

Potato Wharf

Drainage Maintenance Plan

Curtins Ref: 254173-CTN-08-XXX-XXX-SRP-C-0001

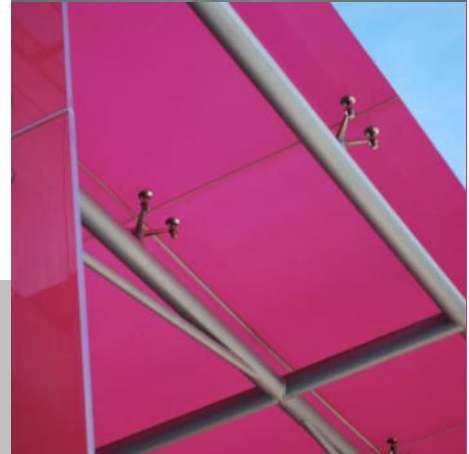
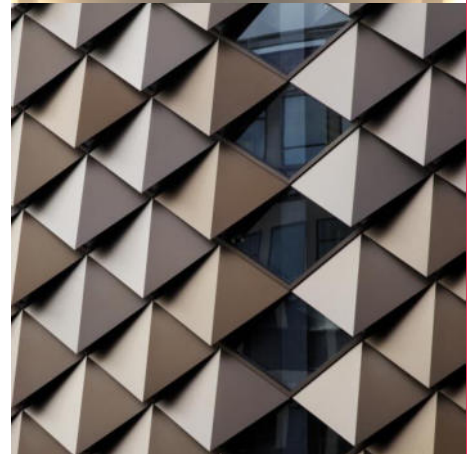
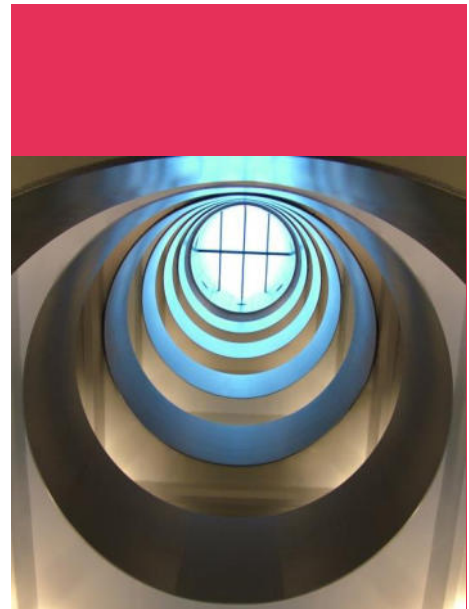
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Klargester Fuel & Oil Separator Maintenance Guide

1.0 Maintenance

1.1 Private Drainage

- 1.1.1 This section is intended to give an overview of the operation and maintenance for the drainage features included with the drainage strategy and in relation to typical details. Where proprietary products are specified, the manufacturer's instructions and recommendations will be followed in priority to this document unless specifically noted otherwise due to project constraints.
- 1.1.2 The recommended operations and frequencies are typical only and will be more frequent initially to ensure that there are no unforeseen issues with the operation and then adjusted to suit the site requirements.

1.2 Components

- 1.2.1 The following components have been included within the drainage design for the proposed development:
- Inspection, Manhole and Catchpit Chambers
 - Pipes
 - Drainage Channels and Gullies
 - Attenuation Tank
 - Flow Control Unit
 - Petrol Interceptor
- 1.2.2 A suitable maintenance strategy will be adopted to ensure the drainage network is cleaned regularly and the routine maintenance and cleansing regime will be documented.
- 1.2.3 It is assumed that the maintenance of the drainage network will be the responsibility of an on-site facilities management team.
- 1.2.4 A copy of the final construction drainage layout will be provided in the final Operations and Maintenance Manual.
- 1.2.5 An inspection of the full drainage network will be undertaken prior to handover of the building, and all sediment will be cleared from the network.
- 1.2.6 The surface water network has been designed to accommodate the 1 in 100-year storm rainfall event plus an allowance for climate change particular to the requirements of the site. It may be that the exceedance flows above the 1 in 30-year storm rainfall event are stored within the site partially above ground, on non-habitable external landscaping, parking, or other space. As the flows are generally being attenuated on site and within SuDs features there will be a period of time after storm events where the

network is still partially or fully surcharged and is draining down. Where this surcharging is still present after 48hrs appropriate action will be taken as noted below.

