Cleanawater TS1000 PE Oil Water Separator – 1000 L/hr

Installation, Operations & Maintenance

1800 353 788

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COMPANY INFORMATION

Water Sustainability is a key to our economic and environmental future

As one of Australia's leading providers of water treatment and recycling solutions; Cleanawater is committed to building a sustainable future.

Since 1996 our technologies have been helping businesses achieve cleaner water solutions that are both cost effective and authority and regulatory compliant.

Cleanawater is a 100% Australian owned and operated water technology company that has been providing water treatment and recycling solutions throughout Australasia for over 17 years. Our manufacturing and research and development centre are based out of our head office in Thomastown, Victoria, with offices located in Brisbane, Perth and Adelaide.

Our product range includes:

- Largest Range of Oil Water Separators – Coalescing, VGS, Hydrocyclone and Induced Cyclonic Separators
- Water Recycling Systems
- First Flush Diversion / Stormwater Management Systems
- Rainwater Harvesting Systems
- AQIS Treatment Systems
- Packaged Pumping Stations
- pH & Chemical Control Systems
- Oil Skimmers – floating oil skimmers / belt oil skimmers

Our Core Beliefs

cleanawater

Sustainability

As an industry leader in water sustainability technology we design systems that require minimal power consumption, consumables and reliance on chemical use whilst not compromising system design life and performance.

Innovation

As a multiple award winning technology company we are committed to ongoing research and development, continuously striving to improve and to deliver industry leading solutions that are cost effective

Service

We provide a one-stop, holistic service that includes the design, manufacturing, installation and servicing of our solutions, backed up with our 24 hours per day technical support hotline, fast efficient equipment delivery and after sales support.

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			
	TS1000 PE oil water separator unit & lid– polyethylene	1	
	Galvanized OR stainless steel support frame	1	
	DN40 ball valve	2	
	DN40 sludge outlet nipple	2	
	DN40 internal sludge outlet elbow – factory fitted	2	
	DN50 internal waste water 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.		

PRODUCT INFORMATION

Cleanawater TS series oil water separators are classified as coalescing type separators (CPS), where oil droplets in suspension in the moving water stream are removed in a coalescing process by the separating media.

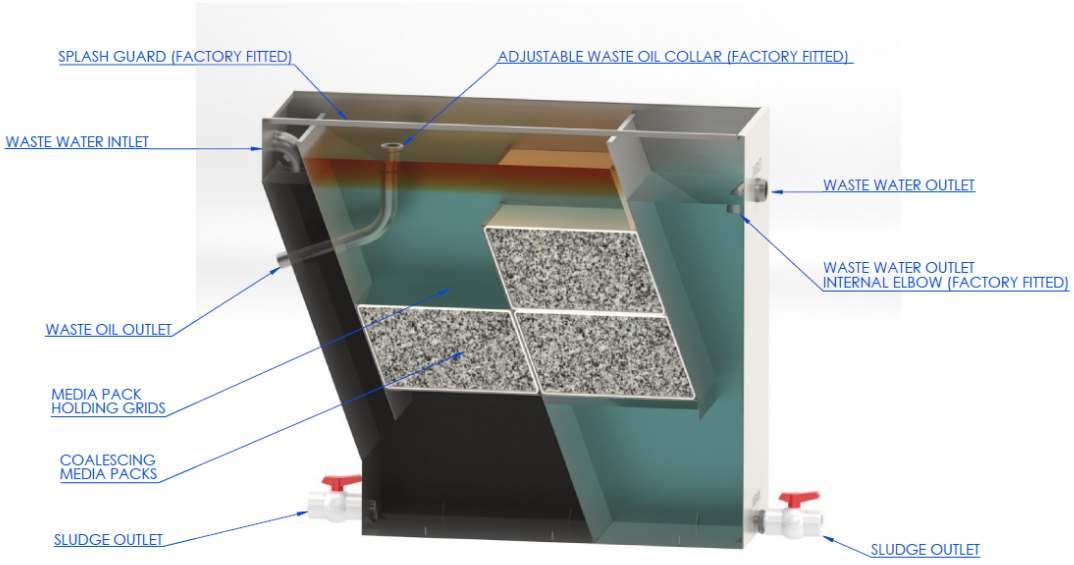
The separating media in the two stages of the Cleanawater TS separator provides a random packed mass of polypropylene rings with a maximized ratio of surface area to volume. The mass of rings fully occupy the compartments of the two separation stages providing high surface area with the necessary open area to allow the waste water stream to pass through. The random placement of the packing ensures that the waste water cannot “channel” and avoid passing through the media rings.

In the separating process the oil droplets carried in the waste water stream must pass through the maze of polypropylene rings. The gentle flow used, in conjunction with and high surface area and depth of the bed in both compartments, ensures that the majority of oil droplets, however small, impinge on a ring surface. The droplet velocity reduces to zero and gravity takes control. As additional oil droplets impinge on the ring the droplets ‘coalesce’ together and grow in size. As the droplet volume increases the buoyancy also increases. This increasing buoyancy drives the droplets to top surface. As the oil level grows on the top surface it overflows to a waste oil collection container.

