

DRAINAGE MAINTENANCE PLAN
McDonald's Wrexham, Plas Coch Road
(NB8104)

**Engineering, Design and
Surveying Consultants**

from inception to completion

Prepared for: McDonald's Restaurants Ltd
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1	03 JUNE 19	-	Simon King	Hylton George

Glanville

Glanville Consultants is a multi-disciplinary engineering, design and surveying consultancy with the following expertise:



Structural Engineering



Civil Engineering



Transport and Highways



Geomatics (Land Surveying)



Building Surveying



BIM

3 Grovelands Business Centre
Boundary Way
Hemel Hempstead
Hertfordshire HP2 7TE

Offices also at

Cornerstone House
62 Foxhall Road
Didcot
Oxfordshire OX11 7AD

Telephone: 01442 835999

Telephone: 01235 515550

postbox@glanvillegroup.com
www.glanvillegroup.com

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1.0 Introduction

- 1.1 This Sustainable Drainage Maintenance Plan has been prepared by Glanville Consultants Ltd on behalf of McDonald's Restaurants Limited.
- 1.2 The site is located on The Tesco car park at Crescent Road Wrexham Post Code LL13 8HF.

2.0 Drainage Maintenance Responsibility & Training

- 2.1 The McDonald's site and all of its drainage is privately owned and maintained by McDonald's. It is the store manager's responsibility to ensure that the drainage system is regularly inspected and maintained, in accordance with this plan. Figure 1 shows the layout of the drainage system including the location of each of the items requiring maintenance, listed in this plan and a summary of the maintenance requirements.
- 2.2 The majority of tasks can be completed by McDonald's staff trained for each specific task. Training should include manual handling, for lifting manhole covers. Manholes & chambers can be dangerous due to trapped harmful gases and should not be entered unless staff are confined space trained and issued with appropriate equipment. Entering confined spaces should not normally be required and should be controlled by a permit to enter system administered by the store manager. It may be appropriate to rely on non-store based, specialist staff, on the rare occasions when confined space entry is required.

3.0 Drainage Inspection and Maintenance Requirements and Frequency

Catchpit Manholes and Gullies (Figure 1 - Ref A & C)

- 3.1 Catchpit manholes and gullies are designed to trap, silt, leaves and other debris before it reaches more sensitive parts of the drainage system where it could reduce drainage efficiency. Catchpit manholes are located prior to the cellular storage tank and adjacent to surface drainage channels. Gullies are located throughout the car park and drive through lane, adjacent to kerb-lines.
- 3.2 Catchpit manholes and gullies need to be inspected on a monthly basis except during the autumn when leaf fall, may require inspections to be increased to fortnightly.
- 3.3 Equipment required for inspection includes, moveable barriers and cones to guard openings, manhole keys, gloves and a torch. A minimum of two people are required.
- 3.4 Catchpit manholes and gullies need to be emptied once the sump becomes half full. Emptying should be performed using a gulley emptying vacuum truck or similar device which does not require man entry.

Foul Water Manholes (Figure 1 - Ref B)

- 3.5 Foul water manholes need to be inspected on a monthly basis or immediately if foul odours are present or there is a suspected blockage.
- 3.6 Equipment required for inspection includes, moveable barriers and cones to guard openings, manhole keys, gloves and a torch. A minimum of two people are required.
- 3.7 If manholes show any signs of blockage, specialist contractors should be called for clearance work, without delay.

Drainage Channel/Beany Kerb Outlets (Figure 1 - Ref D)

- 3.8 Drainage channel outlets need to be inspected on a monthly basis except during the autumn when leaf fall, may require inspections to be increased to fortnightly.
- 3.9 Equipment required for inspection includes, moveable barriers and cones to guard openings, lifting tools, gloves and a torch. A minimum of two people are required.
- 3.10 Silt, leaves and debris should be cleared from the channel outlets during each inspection.

Surface Water Treatment Unit, Smart Stop (Figure 1- 9 Ref E)

- 3.11 Catchpit manholes and gullies are located upstream of the treatment unit to prolong its life and effectiveness. The treatment unit contains smart filters and these should be inspected on a 6 monthly basis or immediately after a known pollution spillage within the car park.
- 3.12 Inspection and replacement of the smart filter requires the following procedure, in accordance with the manufacturers guidelines (see also Appendix A):
 - Open the Smart filter and use plastic ties to lift out the wire cage containing the Smart packs, snip the plastic ties and remove the individual Smart Pak, shake off excess water and weigh the Smart Pak and record this on the maintenance schedule.
 - If the recorded weight is twice the dry weight, replace the Smart Paks accordingly with new ones. If less than twice the weight, a changeover date can be calculated based on the relative weights and the installation date.
 - Replace the Smart Paks back in the wire cages, renewing any plastic ties to hold the cages closed and slide cage back into the smart filter.
 - Store manager to ensure full details of maintenance and dates are recoded in the maintenance schedule.
- 3.13 Equipment required for inspection includes, moveable barriers and cones to guard openings, manhole keys, gloves, wire ties and cutters and a torch. A minimum of two people are required. Replacement Smart Paks may be required.
- 3.14 Staff should have appropriate training for this inspection. It is recommended that initial training is provided by Naylor Environmental, 01226 794135, the suppliers of this equipment.

Aquacel Core & Plus (Figure 1 - F)

- 3.17 The Aquacel Core crates are protected by the upstream catchpit manholes. The catchpit manhole adjacent to the crates will allow inspection of the Aquacel Core Inspect cell. Aquacel Core Inspection Cell's primary purpose is to provide a tunnel along the length of a fully installed Aquacel Core structures to enable access for inspection and maintenance. This should be examined when the catchpit manholes are inspected, on a monthly basis. This Inspection Cell should not become blocked, provided the catchpit manhole is emptied before silt reaches the invert. If there is any evidence of silt within the crate system, jetting can be performed Inspection Cell and any silt should be washed from the tank into the catchpit manhole, where it can be emptied.
- 3.18 Jetting requires specialist equipment and should be carried out by specialist contractors to ensure that damage to the crate storage is avoided. Provided the catchpit manholes are emptied appropriately, crate storage jetting should never be required. See also the manufacturer's guidelines in Appendix C.

Grease Trap (Figure 1 - G)

- 3.19 The Grease Trap should be inspected on a monthly basis, by lifting the inspection cover. Any signs or a malfunction or blockage should be reported immediately to the external specialist maintenance company.
- 3.20 The Grease Trap has an alarm system hard wired into the Store Manager's office with a visual and audible warning system. If the alarm is triggered the external specialist maintenance company should be called out immediately. See also the manufacturer's guidelines in Appendix D.

4.0 Drainage Inspection and Maintenance Records

- 4.1 Appendix E includes the annual drainage record log sheet. Copies should be taken of the log sheet for use for each year's records. Each inspection should be recorded on the log sheet for that year by the store manager. The log sheet shall be kept with this maintenance plan in the store manager's office.

