CleanaWater®

TS Oil Water Separator

Installation, Operations and Maintenance Manual

1800 353 788
cleanawater.com.au
4 Channel Rd, Mayfield West NSW 2304

bulbeck group
WHS, Quality & Environmental Management Systems Certified AS/NZS 4081, 9001, 14001

1 PARTS INCLUSION LIST

Your package should include the following items. Please check these items off as received. If any items are missing, please contact CleanaWater on 1800 353 788.

Note: If your package is a non-standard package additional/other items may be included in your package.

Item		Qty	Included (Y/N)
Oil Separator	TS Oil Water Separator unit & lid *(in the model of your selection)*	1	
	Stainless-steel support frame	1	
	DN40 ball valve	2	
	DN40 sludge outlet nipple	2	
	DN40 internal sludge outlet elbow – factory fitted	2	
	DN50 internal wastewater outlet elbow – factory fitted	1	
	Coalescing Media Packs – factory fitted	3	
	Media Packs support grid – factory fitted	4	
	Inlet splash guard – factory fitted	1	
	Adjustable Waste Oil Collar – factory fitted (not adjusted)	1	
	PVC waste oil outlet pipe	1	
	Stainless steel worm drive clip to suit waste oil hose	1	
	20L waste oil collection drum OR 1000L IBC waste oil tank	1	
	Installation, operations, and maintenance guide	1	
Oil Separator Feed Pump(s)	Mono CP11 OR ASM DS25 Electric Diaphragm Pump *(note other models may be included based on availability – refer to your pump manual attached for model information)*	1	
Controls	Float Switch with 10m lead – working float switch	1	
	Float Switch with 10m lead –high level alarm float switch *(optional)*	1	
	CleanaWater pump control panel (refer to pump wiring diagram for all wiring and function information)	1	
Optional Extras	Other items may be included in your package based on your specific site requirements, refer to your packing slip or contact CleanaWater on 1800 353 788 for confirmation.		

2 PRODUCT INFORMATION

CleanaWater TS series oil water separators are coalescing type separators (CPS) that remove oil droplets from water using a two-stage packed media system. The system consists of polypropylene rings with a high surface area to volume ratio, ensuring efficient separation. Oil droplets pass through the rings, coalesce, and rise to the top surface, where they overflow into a waste oil collection container. Solids particles also impinge on the rings, lose velocity, and settle at the base of the unit. After passing through the two-stage process, the water is treated and ready for disposal or further treatment.

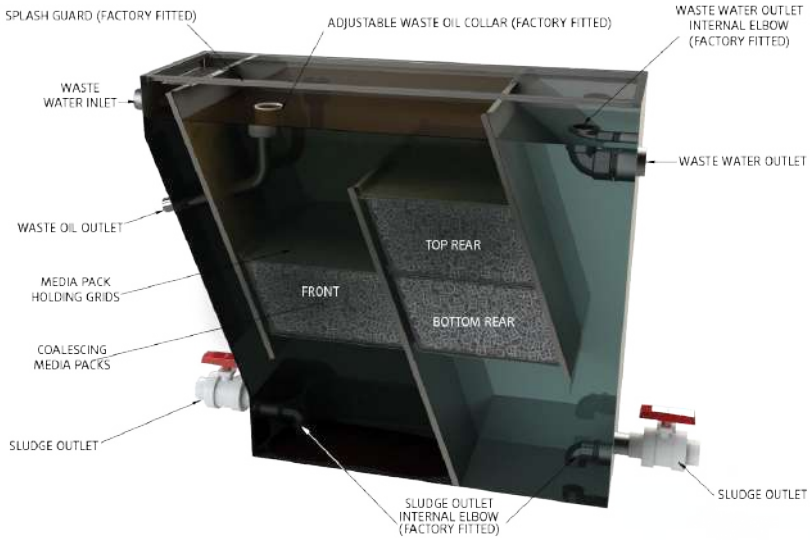
MODEL	DIMENSIONS	FLOW RATE (L/hr)	CONSTRUCTION
TS5000 SS	1200mm L X 730mm W X 990mm H	5000	Stainless Steel
TS4000 SS	1200mm L X 730mm W X 990mm H	4000	Stainless Steel
TS3000 SS	1200mm L X 730mm W X 990mm H	3000	Stainless Steel
TS2500 SS	1200mm L X 370mm W X 990mm H	2500	Stainless Steel
TS2000 SS	1200mm L X 370mm W X 990mm H	2000	Stainless Steel
TS1500 SS	1200mm L X 370mm W X 990mm H	1500	Stainless Steel
TS1000 SS	1200mm L X 370mm W X 990mm H	1000	Stainless Steel
TS2500 PE	1349mm L X 360mm W X 980mm H	2500	Polyethylene
TS2000 PE	1349mm L X 360mm W X 980mm H	2000	Polyethylene
TS1500 PE	1349mm L X 360mm W X 980mm H	1500	Polyethylene
TS1000 PE	1349mm L X 360mm W X 980mm H	1000	Polyethylene

Larger separators are available on request.

2.1 How do they work?

Coalescing media packs are positioned in two stages to force free oil droplets to collide with the surface of the media. Upon impact the droplets rise to the surface and are skimmed off into a waste oil container.

Effluent standards for the CleanaWater TS series oil water separators adhere to the WSAA Product Specification WSA PS 810, Separator Systems for Light Liquids as listed below.



a.	Total Grease	50 mg/L
b.	Petroleum Hydrocarbons including BTEX	10mg/L
c.	Benzene	0.1mg/L
d.	Suspended Solids	200mg/L
e.	Flammability	< 5% LEL (hexane) at 25^{O}C
f.	pH	7-10

Note: Quick break and biodegradable detergents and degreasers should be used in conjunction with the system.
Holding pit capacity should match the hourly throughput of the oil separator system.
Any solvent based liquids or emulsifiers should be avoided, these may affect the efficiency of the unit performance.
Coalescing oil separators are designed to remove free oils and mineral grease only.

3 TYPICAL WIRING

Note these may differ depending on your application.

3.1 HIGH LEVEL ALARM CONTROLLER INSTALLATION AND OPERATING INSTRUCTIONS

Your Single Pump Controller reflects the superior quality and attention to detail in design, engineering and manufacturing that has distinguished MATelec Products for decades. The controller incorporates the very latest in micro-processor technology, ensuring you, the owner/operator, of many years of functional, reliable and 'user friendly' operation.

WARNING: All electrical connections must be carried out by a suitably qualified and registered electrician

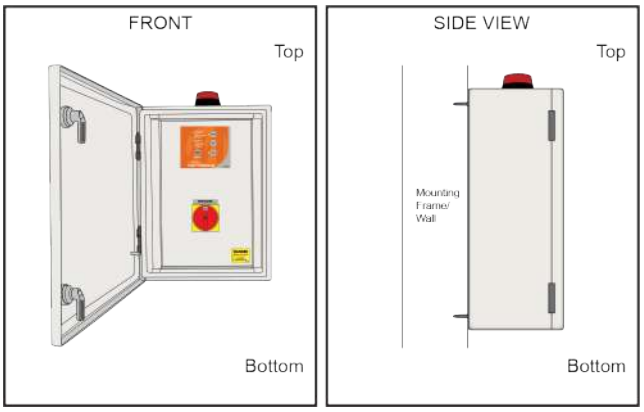
SAFETY

- Prior to Installation, ensure power supply is isolated.
- Power supply must be Circuit Breaker Protected. (Qualified Electrician to determine appropriate amp rating.)
- Electrical connection to the panel must be carried out in accordance with 'Connection Instructions'.

- Addition or modifications to the control panel are not permitted and will void warranty.
- The controller is not intended for use by children or infirm persons without supervision.
- Repairs to the Controller must only be carried out by a suitably qualified Electrician.

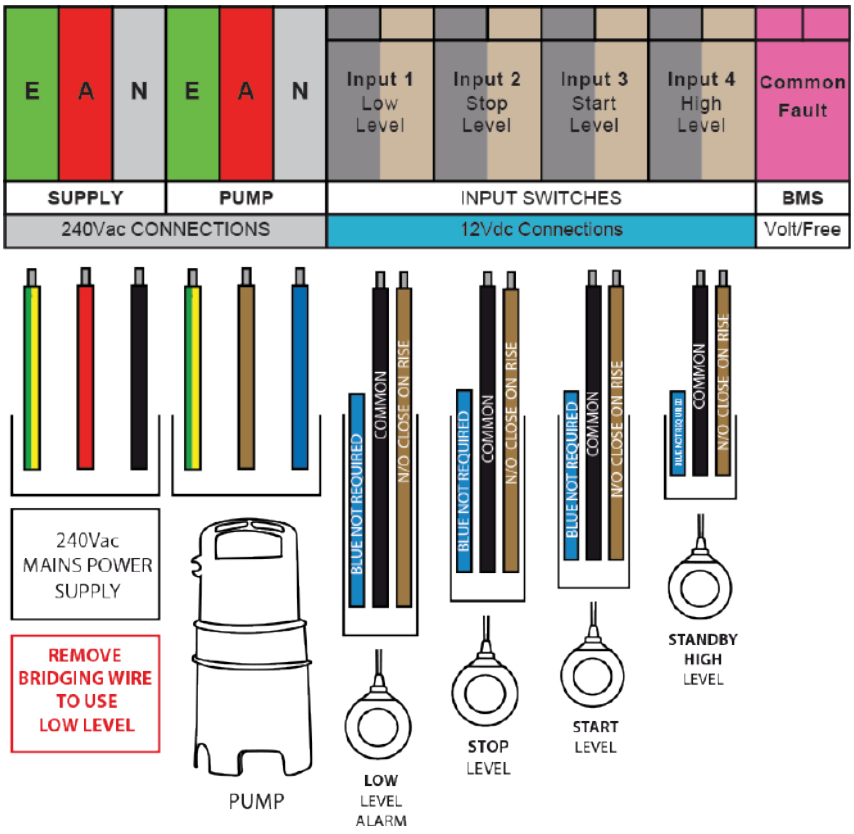
INSTALLATION

MOUNTING



1. Controller enclosure must be mounted in a vertical position.
2. Ensure mounting method does not compromise enclosure weatherproof rating.
3. Ensure access to main isolator is not restricted.
4. Ensure cables/conduits entering the panel have mechanical protection and that the penetrations are sealed and do not compromise the weatherproof rating of the enclosure.