Similarly, but in reverse sequence, the solids particles impinge on the ring surfaces and lose their velocity. Gravity will draw them to the base of the unit as their particle size increases. Upon passing through the treatment system, created by the two stage packed media coalescing process, water is now treated and via separator outlet is ready for disposal or to commence next stage of treatment.

How do they work?

Coalescing media packs are positioned in two stages to force free oil droplets to impinge on surface area. Upon impingement on media packs, droplets rise to the surface and are skimmed off into a waste oil container.



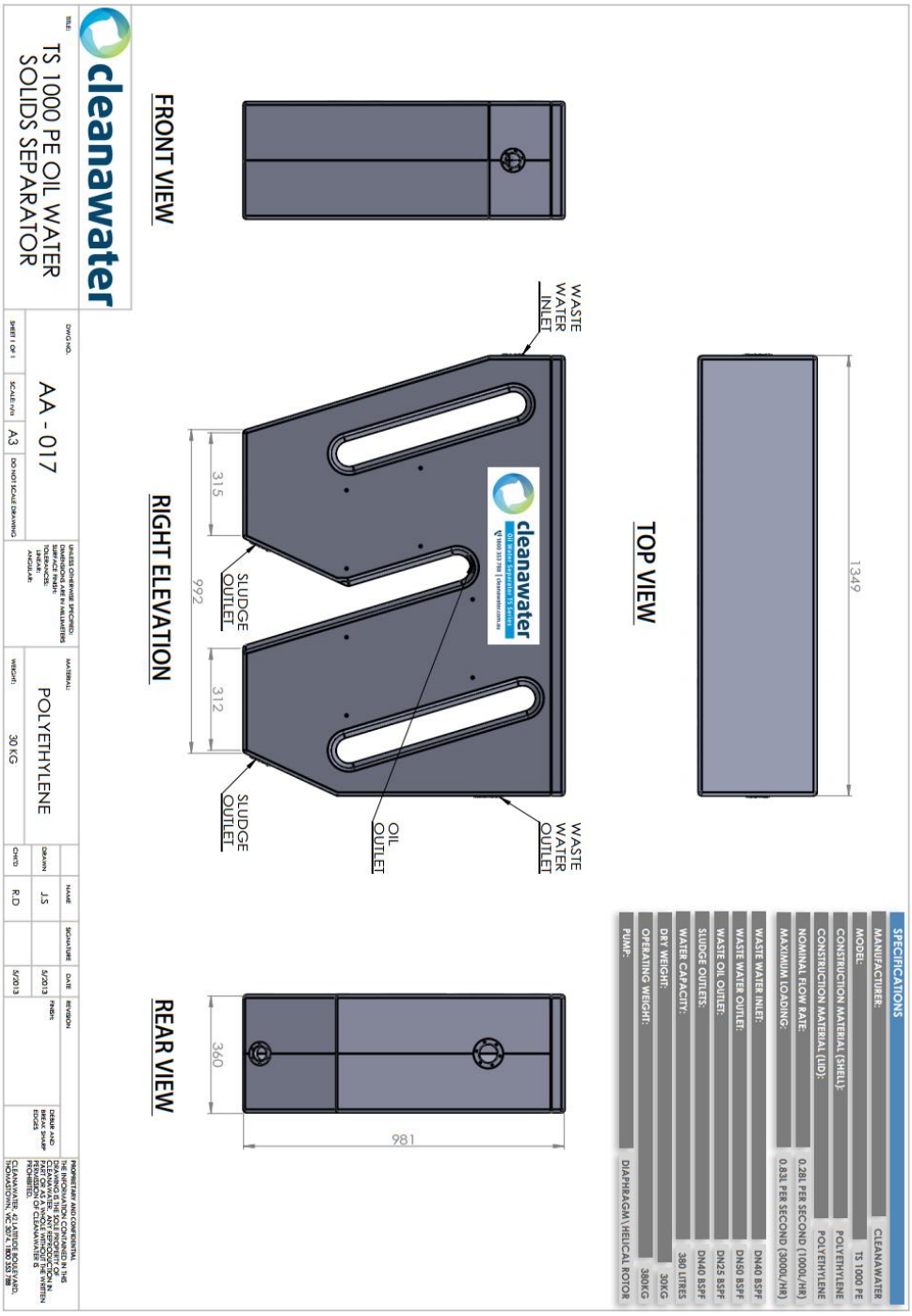
Effluent standards for the Cleanawater TS series oil water separators adhere to the WSAA Product Specification WSA PS 810, Separator Systems for Light Liquids as listed below.

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:

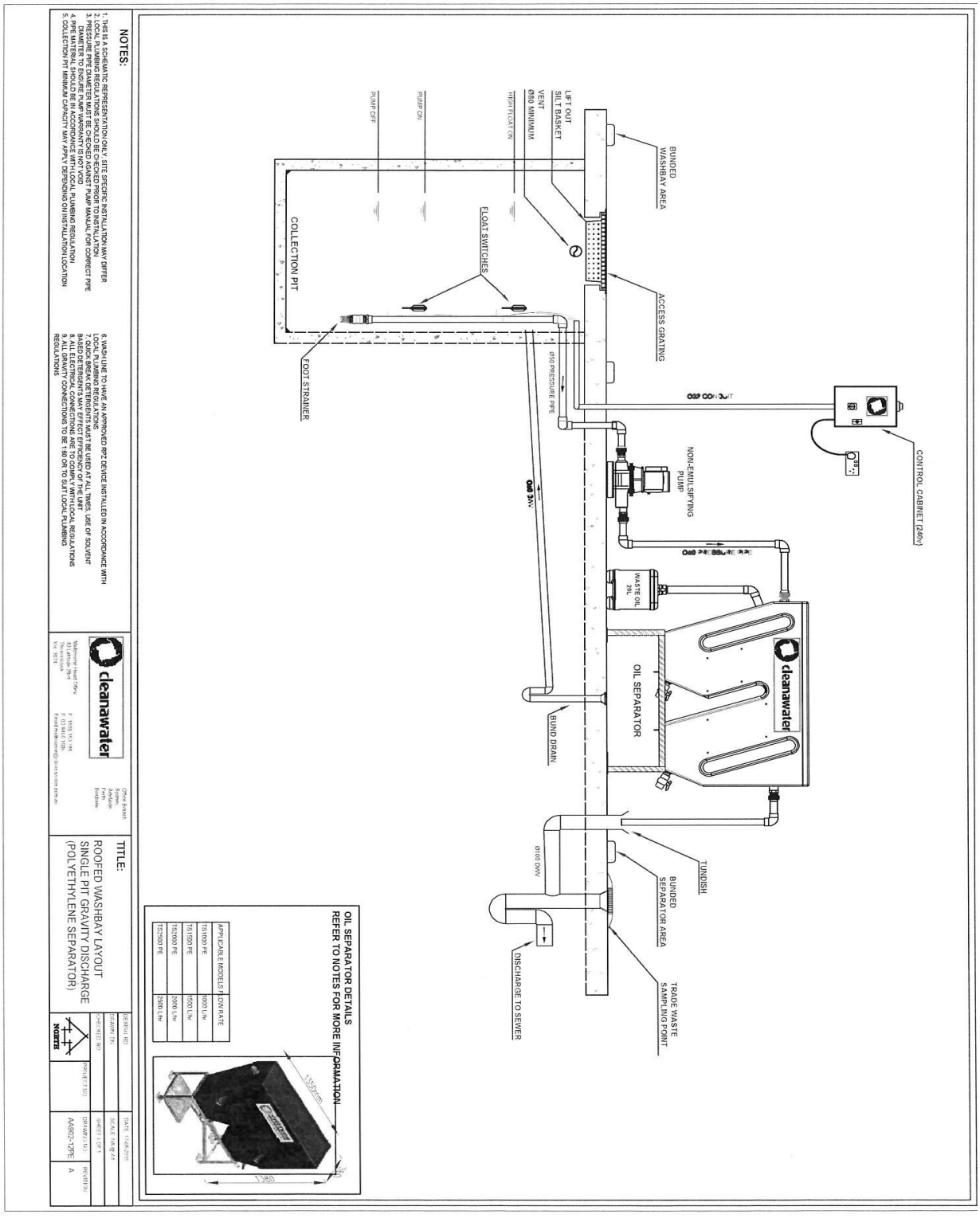
- Quick break and bio degradable detergents and degreasers should be used in conjunction with the system.
- Holding pit capacity should match the hourly throughput of the oil separator system.
- Any solvent based liquids or emulsifiers should be avoided, these may affect the efficiency of the unit performance.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