Figures

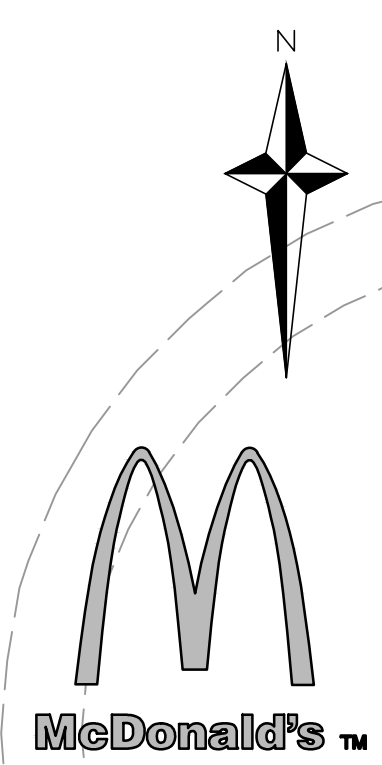
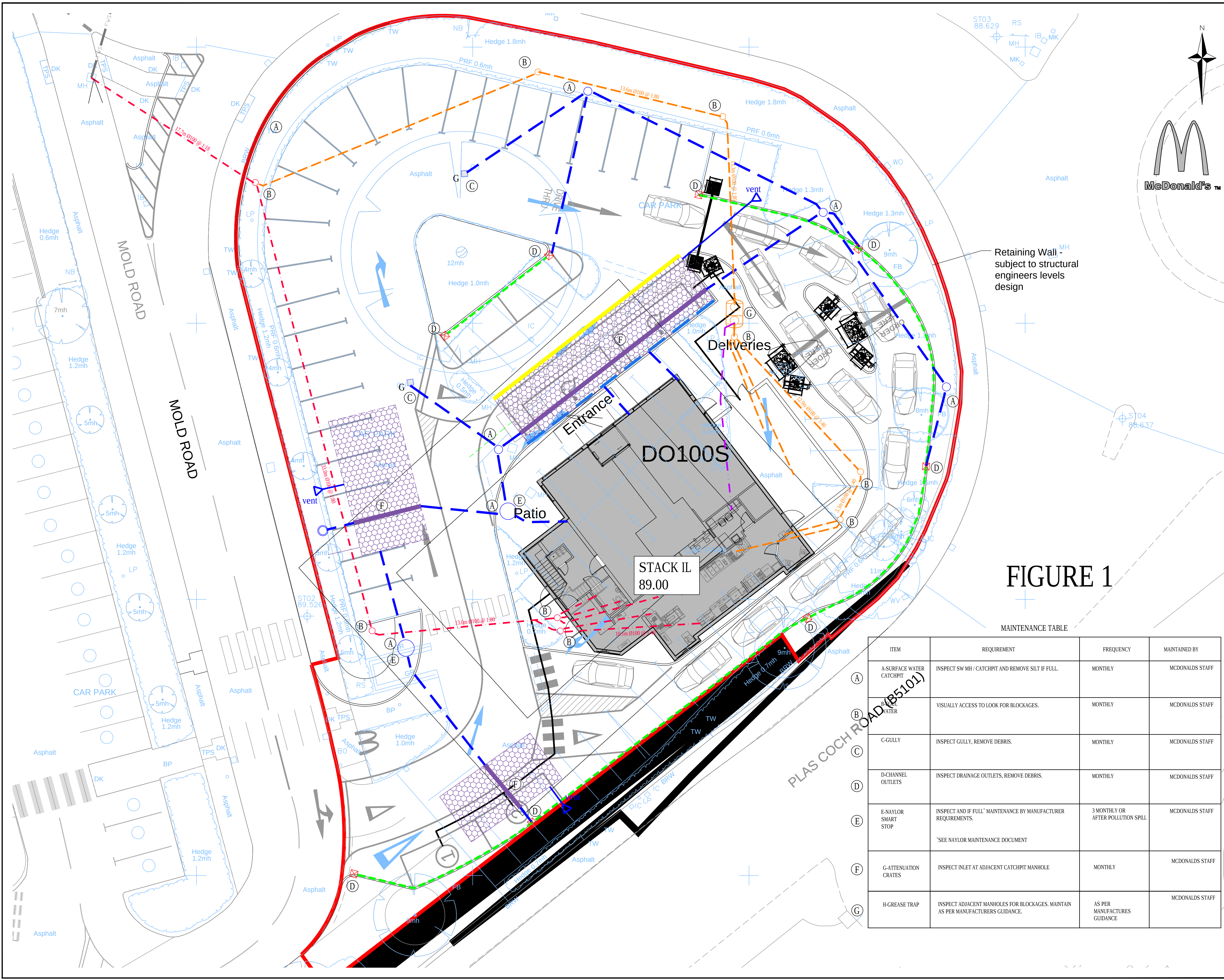


FIGURE 1

MAINTENANCE TABLE

ITEM	REQUIREMENT	FREQUENCY	MAINTAINED BY
A-SURFACE WATER CATCHPIT	INSPECT SW MH / CATCHPIT AND REMOVE SILT IF FULL.	MONTHLY	MCDONALDS STAFF
B-SURFACE WATER	VISUALLY ACCESS TO LOOK FOR BLOCKAGES.	MONTHLY	MCDONALDS STAFF
C-GULLY	INSPECT GULLY, REMOVE DEBRIS.	MONTHLY	MCDONALDS STAFF
D-CHANNEL OUTLETS	INSPECT DRAINAGE OUTLETS, REMOVE DEBRIS.	MONTHLY	MCDONALDS STAFF
E-NAYLOR SMART STOP	INSPECT AND IF FULL, MAINTENANCE BY MANUFACTURER REQUIREMENTS. SEE NAYLOR MAINTENANCE DOCUMENT	3 MONTHLY OR AFTER POLLUTION SPILL	MCDONALDS STAFF
F-G-ATTENUATION CRATES	INSPECT INLET AT ADJACENT CATCHPIT MANHOLE	MONTHLY	MCDONALDS STAFF
H-GREASE TRAP	INSPECT ADJACENT MANHOLES FOR BLOCKAGES, MAINTAIN AS PER MANUFACTURERS GUIDANCE.	AS PER MANUFACTURES GUIDANCE	MCDONALDS STAFF

NOTES

- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT DRAWINGS, DOCUMENTS AND SPECIFICATIONS. ANY DISCREPANCIES BETWEEN INFORMATION SHOWN ON THIS AND ANY OTHER DRAWING SHALL BE REPORTED TO THE ENGINEER IMMEDIATELY.
- DO NOT SCALE FROM THIS DRAWING. WORK TO FIGURED DIMENSIONS ONLY.
- THIS DRAWING SHALL NOT BE USED FOR CONSTRUCTION PURPOSES UNLESS SPECIFICALLY STATED AS 'FOR CONSTRUCTION' IN THE DRAWING STATUS.
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- INTERNAL DRAINAGE POINTS ASSUMED
- DRAINAGE SUBJECT TO CCTV OF EXISTING DRAINAGE
- INFILTRATION INTO SHALLOW SOILS ASSUMED

KEY

- SITE BOUNDARY
- EXISTING SURVEY
- PROPOSED SITE LAYOUT
- DRAINAGE LABEL
CL = XX.XXX
IL = XX.XXX
- PROPOSED GULLY WITH 1500 PIPE
- PROPOSED SURFACE WATER DRAINAGE PIPEWORK SHOWING LENGTH, PIPE DIAMETER AND GRADE
- PROPOSED BUILDING SURFACE WATER PPIC CHAMBER
- PROPOSED RAINWATER DOWN PIPE INVERT 500mm BELOW PROPOSED EXTERNAL LEVEL (ALL OUTLETS 1000 & TO HAVE RODDING ACCESS UNLESS OTHERWISE INDICATED)
- ACO MONO DRAIN PD100D 0.0 DRAINAGE CHANNEL (BLACK)
- PROPOSED FOUL WATER DRAINAGE PIPEWORK SHOWING LENGTH, PIPE DIAMETER AND GRADE
- PROPOSED BUILDING FOUL WATER DRAINAGE INSPECTION CHAMBER
- ALARMED 200L SPEL GREASE TRAP WITH HARD WIRE TO MANAGERS OFFICE
- 1100 DUCTS FOR GREASE TRAP CABLES TO INCOMING ELECTRICS CLIPBOARD
- HEAVY DUTY CELLULAR STORAGE AQUACELL CORE & PLUS
- CONCRETE SIDE WALL
- SOIL VENT PIPE (WC)
- STUB STACK PIPE(DP)
- FLOOR GULLY
- EXISTING FW SEWER TO BE CONFIRMED BY CCTV
- PROPOSED BEANY KERB
- RODDING EYE
- ACCESS UNIT

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Glanville

3 Grovelands Business Centre
Boundary Way
Hemel Hempstead, Herts. HP2 7TE
Tel: (01442) 835999 Fax: (01442) 258924
postbox@glanvillegroup.com www.glanvillegroup.com

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Project : **MCDONALD'S RESTAURANT WREXHAM, PLAS COCH ROAD STORE 8104**

Title : **DRAINAGE MAINTENANCE PLAN**

Project Engineer : FG Scale : 1:125 @ A1
Project Director : NP Date : MAY 2019
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Appendices

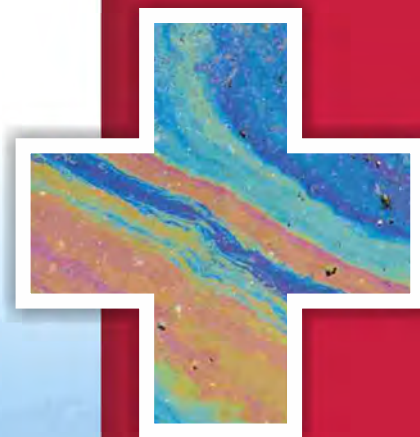
Appendix A:
Smart Stop Manufacturers Guidelines

NAYLOR
ENVIRONMENTAL

**SMART⁺
sponge[®]**

**Oil Filtration & Pathogen
Reduction Products**

**Solutions
for Water
Framework
Directive
Compliance**



**The smarter
solution to deal
with hydrocarbon
pollution and
comply with the
Water Framework
Directive**

- Treats stormwater & urban run-off
- Removes hydrocarbons
- Destroys bacteria
- Filters heavy metals
- Allows solid waste recycling
- Complies with the Water Framework Directive
- Complies with Bathing Water Directive

email: environmental@naylor.co.uk web: www.naylor.co.uk



Winners -
Growing Business



Winner - Best SME



Tel 01226 794135

Fax 01226 791531

The Smart Sponge® Family

Smart Filter®, Smart Brake® & Smart Stop® Range

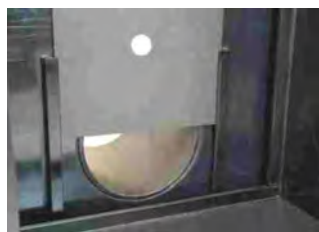
The Smart Filter®:

Specifically designed for end of pipe applications and installations through which contaminated or polluted water flows. The unique design allows the Smart Filter® to either sit inside or outside the pipe connection and will absorb hydrocarbons that pass through the system during normal conditions. The Smart Filter® is available in 2 different standard sizes and will accommodate standard pipe sizes.

Flow rates are catered for through the design of the Smart Filter®, sized to take the first flush effect plus a safety factor of 2x with any excess passing through the bypass facility.