- 1.2.7 It is recommended that the drainage system is inspected as a minimum twice a year, with the system also being inspected after any major storm event.
- 1.2.8 Significant sediment deposition is likely in areas used for storage, so a post clean-up operation may be required including the removal of litter, vegetation, sewerage debris and larger objects.
- 1.2.9 Long-term management practices include monthly sweeping of external paved areas. The sweeping program will remove sand and contaminants directly from paved surfaces before they become mobilised during storm events and transported to the drainage system.
- 1.2.10 During the winter months, drainage features such as gullies and channels will be cleared of ice, snow, debris or litter.
- 1.2.11 The locations of the drainage is indicated on Curtins drawings enclosed in Appendix A.

1.3 Inspection, Manhole and Catchpit Chambers

- 1.3.1 Access points have been located at the head of each run, at a change in direction and at a change of pipe size in accordance with Building Regulations Part H.
- 1.3.2 The appropriate health and safety equipment must be used when accessing manholes. Confined space certificates must be held by any personnel entering a manhole and the appropriate permits will be obtained from the Maintenance Manager prior to any access.

1.4 Pipes

- 1.4.1 Pipes are proprietary products, and the materials can vary across the site and as such where used the manufacture's recommendations will be followed. Regardless of the product used the pipes will be fully compliant with the Curtins drainage specification.
- 1.4.2 Pipes are intended to be the main conveyance across the development and where oversized they form the attenuation volume required by the limitation of the discharge rate. They are intended to be dry except for during rainfall events. These have been designed to be self-cleaning where possible for smaller diameter pipes, and for larger diameters the risk is reduced due to the overall pipe size.
- 1.4.3 Access for maintenance is provided through access chambers and manholes.
- 1.4.4 Regular inspection and maintenance is important to identify areas which may have been obstructed/clogged and may not be drainage correctly thus exposing the development to a greater level of flood risk.

Maintenance Schedule	Required Action	Frequency
Monitoring (to be undertaken more regularly within the first year of operation and adjusted as required).	Initial Inspection will be provided as post construction CCTV survey.	N/A
Regular maintenance\ inspection	Inspect for evidence of poor operation via water level in chambers. If required, take remedial action.	3-monthly, 48 hours after large storms.
	Check and remove large vegetation growth near pipe runs.	Monthly or as required
Remedial Action	Rod through poorly performing runs as initial remediation.	As required.
	If continued poor performance jet and CCTV survey poorly performing runs.	As required.
	Seek advice as to remediation techniques suitable for the type of performance issue and location.	As required If above does not improve performance.

1.5 Drainage Channels and Gullies

- 1.5.1 Channels and gullies will be inspected and cleaned in accordance with the manufacturer's details. Channel units can be cleaned through the use of a high-pressure hose; this can be fed into the channel system through access units strategically placed along the channel run. The throat section of channel units will be kept clear at all times to ensure uninterrupted flow of surface water into the drainage channel and any debris within the throat will be removed.

Drainage Maintenance Plan

- 1.5.2 Locking bolts will be replaced and sufficiently tightened, taking care that the bolt heads do not stand above the top surface of the cover or grate. If covers are allowed to move within their frame, this may cause damage to the frame or seating.
- 1.5.3 Sediment\material removal will be undertaken in consultation with the environmental regulator to confirm appropriate protocols; especially where run-off is taken from potentially contaminated areas such as the car park channels.