CONNECTION



Note: Controller must be earthed, and all electrical connections must be carried out by a suitably qualified Electrician. For Single Working Level Float Switch Applications, connect to “Start (Input 3)” terminals only, and NO bridge wire is required in “Stop (Input 2)” terminals.

OPERATION

This controller can perform control functions for most Single Pump pumping applications. It is more than likely that the control parameters have already been set up for your particular application, however, hereunder you will find details of the setup and configuration options.
There are 6 DIP switches located on the lower side of the control module, which allows for selecting “mode” and “feature” options, as per the following table:

DIP Switch	Position	Function
1/2	Off/Off	**Mode A:** Standard typical float switch configuration (Start,Stop and High Level). No Low Level
	Off/On	**Mode B:** Standard configuration plus low level (Start,Stop and High Level).
	On/Off	**Mode C:** Standard configuration plus Prime Loss enabled, on Low Level (Input 1)
	On/On	**Mode D:** Pressure Pumping configuration (Lead, Lag and Low Pressure)
3	Off	Operating Pump alternates each time a pump start is triggered, or after 30 minutes continuous running.
	On	Operating Pump alternates after 6 hours continuous running.
4	Off	Anti-seize Timer disabled
	On	Anti-seize Timer 6 seconds every 7 days enabled
5	Off	When placed in Manual Mode, pump remains in Manual Mode
	On	When placed in Manual Mode after 5 minutes the pump will revert to
6	Off	High Level Alarm automatically resets upon open circuit of high level input. High Level alarm has 15 minute delay.
	On	High Level Alarm can only be reset manually. High Level Alarm has 5 minute delay.

Mode A: Standard Configuration

Start/Stop/High Level operation. When the Pump Start input is closed contact (triggered), the Duty Pump will be turned on. The pump will remain on until both the Pump Start and Pump Stop Inputs have turned off (Open Circuited). Upon High Level, both pumps will run until the Pump Stop Input turns off.
In addition to this, there is a maximum idle timer, which will trigger a Pump Start condition, if either pump has not run for 4 hours, and the Stop Float Contacts are closed. The pump will continue to run until the Stop Float Contacts open. Input functions are as follows:

Input	Function
Input 1	Not used
Input 2	Pump Stop
Input 3	Pump Start
Input 4	High Level

Mode B: Standard Configuration plus Low-Level Alarm

As per Mode A, except it has an active Low-Level input. The Low-Level input must be closed, for Pump Start and Pump Stop
inputs to function. The High-Level input, however, will still override the Low Level and run both pumps. Input functions are as follows:

Input	Function
Input 1	Low Level
Input 2	Pump Stop
Input 3	Pump Start
Input 4	High Level

The basic logic on which a High- or Low-Level Alarm is determined, is set out in the Table below:

Input 1 Low Level	Input 2 Pump Stop	Input 3 Pump Start	Input 4 High Level	Pump State	Alarm
Closed	Open/Closed	Open	Open	Off	-
Closed	Open/Closed	Closed	Open	On	-
Closed	Open/Closed	Closed	Closed	Both On	High Level (after Timeout)
Closed	Open/Closed	Open	Closed	Both On	High Level (after Timeout)
Open	Open/Closed	Open	Open	Off	-
Open	Open/Closed	Closed	Open	Off	Low Level
Open	Open/Closed	Open	Closed	Off	Low Level
Open	Open/Closed	Closed	Closed	Both On	High Level (after Timeout)

If there is a Low-Level Alarm, then both Pumps will be locked out until the alarm is manually reset. This lockout will only be overridden upon a High-Level condition where both the Pump Start and High-level inputs are closed.

Note that after a high level is triggered, the pumps will both run until the Pump Start and Stop inputs are opened.

Mode C: Standard Configuration plus Prime Loss

As per Mode A, except Input 1 is connected to a prime loss/flow switch. If at any stage, after Pump Start, or whilst a pump is running, the Prime Loss input opens, for a continuous 2-minute period, a fault is immediately triggered for that pump and duty alternates. Input functions are as follows:

Input	Function
Input 1	Prime Loss
Input 2	Pump Stop
Input 3	Pump Start
Input 4	High Level

Mode D: Pressure Pumping Configuration

Input functions are as follows:

Input	Function
Input 1	Prime Loss (BRIDGE IF NOT REQUIRED)
Input 2	Lead Pump Pressure Switch (set at say 350kPa)
Input 3	Not Used
Input 4	Low Pressure Switch (set at say 200kPa)

Typical Operation Mode D:

- Pressure drops to 400kPa: Lead (for this cycle) Pump cuts in.
- Pressure increases and Pump cuts out.
- Cycle continues.
- The controller has inbuilt timers for “Delayed” Start and Stop to obviate pump chatter. Upon Input 1 contact closure, the pump will not start (delay start) for 1 second and will not stop (minimum run time) for 10 seconds (or 11 seconds from close of Input contacts). This “run on” occurs even if Pressure switch contacts open during this initial period. If, however run time exceeds 11 seconds, the pump will stop immediately upon “open circuit” occurring.

- If the Pressure Switch Input closes circuit as well as the Low-Pressure Switch Input, a low-pressure timer will begin counting. If this condition exists for a period of 60 seconds, then both pumps are shut down and the system signals a level alarm. This would be typical of a Loss of Prime or Burst Main situation.
- Pressure switches are normally closed and open on High pressure.

In pressure pump mode some of the optional features are disabled, including maximum run alternation, anti-seize and maximum idle timers.

Mode "Current Loop": Level Transducer (4-20mA) Configuration

In order to activate current loop mode, the enclosure must be opened and jumper J10 moved to the "current loop enabled" position (as shown in the following picture). By selecting current loop input mode, the pump start input can be connected to a 4-20mA loop powered pressure transducer. The pump start, stop and high-level signals can then be received from pressure transmitter instead of float switches. In this mode the pump stop float switch input will be ignored however the high-level input will still operate as per normal so that a float switch can be used as a backup if desired. The start, stop and high-level current set points will be pre-programmed into the software and therefore cannot be adjusted. The levels for a 0-4m transducer are Stop= 300mm, Start= 600mm and High= 1000mm.

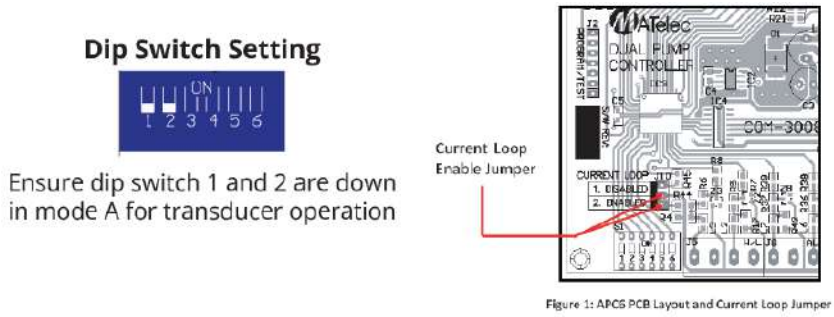


Figure 1: APCS PCB Layout and Current Loop Jumper

Anti-Seize Timer

With DIP Switch 4 set to "On", the Anti-seize timer will automatically run the pumps for 6 seconds, every 7 days. This pump operation will completely override all inputs including the low level (if enabled). This feature will only run pumps that are set in Auto. This "Pump Run" will alternate between Pump 1 and Pump 2. A pump that has been locked out due to a fault will not run.

Manual Mode Timeout

With DIP Switch 5 set to "On" the pump will only remain in Manual Mode for 5 minutes, after which time, it automatically reverts to Auto.

High Level Alarm Reset

With DIP Switch 6 set to "Off", the High-Level Alarm will automatically reset once the High-Level inputs open circuit. The controller will also use the alternate High Level Alarm Delay. Typically used for Storm Water applications. High Level Alarm delay in this mode is 15 minutes. Setting this DIP Switch to "On" will cause the High-level Alarm to remain active until the controller is reset. The High-Level Alarm will use the standard High Level Alarm activation delay. Typically used for Sewerage applications. High Level Alarm delay in this mode is 5 minutes.

Audible and Visual Alarm Test

By pressing the Mute/Reset button on the Keypad continuously for a period of 5 seconds, the Strobe, Siren and indicator Lights will be powered up for inspection.

Fault Reset

To reset all faults on the controller, press and old the Mute/Reset button on the Keypad continuously for a period of 3 seconds until an acknowledgment beep is heard.

Pump Fault

A Pump Fault is indicated for two types of faults. A Thermal Overload will be indicated by way of a steady Fault Indicator Light when the overload opens the contact for 3 seconds. Prime loss will be indicated by flashing the pump fault light slowly.

