

Sustainable Drainage Systems Ltd

Operation and Maintenance Manual



PROJECT: 122-20-DI School of Digital Arts, Manchester

CONTRACTOR: SG Engineering Limited

Sustainable Drainage Systems Limited

Clearwater House, Castlemills, Biddisham, BS26 2RE

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Approved and accepted as stage complete_C05_0
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1. Scope of Works / System Description

1.1. *Basis of Design*

Sustainable Drainage Systems (SDS) works were carried out in line with design information and requirements supplied by SG Engineering Limited.

1.2. *Purpose of the Installation*

To supply and install a stormwater system as required and fulfilling the drainage requirements at School of Digital Arts, Manchester.

1.3. *Installation Description*

SDS have installed 1 no attenuation tank at School of Digital Arts, Manchester.

1.3.1. *SDS GEOLight Attenuation Tank*

Installation Started:	19 th March 2020
Installation Completed:	19 th March 2020
Tank Dimensions:	11 x 3 x 1.5m
Tank Volume:	49.5m ³
Location:	Please refer to Drawing No. 1341B-BHE-ZZ-XX-DR-C-0300_GENERAL ARRANGEMENT PLAN_A5 Approved and accepted as stage complete_C05_0 for further information.

The excavation was dug (by others) to the dimensions of the tank plus an extra 0.5m to the length and width to allow for working space during installation. After excavation the hole was blinded to form a level ground with either sand or shingle (by others).

The excavation base was then lined with GEOTextile with additional allowance for the lining to be brought up and over the sides of the tank and allow for it to be completely encased on completion of the build.

Low density polyethylene (LLDPE) GEOMembrane was laid on top of the GEOTextile to cover the base and sides of the excavation. The membrane was sealed using an airtight twin edge weld using a hot air type welder (110v). For information on the welding, please refer to document Membrane Welded Joint Information Sheet.

GEOLight blocks were moved into position and installed following a layout plan. During installation a trench allowance was made to lay slotted twinwall distribution pipe through the tank with a length of solid pipe attached at each end of the slotted distribution pipe to allow for the tank system to be attached to the upstream and downstream stormwater manholes (by others). Pre-manufactured top hat seals were welded to the GEOMembrane at the entry and exit points of the solid pipe at each end of the tank to ensure a watertight seal. On each vertical face of the GEOLight blocks along the internal trench for the distribution pipe, additional GEOTextile was installed to prevent internal clogging of the lateral channels in the GEOLight blocks.

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All pipe positions and levels within the system were confirmed and approved (by others) prior to the installation of pipe bedding being laid within the trench (by others).

After the tank was built to the layout drawing, GEOvent was laid along the length of the tank before the GEOMembrane was pulled up and over the sides of the tanks to enclose and secure the GEOlight blocks where a panel of GEOMembrane was welded to the top of the tank to form a watertight seal of the tank.

Once the tank was complete, the additional allowance of GEOTextile lining the excavation was pulled up and over the sides of the tanks to completely encase the tank. Backfilling around and over the tank was then completed (by others).

The installation method above is as detailed in the Method Statement

On completion, as detailed in the Method Statement, the attenuation tank was signed off by SDS and a client representative on site using the Sign Off QA Sheet.

For all datasheet information relating to specific materials used manufacturers' details in Section 7.

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2. Operating and Fault Finding Routines

2.1. *Operating Procedures*

Once installed this system is entirely inert and thus has no applicable operating procedures

2.2. *Fault Finding Routines*

Once installed this system is not a product that will develop faults over time

3. Schedule of Materials Used

Attenuation Tank

Item Ref	Model Number	Supplier	Item Type	Description	Location
GEOlight	HG400	SDS	GEOlight block	Lightweight Polyvinyl Chloride (PVC) honeycomb modular block	Attenuation Tank
GEOvent	25SW.NW9-M.CE	ABG	Fildrain	GEOcomposite vent	Attenuation Tank
GEOtextile	Bontec NW9	Bonar Ltd	Bontec NW	Thermally bonded nonwoven GEOtextile	Attenuation Tank
GEOmembrane	Ultraflex Smooth	GSE Environmental	Waterproof Membrane	Smooth linear low density (LLDPE) GEOmembrane	Attenuation Tank
Top Hats	Ultraflex Smooth	GSE Environmental	Waterproof Membrane	Smooth linear low density (LLDPE) GEOmembrane Pipe Penetration Seal	Attenuation Tank
Top Hats	Ultraflex Smooth	GSE Environmental	Waterproof Membrane	Smooth linear low density (LLDPE) GEOmembrane Pipe Penetration Seal	Attenuation Tank
Pipe	MetroDrain	Cherry Drainage Ltd	Slotted Pipe	Cherry Drainage Ltd Twinwall Highway Drainage System	Attenuation Tank
Pipe	MetroDrain	Cherry Drainage Ltd	Solid Pipe	Cherry Drainage Ltd Twinwall Highway Drainage System	Attenuation Tank
Pipe	MetroDrain	Cherry Drainage Ltd	Solid Pipe	Cherry Drainage Ltd Twinwall Highway Drainage System	Attenuation Tank
Collars	MetroDrain	Cherry Drainage Ltd	Coupling Collars	Cherry Drainage Ltd polypropylene coupling	Attenuation Tank
T Pieces	MetroDrain	Cherry Drainage Ltd	Solid Pipe	Cherry Drainage Ltd Twinwall Highway Drainage System	Attenuation Tank

