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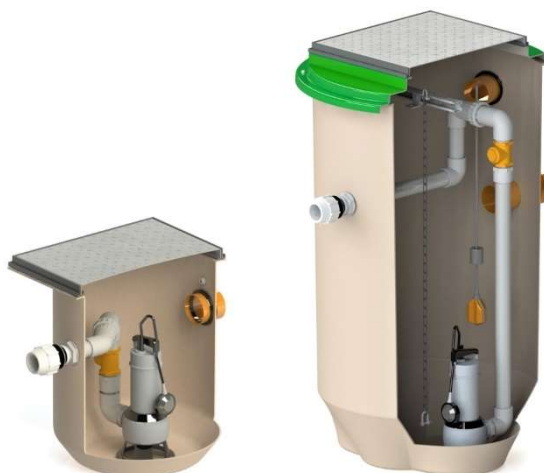
INSTALLATION, OPERATING & MAINTENANCE GUIDELINES
PACKAGE FOR CLEARWATER PUMP STATIONS (CWP)

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Enclosed Documents for CWP Ø0.6m & Ø0.9m Chambers	
Ø0.6m Chambers	
DS1351B	CWP 1 Pump Chamber Sales Drawing
DS1352B	CWP 2 Pump Chamber Sales Drawing
Ø0.9m Chambers	
DS1353B	CWP 3-5 Pump Chambers Sales Drawing
Floats	
DS1354B	CWP Float Information Sales Drawing
Pump Selection Guide	
DS1355B	CWP Pump Selection Guide
DS1356B	Electrical Diagram for CWP Switch

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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. ELECTRICAL WORK SHOULD BE CARRIED OUT BY A QUALIFIED ELECTRICIAN.

Sewage and sewage effluent 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.

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 & that the working area is adequately lit.

Take care to maintain correct posture, particularly when lifting. Use appropriate lifting equipment when necessary. Always keep proper footing and balance. Avoid any sharp edges.

The removal of sediment 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.