Smart Filter®



Orifice Plate

The Smart Brake®:

Is a collaboration of design from the Smart Filter® and houses the Smart Paks within a more confined area which allows normal flow through the system. The Smart Brake's® unique design works during an event and slows the flow rate whilst absorbing any hydrocarbons present, allowing the final outfall flow to disperse reducing flooding, resulting in the contaminated flow from travelling further along a water course. The Smart Brake® will also absorb any hydrocarbons present within a normal flow, effectively acting as a Smart Filter®.



Unit showing overflow connection

The Smart Stop®:

Uses the basic principles of the Smart Filter® but houses the Smart Paks within a more confined area which allows normal flow through the system. The Smart Stop's® unique design works during an event where more hydrocarbons are present within the resulting flow and the volume of hydrocarbons are quickly absorbed within the Smart Paks which swell into the defined cage and seal the outfall pipe providing the contaminated flow from travelling further along a water course. The contaminated water is then stopped at source enabling the hydrocarbon clean up to be targeted in one area reducing the impact to the environment. The Smart Brake® will also absorb any hydrocarbons present within a normal flow, effectively acting as a Smart Filter®.

N.B. A suitable silt trap device is recommended prior to the Smart Filter® chamber to prolong the life of the Smart Sponge®. If this is impractical a silt sump is recommended within the Smart Filter® chamber.

Smart Filter® Standard Range

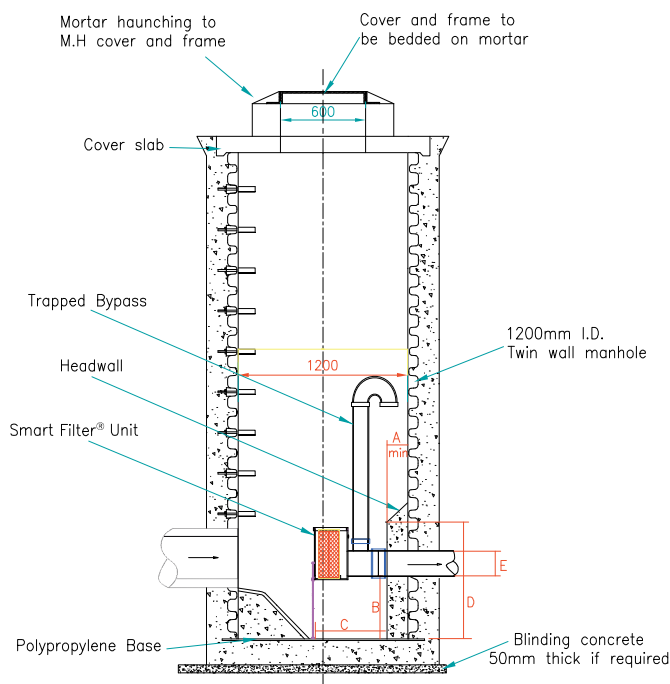
Prod No.	Description	Dims (mm)	Qty
SF01-30302	Smart Filter® c/w 2 No. 305 x 305 Std Smart Paks. 150 dia outlet for flow up to 14 l/s	360 x 330 x 330	1
SF02-38382	Smart Filter® c/w 2 No. 380 x 380 Std Smart Paks. 150 dia outlet for flow up to 22 l/s	400 x 400 x 400	1
SF01-30302P	Smart Filter® c/w 2 No. 305 x 305 Plus Smart Paks. 150 dia outlet for flow up to 14 l/s	360 x 330 x 330	1
SF02-38382P	Smart Filter® c/w 2 No. 380 x 380 Plus Smart Paks. 150 dia outlet for flow up to 22 l/s	400 x 400 x 400	1

Smart Brake® Range

Prod No.	Description	Dims (mm)	Qty
SB01-30302	Smart Brake® c/w 2 No. 305 x 305 Std Smart Paks. Specify orifice size for desired flow	360 x 330 x 330	1
SB02-38382	Smart Brake® c/w 2 No. 380 x 380 Std Smart Paks. Specify orifice size for desired flow	400 x 400 x 400	1

Smart Stop® Range

Prod No.	Description	Dims (mm)	Qty
SS01-30302	Smart Stop® c/w 2 No. 305 x 305 Std Smart Paks. 150 dia outlet for flow up to 14 l/s	360 x 330 x 330	1
SS02-38382	Smart Stop® c/w 2 No. 380 x 380 Std Smart Paks. 150 dia outlet for flow up to 22 l/s	400 x 400 x 400	1



Typical Installation showing overflow connection and silt trap.

The Smart Sponge® Family

Line Skimmers

Line Skimmers are ideal for creating lines of hydrocarbon protection in areas such as ponds and streams as well as clarifying wells and marinas. Installation is carried out by placing the line skimmers across the water course, tied off to fixed points. The line skimmers can also be tied to one another to create longer protection booms as required. Smart Sponge® Line Skimmers are non leaching so cannot contaminate the water during replacement

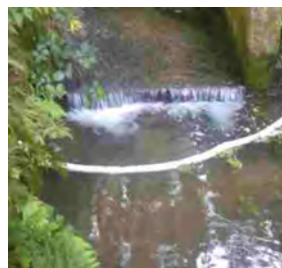


Prod No.	Dry Weight		Spent Weight		Litres
LS104-10 (1.2m)	0.7kg		2.8kg		2.4Ltr
LS110-04 (3m)	1.9kg		7.6kg		9.0Ltr
LS304-04 (1.2m)	2.2kg		8.8kg		6.5Ltr
LS308-04 (2.4m)	4.4kg		17.6kg		13.0Ltr
LS408-04 (2.4m)	5.9kg		23.6kg		17.0Ltr

Line Skimmer weights before and after application

Applications

- Preserving Ecologically Sensitive Areas
- Coastal Marshlands
- Estuaries
- Grass Flats
- Fishing and Breeding Grounds
- Boat Docks and Marinas
- Marine Fueling Locations
- Clarifying Wells



Line Skimmers deployed at Linlithgow Loch

Disposal Options

As local conditions, product use and exposure can vary widely, the end user must determine the most appropriate disposal method for a spent Smart Sponge® or Smart Sponge® Plus product. However Smart Sponge® samples saturated with hydrocarbons both in the lab and in the field have been tested according to the USA EPA's Toxicity Characteristic Leaching Procedure ("TCLP"). These tests show that Smart Sponge® is a "non-leaching" (i.e., non-detect or "N.D.") product. As a result, Smart Sponge® technology can afford many cost effective and environmentally friendly disposal options. The following waste disposal and resource recovery systems are available for disposal and/or recycling of the spent Smart Sponge® products.

Waste to Energy Facilities

This is a specialised segment of the solid waste industry and within the USA this is a recognised route for used spent Smart Sponge® as an alternative fuel in the production of electricity. The spent Smart Sponge® generates between 10,000 – 18,000BTU per pound (0.45kg).

Cement Kilns

This industry has used the spent Smart Sponge® as an alternative fuel in the production process of Portland Cement. This process is considered a beneficial re-use of waste products. The BTU value of spent Smart Sponge® is consistently above the average acceptable levels set for this high temperature process.

Landfills

As mentioned above, spent Smart Sponge® products have been classified as a solid waste within the USA and have been accepted at Subtitle D Landfills. Discussions are ongoing with the Environment Agency to establish similar classification for the UK.

THE **SMARTER** SOLUTION TO: Quick Installation & Maintenance

Passive Skimmers

It is intended that proactive checks are completed on a six monthly basis, any remedial work will be managed reactively.

1. Fix a tether rope to the absorbent Passive Skimmer and record the weight in Kg
2. Fix the tether so that the Passive Skimmers can be recovered but allowing the skimmer to float freely.
3. Every 6 months withdraw the Passive Skimmer, shake off excess water and check and record weight. If weight is above trigger value replace skimmer.

Passive Skimmers are deemed spent if their weights are greater than:

Size	Dry Weight	Spent Weight
PS1313 (Small)	0.5kg 	2.0kg (approx. 2.4 litres) 
PS1818 (Medium)	0.9kg 	3.6kg (approx. 4.2 litres) 
PS2727 (Large)	1.9kg 	7.6kg (approx. 9.0 litres) 



Passive Skimmers are available in Small, Medium and Large packs
PS1313 (Small) shown

Smart Gully Adaptor®

Smart Gully Adaptor® Instructions for SGA Installation and Maintenance.



Insert the back plate into the rodding eye of the gully



Slide the front plate with Smart Pak in down onto the back plate



Back plate will lock into position on the tabs provided



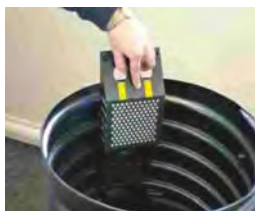
Remove the front plate by sliding upward



Weigh the unit with Smart Pak in



Remove and replace spent Smart Pak



Install new Smart Pak and refit

Size	Dry Weight	Spent Weight
SMPK (150X150X62.5)	0.5kg 	1.2kg (approx. 1.4 litres) 

Smart Paks - Smart Filters®

It is intended that proactive checks are completed on a six monthly basis, any remedial work will be managed reactively.