Maintenance Schedule	Required Action	Frequency
Monitoring (to be undertaken more regularly within the first year of operation and adjusted as required).	Initial Inspection including channel outlet boxes.	Half yearly and after large storms.
Regular maintenance\ inspection	Litter and debris removal	Monthly or as required.
	Check and remove large vegetation growth near channel runs.	Monthly or as required
	Inspect for evidence of poor operation and/or weed growth. If required, take remedial action. Inspect silt accumulation rates and establish appropriate brushing frequencies. Silt can also be caused by adjacent landscaping areas which will be reprofiled to provide a flat area or berm adjacent to the paving.	3-monthly, 48 hours after large storms.
Remedial Action	Inspect access/outlet boxes and rod through poorly performing channels and outlets as initial remediation.	As required.

1.6 Attenuation Tanks

- 1.6.1 The attenuation tanks are currently specified as geocellular units and are intended for storage of surface water run-off from the site up to and including the 1 in 100-year plus 40% climate change event to reduce the rate of run-off into the downstream network and to minimise flood risk.
- 1.6.2 The geocellular units are proprietary products and therefore manufacturer's recommendations should also be taken into consideration.
- 1.6.3 Access for maintenance has been provided by an access shaft located on the tank and from the manhole chambers downstream of the tank.
- 1.6.4 Geocellular units are proprietary products and therefore manufacturer's recommendations should also be taken into consideration. Additionally different manufacturers may have different connection types and arrangements which will need to be taken into consideration.
- 1.6.5 Regular inspection and maintenance is important for the effective operation of attenuation tanks as designed. As the feature is buried, a regular inspection regime is very important to ensure the correction functionality of the surface water drainage network.

Maintenance Schedule	Required Action	Frequency
Monitoring (to be undertaken more regularly within the first year of operation and adjusted as required).	Inspect inlets, outlets and overflows for blockages, and clear if required. If faults persist jetting and CCTV survey may be required.	Monthly and after large storms.
Regular maintenance\ inspection	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
	Remove sediment from pre-treatment structures.	Annually (or as required after heavy rainfall events)

Maintenance Schedule	Required Action	Frequency
Remedial Actions	Repair/rehabilitation of inlets, outlets and overflows.	As required.

1.7 Flow Control Units

- 1.7.1 The flow control units are intended for flood control and flow restriction.
- 1.7.2 The flow controls are specified as Aqua-Brake by ESS and is a proprietary product; therefore, manufacturer's recommendations should also be taken in to consideration.
- 1.7.3 Access for maintenance has been provided by locating within manhole chambers.

Maintenance Schedule	Required Action	Frequency
Monitoring (to be undertaken more regularly within the first year of operation and adjusted as required).	Inspect inlets for blockages, and clear if required. If faults persist jetting and CCTV survey may be required.	Monthly and after large storms.
Regular maintenance\ inspection	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