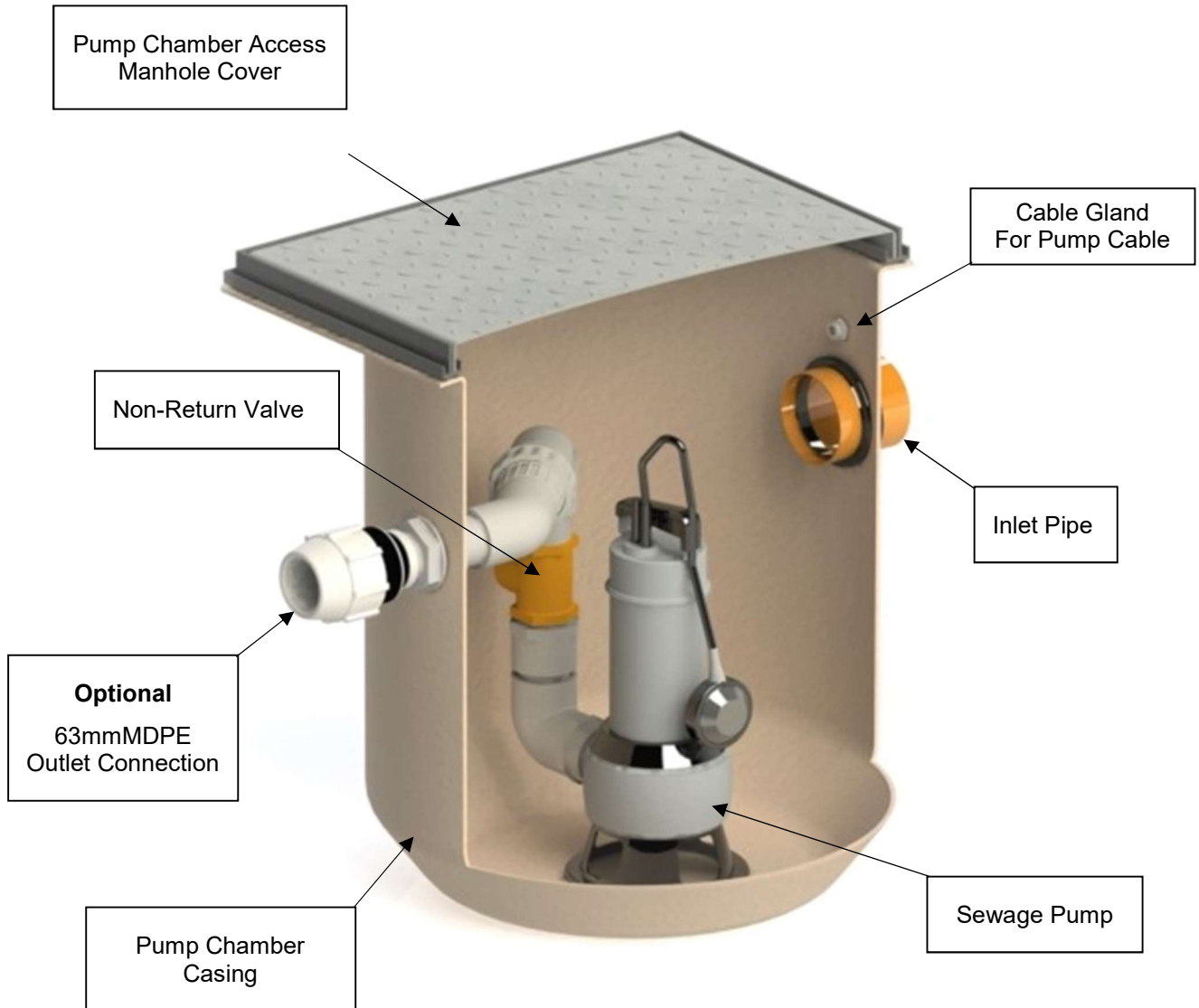
AS WITH ALL SITE WORK, THE DANGERS OF WORKING WITH WATER AND ELECTRICITY POSE SEVERE THREATS TO HEALTH, IF OBVIOUS AND FUNDAMENTAL PRECAUTIONS ARE NOT TAKEN. THEREFORE, IF YOU ARE IN ANY DOUBT REGARDING ANY OF THE FOLLOWING, PLEASE DO NOT HESITATE TO CONTACT US.

1. System Overview

Pictorial representation on the next two pages indicates two CWP standard systems including some optional features, please note that **not** all the items are supplied from us as standard.