1. Open the top of the Smart Filter® & using the plastic ties lift out the wire cage containing the Smart Paks, snip the plastic ties & remove the individual Smart Pak, shake off excess water & weigh the Smart Pak and record this on the maintenance schedule.
2. If the recorded weight is greater than twice the dry weight, replace the Smart Paks accordingly with new ones. If less than twice the weight, a changeover date can be calculated based on the relative weights.
3. Relace the Smart Paks back in the wire cages, renewing any plastic ties to hold the cages closed and slide the cage back into

Size	Dry Weight	Spent Weight	Size	Dry Weight	Spent Weight
SMPK1212-2.5	1.95kg 	4.6kg 	SMPK1515-2.5	2.9kg 	7.2kg 
SMPK1212-3	2.22kg 	5.5kg 	SMPK 1515-3	3.5kg 	8.7kg 

Smart Pak weights before and after application (assumes a non confined unit).

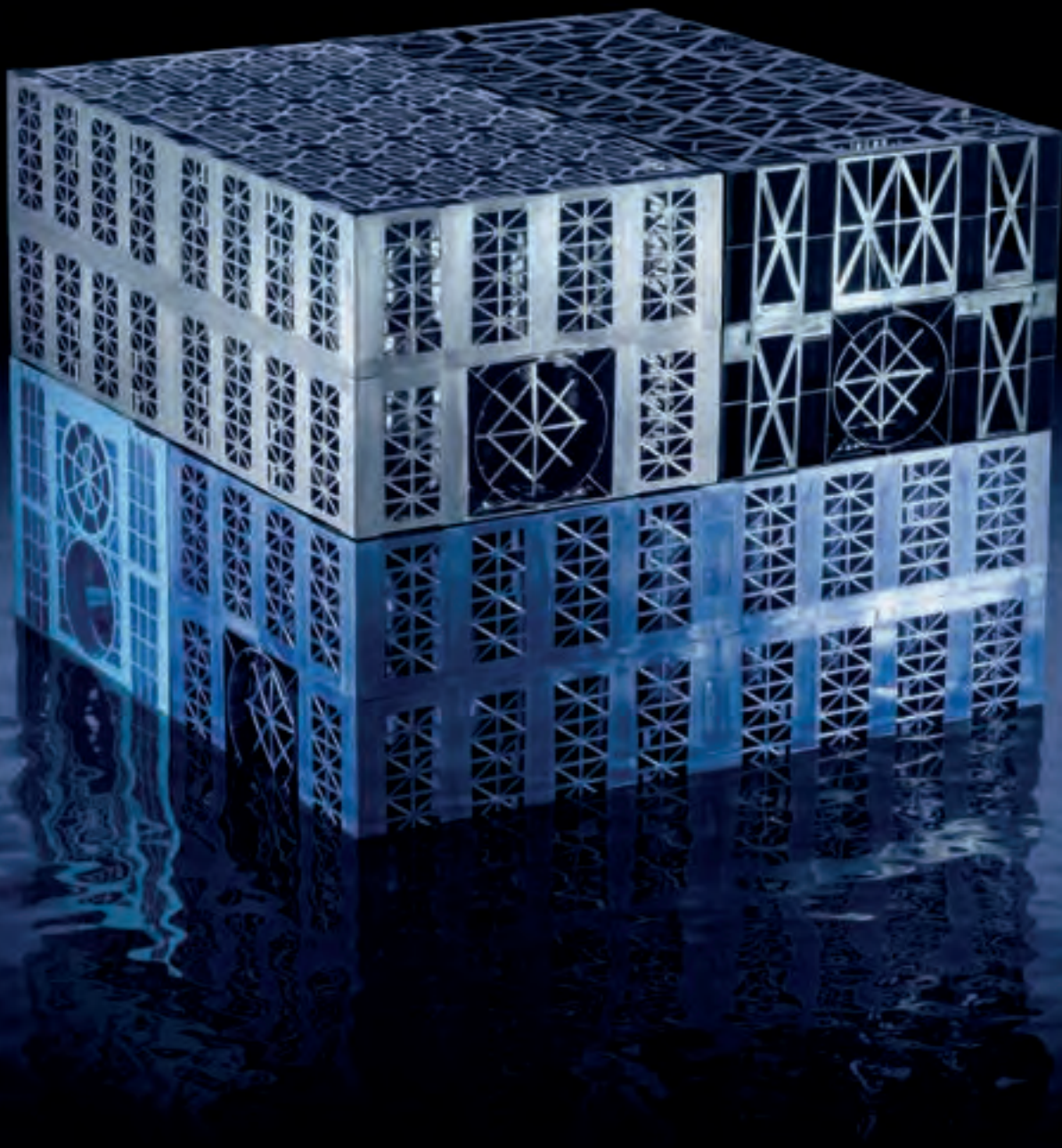
Appendix B:
Attenuation Storage

Water Management PRODUCT AND INSTALLATION MANUAL



CONNECT TO BETTER

AquaCell Systems



Introduction to SuDS

Continuing urban development, a changing climate and the consequences of increased rainfall are all increasingly prominent issues on the political and environmental agenda and all drive the need to actively manage excessive rainfall with the use of SuDS (Sustainable Drainage Systems).

SuDS techniques recommend a number of ways to control water run-off as near to where it falls, via:

- ④ Soft or natural SuDS
- ④ Hard or engineered SuDS

SuDS should also aim to mimic nature, whilst focusing on 4 key areas (as shown below):

1. Controlling run-off / flood risk
2. Improving water quality
3. Providing amenities
4. Creating an environment for biodiversity

The CIRIA SuDS Manual gives guidance on all areas of SuDS and focuses on the cost-effective planning, design, construction, operation and maintenance of SuDS.

Which SuDS Techniques are best?

- ④ SuDS should help maximise amenity and biodiversity, whilst also delivering key objectives to manage flood risk and water quality
- ④ For any given site, it is often beneficial to include a combination of 'soft' and 'hard' SuDS to ensure maximum efficiency from the Sustainable Drainage System

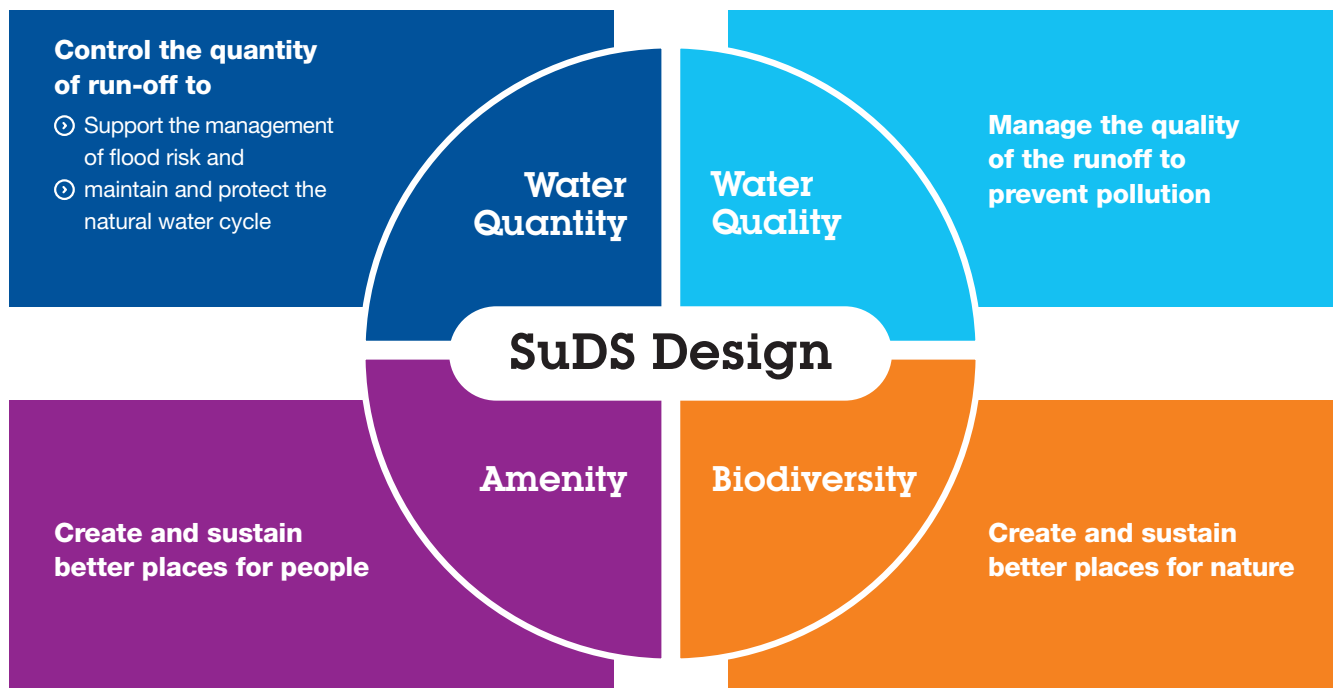
How can the Wavin help with SuDS projects?

Wavin is well qualified to advise on how to comply with current and emerging regulation. We can aid specifiers, developers and contractors in responding to legislative demands as they pertain to flooding, sewage, urban drainage and sustainable resources use.