Level Alarms

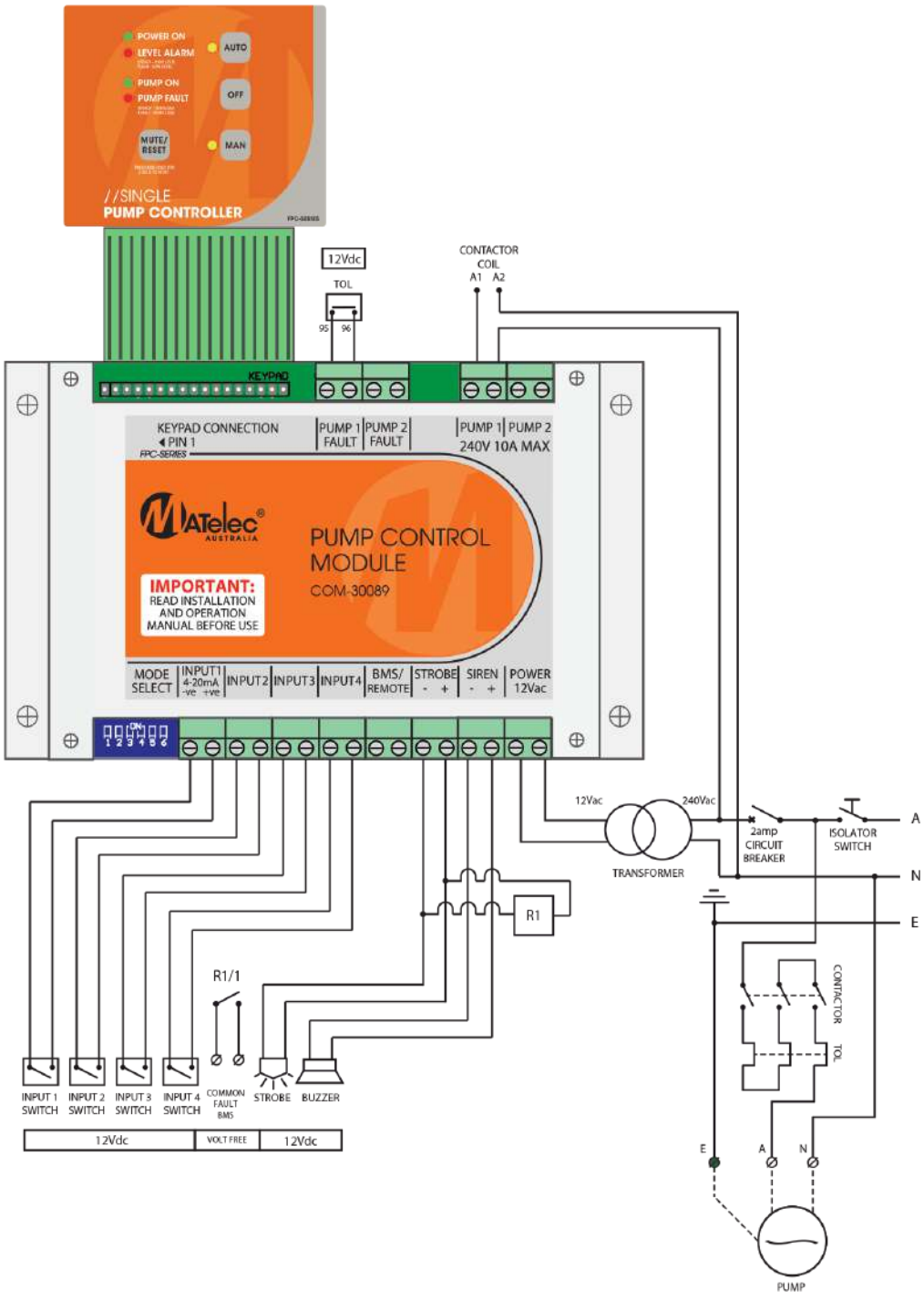
A High-Level Alarm is indicated by way of a steady Level Alarm Indicator Light.

A Low Level/Low pressure Alarm is indicated by way of a Flashing Level Alarm Light.

Auto Silencing Alarm Feature

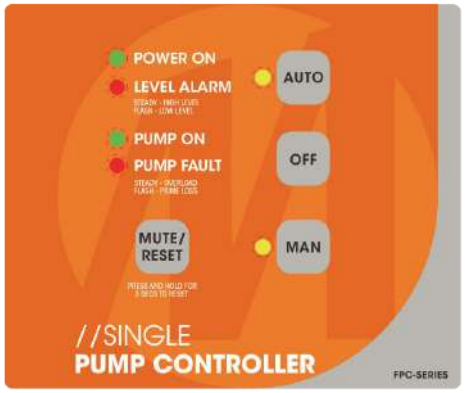
The audible Alarm is programmed to sound for 5 minutes continuously, unless muted and will thereafter automatically silence and enter “Chirp” mode. In “Chirp” mode, the Audible Alarm will sound briefly (2 seconds) every 5 minutes.

CIRCUIT DIAGRAM



AT A GLANCE

A quick reference to the controller's Keypad and Indicator functions and meanings.



Keypad

INDICATORS

POWER ON
Power is turned on.

LEVEL ALARM ON
A high level alarm has been present for the preset time.
FLASHING
A low level alarm is present.

ON STEADY
Pump switched on to run.

ON STEADY
A pump fault/overload has occurred.
FLASHING A prime loss fault has occurred.

PUSH BUTTONS

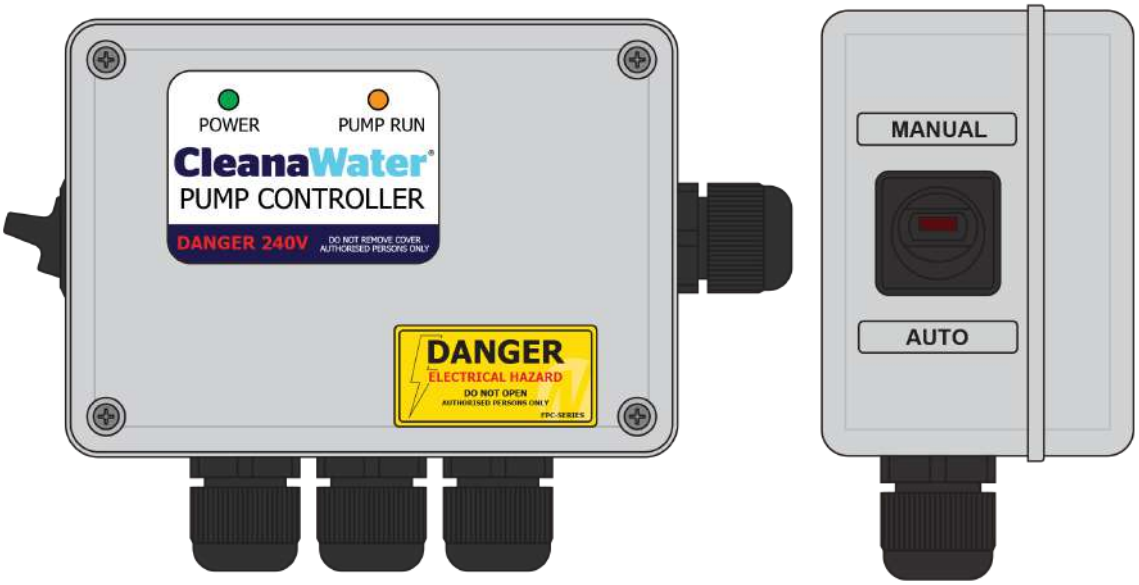
MUTE/ RESET — Silences the siren and if held down for 3 seconds, clears all faults

AUTO — If selected (the LED indicator will confirm if on) the particular pump is set to Automatic Pumping Mode

OFF — Turns pump off

MAN — If selected (the LED indicator will confirm if on) the pump is set to Manual Pumping Mode

3.2 STANDARD CONTROLLER INSTALLATION AND OPERATING INSTRUCTIONS



FEATURES

ENCLOSURE

- IP54 weatherproof rating
- Polycarbonate

PROTECTION

- Low voltage control & input circuitry

CONTROL & INTERFACE

- Indicator lights for power on and pump run
- PCB control module
- Auto/manual pump control selector switch

INPUTS

- Single phase (230Vac) power supply
- 2x 15Vdc inputs for float switches

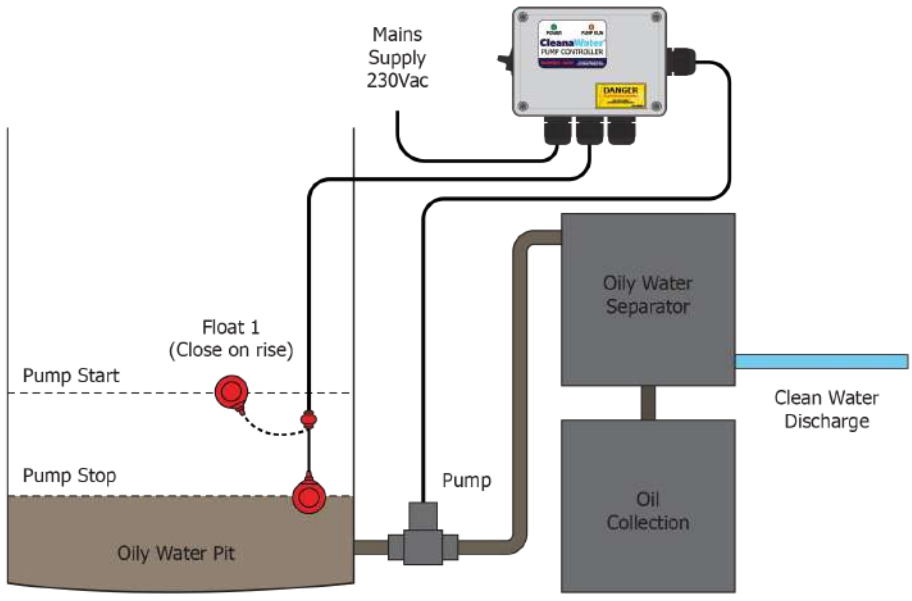
OUTPUTS

- Power supply to pump (230Vac 6 Amps max)

INCLUDED WITH PANEL

- 4x 16mm cable glands pre-installed (Suits 5-10mm cable OD)