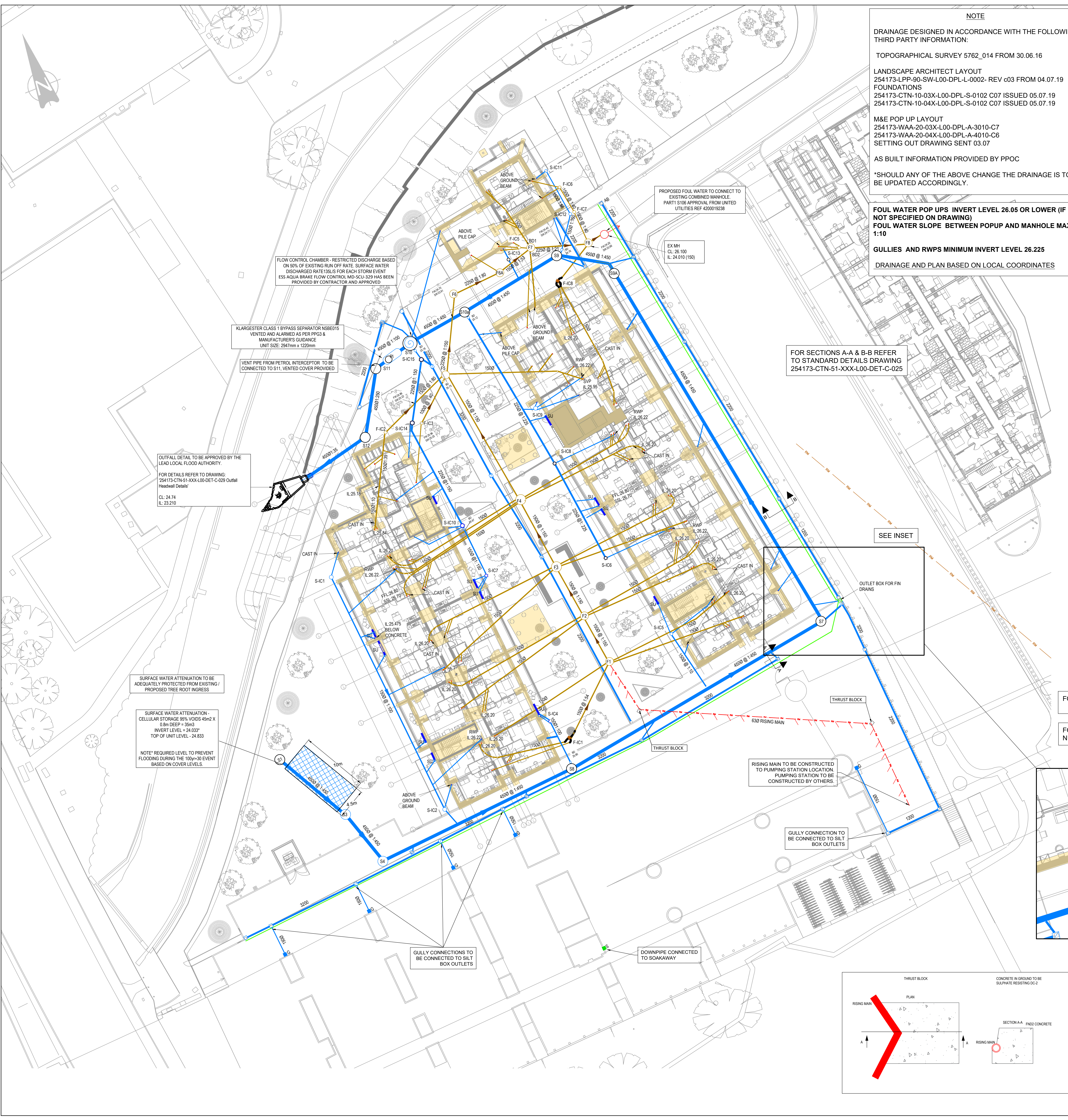
Maintenance Schedule	Required Action	Frequency
	Remove sediment from pre-treatment structures and flow control chambers.	Annually (or as required after heavy rainfall events)
Remedial Actions	Repair/rehabilitation of inlets.	As required.

1.8 Petrol Interceptor

- 1.8.1 The manufacturer's recommendations will be taken into consideration for the petrol interceptor's, washdowns separators. The Klargestar products maintenance regime have been included in Appendix B.