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4. Planned Maintenance

4.1. *Planned Maintenance Procedure*

There are no specific steps for planned maintenance; however, it is recommended that the stormwater tank inspection chambers, including the stormwater drainage distribution pipes, are checked periodically in conjunction with general maintenance of the underground pipe network

Please refer to the document GEOLight Maintenance for further clarification

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5. Safety Procedures

5.1. *CoSHH Data Sheets*

None of the materials used in this installation require reference to CoSHH

5.2. *Risk Assessments*

Maintenance of this installation does not pose any major risk and therefore has no applicable risk assessment requirements

5.3. *Disposal*

None of the materials used in this installation require specialist disposal

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6. Spares

6.1. *Spares & Lubricants Issued to the Client at Handover*

No spares were issued to the client at handover

6.2. *Recommended Spares / Lubricants for the Client to Hold*

It is not recommended that the client hold any spares as they are not required for this installation

6.3. *General Spares & Lubricants Lists*

There are no general spares lists available for these works

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7. Manufacturers / Suppliers Details

7.1. Sustainable Drainage Systems Limited

MANUFACTURER/ SUPPLIER	ADDRESS	CONTACT DETAILS	TOTAL No. OF PAGES
Sustainable Drainage Systems	Clearwater House Castlemills Biddisham Somerset BS26 2RE	Tel: 01934 751303 e-mail: info@sdslimited.com	12
EQUIPMENT REF/ MODEL	PUBLICATION DETAILS		NO. OF PAGES
GEOLight	GEOLight Brochure		8
GEOLight	GEOLight Datasheet		2
GEOLight	GEOLight Maintenance		1
GEOMembrane	Membrane Welded Joint Information Sheet		1

7.2. ABG Limited

MANUFACTURER/ SUPPLIER	ADDRESS	CONTACT DETAILS	TOTAL No. OF PAGES
ABG Limited	E7 Meltham Mills Road Meltham Yorkshire HD9 4DS	Tel: 01484 852096 e-mail: geo@abgltd.com	1
EQUIPMENT REF/ MODEL	PUBLICATION DETAILS		NO. OF PAGES
GEOvent	ABG Fildrain 25SW.NW8-M.CE Datasheet		1

7.3. BONAR Limited

MANUFACTURER/ SUPPLIER	ADDRESS	CONTACT DETAILS	TOTAL No. OF PAGES
BONAR Limited	Unit 28, Bergen Way Sutton Fields Industrial Estate (West) Hull HU7 0YQ	Tel: 01482 863777 e-mail: info@bonar.com	1
EQUIPMENT REF/ MODEL	PUBLICATION DETAILS		NO. OF PAGES
GEOtextile	Bontec NW - Needle Punched and Thermally Bonded Nonwoven Datasheet		1

7.4. GSE Environmental (UK Office)

MANUFACTURER/ SUPPLIER	ADDRESS	CONTACT DETAILS	TOTAL No. OF PAGES
GSE Environmental	49C Fordham Road Soham Cambridge CB7 5AH	Tel: 01487 824339 e-mail: msmith@gseworld.com	1
EQUIPMENT REF/ MODEL	PUBLICATION DETAILS		NO. OF PAGES
GSE GEOMembrane	GSE Ultraflex Smooth Geomembrane Datasheet		1