SYSTEM SPECIFICATIONS

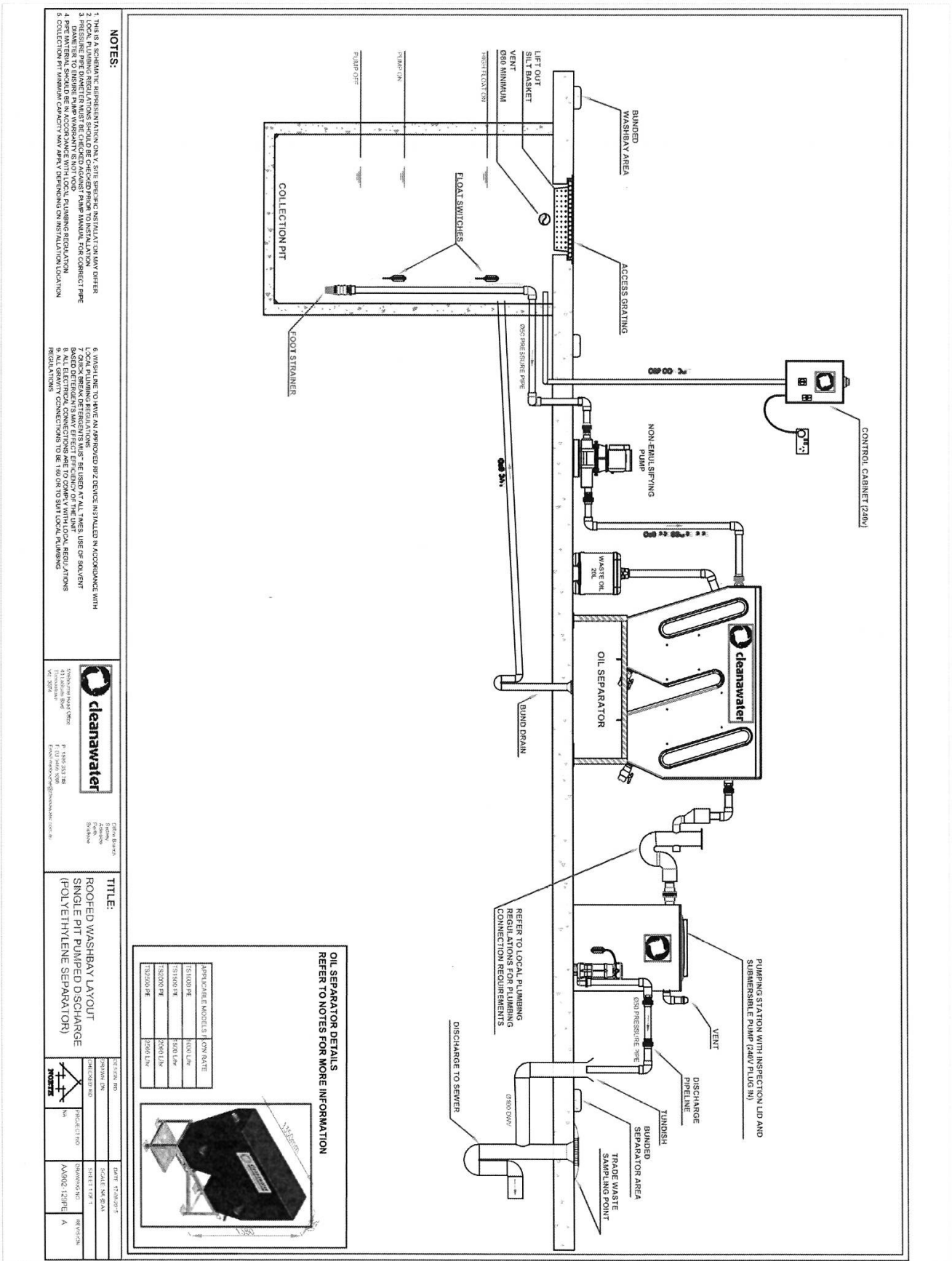


TYPICAL INSTALLATION SCHEMATICS

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



TYPICAL PUMPED DISCHARGE LAYOUT



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.

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

*- Refer to specification sheet for unit inlet/outlet sizes, check the manufacturer data sheet for pump inlet and minimum diameter piping requirements to ensure pump warranty is not voided.

*- 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 plumed in to the line to ensure pump is always primed (for Mono Pumps only).

Step 11 – PLUMBING CONNECTIONS

Plumb the oil separator outlet to discharge source. Barrel unions in the pipe to aid in servicing is recommended. All discharge pipework must be in accordance with local regulations including any sampling points and tundishes. Check your local plumbing regulations for pipe work requirements.

QUALIFIED ELECTRICIANS MUST COMPLETE ANY WIRING

Step 12 – 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) Follow the wiring diagram supplied at all times 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 13 – ELECTRICAL CONNECTIONS

Install the float switch to deactivate the pump ensuring it has suitable clearance from the suction line inlet level. Refer to supplied wiring diagram at all times.

* - 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.
Refer to supplied wiring diagram at all times.

STEP 14 – 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.
Refer to supplied wiring diagram at all times.

STEP 15 – 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 16 – 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 17 – 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.

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 waste water 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	

OPERATIONS AND MAINTENANCE GUIDE

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.

MAINTENANCE

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

WEEKLY MAINTENANCE TASKS

a) Inspect silt traps and collection pits, clean as required
b) Open oil separator lid, inspect water flow and build up of oils on surface
c) 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/Quarterly maintenance procedures
d) Check waste oil container for any build up of oil, dispose of any oil in accordance with local regulations
e) Check the pump operation, float operation and ensure it is activating when water level reaches trigger point
f) Check condition of gate valves to sludge outlets and check any piping for damage

QUARTERLY MAINTENANCE TASKS

a) Refer to Weekly tasks for regular maintenance checks

b) Switch pump control panel of 'Off'

c) Attach 40mm suction hoses to gate valves at base of unit, open valves to drain water level down, either dispose of waste water by using an EPA authorized contractor or drain back into collection pit (ideally)

d) Remove stainless steel grids and separation media packs from unit

e) Rinse stainless steel grids and separation media bags with a pressure washer, a light spray will achieve the required result

f) Clean out the oil separator using a pressure washer ensuring all walls are clean

g) Re-install the separation media packs and stainless steel grids

h) Remove suction hoses from sludge valves and close

i) Check sludge build up in collection pit, ensure build of sludge is removed periodically

j) Fill the system with fresh water

k) Switch the pump control panel to 'Auto' and inspect system ensuring it is operational

l) Replace lid

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 and 316 stainless steel in non corrosive environments.