SCHEMATIC - APPLICATION 1



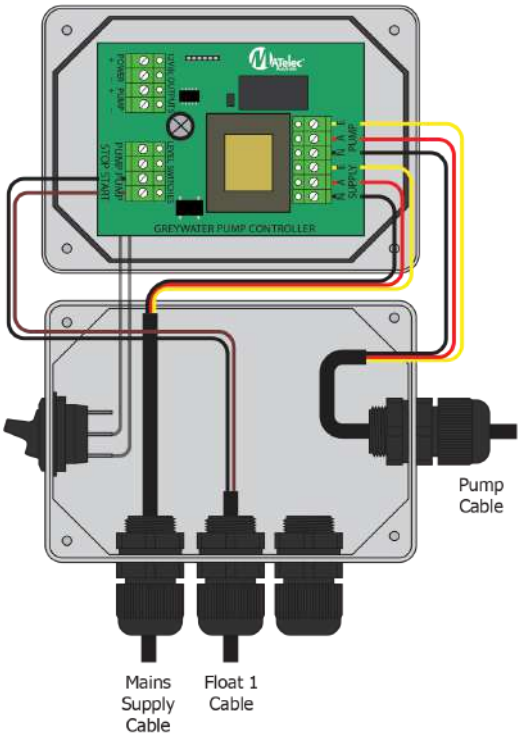
OPERATION

Auto

- The pump will start if float 1 is up (closed contact)
- The pump will stop when float 1 is down (open contact)

Manual

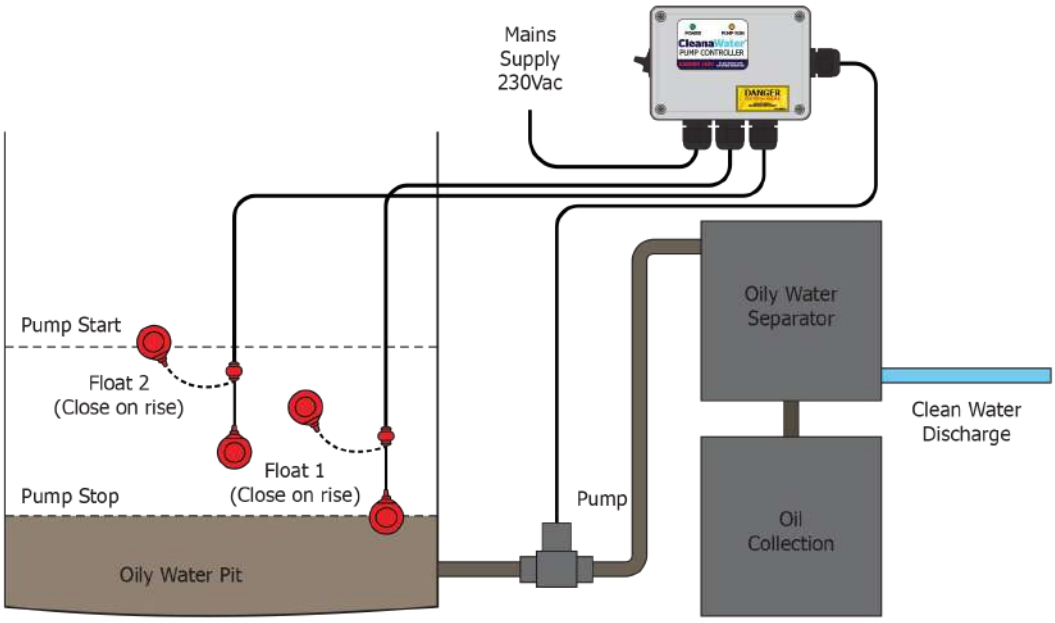
- Overrides the floats and runs the pump continually while the switch remains on the manual position.
- When switched back to auto mode the pump may continue to run if float 1 is up (closed contact)



INSTALLATION

- Remove enclosure front door and flip over to access PCB.
- Run pump cable through gland on underside of panel and connect wires to 'PUMP' terminals on PCB.
- Run Float 1 cable through gland on underside of panel.
- Connect common and normally open wires from Float 1 to 'PUMP START' terminal for close on rise configuration.
- Connect 240Vac supply wires to the 'SUPPLY' terminals. This must be done by a qualified electrician.

SCHEMATIC - APPLICATION 2



OPERATION

Auto

- If Float 1 goes up (closed contact), the pump does not start.
- If Float 2 goes up (closed contact) the pumps start
- If Float 2 goes down (open contact) but Float 1 is still up (closed contact) the pump will continue to run

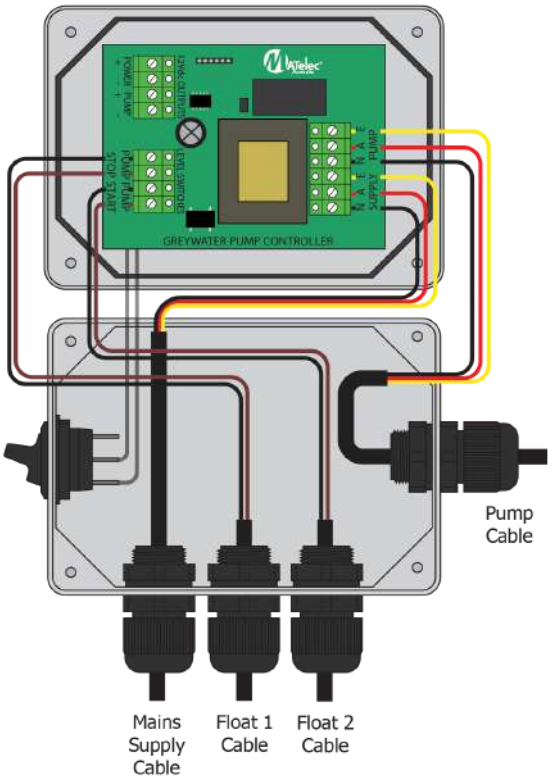
- If Float 1 goes down (open contact) in addition to float 2 being down (open contact) the pump will stop

Manual

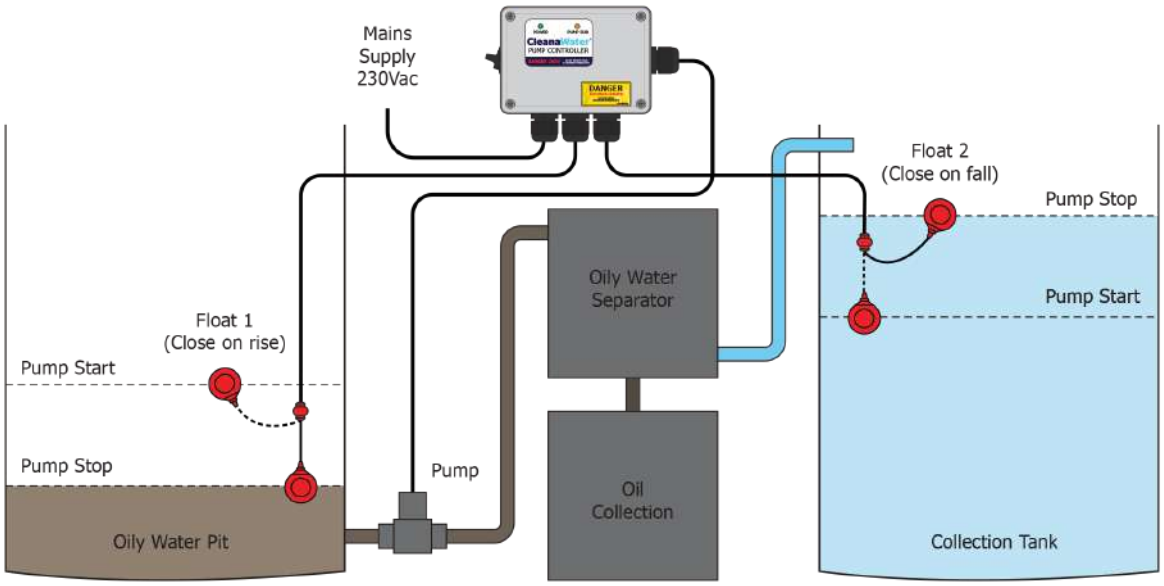
- Overrides the floats and runs the pump continually while the switch remains on the manual position.
- When switched back to auto mode the pump may continue to run if float 1 or 2 is up (closed contact)

INSTALLATION

- Remove enclosure front door and flip over to access PCB Run pump cable through gland on underside of panel and connect wires to 'PUMP' terminals on PCB.
- Run Float 1 cable through gland on underside of panel.
- Connect common and normally open wires from Float 1 to 'PUMP STOP' terminals for close on rise configuration.
- Connect common and normally open wires from Float 2 to 'PUMP START' terminals for close on rise configuration.
- Connect 240Vac supply wires to the 'SUPPLY' terminals. This must be done by a qualified electrician.



SCHEMATIC - APPLICATION 3



OPERATION

Auto

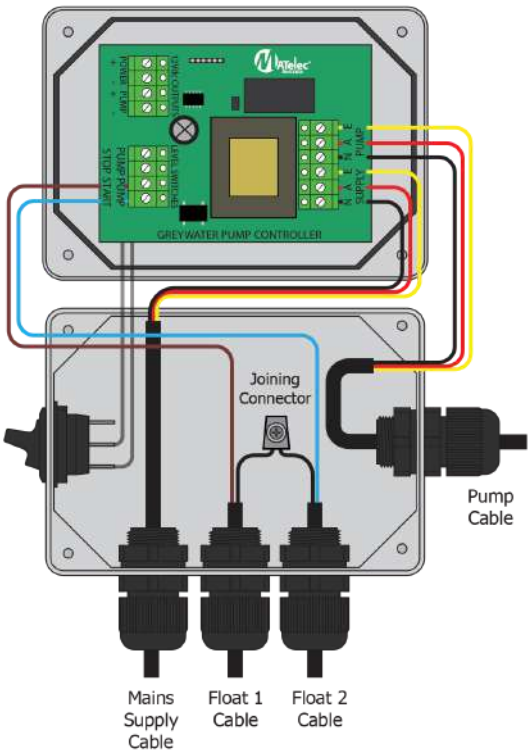
- The pump will start if float 1 is up (closed contact) and float 2 is down (closed contact)
- If either float 1 falls down (open contact) or float 2 rises up (open contact), the pump will stop.