Appendix A

Drainage Layout Record Drawing



CONSTRUCTION NOTES

1. ALL DRAINAGE WORKS TO BE IN ACCORDANCE WITH THE CIVIL ENGINEERING SPECIFICATION FOR THE WATER INDUSTRY (CESWI) AS INCLUDED IN SEWERS FOR ADOPTION 7th EDITION. THE REQUIREMENTS OF APPROVED DOCUMENT H (2002 EDITION), BUILDING REGULATIONS 2000 AND THE DETAILS PROVIDED ON THE CONTRACT DRAWINGS.
2. LINE AND LEVEL OF ALL EXISTING DRAINAGE TO BE CONFIRMED BY SITE INSPECTION BEFORE WORKS TAKE PLACE AND REPORTED BACK TO ENGINEER. ANY REDUNDANT MANHOLES TO BE BROKEN OUT AND BACKFILLED WITH GRANULAR MATERIAL. ANY REDUNDANT PIPES TO BE FILLED WITH 1:1 FILLMENT MIX OR BROKEN OUT.
3. ALL FOUL AND SURFACE WATER DRAINS UP TO AND INCLUDING 225mm DIAMETER TO BE CLAYWARE AS REPAIRABLE SUPERSELEVEHERLEVE PLUS OR SIMILAR APPROVED. ALL PIPES 300mm DIAMETER AND ABOVE TO BE CONCRETE CLASS M.
4. AS AN ALTERNATIVE THE CONTRACTOR MAY USE APPROVED UNPLASTICISED POLYVINYL CHLORIDE (PVCU).
5. ALL PIPES ARE TO BE LAID IN A CLASS 5 BEDDING, PIPES LAID UNDER ROAD AND CAR PARKING PAVEMENTS WITH LESS THAN 1200mm OF COVER SHALL BE LAID IN A CLASS 2 BEDDING WITH FLEXIBLE JOINTS.
6. ALL DRAINAGE PIPES LINES SHALL BE PROTECTED DURING CONSTRUCTION WHERE INTERMEDIATE COVER IS LESS THAN 900mm.
7. SEWER TRENCH BACKFILL UNDER ROADS AND PARKING PAVEMENTS TO BE TYPE 1 GRANULAR MATERIAL.
8. ALL COVER LEVELS ARE APPROXIMATE. ALL COVERS TO BE SET AT FINISHED PAVEMENT LEVEL. REFER TO APPROPRIATE ARCHITECTS DRAWING.
9. FOR MANHOLE, PIPE BEDDING AND OTHER DETAILS REFER TO THE TYPICAL DRAINAGE DETAILS DRAWING.
10. ALL STACKS AND RWPS TO HAVE LOW LEVEL RODDING ACCESS PLATES UNLESS AN ALTERNATIVE MEANS OF ACCESS IS AGREED. ACCESS POINT TO BE ABOVE ANY GROUND FLOOR CONNECTED APPLIANCE SPILL LEVEL. LARGE ACCESS FITTING REQUIRED ABOVE GROUND WHERE GREATER THAN 12m UP TO 22m TO JUNCTION. SMALL ACCESS FITTING REQUIRED UP TO 12m TO JUNCTION.
11. ALL GULLY AND CHANNEL DRAIN OUTLETS AND TERMINATION POINTS TO BE TRAPPED AND RODDABLE. INTERNAL GULLIES AND CHANNEL DRAINS TO BE SPECIFIED BY OTHERS.
12. ALL CONNECTIONS PASSING THROUGH BASES OR EDGE BEAMS TO BE IN SEALED SLEEVES. ALTERNATIVE CONNECTIONS MAY BE CAST-IN WITH FLEXIBLE JOINTS NOT GREATER THAN 150mm FROM FACE OF CONCRETE.
13. ALL INTERNAL COVERS TO BE HOME GREEN 5000 SERIES OR SIMILAR APPROVED, MECHANICALLY JOINTED CORNERS AND DOUBLE SEALED.