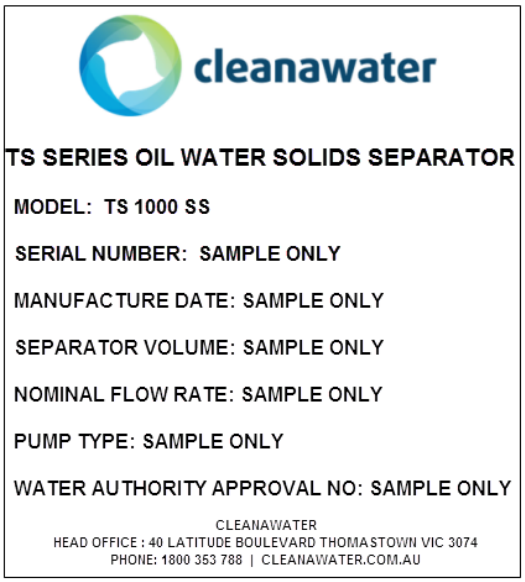
If any corrosive elements exist within the waste water stream Cleanawater should be contacted to discuss suitability of the separator shell for the environment.

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



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 waste water stream • The oils in the waste water 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 waste water 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
Float switch failed	• 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. • Check float switch wiring connections in pump controller and/or junction box

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 waste water 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 waste water 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.

cleanawater

Sustainability Innovation Service

CLEANAWATER TERMS & CONDITIONS

TERMS AND CONDITIONS OF TRADE

1.0 GENERAL:

1.1 These Terms and Conditions of Trade ("Terms"):

1.1.1 apply to the sale and supply of all the goods or services by Virtus Industries Pty Ltd (ACN 142 643 981) trading as Cleanawater ("the Company") to the exclusion of all other terms and conditions whatsoever, whether contained or implied in or from any order from the Customer or from any conduct of or representations made by the Customer or the Company;

1.1.2 will be deemed incorporated in any order placed by the Customer;

1.1.3 will prevail over all other conditions of the Customer's order to the extent of any inconsistency (except where waived by the Company in writing);

1.1.4 will not be read or applied so as to exclude, restrict or modify or have the effect of excluding, restricting or modifying any condition, warranty, guarantee, right or remedy implied by law (including the Australian Consumer Law and the *Competition and Consumer Act 2010*) and which by law cannot be excluded, restricted or modified.

2.0 QUOTATIONS, SPECIFICATIONS AND PRICE:

2.1 Except where the quotation is expressly designated otherwise, written quotations are valid for thirty (30) days from the date of the quotation and are subject to re-quotation thereafter.

2.2 Unless otherwise agreed in writing, all prices quoted are inclusive of GST, delivery and other works contained in the specifications contained in the quotation.

2.3 All goods offered by the Company are offered subject to stock availability at the time the Customer accepts the quotation.

2.4 In the event that the Customer accepts a quotation, such acceptance shall be deemed to form a contract between the Customer and the Company which incorporates these Terms and the agreed specification.

2.5 If the Customer seeks any variation to quoted services or seeks to cancel the services after the Company has accepted the Customer's order then:

2.5.1 The Company is free to either accept the variation without altering the quotation price or not. If the Company does not agree to the variation, then the Company is free to terminate the contract without any liability on the part of the Company.

2.5.2 Alternatively, the Company may accept the variation sought by the Customer subject to an amendment to the price and charges in the quotation, at the Company's absolute discretion, to be agreed with the Customer prior to the Company completing further work. If no agreement is reached, then the contract shall be deemed terminated without any liability on the part of the Company.

2.6 If the variation or cancellation in Clause 2.5 is sought at any time after the Company has incurred labour costs, ordered or purchased materials or commenced any work in respect of the order, then the Customer shall be liable for all costs incurred by the Company notwithstanding any termination of the contract by the Company pursuant to Clause 2.5.1. The costs incurred shall be payable upon the Company providing a written demand to the Customer and any deposit held by the Company shall be forfeited for these costs.

2.7 The price set out in the quotation is subject to change in the event that the Company:

2.7.1 encounters any undisclosed obstructions or issues on site; or

2.7.2 determines that practical variations to the specifications are necessary, in the Company's absolute opinion, to achieve the Customer's intended use given the circumstances the Company finds during the course of carrying out the works.

2.8 The Customer acknowledges that the quotation does not include and the Company shall not be obliged to provide any post installation inspection or servicing of the goods sold, unless expressly required by law or these Terms. If the Customer requires such an inspection or service, then this work shall be the subject of a separate agreement between the parties.

3.0 TERMS OF PAYMENT:

3.1 At the election of the Company and as notified to the Customer in writing, payment may be made by the Customer as follows:

3.1.1 By payment in full upon the Customer submitting an order to the Company or accepting a quotation provided by the Company; OR

3.1.2 By payment of a deposit nominated by the Company upon the Customer submitting an order to the Company or accepting a quotation provided by the Company with the balance to be paid by the Customer within fourteen (14) days of delivery of the goods; OR

3.1.3 By payment of a deposit nominated by the Company upon the Customer submitting an order to the Company or accepting a quotation provided by the Company with the balance to be paid by the Customer on delivery of the goods; OR

3.1.4 By payment of a deposit of 30% of the price upon the Customer submitting an order to the Company or accepting a quotation provided by the Company with a further 20% of the price to be paid seven (7) days prior to the scheduled date of installation for the goods and the balance of 50% the price to be paid upon the commissioning of the installed goods; OR

3.1.5 By payment pursuant to a written payment schedule agreed between the Company and the Customer and attached to the quotation provided by the Company or otherwise agreed in writing between the parties.

3.2 All payments are to be paid as clear funds.

3.3 In the event that any payment is not received as clear funds within the time required, then the Company shall have no obligation to either commence works or proceed to the next stage of works until the date seven (7) days after such payment has been received.