Manual

- Overrides the floats and runs the pump continually while the switch remains on the manual position.
- When switched back to auto mode the pump may continue to run if float 1 or 2 is up (closed contact)

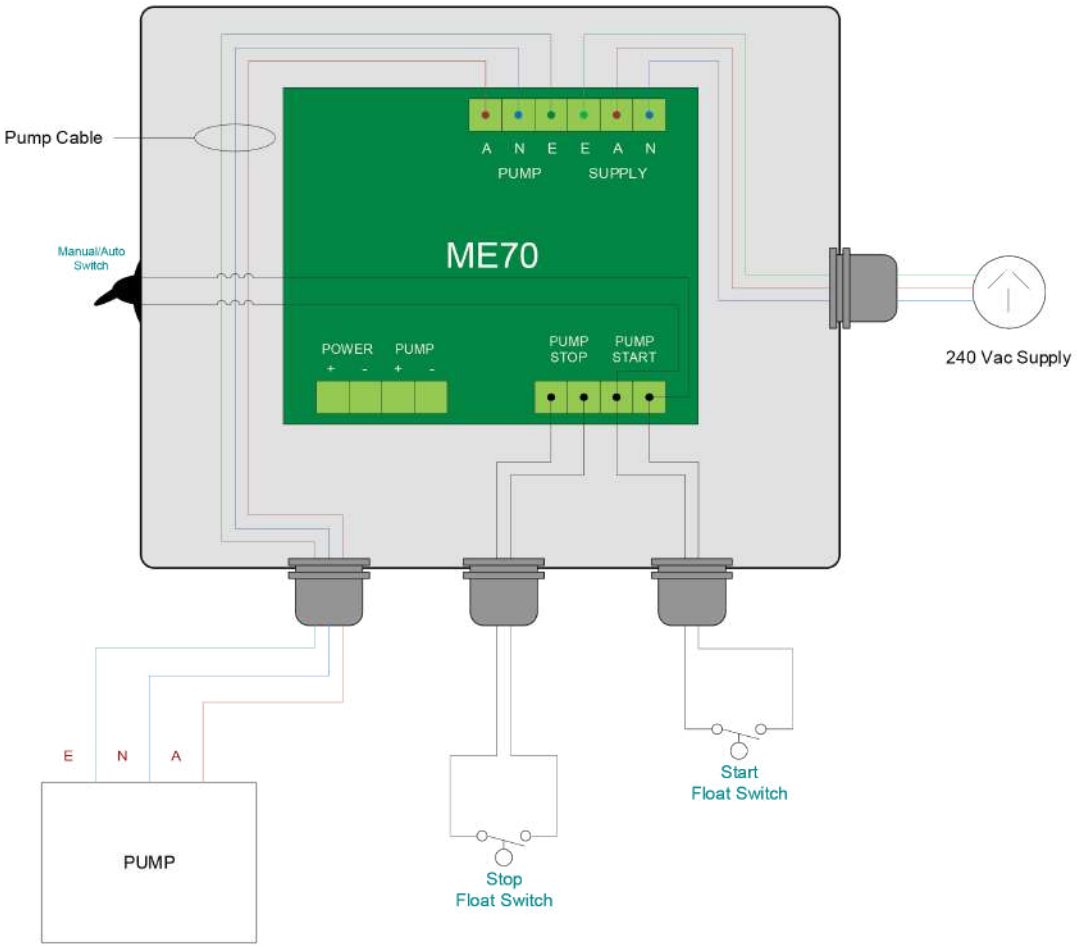
INSTALLATION

- Remove enclosure front door and flip over to access PCB.
- Run pump cable through gland on underside of panel and connect wires to ‘PUMP’ terminals on PCB.
- Run Float 1 and Float 2 cables through glands on underside of panel.
- Join common wires from each float together in connector.
- Connect normally open wire from Float 1 to ‘PUMP START’ terminal for close on rise configuration.
- Connect normally closed wire from Float 2 to other ‘PUMP START’ terminal for close on fall configuration.
- Connect 240Vac supply wires to the ‘SUPPLY’ terminals. This must be done by a qualified electrician.



CIRCUIT DIAGRAM

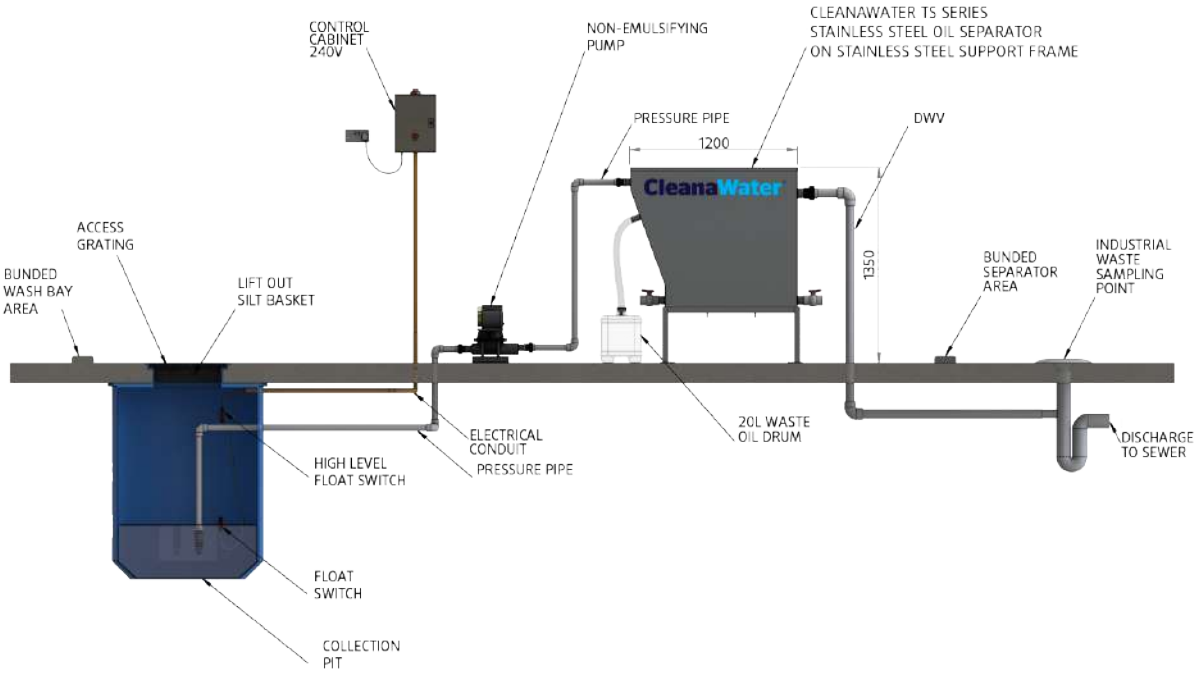
CleanaWater reserves the right to alter technical data without notice.



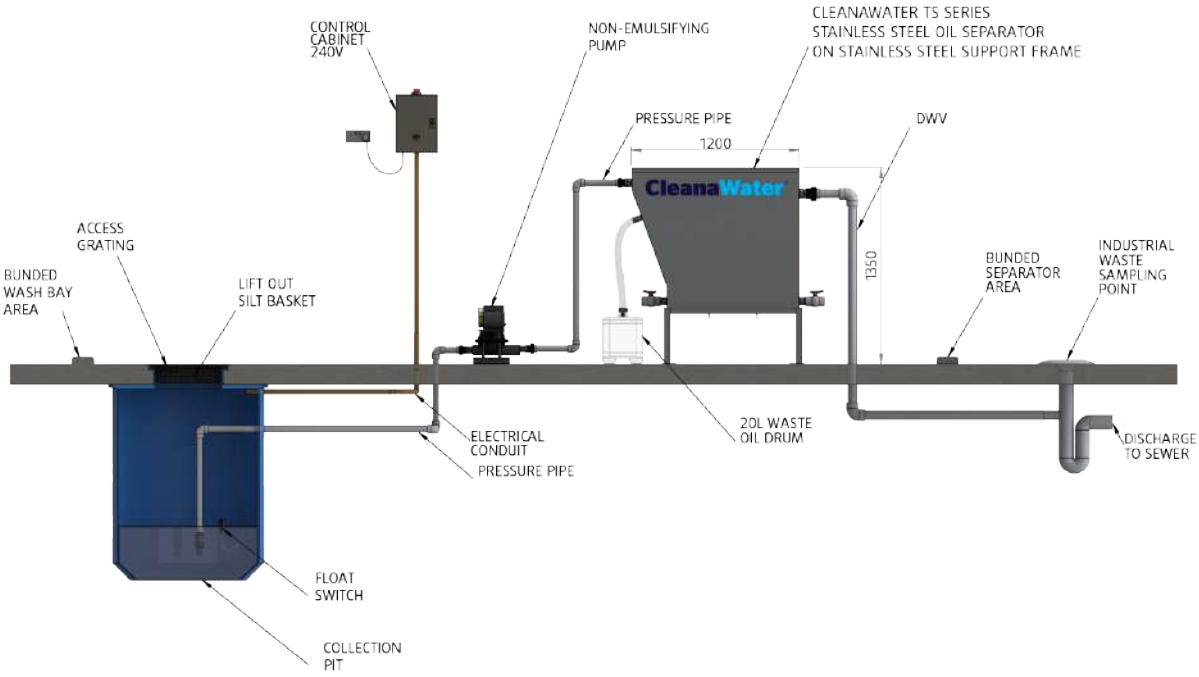
4 TYPICAL INSTALLATION SCHEMATICS

Note these may differ depending on your application. Attached are typical installations only.

4.1 HIGH LEVEL ALARM CONFIGURATION FOR EITHER POLYETHYLENE OR STAINLESS STEEL



4.2 STANDARD CONFIGURATION FOR EITHER POLYETHYLENE OR STAINLESS STEEL



5 INSTALLATION INSTRUCTIONS

*Note: At installation stage, all plumbing works must be completed by a licensed plumber. If electrical works are required to be completed, they must be completed by an electrician with relevant certifications.

Local water authorities should be contacted prior to installation to ensure local requirements have been met.