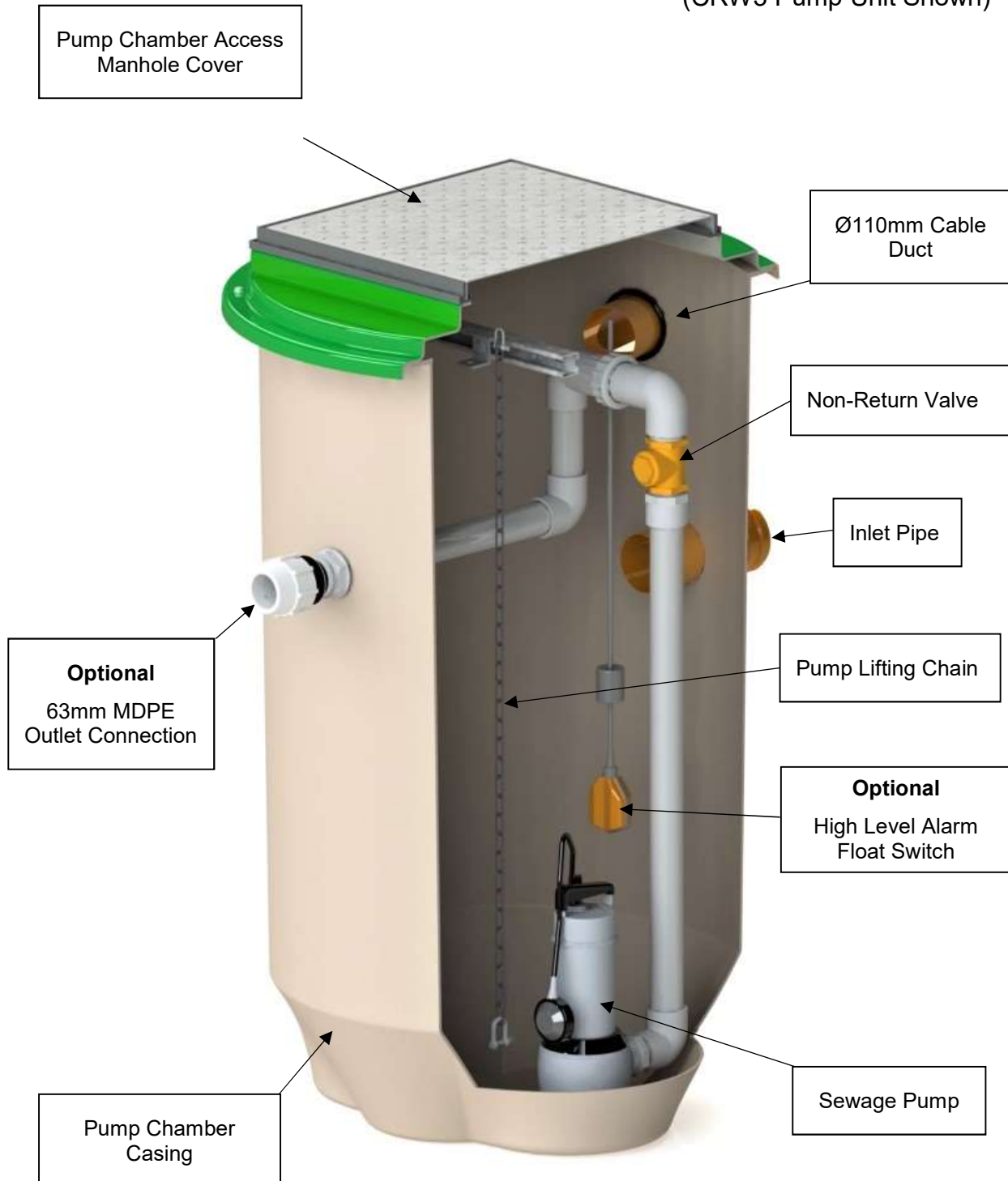
Ø0.6m GRP Chamber

(CRW1 Pump Unit Shown)



Ø0.9m GRP Chamber

(CRW3 Pump Unit Shown)



1.1 Site Delivery Check List

The delivery ticket will have up to 5 no. items listed that will need to be checked against items actually delivered. Each item will be clearly identified as per list below.

<u>Pump Chamber Assembly</u> Product Code Example - '<u>CWPxS1JAB</u>' 1. The unit will be fitted complete with internal pipework and pumps. 2. Lifting chain will be secured to the pumps and unistrut assembly (CWP 3-5) 3. Inlet pipework will be fitted 4. Cable Duct (CWP 3-5) or Gland (CWP 1-2) pipework will be fitted 6. Unit CWP 3-5 supplied strapped to a standard pallet.	 or
<u>Outlet MDPE Connector (Optional)</u> 1. MDPE 63mm Outlet Connector	
<u>High Level Alarm (Optional)</u> (Ø0.9m GRP Pump Chamber Only) 1. High Level Alarm - Float, Switch & Cable Glands	
<u>Isolator (Optional)</u> 1. Isolator Lovato 16 Amp	

2. Operating Guidelines

2.1 Introduction

- 2.1.1 These Guidelines represent Best Practice for the installation of the above packaged pump stations (waste water application). It must be noted, however, that these Guidelines are 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 employees or agents of the company regarding the design of an installation must be verified by a qualified specialist (e.g. Civil engineering consultant).