14. FOR SPECIFIC EXTERNAL MANHOLE DETAILS AND COVER SIZES SEE MANHOLE SCHEDULES.
15. ALL MANHOLE COVERS IN BLOCKSLAB PAVING AREA TO HAVE RECESSED COVERS OF THE APPROPRIATE GRADE TO ACCEPT ARCHITECT'S PAVING PROPOSAL.
16. CHANNELS IN ALL MANHOLES TO BE SET AT THE APPROPRIATE INCOMING AND OUTGOING PIPE GRADIENTS AND SHALL BE PRE-FORMED UP TO 2250.
17. ALL BRANCH CONNECTIONS TO BE MADE WITH SWEEP BENDS IN THE DIRECTION OF FLOW IN THE MAIN SEWER.
18. INTERNAL DRAINAGE CONNECTIONS ARE PROVIDED TO THE PENETRATION POSITIONS SHOWN ON ARCHITECTS DRAWING. ALL INTERNAL CHANNEL DRAINS AND GULLIES SHALL DISCHARGE VIA TRAPPED AND RODDABLE SUMP UNITS. UNIT SPECIFICATION BY OTHERS.
19. EXTERNAL LINEAR CHANNEL DRAINS SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH THE MANUFACTURERS REQUIREMENTS AND SHALL DISCHARGE VIA TRAPPED RODDABLE GULLY UNITS UNLESS ADVISED OTHERWISE. LINEAR CHANNELS TO BE TO LOAD CLASS D400 GRATING AND HEADLAMP SPECIFICATION UNITS TO HAVE A 200mm MINIMUM CONCRETE BED AND HAUNCH.
20. ALL HIGH LEVEL SLUNG OR FIXED DRAINAGE TO BE CAST IRON.
21. THE INTERCEPTOR SHALL BE A CLASS 1 AND SHALL BE INSTALLED IN COMPLETE ACCORDANCE WITH THE MANUFACTURERS INSTRUCTIONS. IT SHALL BE ALARMED AND SAFETY POLICY OF THE DEVELOPER AS REQUIRED. TERMINATING ABOVE GROUND LEVEL AS DIRECTED ON SITE. SIZE OF INTERCEPTOR NOTED ON DRAWING.
22. PROPOSED DRAINAGE CHANNEL POSITIONS ARE INDICATIVE ONLY. LINE CO-ORDINATION WITH DETAILED LEVELS BY LANDSCAPE ARCHITECT.
23. ATTENTION TANK LOCATION SHOWN BASED ON INDICATIVE EXTERNAL LEVELS AND HYDROBRAKE DISCHARGE OF 135 L/S AS SUBMITTED TO DISCHARGE PLANNING CONDITIONS.
24. AS PART OF VALUE ENGINEERED DRAINAGE OPTION SOME POP UP CONNECTIONS REQUIRE BENDS TO AVOID CLASHES WITH COLUMNS / FOUNDATIONS. ALL HORIZONTAL BENDS ARE TO BE 15° TO REDUCE RISK OF BLOCKAGE.
25. SELECTED EXCAVATED BACKFILL MATERIAL MAY BE USED SUBJECT TO APPROVAL BY THE ENGINEER. IT SHOULD PREFERABLY CONSIST OF UNIFORM SOIL AND CAN BE READILY COMPACTED. IT SHALL NOT INCLUDE STONES RETAINED ON A 40mm SIEVE, CLAY LUMPS LARGER THAN 15mm, TREE ROOTS, ORGANIC MATTER, RUBBISH AND FROZEN SOIL. COHESIVE SOIL THAT HAS BEEN ALLOWED TO DRY OUT ON A SOIL HEAT IS NOT READILY COMPACTABLE AND SHALL NOT BE USED.
26. FOR TRENCH BACKFILL MATERIAL REQUIREMENTS ABOVE PIPES LAID WITHIN ADAPTABLE HIGHWAY TO DRAWINGS FOR SPECIFIC REQUIREMENTS OF FILL MATERIAL.