5.1 INSTALLATION PROCEDURES

STEP 1 – PREPARE AREA FOR INSTALLATION

Locate the oil separator in its operating position with sufficient access clearance to operate the sludge drain valves.

While doing this also position your waste oil container and ensure reasonable work clearances are maintained.

STEP 2 – SETTING UP

Place unit or support frame on a solid and even base. A level concrete slab is preferred. If the slab is uneven, it is preferable to cement slurry the surface and set the separator/frame into the wet cement.

STEP 3 – SETTING UP

If you have been supplied with a separator support stand, dyna bolt your separator support stand into the concrete slab at the four corners of the stand within the holes built into the stand. For corrosive environments ensure galvanized fixing materials are used.

Ensure that your foundation has sufficient strength to support the mass of the unit.

STEP 4 – CHECK FOR A LEVEL SURFACE

Ensure that the unit is level within 5 mm on both axes. This can be measured across the top flanges of the unit (with the cover off).

STEP 5 – PLUMBING CONNECTIONS

Pipe the inlet and outlet water connections. All plumbing shall comply to Australian Standard AS3500.

Connections as follows should be completed:

- Collection Pit – Pump Inlet
- Pump Outlet – Separator Inlet
- Separator Outlet – Sewer or discharge point

MINIMUM INTERNAL PIPE SIZE FOR LIQUIDS WITH SAME VISCOSITY AS WATER					
	SUCTION PIPE LENGTH M		DISCHARGE PIPE LENGTH M		
PUMP SIZE	0 - 5	5 - 10	0 - 5	5 - 10	10 - 20
D25	25	32	32	40	40
D32	32	40	40	50	50
D38	40	50	50	65	65
D50	50	65	65	80	80
	SUCTION PIPE ID IN MM		DISCHARGE PIPE ID IN MM		
USE OF PIPES SMALLER THAN STATED WILL VOID WARRANTY					

*Note: Ensure local piping material standards have been met, any connections to sewer must be completed by a licensed plumber.

STEP 6 – PLUMBING CONNECTIONS

Plumb the suction line to the pump using the correct diameter pipe as recommended from the pit / suction source.
Note: It is a requirement in some areas to provide sampling taps on the inlet and outlet pipes of the separator.

STEP 7 – PLUMBING CONNECTIONS

The suction line must be terminated close to the base of the collection pit in line with the recommendations on the typical installation schematic. It is recommended that a barrel union in the suction line is installed to allow for simple future maintenance. A foot valve (Mono pump only) should be installed to the base of the suction line. A strainer should be installed to be base of the suction line if a diaphragm pump is feeding the oil separator.

*Note: If a floating skimmer oil is installed in the sump a foot valve/strainer cannot be installed as a flexible vacuum hose is connected to the pressure pipe directly.

STEP 8 – PLUMBING CONNECTIONS

Fit the supplied gate valve (2) to the sludge outlets. Ensure they are closed before filling the separator.

STEP 9 - PLUMBING CONNECTIONS

Fit the suppled clear PVC hose to the waste oil outlet line, secure using worm drive clip supplied. A 20 litre chemical drum is recommended to be used as a waste oil container to aid in disposal at required date. For mining environments, it is suggested a high-volume waste oil collection container such as an IBC is used to collect waste oil.

STEP 10 – PLUMBING CONNECTIONS

Plumb the pump to the separator. Barrel unions in the pipes either side of the pump to aid in servicing is recommended. A lute should be plumbed into the line to ensure pump is always primed (for Mono Pumps only).

QUALIFIED ELECTRICIANS MUST COMPLETE ANY WIRING

STEP 11 – ELECTRICAL CONNECTIONS

Wire the pump into the electrical controller (Controllers have Manual/Auto/Off functions and are available from CleanaWater; they are designed to be plugged into 240-volt 10amp power points unless specified) Always follow the supplied wiring diagram to ensure the pump is not damaged.

*Note: 3 phase pump controllers with additional functions may also be supplied, contact your CleanaWater representative to confirm the model of your pump controller(s).

STEP 12 – ELECTRICAL CONNECTIONS

Install the float switch to deactivate the pump ensuring it has suitable clearance from the suction line inlet level. Always refer to supplied wiring diagram.
Failure to do this will cause problems in your pump to prime.
Fasten the float switch lead to the suction line with plastic cable ties with care taken to ensure that the float travel is not impeded in any way. The pumping range (switch on point) should be set approximately 500mm from the (switch off point). This can be increased depending on the collection pit storage size. If you have a high-level alarm included with your package, repeat this step, and set the high-level alarm float to trigger near top of your water collection vessel.

Always refer to supplied wiring diagram.

STEP 13 – ELECTRICAL CONNECTIONS

Strip the float lead back to expose active, neutral and earth wires. Following the wiring instructions, attach the float lead wires to the control panel. Switch on the control panel at the power point and ensure it is switched to the ‘Off’ setting. Always refer to supplied wiring diagram.

STEP 14 – PLACEMENT OF PALL RINGS IN SEPARATOR

Pall Rings Specs by Model		Bag Position		
Model	**Shell Size**	**Front**	**Top Rear**	**Bottom Rear**
TS1000	Small	25mm	25mm	25mm
TS1500	Small	25mm	25mm	25mm
TS2000	Small	25mm	16mm	16mm
TS2500	Small	16mm	16mm	16mm
TS3000	Large	25mm	25mm	25mm
TS4000	Large	25mm	16mm	16mm
TS5000	Large	16mm	16mm	16mm

STEP 14 – ADJUST WASTE OIL OVERFLOW OUTLET

Fill the oil separator with clean water and ensure pump is primed by using fresh water entered into the pump chamber.

Switch the pump control panel to 'Manual' mode ensuring there is enough water in the collection pit to feed the separator, this will pump water into the oil separator unit. Whilst the pump is operating adjust the overflow socket of the Waste Oil Outlet to a level 5 mm above the water surface. This overflow socket can be moved up or down the pipe and is sealed by means of an "O ring". This socket adjustment should be made while the feed pump is operating as the water level will drop when the pump stops.

STEP 15 – ELECTRICAL CONNECTIONS

Switch the pump controller to 'Auto' mode as per included instructions, this will ensure the pump operation is triggered by the float switch activating the pump at a level when water level triggers its operation. Make final adjustments to float level controls ensuring pump switch on and switch off points are suitable.

STEP 16 – COMPLETION

Replace cover, check all connections. Fill unit with fresh water for first start. Refer to installation completion checklist to ensure all items are complete.
Refer to operations and maintenance manual to ensure periodic maintenance on the system is completed.

6 FINAL INSTALLATION CHECKLIST

Refer to the checklist below to ensure your CleanaWater TS Series Oil Separator has been setup correctly.
Note: This layout refers to a typical installation only. You may have specific installation instructions provided due to an alternate layout or additional equipment installed for your wastewater treatment solution.
Contact CleanaWater on 1800 353 788 for any questions related to installation and or operation of the system.

Item	Description	Checked (Y/N)
Placement	Unit is installed on flat ground	
	Unit has been fixed to floor surface	
	Pump and oil separator has adequate service access	
Connections - Plumbing	Plumbing connections are completed with all barrel unions tightened including:	
	• Sump/Tank pump line to pump inlet	
	• Foot valve/strainer fitted to base of pump line in pit	
	• Pump inlet to oil separator inlet	
	• Waste oil outlet to waste oil drum	
	• Ball valves fitted to sludge outlets x 2	
	• Oil separator outlet to discharge source	
Connections - Electrical	Float switches set at correct on/off heights and wired back to control panel	
	Control panel is mounted and easily accessible	
	Control panel is plugged into mains power point	
	Pump and control floats are wired back to control panel	
	Pump control panel has power on	
Oil Separator Operation	All internal elbows and fittings are fitted and tight	
	Internal media packs and pack holders are in place	
	Pumps are primed in accordance with manufacturer recommendations	
	Unit is filled with fresh water for first start	
	Inlet splash guard is set in place	
	Waste oil overflow outlet is set to 5mm of surface when pump is pumping water into the oil separator	
	Pump controller is set to automatic mode	
	Oil separator lid is placed on top of unit	
	Unit is operational	

7 OPERATIONS & MAINTENANCE SCHEDULE

7.1 OPERATIONS

Once the unit is entered into operation, it is an automated process activated by the float switch in the collection pit which controls water throughput the oil separator; discharge from the oil separator is via gravity into sewer or discharge tank. Pump tanks if pumping to a discharge source can be supplied on request.
Maintenance is to be routinely completed to ensure that the system is operating to its designed efficiency.

7.2 MAINTENANCE

The CleanaWater system is a high-performance unit capable of separating high levels of hydrocarbons and solids within the wastewater stream. To ensure it is operating to the maximum of its efficiency the following maintenance should be completed:

7.3 WEEKLY MAINTENANCE TASKS

- Inspect silt traps and collection pits, clean as required.
- Open oil separator lid, inspect water flow and build-up of oils on surface.
- When pump is running check water levels in each of the two stages, an even water level in both stages illustrates the system is working correctly. If the water level in the first stage is visibly higher than the second stage a system clean is required immediately, refer to Monthly maintenance procedures.
- Check waste oil container for any build-up of oil, dispose of any oil in accordance with local regulations.
- Check the pump operation, float operation, and ensure it is activating when water level reaches trigger point.
- Check condition of gate valves to sludge outlets and check any piping for damage.

7.4 MONTHLY MAINTENANCE TASKS

- Refer to Weekly tasks for regular maintenance checks.
- Switch pump control panel of “OFF”
- Attach 40mm suction hoses to gate valves at base of unit, open valves to drain water level down, either dispose of wastewater by using an EPA authorised contractor or drain back into collection pit (ideally)
- Remove stainless steel/PVC grids and separation media packs from unit.
- Rinse stainless steel/PVC grids and separation media bags with a pressure washer, a light spray will achieve the required result.
- Clean out the oil separator using a pressure washer ensuring all walls are clean.
- Re-install the separation media packs and grids, refer to chart on page 18.
- Remove suction hoses from sludge valves and close.
- Check sludge build up in collection pit, ensure build-up of sludge is removed periodically.
- Fill the system with fresh water.
- Switch the pump control panel to “AUTO” and inspect system ensuring it is operational.
- Replace lid.