2.2 Handling & Storage

- 2.2.1 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.
- 2.2.2 The design requirements of the product 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 and that loads are evenly distributed during lifting.
- 2.2.3 Lifting equipment should be selected by taking into account the unit weight, length and the distance of lift required on site.
- 2.2.4 We accept no responsibility for the selection of lifting equipment.

3. Chamber Installation

- 3.1.1 Select a suitable location for the chamber. This will normally be at the lowest ground level on the site so that the facilities can be drained into the chamber.
- 3.1.2 Check that no other structure - or special access - is required over the selected position. Provision can be made, if necessary, to place the chamber in a roadway, provided that the backfill, cover slab and access cover are designed in accordance with the anticipated loads.
- 3.1.3 Check that no underground cable, pipe or service duct lies beneath the selected position.
- 3.1.4 Excavate the minimum opening in the ground to receive the pump chamber and pipework to be used. This opening must allow for a minimum of 150mm of concrete around the chamber.
- 3.1.5 The depth of the excavation needs to be at least 150mm deeper than the overall tank depth.
- 3.1.6 If a machine is used to remove the soil, then the sides of the excavation should be battered for stability and a sump left should it be necessary to dewater.
- 3.1.7 If it is dug by hand, the sides will need shoring up for safety, to prevent earth slippage.
- 3.1.8 A de-watering pump may be required to control any ground water present.
- 3.1.9 Place in position the concrete base, minimum thickness 150mm of concrete and allow to set.
- 3.1.10 Lower the pump chamber onto the dried concrete, ensuring that the inlet and outlet pipes are correctly aligned.
- 3.1.11 The unit then should be backfilled with preferably a dry concrete, or a lean mix in areas where ground conditions are wet or unstable. The minimum surround thickness for this backfill should be 150mm.
- 3.1.12 In all instances the pump chamber must be filled with clean water to keep pace with the backfilling process, this is in order to equalize the pressures exerted onto the unit and prevent the possibility of chamber deformation or flotation during installation.
- 3.1.13 Connect up the site pipework (supplied by others) to the inlet and outlet connections of the pump chamber.
- 3.1.14 Finish off the surface of the excavation to the required level, depending on the final surface finish required.
- 3.1.15 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	270 - 280 Kg/M ³
	C20	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		

4. Important Notes

- 4.1.1 When positioning the chamber please check that your electrician has provided sufficient cable to allow the isolator switch to be placed in the required position.
- 4.1.2 It is most important that once the chamber is in position, with all the inlet connections made and before starting the pumps, that the drainage system is flushed through and all sand, debris etc. is removed from the chamber.
- 4.1.3 **FAILURE TO DO THIS MAY INVALIDATE THE WARRANTY ON THE PUMPSETS**
- 4.1.4 Cable duct (CWP 3-5) is required, free from sharp bends, in pump case duct is Ø110mm or Cable Gland (CWP 1-2) is fitted on chamber 250mm from the top. Ensure the cable is pulled through the duct or gland in the side of the pump chamber.

Additional Notes

- 4.1.5 If the chamber is going to be subjected to traffic & or vehicle loads, it is essential that a cover slab is constructed so there is no direct load onto the chamber. Also, a suitably rated access frame and cover must be obtained and installed in such a manner that no loads bear directly onto the neck of the chamber.
- 4.1.6 When using a concrete backfill it is important to ensure that the mix is not too wet as this may exert floatation pressure on the pump chamber. A dry mix is preferred.
- 4.1.7 In all instances the pump chamber must be filled with clean water to keep pace with the backfilling process, this is in order to equalize the pressures exerted onto the unit and prevent the possibility of chamber deformation or flotation during installation.

IF IN DOUBT PLEASE CONTACT US FOR ADVICE.

IT SHOULD BE NOTED THAT THIS INFORMATION IS FOR GUIDANCE PURPOSES ONLY. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT THE INSTALLATION IS CARRIED OUT TO THE SATISFACTION OF YOUR REGULATING LOCAL WATER AUTHORITY, IN ACCORDANCE WITH THE PREVAILING GROUND CONDITIONS.