In particular, the proven qualities and performance of AquaCell systems not only support the achievement of SuDS, they can also help reinforce and enhance planning applications and enable development to proceed.

CIRIA SuDS Design

Source: The SuDS Manual (CIRIA)



Product Details

AquaCell Plus

AquaCell Plus: for inspectability

By aligning AquaCell Plus units end-to-end, full length viewing channels can be created – allowing for CCTV inspection if required. These are created in the bottom layer of an AquaCell tank installation.

The units can be used in combination with AquaCell Prime and Core (and with Eco if there is at least one layer of AquaCell Prime or Core in between the Plus and Eco layer).

NOTE: For any AquaCell Plus units on the perimeter of a structure that are NOT required for inspection access, the open ends of the integral inspection tunnels should be fitted with the end caps provided.

Inspection chambers

An inspection chamber should precede the inlet pipework for the AquaCell structure.

A silt trap or hydro-dynamic separator prior to the inspection chamber is also recommended.

For on-line installations the following Chambers are recommended:

- Down to 3m Wavin Non-Entry Inspection Chambers
- Down to 5m Wavin Range 600 Inspection Chambers, or a traditional manhole*

**where inlet pipework is replaced by AquaCell units acting as flow conduit.*

For off-line installations:

- Manhole with in-built flow control

Recommendation: If installing any Wavin Non-Entry Inspection Chamber, deeper than 1.2 metres, ensure that the cover and frame includes a 350mm restrictor to prevent man entry.

Inspection and maintenance

CCTV inspection at every inspection point is recommended:

- after every major storm
- at regular intervals according to the specific maintenance plan for the site

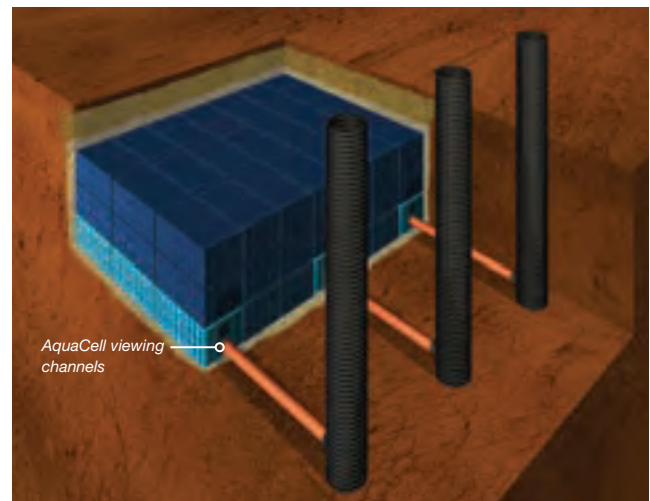
Silt traps prior to inlet pipework should be routinely inspected and cleaned out to minimise debris reaching the tank. It is important to prevent construction silt from entering the AquaCell structure.

Inspectability Scenarios

AquaCell Plus viewing channel



Trafficked tank installation with inspection chambers



AquaCell Plus 6LB200

Appendix C:
Grease Trap

GA-1

Grease Separator Alarm Device

Installation and Operating Instructions



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SYMBOLS



Warning / Attention



Device is protected by double or reinforced insulation

1 GENERAL

GA-1 is an alarm device for monitoring the thickness of the grease layer accumulating in a grease separator.

The system consists of GA-1 control unit, GA-SG1 sensor and a cable joint.

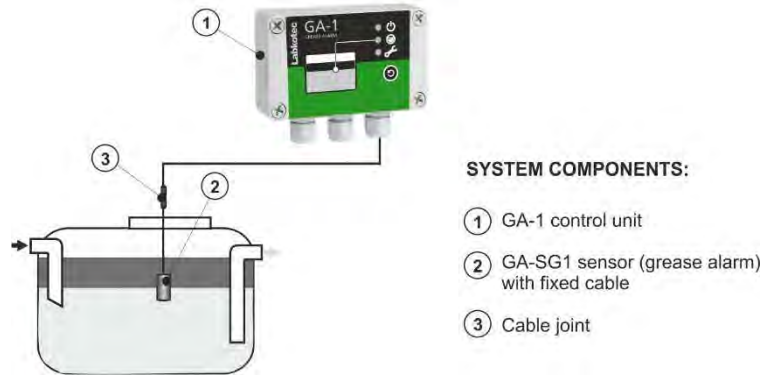


Figure 1. Grease separator supervision with GA-1 alarm device

GA-SG1 sensor is installed into the grease separator and it supervises thickness of grease layer.

The LED indicators, push button and interfaces of the GA-1 control unit are described in figure 2.

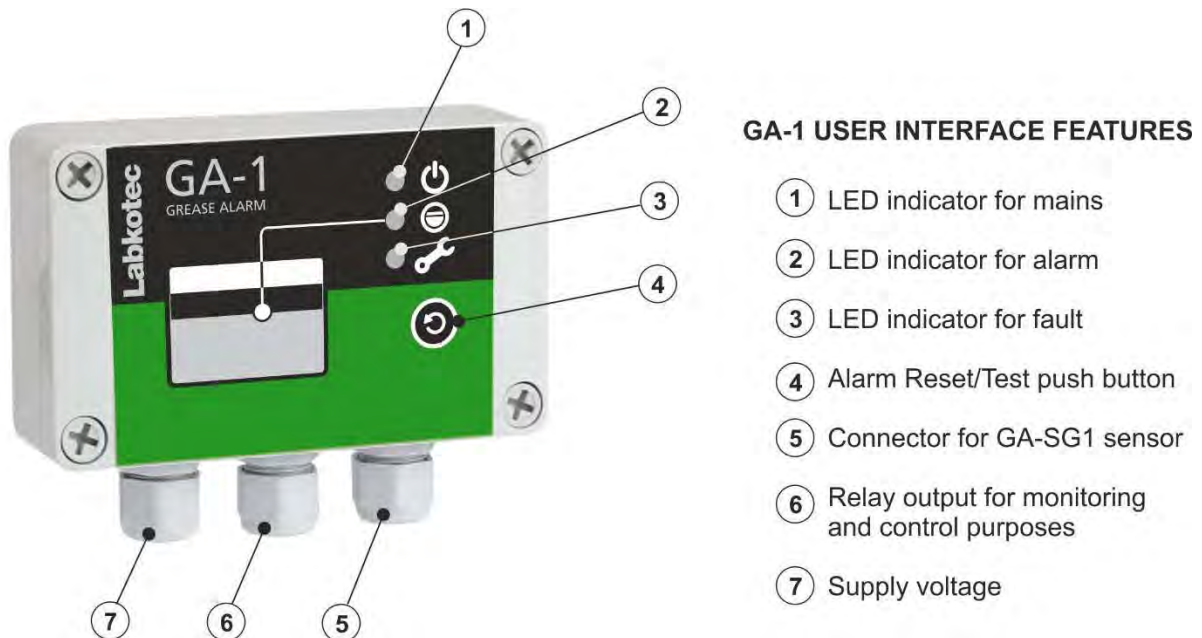


Figure 2. GA-1 control unit – features

2 INSTALLATION

2.1 GA-1 control unit

GA-1 control unit can be wall-mounted. The mounting holes are located in the base plate of the enclosure, beneath the mounting holes of the front cover.

The cover of the enclosure must be tightened so, that the edges touch the base frame. Only then does the push button function properly and the enclosure is tight.

Before installation, please read the safety instructions in chapter 6!