3.4 The Company shall provide the Customer with a Tax Invoice prior to seeking payment for the balance of the price.

3.5 All payments must be made by cash or direct deposit to the bank account for the Company (Account Name: "Virtus Industries Pty Ltd ABN 80 142 643 981" – BSB: 033 112 Account No. 289 006).

3.6 In the event that this contract comes to an end as a result of the Customer's breach of these terms or the Customer's cancellation of the order for the works without the Company's consent, the parties agree that any deposit paid shall be forfeited to the Company and the Customer shall further be liable to the Company for a cancellation fee equal to 25% of the outstanding balance of the quotation which shall be payable within 7 days of the Company issuing a written demand to the Customer. The parties agree that the total of the deposit and the cancellation fee amount to a reasonable pre-estimate of the Company's loss and damage resulting from the premature termination of this contract, but that these amounts do not limit the Company's ability to recover the actual loss or damage it has suffered in excess of that pre-estimate.

3.7 In the event that the Customer has paid the required deposit

3.8 In the event of any payments or part thereof remaining unpaid after such period of seven (7) days the Company in its absolute discretion may:

3.8.1 charge interest thereon at the rate of two per cent (2%) per annum above the rate set out pursuant to Section 2 of the *Penalty Interest Rates Act 1983* during the period such unpaid balance remains unpaid and such interest shall be added to the said balance due from the Customer to the Company and calculated on a daily basis; and

3.8.2 charge an account-keeping fee of $20.00 for each reminder notice sent to the Customer by the Company.

3.9 Notwithstanding the imposition of interest charges pursuant to this Clause, such interest charges shall not be regarded as allowing any time for payment of any amount owing but are agreed as constituting compensation payable to the Company because of delay in payment. Notwithstanding the imposition of any interest charges in respect of monies unpaid, all such monies shall remain immediately due and payable to the Company and the Company shall be entitled to take legal proceedings at any time for recovery of any monies bearing interest charges pursuant to this Clause.

3.10 The Customer will indemnify the Company on an indemnity basis for all losses, damages, costs and other expenses whatsoever suffered by the Company as a result of any default by the Customer, including for the recovery of any unpaid amounts due to the Company under these terms

3.11 The Customer agrees that all payments are to be made without retention.

3.12 In addition to the Company's other rights set out in this Clause 3, the Customer agrees that the Company shall have the right (although it shall not be bound to do so) to suspend delivery to the Customer of all or any outstanding goods, materials or services if the Customer is in default of any payment to the Company.

4.0 INSTALLATION SITE:

4.1 The Company will not be liable for any loss, damage or delay occasioned to the Customer arising from the delivery of the goods to the installation site by third parties or otherwise.

4.2 Prior to the commencement of works and the delivery of the goods, the Customer must provide clear and safe access to the installation site and any other areas required by the Company as notified to the Customer.

4.3 If required by the Company prior to the commencement of works, the Customer must complete all Company instructed below ground works, including excavation, plumbing and electrical specified by the Company.

4.4 The Customer shall ensure that it, or its contractors, comply with all general notes stated on location drawings or hydraulic and conduit plans supplied by the Company and to the Company's satisfaction, at its absolute discretion.

4.5 If the Company, in its absolute discretion, is required to move any fixtures or complete further works as a result of the Customer's failure to comply with Clauses 4.2, 4.3 or 4.4, the Company will be entitled to charge additional costs to the Customer for labour and other expenses incurred by the Company to do so and the Customer shall be solely responsible for the delays caused by such works and making good any necessary damage to the Customer's property required by such further works.

4.6 Following the delivery of the goods, the Customer is responsible for ensuring that the goods remain secure and in the condition in which they were delivered. The Company shall not be liable for any damage caused to the goods by the Customer failing to do so.

5.0 CUSTOMER OBLIGATIONS:

5.1 In addition to any other Terms contained herein, the Customer must:

5.1.1 notify the Company of the location of all mechanical or other obstructions or issues which may affect, or be affected by, the installation works to be carried out by the Company and the Customer will be liable for, and releases the Company from, any liability for the costs of any repairs necessary as a result of damage caused by the Company due to any failure by the Customer to make such notifications;

5.1.2 supply electricity and water at all times and if such is not supplied, the Company will be entitled to charge the Customer for all additional costs associated with any delay and in obtaining an alternate supply;

5.1.3 obtain all necessary permits from the local municipal Council, Water Authority or any other relevant authority for the works before they are to be commenced;

5.1.4 give the Company prompt and timely instructions to progress works without unreasonable delay;

5.1.5 obtain all necessary insurance the Customer may require for the installation site or the goods and

5.1.6 comply with any reasonable directions given by the Company

and, in the event the Customer fails to do so, the Customer must indemnify the Company against any loss, claims, actions of demands suffered by the Company as a consequence of such failure.