FOR NETWORK DETAILS REFER TO MANHOLE SCHEDULE DRAWING NUMBER: 254173-CTN-51-XX-L00-SSC-C-021

FOR EXTERNAL SURFACES REFER TO DRAWING NUMBER: 254173-CTN-51-XXX-L00-DPL-C-040-C01

PROPOSED DRAINAGE CHANNEL POSITIONS ARE INDICATIVE ONLY AND SUBJECT TO FINAL CO-ORDINATION WITH DETAILED EXTERNAL LEVELS BY LANDSCAPE ARCHITECT.

ATTENTION TANK LOCATION SHOWN BASED ON INDICATIVE EXTERNAL LEVELS AND HYDROBRAKE DISCHARGE OF 135 L/S AS SUBMITTED TO DISCHARGE PLANNING CONDITIONS.

KEY

- PROPOSED FOUL DRAINAGE
- SURFACE WATER DRAINAGE
- HAURATON LINEAR DRAINAGE CHANNEL. UNIT SIZES AS NOTED
- HAURATON ACCESS BOX
- HAURATON OUTLET BOX
- HYDROBRAKE MANHOLE
- KLARGESTER CLASS 1 BYPASS SEPARATOR NBS015
- ATTENUATION STORAGE
- FOUNDATION
- PROPOSED FIN DRAIN
- RISING MAIN FROM PUMP STATION
- THRESHOLD DRAIN WITH SUMP UNIT
- ROAD GULLY TO BASE OF VIADUCT RWP
- RWP CONNECTION TO SOAKAWAY

NOTE: FIN DRAIN LOCATIONS TO BE CONFIRMED FOLLOWING FINAL LEVEL DESIGN. FIN DRAINS TO BE LOCATED AT THE LOW SIDE OF THE PAVEMENT. OUTLET BOX PROVIDED AS SHOWN AT LOW POINT.