7.5. Cherry Drainage Pipes Limited

MANUFACTURER/ SUPPLIER	ADDRESS	CONTACT DETAILS	TOTAL No. OF PAGES
Cherry Drainage Pipes Ltd	12 Derryhirk Road Dungannon Co.Tyrone BT71 6NH	Tel: 028 3885 3900 e-mail: sales@cherrypipes.com	2
EQUIPMENT REF/ MODEL	PUBLICATION DETAILS		NO. OF PAGES
Twinwall Carrier Pipe	Cherry Drainage Pipes Carrier Pipe information and datasheet		1
Twinwall Filter Pipe	Cherry Drainage Pipes Filter Pipe information and datasheet		1
EQUIPMENT REF/ MODEL	PUBLICATION DETAILS		NO. OF PAGES
Double Wall Corrugated Polypropylene Pipe	Paladex Pipe information and datasheet		1



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SDS Geolight Maintenance

All SDS GEOlight attenuation tanks are filled via a perforated distribution pipe wrapped in a hi-flow GEOTextile. GEOlight units themselves require no maintenance.

The incoming pipe will be connected via a catch pit manhole. This will need to be periodically inspected and emptied in line with the projects specific inspection and maintenance plan for the surrounding drainage.

The internal distribution pipe needs relatively little maintenance, again routine inspection and jetting (if required) should be carried out in line with the projects specific inspection and maintenance plan for the surrounding drainage.

If you have any questions regarding this, please contact SDS Ltd on the details below.

Sustainable Drainage Systems Ltd.
Clearwater House
Castlemills
Biddisham
Somerset
BS26 2RE
Tel: 01934 751303 Fax: 01934 751304
Email: info@sdslimited.com

Bennion, Mark

From: Timothy Jay <timothy.jay@sdslimited.com>
Sent: 02 August 2021 16:32
To: Mark Bland
Cc: Bennion, Mark; Jason Cartwright; Rhianne Dorsett
Subject: RE: Kier - School of Digital Arts O and M Manual

Follow Up Flag: Follow up
Flag Status: Completed

[This email was sent from an external sender outside of the Kier Group, please treat this email, links and attachments with caution.]

Good afternoon Mark,

Thank you for your email,

Please see below for your client:

Initially we would recommended a schedule be implemented in line with CIRIA C753 guidance
On hand over – 3 months – 6 months – 12 months and then annually or as deemed necessary from details
obtain from previous inspections.

Best regards

Tim Jay
Internal Sales Executive



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From: Mark Bland <mark@ibprojectmanagement.com>
Sent: 02 August 2021 14:28
To: Timothy Jay <timothy.jay@sdslimited.com>
Cc: 'Bennion, Mark' <Mark.Bennion@kier.co.uk>; Jason Cartwright <jason.cartwright@sdslimited.com>; Rhianne Dorsett <rhianne.dorsett@sdslimited.com>

Hydro International Warranty, Maintenance and COSHH Statement

This statement covers all Hydro International Hydro-Brake® Optimum, Hydro-Brake® and S-Type Vortex Flow Control units (hereafter referred to as "Flow Control").

Defects Liability Period Warranty

The standard Hydro International warranty covers products for one year from date of purchase and will only be considered for those defects or faults reported directly to Hydro International in writing. Warranties will not be considered for defects or faults caused by accident, acts of vandalism or unauthorised repair/rectification. Please Contact Hydro International for product specific details.

Maintenance

Normally, little maintenance is required as there are no moving parts within the Flow Control. Experience has shown that if blockages occur they do so at the intake, and the cause on such occasions has been due to a lack of attention to engineering detail such as approach velocities being too low, inadequate benching, or the use of units below the minimum recommended size. The Flow Control (where applicable) is fitted with a pivoting bypass door, which allows the manhole chamber to be drained down should blockage occur. The smaller conical units, below the minimum recommended size, are also supplied with rodding facilities or vortex suppressor pipes as standard.

Following installation of the Flow Control it is vitally important that any extraneous material ie. building materials are removed from the unit and the chamber. After the system is made live, and assuming that the chamber design is satisfactory, it is recommended that each unit be inspected monthly for three months and thereafter at six monthly intervals with hose down if required. If problems are experienced, please do not hesitate to contact the company so that an investigation may be made.

All Flow Control units are typically manufactured from grade 304 Stainless Steel, and if required they can also be manufactured in grade 316 Stainless Steel. Both materials have an estimated life span in excess of the design life of drainage systems.

COSHH

Flow Control units are manufactured from Stainless Steel, which is not regarded as hazardous to health and exhibits no chemical hazard when used under normal circumstances for the stated applications.

Manual Handling

The handling of Flow Control units should be in accordance with the current legislation and regulations:

- The Health and Safety at Work Act 1972
- The Management of Health and Safety at Work Regulations 1999
- The Manual Handling Operations Regulations 1992. All published and printed by the Health and Safety Executive.