6.0 CUSTOMER ACKNOWLEDGMENTS:

6.1 Without limiting any other Terms, the Customer acknowledges and agrees that:

6.1.1 any additional unspecified works required to be undertaken by the Company, including those listed in the exclusions and as available services, shall be completed by the Company as a variation to the parties initial agreement and at a further cost;

6.1.2 any anticipated delivery or completion dates given by the Company are estimates only and may be subject to change due to circumstances beyond the Company's control such as, but not limited to, weather, industrial disputes and supplier delays, and the Company will have no liability to the Customer for any such delays;

6.1.3 goods are deemed to acceptable to the Customer and within specification if the Customer has not notified the Company otherwise within seven (7) days of the date of delivery;

6.1.4 it shall release and indemnify the Company from any liability incurred by the Customer or any third party from the use of the goods by the Customer, especially with respect to the use of the goods with respect hazardous substances;

6.1.5 the Company has provided the Customer with anticipated design performance information only and shall not be liable for the actual performance levels of any goods, as this may be impacted by unknown or unforeseen circumstances or factors in the installation or operation of the goods within a wider system; and

6.1.6 the goods are delivered and installed to perform within specified parameters and maintenance requirements notified to the Customer, subject to the Customer's intended use notified to the Company on or prior to the date of this Contract. The Customer agrees to operate and maintain the goods within those parameters and the Company shall not be liable for any loss or damage which may be suffered by the Customer as a result of any breach of this Clause.

6.2 The Customer acknowledges and agrees that the following are expressly excluded from any quotation or specification provided by the Company:

6.2.1 Arranging any required permit (including payment of permit fee);

6.2.2 Any changes required or directed by any regulatory authorities;

6.2.3 Unanticipated costs incurred due to in ground or above ground obstacles that must be overcome;

6.2.4 The provision of power and water, at suitable pressure, to a location on the Customer's site;

6.2.5 Any need to complete further testing of a site, including any sampling, testing and analysis of samples; and

6.2.6 Any items not specifically listed in the 'Inclusions' or 'Availability of Services'.

7.0 RECOMMENDED PRICES

7.1 In the event that the Customer has purchased goods from the Company for resale, then the Company shall provide, and the Customer shall take note of, the Company's list of recommended prices for such goods ('the Recommended Prices List'). The Company, at its discretion, may update the Recommended Prices List at any time.

7.2 The parties acknowledge that the prices stated in the Recommended Prices List are recommended prices only and there is no obligation on the Customer to comply with the recommendation.

7.3 In the event that the Customer intends to on sell the Company's goods for a price that is more than 10% higher or lower than the recommended price stated in the then current the Recommended Prices List, then the Customer shall notify the Company of its chosen resale price within seven (7) days of it making goods available at that price. The parties acknowledge that this information is collected by the Company solely for its marketing use.

8.0 WARRANTIES AND LIABILITY:

8.1 Unless otherwise specified by the Company in writing, the Company grants the Customer a twelve (12) month warranty on the goods sold and on goods sold and installed (if the installation was completed by the Company) to commence on the later of the date of delivery or the date of installation.

8.2 This warranty shall be conditional upon the Customer having installed, operated and maintained the goods within the parameters notified to the Customer, by the Company, on the delivery or installation of the goods and shall be void in the event that the Customer has not complied with the Company's parameters. In the event that the goods were installed by the

Company, then, for purposes of this Clause and subject to the Customer's compliance with Clause 4.0 and 5.0, the Company shall accept that the goods have been properly installed.

8.3 In addition to the warranty in Clause 8.1, the only conditions and warranties which are binding on the Company in respect of the state, quality or condition of the goods or installation services sold to the Customer are those imposed and required to be binding by statute (including the Australian Consumer Law and the *Competition and Consumer Act 2010*).

8.4 Except as expressly provided herein, the Company shall not be liable to the Customer for any liability, (including liability in negligence) loss or damage of whatsoever nature, consequential or otherwise, howsoever suffered or incurred by the Customer, caused by or resulting directly or indirectly from the goods or services provided by the Company.

8.5 In the event that the Customer is a consumer for the purposes of the Australia Consumer Law, the parties agree that the following provisions will apply and override any other terms in this Clause 8.0 to the extent of any inconsistency:

8.5.1 Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or a refund for a major failure and for compensation for any other reasonable foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

8.5.2 Should the Customer ever need to make a warranty related enquiry about the goods, the Customer must cease using the goods and contact the Company by telephone 1800 501 635 or in writing to 42 Latitude Boulevard, Thomastown, Victoria 3074 and provide the model number, copy of purchase receipt and address details where the goods are installed.

8.5.3 The Customer is responsible for the costs of returning defective goods to Company or its agent, except where the goods cannot be returned, removed or transported without significant cost to the Customer because of the size, height or method of installation of the goods, or because of the nature of the defect.

8.5.4 The benefits provided to the Customer under this warranty are in addition to other rights and remedies available to the Customer at law.

9.0 SECURITY FOR GOODS

9.1 Words and phrases used in this Clause 9.0 which are defined in the Personal Property Securities Act 2009 ("Cth") ("the PPS Act") have the same meanings as the meanings set out in that Act.

9.2 Legal ownership of goods supplied by the Company will not pass to the Customer until the Customer has paid all monies owing to the Company for those particular goods.

9.3 The risk in the goods (including, but not limited to, loss or damage to the goods) will pass to the Customer upon delivery of the goods by the Company to the Customer, its agent or its carrier.

9.4 The Customer hereby grants a security interest to the Company over all goods supplied by the Company pursuant to these Terms until the Customer has made payment of all monies owing to the Company for those particular goods and these Terms constitute a Security Agreement for the purposes of the PPS Act.