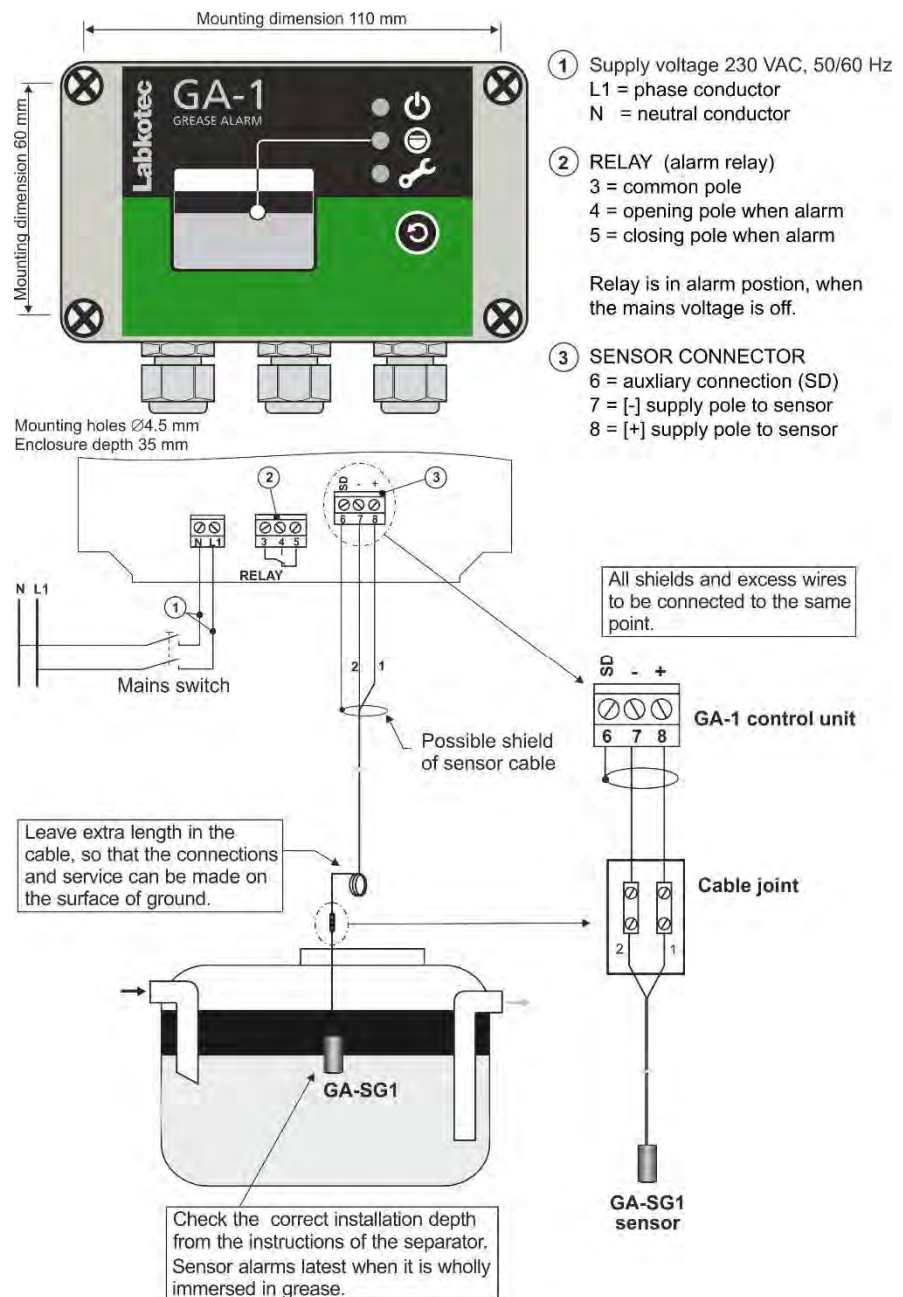


Figure 3. GA-1 alarm device installation.

2.2 GA-SG1 sensor

GA-SG1 sensor should be installed as described in figure 3.

The sensor gives an alarm latest when it is wholly immersed in grease.

Please check the correct installation depth also from the instructions of the grease separator.

2.3 Installation Accessories

The delivery includes a cable joint (figure 4), fixing accessories (figure 5) for installation of the control unit and the sensor. In figure 6 is an installation example of cable with suspension hook.

Connections of the sensor cable inside the cable joint are explained in figure 3. If shielded cable is used cable shields and possible excess wires need to be connected to the same point in galvanic contact.

IP rating of the cable joint is IP68. Make sure, that the cable joint is closed properly.



Figure 4 Cable joint



Figure 5. Fixing accessories



Figure 6. Cable installation example

3 OPERATION

The operation of the alarm device should be checked always after the installation. Also check the operation always when emptying the separator or at least once every six months.

Functionality test

1. Immerse the sensor into water. The device should be in normal mode.
2. Lift the sensor up in air or grease. A grease alarm should be generated (see chapter 3.1 for more detailed description).
3. Clean up the sensor.
4. Immerse the sensor back into water. The alarm should go off after a delay of 10 sec.

A more detailed description of the operation is provided in chapter 3.1. If the operation is not as described here, check connections and cabling. If necessary contact a representative of the manufacturer.

3.1 Modes of operation

Normal mode – no alarms

Sensor is totally immersed in water.
Mains LED indicator is on.
Other LED indicators are off.
Relay is energized.

Grease alarm

Sensor is immersed in grease. (the sensor gives an alarm latest when it is wholly immersed in grease).
Mains LED indicator is on.
Grease Alarm LED indicator is on.
Buzzer on after 10 sec delay.
Relay de-energize after 10 sec delay.
(Note. The same alarm takes place when GA-SG1 sensor is in the air.)

After removal of an alarm, the Grease Alarm LED indicator and buzzer will be off, and relay will be energized after 10 sec delay.

Fault alarm

Sensor cable break, short circuit or a broken sensor.
Mains LED indicator is on.
Sensor circuit Fault LED indicator is on after 10 sec delay.
Buzzer is on after 10 sec delay.
The relay de-energize after 10 sec delay.

Reset of an alarm

When pressing the Reset/Test push button.
Buzzer will go off.
Relay and LED indicator will not change their position until the alarm or fault situation is removed.
If the buzzer is not reset, it goes off automatically after three days.

TEST FUNCTION

Test function provides an artificial alarm, which can be used to test the function of the GA-1 alarm device and the function of other equipment, which are connected to GA-1 via its relay.



Attention! Before pressing the Reset/Test button, make sure that the change of relay status does not cause hazards elsewhere!

Normal situation

*When pressing the Reset/Test push button:
Grease Alarm and Fault LED indicators are immediately on.
Buzzer is immediately on.
Relay de-energize after 2 sec of continuous pressing.

When the Reset/Test push button is released:
LED indicators and buzzer go immediately off.
Relay energize immediately.*

Alarm on

*When pressing the Reset/Test push button for the first time:
Buzzer will go off.

When pressing the Reset/Test push button after that:
Fault LED indicator is immediately on.
Grease Alarm LED indicator remains on.
Buzzer remains on. If it has been reset earlier, it will return to be on.

When the Reset/Test push button is released:
The device returns right away to the preceding status.*

Fault alarm on

*When pressing the Reset/Test push button:
The device does not react to the test at all.*

4 TROUBLE-SHOOTING

Problem:	No alarm when sensor in grease or air, or the alarm will not go off
Possible reason:	Sensor is dirty.
To do:	1. Clean-up the sensor and check the operation again.



The following operations must be performed only by a qualified electrician!

Problem:	MAINS LED indicator is off
Possible reason:	Device doesn't get supply voltage.
To do:	1. Check that power separation switch is not switched off. 2. Measure the voltage between poles N and L1. It should be 230 VAC + 10 %.

Problem:	FAULT LED indicator is on
Possible reason:	Current in sensor circuit too low (cable break or out of connector) or too high (cable in short circuit). The sensor might also be broken.
To do:	1. Make sure, that the sensor cable has been connected correctly to the GA-1 control unit. 2. Measure the voltage separately between the poles 7 and 8. The voltages should be between 7,0 - 8,5 V. Note! The voltage alternates between the sensor connectors in 1 second intervals. 3. Measure sensor current when the sensor is in the air or in grease. The measured current should be 7,0 – 8,5 mA. 4. Measure current when the sensor is in the water. Measured current should be 2,5 – 3,5 mA

If the problem can not be solved with the above instructions, please contact Labkotec Oy's service.

5 REPAIR AND SERVICE

The sensor should be cleaned and the operation should also be tested when emptying or maintaining the grease separator or at least once every six months. The easiest way to check the operation is to lift the sensor up in the air and to put it back to the separator. The operation is described in chapter 3.

For cleaning, a mild detergent (e.g. washing-up liquid) and a scrubbing brush can be used.

In case of queries, please contact Labkotec Oy's service:

service@labkotec.fi.

6 SAFETY INSTRUCTIONS



The device does not include a mains switch. A two pole mains switch (250 VAC 1 A), which isolates both lines (L1, N) must be installed in the main power supply lines in the vicinity of the unit. This switch facilitates maintenance and service operations and it has to be marked to identify the unit.



If opening of housing's cover is needed, only a qualified electrician is allowed to install or to maintain the device.



If the device is used against the manufacturer's instructions, the protection provided by the device may be damaged.



The device is not allowed to install in hazardous areas.

7 TECHNICAL DATA

GA-1 control unit	
Dimensions	125 mm x 75 mm x 35 mm (L x H x D)
Weight	250 g Package 0,8 kg (control unit + sensor + cable joint)
Enclosure	IP 65, material polycarbonate Cable glands adjustment range is 6 – 10mm
Operation temperature	-30 °C...+50 °C
Supply voltage	230 VAC ± 10 %, 50/60 Hz The device is not equipped with a mains switch
Power consumption	5 VA
Sensors	GA-SG1 sensor
Relay output	Potential-free relay output 250 V, 5 A Operational delay 10 sec. Relay de-energize at trigger point.
Electrical safety	IEC/EN 61010-1, Class II  , CAT II
EMC	Emission IEC/EN 61000-6-3 Immunity IEC/EN 61000-6-1
Manufacturing year: Please see the serial number on the type plate	xxx x xxxxx xx YY x where YY = manufacturing year (e.g. 14 = 2014)

GA-SG1 sensor	
Principle of operation	Capacitive
Material	POM, PUR, AISI 316
Weight	350 g (sensor + fixed cable)
IP-classification	IP68
Operation temperature	0 °C...+90 °C
Cable	Fixed cable 2 x 0.75 mm ² . Standard length 5 m, other lengths optional. The max. length of the fixed cable is 15 m, can be extended. Maximum cable loop resistance is 75 Ω.
EMC	Emission IEC/EN 61000-6-3 Immunity IEC/EN 61000-6-1
Manufacturing year: Please see the serial number from the bottom of sensor	GAXxxxYY where YY = manufacturing year (e.g. 14 = 2014)

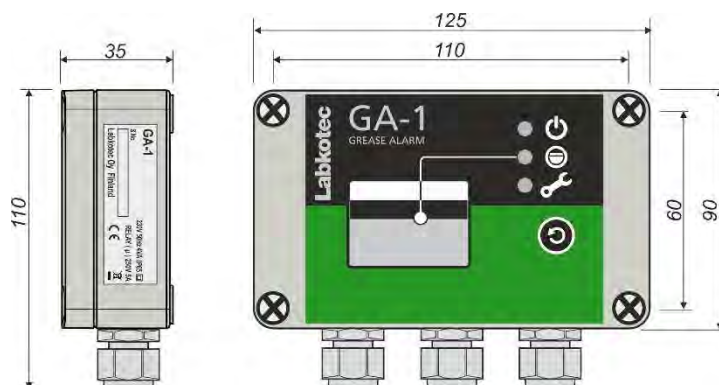


Figure 7. GA-1 control unit



Figure 8. GA-SG1 sensor

Declaration of Conformity

This declaration certifies that the below mentioned apparatus conforms to the essential requirements of the EMC directive 2004/108/EY and Low-Voltage directive (LVD) 2006/95/EC.