OUTLET BOX FOR FIN DRAINS

INSET

GENERAL NOTES									
1. ALL DRAINAGE WORKS TO BE IN ACCORDANCE WITH THE CIVIL ENGINEERING SPECIFICATION FOR THE WATER INDUSTRY (CESWI) AS INCLUDED IN SEWERS FOR ADOPTION 7TH EDITION. THE REQUIREMENTS OF APPROVED DOCUMENT H (2002 EDITION), BUILDING REGULATIONS 2000 AND THE DETAILS PROVIDED ON THE CONTRACT DRAWINGS.									
2. LINE AND LEVEL OF ALL EXISTING DRAINAGE TO BE CONFIRMED BY SITE INSPECTION BEFORE WORKS TAKE PLACE AND REPORTED BACK TO ENGINEER. ANY REDUNDANT MANHOLES TO BE BROKEN OUT AND BACKFILLED WITH GRANULAR MATERIAL. ANY REDUNDANT PIPES TO BE FILLED WITH 1:1 FILLMENT MIX OR BROKEN OUT.									
3. ALL FOUL AND SURFACE WATER DRAINS UP TO AND INCLUDING 225mm DIAMETER TO BE CLAYWARE AS REPAIRABLE SUPERSELEVEHERLEVE PLUS OR SIMILAR APPROVED. ALL PIPES 300mm DIAMETER AND ABOVE TO BE CONCRETE CLASS M.									
4. AS AN ALTERNATIVE THE CONTRACTOR MAY USE APPROVED UNPLASTICISED POLYVINYL CHLORIDE (PVCU).									
5. ALL PIPES ARE TO BE LAID IN A CLASS 5 BEDDING, PIPES LAID UNDER ROAD AND CAR PARKING PAVEMENTS WITH LESS THAN 1200mm OF COVER SHALL BE LAID IN A CLASS 2 BEDDING WITH FLEXIBLE JOINTS.									
6. ALL DRAINAGE PIPELINES SHALL BE PROTECTED DURING CONSTRUCTION WHERE INTERMEDIATE COVER IS LESS THAN 900mm.									
7. SEWER TRENCH BACKFILL UNDER ROADS AND PARKING PAVEMENTS TO BE TYPE 1 GRANULAR MATERIAL.									
8. ALL COVER LEVELS ARE APPROXIMATE. ALL COVERS TO BE SET AT FINISHED PAVEMENT LEVEL. REFER TO APPROPRIATE ARCHITECTS DRAWING.									
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10. ALL STACKS AND RWPS TO HAVE LOW LEVEL RODDING ACCESS PLATES UNLESS AN ALTERNATIVE MEANS OF ACCESS IS AGREED. ACCESS POINT TO BE ABOVE ANY GROUND FLOOR CONNECTED APPLIANCE SPILL LEVEL. LARGE ACCESS FITTING REQUIRED ABOVE GROUND WHERE GREATER THAN 12m UP TO 22m TO JUNCTION. SMALL ACCESS FITTING REQUIRED UP TO 12m TO JUNCTION.									
11. ALL GULLY AND CHANNEL DRAIN OUTLETS AND TERMINATION POINTS TO BE TRAPPED AND RODDABLE. INTERNAL GULLIES AND CHANNEL DRAINS TO BE SPECIFIED BY OTHERS.									
12. ALL CONNECTIONS PASSING THROUGH BASES OR EDGE BEAMS TO BE IN SEALED SLEEVES. ALTERNATIVE CONNECTIONS MAY BE CAST-IN WITH FLEXIBLE JOINTS NOT GREATER THAN 150mm FROM FACE OF CONCRETE.									
13. ALL INTERNAL COVERS TO BE HOME GREEN 5000 SERIES OR SIMILAR APPROVED, MECHANICALLY JOINTED CORNERS AND DOUBLE SEALED.									
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20. ALL HIGH LEVEL SLUNG OR FIXED DRAINAGE TO BE CAST IRON.									
21. THE INTERCEPTOR SHALL BE A CLASS 1 AND SHALL BE INSTALLED IN COMPLETE ACCORDANCE WITH THE MANUFACTURERS INSTRUCTIONS. IT SHALL BE ALARMED AND VENTED VIA 75mmØ PIPEWORK TERMINATING ABOVE GROUND LEVEL AS DIRECTED ON SITE. SIZE OF INTERCEPTOR NOTED ON DRAWING.									
22. PROPOSED DRAINAGE CHANNEL POSITIONS ARE INDICATIVE ONLY AND SUBJECT TO FINAL CO-ORDINATION WITH DETAILED LEVELS BY LANDSCAPE ARCHITECT.									
23. ATTENTION TANK LOCATION SHOWN BASED ON INDICATIVE EXTERNAL LEVELS AND HYDROBRAKE DISCHARGE OF 135 L/S AS SUBMITTED TO DISCHARGE PLANNING CONDITIONS.									
24. AS PART OF VALUE ENGINEERED DRAINAGE OPTION SOME POP UP CONNECTIONS REQUIRE BENDS TO AVOID CLASHES WITH COLUMNS / FOUNDATIONS. ALL HORIZONTAL BENDS ARE TO BE 15° TO REDUCE RISK OF BLOCKAGE.									
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26. FOR TRENCH BACKFILL MATERIAL REQUIREMENTS ABOVE PIPES LAID WITHIN ADAPTABLE HIGHWAYS REFER TO DRAWINGS FOR SPECIFIC REQUIREMENTS OF FILL MATERIAL.									
BELOW GROUND CONNECTION FROM POPUP SHOULD BE THE SAME SIZE AS POPUP ON GROUND FLOOR LEVEL SPECIFIED BY M&E									
C13	VIA/UT GULLY & SIDEWALKY ADDRES. RISING MAIN INFO ADDRES	20.10.21	ATL	ATL					
C12	VENT DRAINAGE WORKS ADDRES. VIA/UT GULLIES ADDRES	20.08.21	ATL	ATL					
C11	PILL PIPE VENT PIPE NOTE ADDRES	18.06.21	MMW	MMW					
C10	RWPS 122 RENUMBERED TO 51	04.03.21	ATL	MMW					
C09	MANHOLE RELOCATED. REQUIRE TO BE REBUILT	19.10.20	MMW	MMW					
C08	THRESHOLD DRAINS ADDRES	16.10.19	OUTT	MMW					
C07	NOTE WATER	20.08.19	MMW	MMW					
C06	SURFACE WATER DRAINAGE REDESIGNED	20.08.19	MMW	MMW					
C05	CHANNELS, CRANE POSITION UPDATED	09.08.19	MMW	MMW					
C04	DOWNPIPES LAYOUT POSITIONED	28.06.19	MMW	MMW					
C03	FIN DRAIN MOVED. COMMENTS ADDRES (SEE CLOUD)	10.05.19	MMW	CD					
C02	ISSUED FOR CONSTRUCTION-BUILDING MOVED	17.07.19	MMW	CD					
C01	ISSUED FOR CONSTRUCTION	20.04.18	ZG	CD					
Rev	Description	Date	By	Chk					
AS BUILT									
Project:	POTATO WHARF 3 & 4								
Dwg Title:	DRAINAGE LAYOUT								
Scale:	1:200	Size:	A0	First Issue:	24.02.2017				
Dwg No:	254173-CTN-51-XXX-L00-DPL-C-020	Rev:	C13	Drawn:	RIM				
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Appendix B

Klargester Fuel & Oil Separator Maintenance Guide

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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Appendices

Separator Maintenance Log

	
Kingspan Environmental College Road North Aston Clinton Aylesbury Buckinghamshire HP22 5EW 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 sidewalls 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

[illegible]

Our Locations

Birmingham

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