended by EA, SEPA and NRW) the complete contents will need to be emptied and a structural and component check conducted. *Note: SPEL Recommend the replacement of coalescer unit(s) at all Full Maintenance intervals.*
STEP 6 Re-insert coalescer unit	Re-insert the foam insert into the stainless steel coalescer basket and re-insert the coalescer unit into the SPEL Stormceptor®. Re-position the lifting handle, chain or wire rope.
STEP 7 SPEL automatic alarm monitoring system	The SPEL automatic alarm/monitoring system probe should be lifted out of the probe protection tube, wiped clean and re-inserted. The system should now be reset according to instructions. See Section 8 (Alarms) in the SPEL Data Manual.
STEP 8 Test SPEL automatic alarm	To test an alarm is working, ensure the previous step has been carried out. Following this, an oil or silt alarm should sound when clean and dry and in contact with air, therefore, holding it in the air should set off the alarm on the control panel. For high level liquid alarms, putting them in water should set off the alarm.

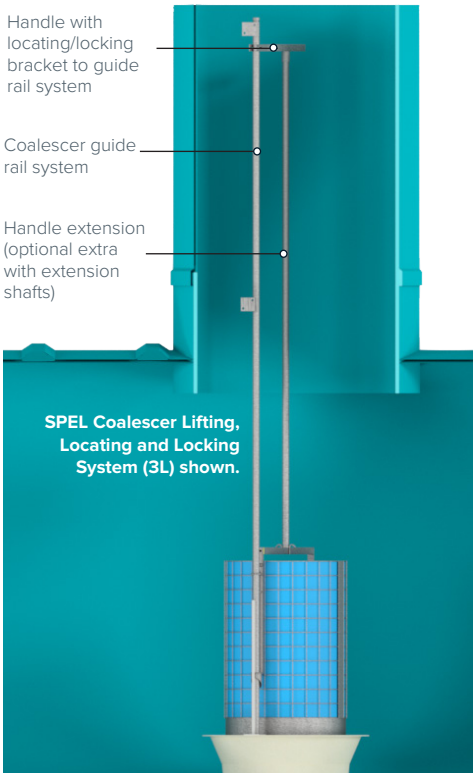
SPEL Coalescer System

Important: ensure all coalescers are correctly seated in the coalescer cone following maintenance. The SPEL Coalescer Guide Rail or 3L System helps ensure correct seating.

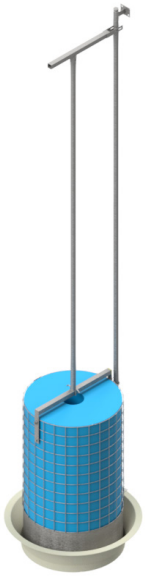
SPEL Coalescer

Normal servicing of the smaller SPEL separators frequently requires emptying the unit completely providing access for the coalescer units to be taken out, cleaned and returned and guided accurately to their seating positions. However larger SPEL separators may only require the hydrocarbon pollutants and silt to be removed.

In order to limit the servicing to sucking off the fuel/oil from the top and the silt from the bottom guide rails are required to ensure coalescer units are replaced into their correct positions.



SPEL Coalescer Lifting, Locating and Locking System (3L) shown.

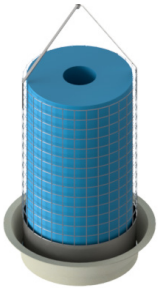


SPEL Coalescer Lifting, Locating and Locking System (3L)

The SPEL 3L System has all the benefits of the below SPEL Guide Rail System and includes a locking mechanism and rigid lifting handle, this locks the coalescer in position and makes for easier lifting and locating.

SPEL Coalescer Guide Rail Systems

SPEL Guide Rail Systems are optional but strongly recommended for all tanks with deeper inverts or larger than 300 Series (1.8m dia).



SPEL Coalescer System without Guide Rails

Optional lifting chains available for ease of maintenance.

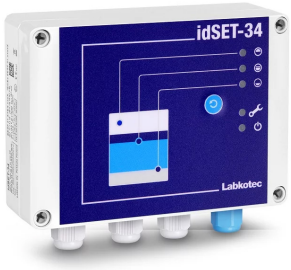
Automatic Alarms/Monitoring Systems

Alarm systems are available for all SPEL separators. These include probes for oil, silt and high level. There are also a range of control panels including solar power, more detail on our alarm systems can be found in Section 8.

Maintenance procedure

The SPEL automatic alarm/monitoring system will automatically warn you when the treatment system requires emptying. Where a SPEL automatic alarm/monitoring system is not fitted, SPEL separators should be checked at three, six or twelve-monthly intervals depending on site conditions, to determine the depth of retained pollutants and silt in both chambers. When the depth of the oil/fuel retained has reached the predetermined design level, in accordance with BS EN 858-1, it should be emptied.

Control Panels



idOil Solar with beacon light

Mains Powered Separator Alarms

For silt, oil and high level detection, compatible with the below alarm probes.

Solar Alarms

Available with optional flashing beacon, and GMS/SMS communication, also compatible with the below alarm probes.

Alarm Probes

idOil-OIL oil probe

Detects oil and indicates when the separator's oil storage is full.