Description of the apparatus: Measuring and control unit with sensor

Type: GA-1 Grease Alarm control unit with GA-SG1 sensor
GA-2 Grease Alarm control unit with two GA-SG1 sensors

Manufacturer: Labkotec Oy
Myllyhaantie 6
FI-33960 Pirkkala
FINLAND

The construction of the appliance is in accordance with the following standards:

EMC:

EN 61000-6-1 (2007)	Electromagnetic compatibility, Generic standards – Immunity for residential, commercial and light-industrial environments.
EN 61000-6-3 (2007) +A1 (2011)	Electromagnetic compatibility, Generic standards – Emission standard for residential, commercial and light-industrial environments.
EN 61000-3-2 (2006) +A1+A2 (2009)	Electromagnetic compatibility, Product family standard: Harmonic current emissions.
EN 61000-3-3 (2008)	Electromagnetic compatibility, Product family standard: Voltage changes, fluctuations and flicker sensation.

LVD:

EN 61010-1 (2010)	Safety requirements for electrical equipment for measurement, control and laboratory use. Part 1: General requirements.
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This product is CE-marked since 2013.

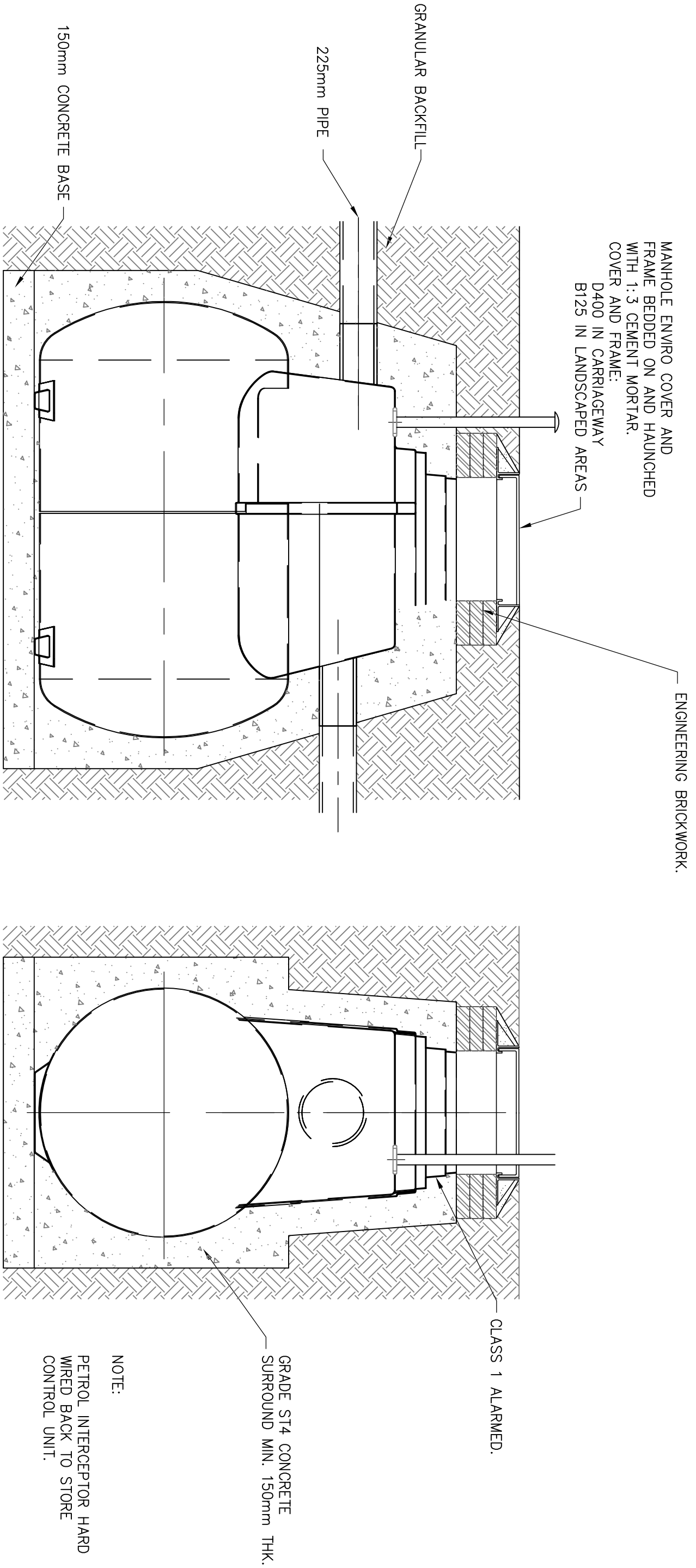
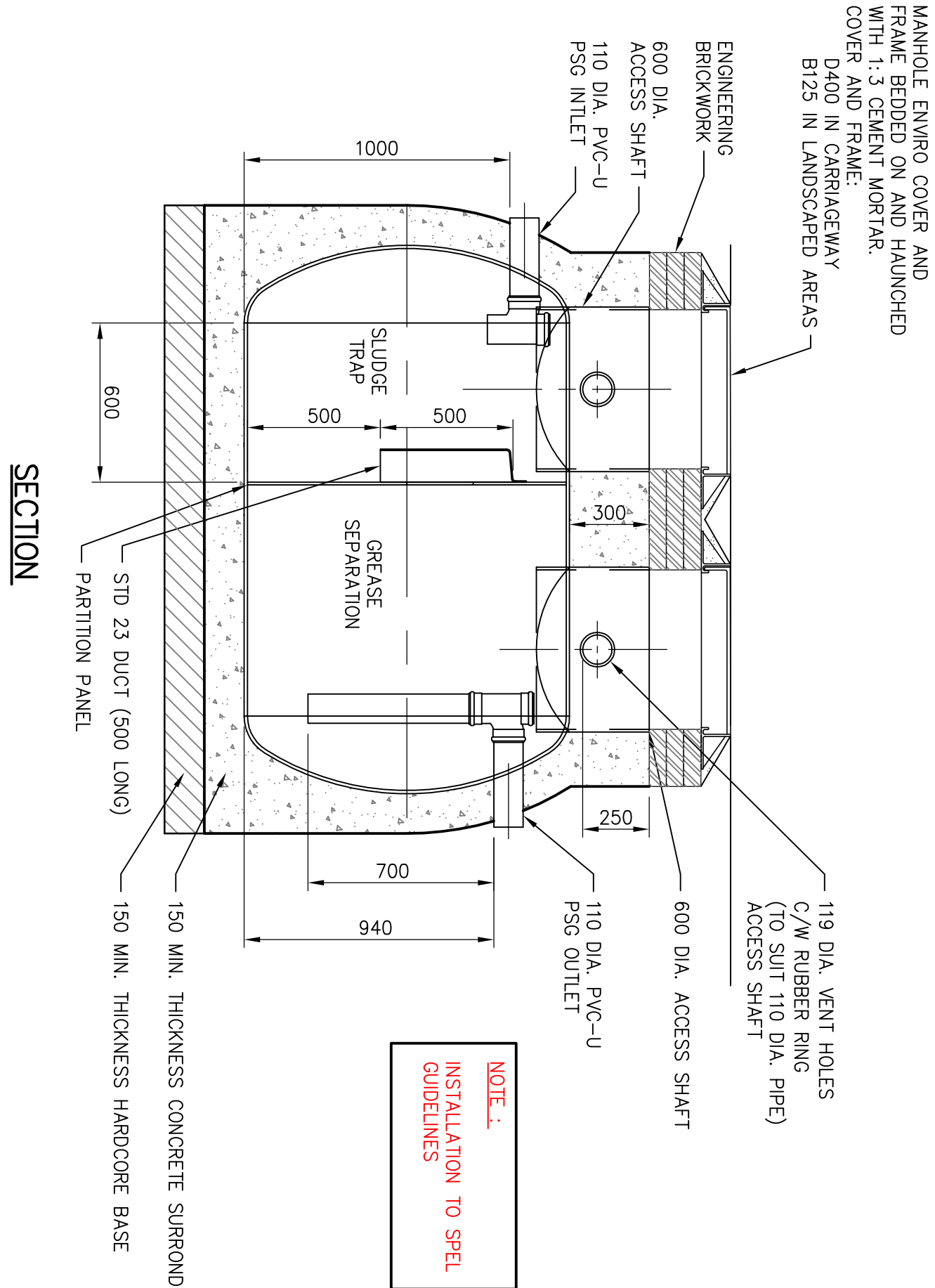
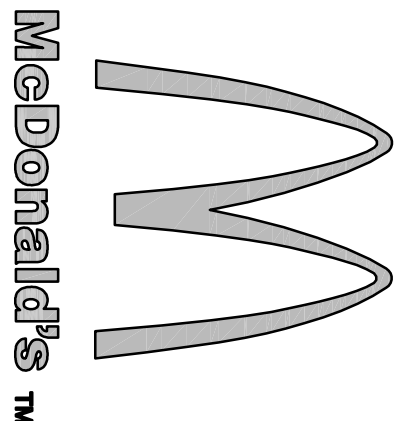
Signature

The authorized signatory to this declaration, on behalf of the manufacturer, and the Responsible Person based within the EU, is identified below.