5. Wiring of Pump, Isolator & High-Level Alarm

5.1 Isolator (Optional)

- 5.1.1 Remove the plug from the pump cable and wire to the isolator. Drawing DS1356
- Refer to drawing if required. The isolator isolates the main power supply to the pump. The pump is not operational when the isolator is off. The pump operates automatically when the isolator is on. It is up to the customer, to provide overcurrent protection of the pump (5.37Amp) with fuse or circuit breaker device (5.5 Amp).

5.2 High-Level Alarm (Optional)

- 5.2.1 For the single pump system a stand-alone high-level alarm can be installed. The additional float needs to be wired to the High-level Alarm Box delivered with the high-level alarm float.
- 5.2.2 For Float heights refer to drawing DS1354B. To order kit ask for “DPSHLA1”.

5.3 Operational Check

- 5.3.1 Fill the chamber with water and verify correct operation of pump. Refer to section 6.0 for Operational Description.

6. Operational Description

- 6.1.1 As the level rises the float contacts will close. When the float switch contact closes, the pump will start. The pump will continue to run until the level falls below the stop position of the float switch.
- 6.1.2 If the level continues to rise to the high-level float, the high-level alarm light will illuminate. This alarm may be reset once the level is below the high-level float switch. Under high level conditions this lamp will be illuminated to indicate that there is either a pump failure or that the volume of influent is exceeding the discharge capability of the pump. The high-level alarm / beacon will need to be manually reset by the site operator once the cause of the high-level condition has been identified and resolved.
- 6.1.3 Cable access is available at the bottom end of the isolator switch. The cabling work and glanding to the panel needs to meet the same standard to maintain this rating.
- 6.1.4 Please contact our technical office for further advice if required.

7. General Maintenance

The best way to achieve this is to arrange a contract with an approved Service provider. Please contact us on the phone number given for service contact details.

There will always be situations when a little self-help may be sufficient to avoid call out and we describe here some basic checks which may prove useful: Before opening the unit, please see Health and Safety Notes.

We recommend the unit is checked every 6 months to ensure there are no blockages or obstructions in the inlet and out let pipes, also check that there is not excessive sludge build up in the bottom of the tank.

If in any doubt whatsoever please contact your service provider.

8. How to Keep your Pump Station Running Sweetly.

If a Pump Station serves your property, the likelihood is that the property is not connected directly to the mains sewer system.

Sewage pump systems are designed to handle foul water, natural human waste and biodegradable products.

Other household waste and non-biodegradable products should never be disposed of through the drainage system.

Disposal of non-bio-degradable products will affect the reliability of all pumping stations, causing pumps to block

and storage chambers to become congested with non-pumpable waste.

Bear in mind too that it isn't only the toilet that is connected to the station; anything that goes down the sink, bath

THE FOLLOWING MUST NOT BE DISCHARGED INTO THE DRAINS

- Cleaning Rags
- Cloths
- Syringes & Hypodermic Needles
- Medicines & Medical Equipment. Take unused medicines to a pharmacist for safe disposal.
- Grease & Fat. These products tend to cool down, separate from the water and coagulate within the pump chamber. Fat & grease encase the pump and floats, causing blockages and failure of pumps.
- Nappies, sanitary towels, incontinence materials, soft toys, tennis balls etc. It may seem a bit
- obvious to say this, but it is amazing what gets flushed down the loo from time to time. Causing
- blockages of the drains and pumps
- Even so-called disposable nappies and sanitary towels often do not degrade fully and can lead
- to malfunction, so it is best to dispose of them by other means. Fabric cleansing wipes & nappy
- liners can block pipework. They should not be flushed into the drainage system.

ROUTINE DE-SLUDGING AND SERVICING

Pump Stations over time accumulate settled solids. It is good practice to check and if necessary empty/desludge these at the same time as any treatment unit.

It is vital to the systems ongoing operation and should be carried out regularly.

Mechanical and electrical servicing, particularly, must be performed by properly trained personnel suitably qualified and experienced in this type of work.