7.5 WARRANTY TERMS

Pump Warranty - Manufacturer’s warranty is 12 months from the date of sale unless specified.
Oil Separator Warranty - The CleanaWater oil separator is supplied with a 5-year perforation warranty period in a selection of 304 stainless steel in non-corrosive environments.
If any corrosive elements exist within the wastewater stream, CleanaWater should be contacted to discuss suitability of the separator shell for the environment.
Other components - All other components that are supplied with the oil separator including the float switch are sold with a 12-month warranty.
Compliance Plates - Each CleanaWater oil separator has an identification plate, attached to the top right-hand corner adjacent to the discharge point. Plate material is aluminium foil with overall dimensions of 120mm x 50mm.

8 TROUBLESHOOTING GUIDE

SYMPTOM/CAUSE	PLAN OF ACTION
WATER IS NOT FLOWING INTO OIL SEPARATOR	
Pump is not running	• Check that there is power to the pump by checking local power source. • Check that the pump controller is set to manual/auto mode. • Refer to the supplied wiring diagram that pump connections to the controller are correct. • Check pump overload switch is not tripped.
Suction line is obstructed	• Check pump suction line for obstructions causing blockage. • Flush suction line with water to remove blockage. • Inspect suction lines for air ingression/cracks and change if required. • Check foot valve for obstructions. • Check suction line is not submersed in sludge build up.
Pump has lost prime	• Prime pump chamber in accordance with manufacturer's instructions. • Check foot valve for obstructions. • Float switch working level requires adjustment and is set too low. Reset the float level off level to be above the base of the suction line.
Pump component is damaged	• Pump diaphragm or rotor stator may be worn, this will cause non suction although you will hear the pump motor running, contact CleanaWater or the pump manufacturer for pump spares.
Inadequate water level in the sump	• Water level in the sump has not triggered the working float switch to start the pump, check float is working correctly. • Float switch working level requires adjustment and is set too low. Reset the float level off level to be above the base of the suction line.
WATER IS INTERMITTENTLY PUMPING INTO THE OIL SEPARATOR	
Pump has lost prime	• Prime pump chamber in accordance with manufacturer's instructions. • Check foot valve for obstructions. • Float switch working level requires adjustment and is set too low. Reset the float level off level to be above the base of the suction line. • Check suction line is not submersed in sludge build up.
Suction Line is obstructed	• Check pump suction line for obstructions causing blockage. • Flush suction line with water to remove blockage. • Inspect suction lines for air ingression/cracks and change as required. • Check foot valve for obstructions. • Check suction line is not submersed in sludge build up.
WATER IS FLOWING INTO WASTE OIL CONTAINER	
Waste oil collar on the inside of the unit is set too low	• Ensure there is adequate water level in the pit, switch the pump controller to manual mode to start the pump operation. Adjust the waste oil collar inside the oil separator to be 5mm above water level when the pump is running. This will ensure that only oils separated from the system will be skimmed off into the waste oil drum and no excess water. Switch pump control back to 'Auto' mode when complete.
There is a discharge blockage	• Media packs are blocked and required to be cleaned in accordance with operations and maintenance schedule. *Note: If it is found that blockage occurs regularly your oil separator system may be undersized or overload of solids are blocking the system, ensure all heavy solids are settled out or suction line is located with adequate clearance from the base of the pit.*
The pump flow rate is rated too high for the oil separator	• Excess flow rate is pumping through the system, ensure the correct pump is being used in accordance with the separator model, submersible or centrifugal pumps must not be used.

WATER IS FLOWING OUT OF THE TOP OF THE OIL SEPARATOR	
There is a discharge blockage	• Media packs are blocked and required to be cleaned in accordance with operations and maintenance schedule. *Note: If it is found that blockage occurs regularly your oil separator system may be undersized or overload of solids are blocking the system, ensure all heavy solids are settled out or suction line is located with adequate clearance from the base of the pit.*
The pump flow rate is rated too high for the oil separator	• Excess flow rate is pumping through the system, ensure the correct pump is being used in accordance with the separator model, submersible or centrifugal pumps must not be used.
PUMP IS RUNNING BUT NO WATER IS FLOWING INTO THE OIL SEPARATOR	
Suction line is obstructed	• Check pump suction line for obstructions causing blockage. • Flush suction line with water to remove blockage. • Inspect suction lines for air ingression/cracks and change as required. • Check foot valve for obstructions. • Check suction line is not submersed in sludge build up.
Pump component is damaged	• Pump diaphragm or rotor stator may be worn, this will cause non suction although you will hear the pump motor running, contact CleanaWater or the pump manufacturer for pump spares
THERE IS NO OIL IN THE WASTE OIL CONTAINER	
Waste oil collar on the inside of the unit is set too high	• Ensure there is adequate water level in the pit, switch the pump controller to manual mode to start the pump operation. Then adjust the waste oil collar inside the oil separator to be 5mm above water level when the pump is running. This will ensure that oils separated from the system will be skimmed off into the waste oil drum and not contained within the unit. Switch pump control back to 'Auto' mode when complete. • There is little or no oils in the wastewater stream. • The oils in the wastewater stream are not free oils or oil droplets in suspension have been emulsified due to use of solvents or other contaminants effecting oil water separation efficiency, coalescing oil separators will efficiently remove free oils and grease from water, emulsified oils cannot be removed and requires secondary filtration. Contact CleanaWater on 1800 353 788 for further information on correct use of system. • Ensure that quick break, biodegradable detergents and degreasers are used with the oil separator, mixture with other detergents and degreasers or other contaminants may affect the wastewater stream and discharge results.
PUMP OVERLOAD SWITCH CONTINUES TO TRIP	
Pump motor overheating	• Pump motor is located in an area with minimal airflow and causing the motor to overheat, relocate motor or remove heat sources to ensure adequate ventilation is available of pump motor.
Faulty pump motor	• Pump motor may have defects, contact CleanaWater on 1800 353 788 or the pump manufacturer for further information.
Power supply is faulty	• The pump power supply may have faults or the breaker on the main board may be tripped.
Ambient temperature conditions high	• Pump motor is located in an area with minimal airflow and causing the motor to overheat, relocate motor or remove heat sources to ensure adequate ventilation is available of pump motor.
THE SYSTEM WILL NOT SWITCH ON/OFF	
No power to pump	• The pump power supply may have faults or the breaker on the main board may be tripped. • Check power switch is on to the pump control panel.

Mode incorrectly set on control panel	• Refer to wiring diagram and instructions to activate pump controller modes correctly. • Manual mode will start the pump manually regardless of the water level in the sump, Auto mode will start the pump on float level switch on point and switch off the pump on float level switch low point. Never leave the pump control mode on manual or you will risk damaging the pump.
Overload switch adjustment	• If applicable your pump controller may have an overload switch adjustment, refer to wiring diagram and instructions for correct adjustment, contact CleanaWater on 1800 353 788 for further assistance.
Float switch is stuck	• Check float switch levels to ensure they are not entangled or obstructed, flick the switch manually by hand up and down to ensure the pump switches on and off accordingly.
THERE IS OIL PRESENT IN THE DISCHARGE	
Oil spill has occurred or excessive load of oil ingression	• Oil spillage event or disproportionate loads of oil is pumping through the system, attend to the spillage as soon as possible
Contamination of wastewater stream	• Ensure that quick break, biodegradable detergents and degreasers are used with the oil separator, mixture with other detergents and degreasers or other contaminants may affect the wastewater stream and discharge results.
Discharge blockage	• Media packs are blocked and required to be cleaned in accordance with operations and maintenance schedule.
THERE IS A SMELL COMING FROM THE PIT OR THE OIL SEPARATOR SYSTEM	
Pump is not running	• Check pump operation to ensure pump is switching on/off correctly.
Sludge build up in pit or separator	• Check sump levels for build-up of sludge and have pit pumped out regularly. • Oil separator requires a service in accordance with operations and maintenance manual.
Stagnant water	• Run fresh water into the pit to flush existing contents and run the oil separator feed pump to clear stagnant water.

9 TERMS AND CONDITIONS

These Terms and Conditions (Terms), as amended or replaced from time to time, apply to any goods or services supplied or to be supplied to the Customer, or any third person on the Customer's behalf. A reference to the Customer also includes its respective successors or permitted assigns. The singular includes the plural and the converse. If the Customer constitutes more than one person or entity, the Terms bind each of them jointly and severally. A reference to the Supplier refers to any Bulbeck Group business entity. Please read the undermentioned Terms carefully. If you do not understand these Terms, you should seek legal advice.