This probe is required in order for a separator to comply with BS EN 858.

idOil-SLU silt probe

Monitors the silt layer in the separator and indicates when the silt layer has reached its maximum level.

idOil-LiQ high liquid level probe

Indicates when the liquid level in the separator rises excessively e.g. in an outlet blockage situation.

Kiosks for externally mounted alarm/control panels are available. See Section 8 of our Data Manual for further detail.

25 YEAR TANK SHELL WARRANTY

SPEL Life in Water

25 YEAR TANK SHELL WARRANTY

Warranty

SPEL Underground Tank Shells

We warrant that our SPEL Tankstor® and Separator underground tank shells, as identified by the serial number, if installed strictly in accordance with the company's relevant installation procedure as detailed in the SPEL Data Manual, Section 7, Installation Guidance and verified with an 'as built' installation drawing prepared by a qualified design consultant or an approved person and stage photographs to show the methods adopted from start to completion having in mind particularly:- ground conditions, invert depth, water table depth in winter, external loading, type and quality of backfill material, will

1. providing our published specifications and installation requirements are fully met the shell laminate integrity will last for a period of twenty-five years following date of original delivery/ collection.

2. not fail for a period of twenty-five years from the delivery/collection date due to external corrosion; and

3. not fail for a period of twenty-five years from the delivery/collection date due to internal corrosion provided the tank is solely used for:-

Rainwater storage

Potable water at ambient temperatures

Fuel/oil contaminated surface rainwater

Domestic sewage

For other applications the life expectancy will be determined by the contents, the operating conditions and the resin system/reinforcement specification used.

Our liability under this warranty is set out in SPEL General Conditions of Sale available on request. In brief they shall be limited to, at our option,

(1) repair of the defective tank
(2) delivery of a replacement tank to the original site or
(3) refund of the original purchase price.

We shall not be liable for any labour or other installation costs, indirect or consequential loss, damage or other damages in connection with such tanks.

Accessory warranties do not extend beyond the warranty period by our suppliers. This applies to such items as access covers and frames, monitoring equipment, Bauer type connections for emptying, pumping equipment or any accessories as defined in the company's official order acknowledgement/invoice.

The foregoing constitutes our exclusive obligation and we make no express or implied warranties, or any warranty of merchantability or fitness for any particular purpose whatsoever, except as stated.

01743 445 200 | info@spelproducts.co.uk
SPEL Products, Lancaster Road, Shrewsbury, Shropshire SY1 3NQ

Maintenance Log

Site Visit and Maintenance Carried Out

Company		**Address**	
Model Number		**Asset Number/Location**	
Serial Number		**Installation Date**	

Date	Visual Check	Oil Probe Clean/ Check	Silt Probe Clean/ Check	Control Panel Check/Test	Tank Empty	Coalescer Check/ Clean	Coalescer Replacement	Structural Check
Tick all that apply								

Comments/Observations

Date of Next Service:

Date	Visual Check	Oil Probe Clean/ Check	Silt Probe Clean/ Check	Control Panel Check/Test	Tank Empty	Coalescer Check/ Clean	Coalescer Replacement	Structural Check
Tick all that apply								

Comments/Observations

Date of Next Service:

Date	Visual Check	Oil Probe Clean/ Check	Silt Probe Clean/ Check	Control Panel Check/Test	Tank Empty	Coalescer Check/ Clean	Coalescer Replacement	Structural Check
Tick all that apply								

Comments/Observations

Date of Next Service:

Maintenance Log

Site Visit and Maintenance Carried Out

Company		**Address**	
Model Number		**Asset Number/Location**	
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Date	Visual Check	Oil Probe Clean/ Check	Silt Probe Clean/ Check	Control Panel Check/Test	Tank Empty	Coalescer Check/ Clean	Coalescer Replacement	Structural Check
Tick all that apply								

Comments/Observations

Date of Next Service:

Date	Visual Check	Oil Probe Clean/ Check	Silt Probe Clean/ Check	Control Panel Check/Test	Tank Empty	Coalescer Check/ Clean	Coalescer Replacement	Structural Check
Tick all that apply								

Comments/Observations

Date of Next Service:

Date	Visual Check	Oil Probe Clean/ Check	Silt Probe Clean/ Check	Control Panel Check/Test	Tank Empty	Coalescer Check/ Clean	Coalescer Replacement	Structural Check
Tick all that apply								

Comments/Observations

Date of Next Service:

Maintenance Log

Site Visit and Maintenance Carried Out

Company		**Address**	
Model Number		**Asset Number/Location**	
Serial Number		**Installation Date**	

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Comments/Observations

Date of Next Service:

Date	Visual Check	Oil Probe Clean/ Check	Silt Probe Clean/ Check	Control Panel Check/Test	Tank Empty	Coalescer Check/ Clean	Coalescer Replacement	Structural Check
Tick all that apply								

Comments/Observations

Date of Next Service:

Date	Visual Check	Oil Probe Clean/ Check	Silt Probe Clean/ Check	Control Panel Check/Test	Tank Empty	Coalescer Check/ Clean	Coalescer Replacement	Structural Check
Tick all that apply								

Comments/Observations

Date of Next Service:

Operation & Maintenance

With SPEL Products

A guide that outlines the best practices, ensuring your SPEL system is achieving the best results for longer.

SPEL Life in Water

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03/25

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Email: Christopher.Moore@Burohappold.com