Pirkkala 20.5.2013

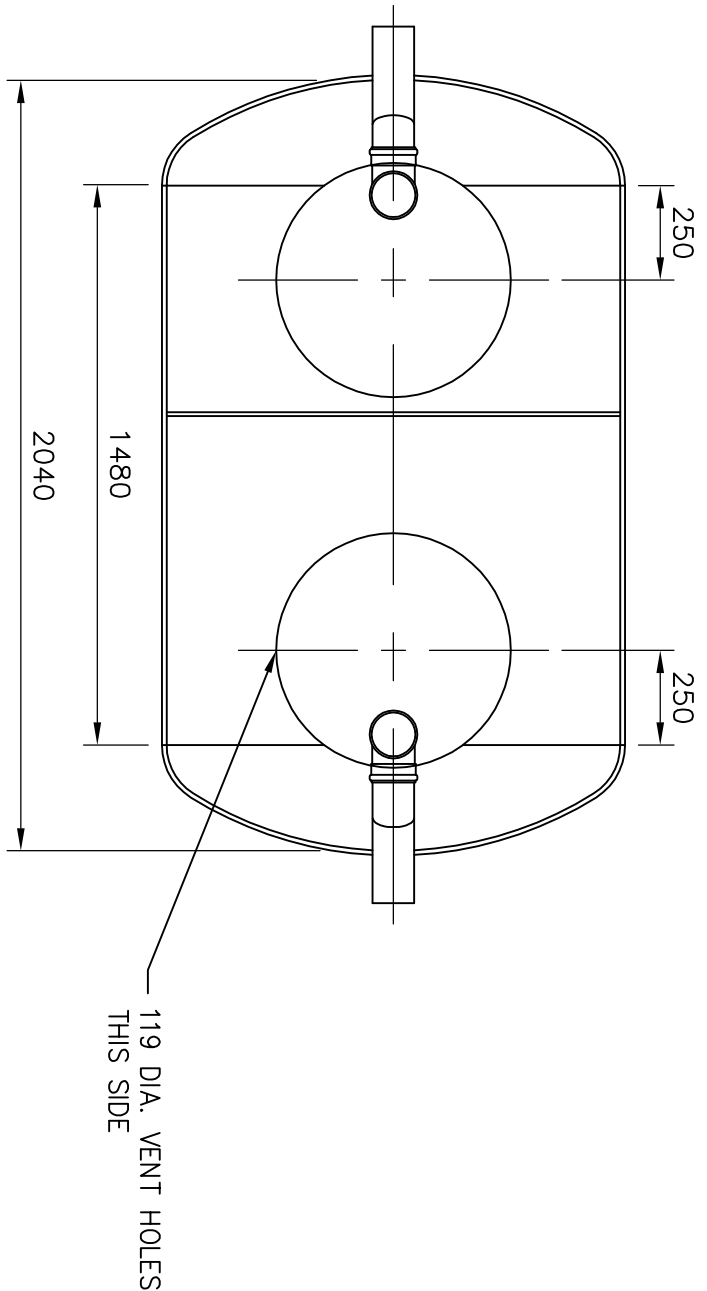


Ari Tolonen
CEO
Labkotec Oy



SPFL 206 C1 PETROL INTERCEPTOR (OR SIMILAR APPROVED). CONCRETE SURROUND

Scale 1:20



2000L SPFL GREASE INTERCEPTOR WITH TELEMETRY ALARM

SCALE 1:20

FOR INFORMATION ONLY

Rev	Description	Date	Ck'd
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3 Gwaelands Business Centre
Boulevard Way
Hemel Hempstead, Herts. HP2 7TE
Tel: (01442) 835599 Fax: (01442) 296924
postoffice@glanvillegroup.com www.glanvillegroup.com



Client :
McDonald's Restaurant

Project :
MCDONALDS RESTAURANT

Title :
PROPOSED GREASE TRAP & PETROL INTERCEPTOR

Project Engineer : J.H.	Scale : AS SHOWN
Project Director : J.B.	Date : APR 2014
Status : INFORMATION	

Drawing No: TRAP & PINTERCEPT	Rev P1
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SPEL Grease/Fat Separators

Introduction

Grease separators are used to remove fat and grease from waste water. This is often essential to eliminate incidents of drain blockages caused by the waste from catering establishments. The operation of septic tanks, pumps, and sewage treatment systems will also be improved by removing the fat and grease from the effluent.

Siting and Installing the Tank

The tank should not be installed near a road or driveway, where it could be subjected to high external loads, unless the installation is designed to withstand such loadings so they are not transferred to the tank shell.

Where the tank is to be emptied using a tanker, it should be sited within 30m of a vehicle access provided that the invert level of the septic tank is no more than 3m below the level of the vehicle access. This distance may need to be reduced where the depth to the invert of the tank is more than 3m. There should also be a clear route for the hose such that the tank can be emptied and cleaned without the contents being taken through a dwelling or place of work.

Adequate ventilation of the tank and the inlet pipework must be provided to prevent the accumulation of fermentation gases.

For full installation instructions concerning tank specification handling and burial please consider our supplied installation guidelines, Sec4.

Operation

Please refer to a supplied drawing. Contaminated water flows into the tank through the inlet pipe. Heavy deposits will settle on the bottom of the chamber and light contaminants will mostly float on top of the water. Cleaner water flows through to the second chamber where water is allowed to pass out of the tank taken from the cleanest part of the chamber.

Maintenance

Grease, sludge and other fatty effluents remain in the tank until removed by a specialist cleansing or waste disposal contractor. The tank must be emptied periodically of retained grease, sludge and other fatty effluents. Other than this action SPEL Grease separators are essentially maintenance free, however, it is not possible to predict site specific maintenance requirements. SPEL tank shells usually carry a 25-year warranty.

Alarm Options

SPEL can provide a range of alarms to suit your needs.

Access

SPEL Grease separators have good access to both chambers for period emptying of retained grease, sludge and similar fatty effluents. Access is made in each case through a circular access shaft of 600mm diameter at the crown of the chamber.

Emptying Period

Periods between emptying will have to be determined depending on site conditions but normally at least twice a year.

Emptying Procedure

Typically the contents of the chambers will be sucked out by a specialist cleansing or waste disposal contractor. Both light and heavy deposits should be removed at this time. A Large hose is usually lowered down into the chamber through the access shaft. As the contents are sucked out care should be taken to ensure that both chambers contents are reduced equally. If one chamber is allowed to contain too great a quantity of fluid in comparison with the other chamber damage to the dividing baffle wall may result. Following removal the tank should be re-charged with clean water. The removed contents should be disposed of by the specialist contractor.

The contents of this document are supplied for general guidance only. SPEL Products can accept no liability for harmful incidents that arise as a result of the contents of this document. It is not possible for SPEL Products to predict site specific operational or maintenance requirements.

Appendix D:
Maintenance Schedule

Inspection Log - Yearsheet 1 of 2

Inspection Date	A - Catchpit Manholes	B - Foul Water Manholes	C - Gully	D - Channel Outlets	E - Naylor Smart Stop	F –Attenuation Crates	G - Grease Trap	Comments
Jan								
Feb								
Mar								
Apr								
May								
June								

How to complete this Log:

- 1.0 Write date in LH column.
- 2.0 Tick which items have been inspected for that date.
- 3.0 Add to notes and maintenance completed e.g. gulleys / catchpit's emptied or smart sponge replaced.

Inspection Log - Yearsheet 2 of 2

Inspection Date	A - Catchpit Manholes	B - Foul Water Manholes	C - Gulley	D - Channel Outlets	E - Naylor Smart St.	F – Attenuation Crates	G - Grease Trap	Comments
July								
Aug								
Sept								
Oct								
Nov								
Dec								

How to complete this Log:

- 1.0 Write date in LH column.
- 2.0 Tick which items have been inspected for that date.
- 3.0 Add to notes and maintenance completed e.g. gulleys / catchpit's emptied or smart sponge replaced