1. **PAYMENT.**
   a. The Customer must pay the invoiced amount within 30 days from the end of the month of the Invoice date. Credit Card payments will attract a fee.
   b. These Payment Terms DO NOT apply for special orders for which upfront deposit payments are required (see Clause 21) or for large value orders that exceed the approved credit limit.
   c. The Customer hereby agrees & acknowledges that at the absolute discretion of the Supplier, an account keeping fee of 2% per month will be levied on any or all amounts in default of the agreed trading Terms.
2. **COLLECTION COSTS.** The Customer agrees to indemnify the Supplier for any costs incurred in the event that the Customer's account is in default of the agreed trading Terms including its collection fees & legal costs.
3. **WITHDRAWAL OF CREDIT FACILITIES.** The Supplier may withdraw credit facilities to the Customer at any time without notice. Without limiting the Suppliers rights to withdraw credit, the Supplier reserves the right to stop supply & place the account on hold until the account is returned to the agreed trading Terms, and the Supplier agrees to recommence supply.
4. **CHANGE OF CUSTOMER DETAILS.** The Customer will advise the Supplier in writing if it changes its name, its structure, its officers or management, its registered office, becomes a trustee of any trust or if the constitution of any partnership of which it is a member changes. For credit accounts, until a new credit application form is signed and approved in writing by the Supplier, then the original application and those person(s) who signed as guarantor(s) shall remain liable to the Supplier as though all goods and services were supplied to the original Customer.
5. **INCONSISTENCIES.** These Terms apply to all transactions from which the Customer is supplied goods & or services. If any future contract between the Supplier & the Customer is inconsistent with these Terms, then these Terms will apply unless the subsequent contract refers to and specifically alters these Terms in writing.
6. **AMENDMENT OF TERMS AND CONDITIONS.** The Supplier reserves the right to amend these trading Terms from time to time. Such amendments will be updated on our website. Unless agreed in writing by the Supplier, the Customers terms and conditions do not apply to any goods or services provided by the Supplier. The Customer acknowledges that there is a cost associated with such amendments and unless negotiated that the price quoted does not include these costs. A separate quote can be provided upon request for additional terms and conditions requested by the Customer only for those terms and conditions that the Supplier is prepared to accept at the Suppliers sole discretion.
7. **NOTICES.** Any notice required under these Terms may be given by any party, including any director or authorised person of that party. Any notice may be given at that party's registered address or other address in any application in connection with these Terms or as notified in writing for the purposes of this clause. Without limitation, this includes any electronic address notified to the other party.
8. **ELECTRONIC COMMUNICATION.** The Customer agrees that if a Customer's signature or execution is required, the requirement is taken to have been met by an electronic communication and if the Supplier is required to produce a document that is in the form of paper, the requirement is taken to have been met by an electronic communication.
9. **ASSIGNMENT.** The Supplier shall be entitled at any time to assign its rights under the credit application to its successors, nominated transferees or assigns, (including but not limited to, where applicable personal guarantees), and that these Terms of Trade shall not be in any way affected or discharged pursuant to such assignment.
10. **RISK AND TITLE.** Risk in any goods passes to the Customer on delivery. Title remains with the Supplier until the Customer has paid the Supplier for all goods supplied in full and in cleared funds. Until title passes to the Customer, the Customer will hold them on trust and as bailee for the Supplier. Should the goods be on sold to a third party before payment, or in the event of the Appointment of an Administrator, Controller, Managing Controller, Receiver or Receiver Manager, or entry into an Informal/Formal Deed of Arrangement under the Bankruptcy Act of 1966 by the Customer, then the Customer hereby assigns to the Supplier its right of recovery of payment from the third party. Any money(ies) resulting from the sale of the goods are to be specifically earmarked and placed in a separate account on trust for the Supplier, until payment in full is made to the Supplier for the cost of the goods only, to guarantee clear passage of ownership to the third-party innocent purchaser. In the event the Customer is in default of the agreed trading Terms, then the Customer without reservation grants right of entry waiver to any or all properties under the customers control, where the goods are reasonably expected to be stored. The Customer indemnifies and save harmless the Supplier, its

servants, or agents in relation to loss or damage as a result of the retaking of possession of the said goods. Further in the event the Supplier exercises its right of retaking possession of the said goods, the Customer grants power of sale to the Supplier to resell the said goods and the Customer acknowledges that any shortfall owing after the said goods are resold will be the responsibility of the Customer. Notwithstanding any other provision of this Agreement, it is expressly agreed by the Customer that the Supplier may sue for the price of all goods delivered to the Customer or for damages in Breach of Contract, notwithstanding that ownership in those goods has not been passed to the Customer.

11. **DELIVERY.** Deliveries shall be made during normal working hours. Deliveries required outside normal working hours will be delivered upon the request of the Customer, and all charges will be the sole responsibility of the Customer. In the event the Customer or the customer's Agent is not on site to accept the delivery, then the Suppliers delivery records shall be prima facie proof of delivery of the goods to the Customer in good order and condition, in the quantities ordered and receipt thereof, at time of delivery.

12. **FORCE MAJEURE.** The date of delivery set forth in the order form is made in good faith, but the performance of the Supplier's engagement is subject to industrial disturbances, delay in transit, damage to goods in transit, shortage of goods and any other cause beyond the reasonable control of the Supplier. The Supplier shall be excused from any failure to deliver or complete which is contributed to by any such cause and the time specified for completion of delivery shall be extended commensurately. Delay in delivery or completion shall not constitute a breach of contract, nor shall it affect any other provisions of the contract to the Supplier's disadvantage.

13. **PPSR.** The Supplier reserves the right to register any security interest provided by the Customer ("the grantor") which creates a performance obligation to secure payment owed by the Customer to the Supplier pursuant to the Personal Property and Securities Act 2009.

14. **STATEMENTS.** Statements as to suitability, quality, fitness for purpose, capacity or otherwise contained in any drawing, catalogue or specification or other documents issued by the Supplier shall not be regarded as forming part of the agreement resulting from acceptance of any orders unless specifically stated in writing by the Supplier. The Customer warrants that prior to the constitution of this agreement the Customer was satisfied by means other than information given by or received from the Supplier, as to the quality and fitness of the goods ordered.

15. **TIME.** For the purposes of any payment obligation under these Terms, time is of the essence.

16. **ACCESS TO SITE.** The Customer at all times is responsible to ensure suitable access to site. The Customer further indemnifies and saves harmless the Supplier, and or it's servants or agents against any loss or damage, in the event the Customer fails to provide suitable access to site for delivery, and or whilst on site delivering.

17. **PRICE.** All goods and services are sold at the price current at the time of delivery. The price of the goods are at the Suppliers works. Costs and charges for freight and handling at the point of delivery to the Customer or the Customer's agent are payable by the Customer unless otherwise stated on the quote/order form. All quotes remain current for 14 days only from date of quote or as otherwise stated on the quotation. NOTE: Pricing may vary from time to time subject to exchange rate variations and/or material increases outside the control of the Supplier.

18. **FINANCIAL INFORMATION.** The Customer agrees to provide financial information as is reasonably required by the Supplier from time to time, for the assessment of current and future credit limits only for trading accounts. The Supplier and the Customer further agree that such information shall be treated as strictly confidential and will not be disclosed to any third party(ies) without the express written permission of the Customer.

19. **CREDIT CLAIMS.** It is the responsibility of the Customer to carefully inspect the goods immediately when they are delivered. Credit Claims will only be recognised if made in the first instance by phone within 72 hours of receipt, and also in writing within 7 days of delivery. Claims outside this period will be at the absolute discretion of the Supplier, and its decision final and binding on the Customer. All goods returned must be in original condition and packaging and complete in every detail. Returned goods will only be accepted if the freight is prepaid by the Customer.

20. **RETURN OF, OR CANCELLATION OF GOODS ORDERED.** Subject to clause 21, in the event the Customer elects to return goods or cancel goods on order, the Supplier at its absolute discretion reserves the right to charge a 10% handling fee on the amount involved. Further no return of goods will be accepted, without prior approval of the Supplier in writing.

21. **SPECIAL ORDERS.** Special orders attract a minimum 50% deposit, up to 100% depending on the order type and value (the deposit value will be confirmed at time of quotation) which will be debited to the Customer's account upon receipt of a written order for goods outside our normal stock line, or for goods specifically modified to the Customer's requirements. **NOTE: No return of or cancellation of special orders will be accepted.**

22. **WARRANTIES.** All goods sold carry only such warranty, if any as is furnished by the manufacturer thereof, or as implied by law as covered under The Trade Practices Act 1974 (Cth). **NOTE: No warranty work will be completed whilst ever the Customer's account is in default of the agreed trading Terms.**

23. **DAMAGES.** To the extent permitted by law, the Supplier shall not be liable for any amount greater than the sale price of the product or service originally supplied. Without limiting the meaning of this clause, the Supplier shall not be liable for any claims, loss, expense whatsoever, howsoever arising, or in any event in any way whatsoever for any contingent,

consequential direct/indirect special, or punitive damages arising in relation thereto, and the Customer acknowledges this express limit of liability and agrees to limit any claim accordingly. Further the Supplier shall not be responsible directly or indirectly for any consequential loss or damage, or for the maintenance, use or operation of the product by the Customer, or to any third party, or from any failure of the product whether defective or not.

24. **GST.** GST will be charged where appropriate, unless a signed exemption form is received by the Supplier in the approved prescribed manner as set down by the Australian Tax Office.

25. **ENVIRONMENTAL REQUIREMENTS.** The Customer confirms and acknowledges it has made all enquiries in relation to all responsibilities conferred upon the Customer, by all relevant legislation, relating to storage of and disposal of any or all products supplied by the Supplier.

26. **INSURANCE.** Unless otherwise stated in the quotation or agreed in writing, NO INSURANCE IS PROVIDED BY THE SUPPLIER. The Customer expressly acknowledges that insurance of all goods is the responsibility of the customer upon dispatch from the Supplier's premises.

27. **JURISDICTION.** The Customer acknowledges that this contract shall be governed by the Laws of New South Wales. The Customer hereby agrees to submit to the non-exclusive jurisdiction of any New South Wales court and waives any rights to claim that courts there are an inconvenient forum.

28. **BULBECK GROUP.** The Bulbeck Group means P.D. Bulbeck Pty Ltd ACN 000 081 327, Bulbeck Enviro Pty Ltd ACN 052 850 218 and Ovesco Holdings Pty Ltd ACN 624 736 223 individually and collectively and jointly and severally.

29. **GENERAL.**
    a. These Terms and any special conditions included in the quotation contain the entire agreement in respect of the supply of goods or services to the Customer unless otherwise agreed in writing and no other terms or conditions shall have any operation or be given any effect whatsoever whether included upon the Customer's order or otherwise.
    b. If any provision of these Terms is unenforceable for any reason, it will not invalidate any other provision which will remain in full force and effect despite that invalidity. Headings are for reference only and are not to limit any term.
    c. The Supplier may at any time set off any amount the Supplier owes the Customer against any amount payable by the Customer to the Supplier.