9.5 The security interest held by the Company includes an interest in goods that become an accession to other goods.

9.6 Until such time as the Customer has made payment of all monies owing for goods supplied by the Company :

9.6.1 The Company grants the Customer a licence to use, maintain, fix or install the goods;

9.6.2 The Customer will not otherwise deal with the goods in any way which may be adverse to the Company;

9.6.3 The Customer will not charge the goods in any way nor grant or otherwise give any interest in the goods to any other person except in accordance with this Clause 9.0;

9.6.4 In the event that payment has not been received within the Company's terms, the Company may give notice in writing to the Customer to return the goods or any part of them to the Company, in which event the Customer will forfeit any rights to obtain ownership of the goods, the licence granted pursuant to Clause 9.6.1 will be terminated and any monies partly paid by the Customer will be forfeited to the Company; and

9.6.5 If the Customer fails to comply with a request to return the goods to the Company, or if the Customer commits any act of bankruptcy or insolvency, or if an administrator or liquidator is appointed to the Customer (but not a receiver or a receiver and manager), then the Company (or its agents) may enter upon and into land and premises owned, occupied or used by the Customer where the goods are situated, disassemble the goods and take possession of the goods.

9.7 The Customer must do all things necessary to assist the Company to perfect and enforce its security interest to the fullest extent available at law, including enabling the Company to gain first priority for its security interest. Accordingly, the Customer must not grant a security interest in the equipment to any other party without the Company's prior written consent.

9.8 The parties agree that Sections 96, 125, 142 and 143 of the PPS Act shall not apply to these Terms.

9.9 The Customer waives its rights to receive any notifications, verifications, statements, disclosures, proposals and any other documentation specified under Sections 95, 121(4), 130, 132(3)(d), 132(4), 135, 157 of the PPS Act

9.10 For the purposes of Section 275 of the PPS Act, the Customer agrees not to disclose any information provided by the Company under that Section to any third party without the Company's prior consent in writing (unless required by law or the information has entered the public domain).

9.11 The Customer indemnifies the Company for any costs, fees and expenses the Company incurs in the enforcement of the security interest.

9.12 Receipt by the Company of any form of payment for goods other than cash will not be deemed to be payment until that form of payment has been honoured, cleared or recognised and until then the security interest will continue to apply in relation to those goods.

10.0 GUARANTEE AND INDEMNITY

10.1 In part consideration for the Company undertaking work for the Customer, the Directors of the Customer ('the Directors'), including but not limited to those persons listed as Directors in the agreement or quotation between the parties or who have otherwise executed the same, hereby personally jointly and severally guarantee the Customer's performance of its obligations to the Company pursuant to these Terms, including but not limited to the payment of all debts, interest, costs and other moneys payable to the Company.

10.2 The Directors further individually guarantee and indemnify the Company against all losses (including consequential losses), damages, costs, charges and expenses which the Company incurs (whether directly or indirectly) by reason of any default by the Customer of the Customer's obligations pursuant to these Terms.

10.3 This Guarantee and Indemnity shall be continuing and shall not be released or compromised by any neglect or indulgence (whether as to time or otherwise) of the Company either in enforcing the Company's rights and obligations or in respect to the performance of the obligations of the Customer pursuant these Terms.

10.4 This guarantee and indemnity and the agreements and obligations contained in this Clause 9.0 will be binding upon the Directors, their executors and administrator, unless otherwise agreed by Company in writing or noted on the quotation.

11.0 INTELLECTUAL PROPERTY

11.1 The Customer agrees that the intellectual property in all goods supplied by the Company, including in any designs, drawings, plans or other documents produced by the Company for the Customer, shall be and remain the absolute property of the Company irrespective of any variation or other work on such items completed by the Customer.

11.2 Any and all intellectual property rights and inventions arising during the course of the Company's supply of goods to the Customer and resulting from the services provided by the Company are acknowledged to be the sole and absolute property of the Company.

11.3 The parties agree that any improvements to the goods or the processes of the Company suggested or provided by the Customer shall be deemed to be the intellectual property of the Company.
11.4 The Customer agrees that it shall hold confidential all intellectual property of the Company and shall not disclose such information to any party without the prior written consent of the Company, unless required to do so by law.
11.5 Given this Clause 11.0, the Customer agrees that it shall not resell, on sell, transfer or give the goods to any other party for any reason without the Company's consent. In the event that the Customer is removing the goods from its premises for any reason, then it agrees to either return the goods to the Company or have the goods destroyed.
11.6 Intellectual property rights means all intellectual property rights, including but not limited to:
- 11.6.1 patents, copyright, inventions, designs and trademarks; and
- 11.6.2 any application or right to apply for registration of any of the rights referred to in Clause 11.6.1.

12.0 AUTHORITY TO VARY TERMS AND CONDITIONS:

12.1 No manager, employee, servant, agent or representative of the Company (other than a director and then only in writing) has any authority to vary these Terms or any of them and without limiting the generality of the foregoing no warranty, representation, promise, agreement, term or condition whether express or implied made by any such person shall be deemed to be included in or form part of these Terms or operate in any way collateral to these Terms other than those warranties, representations, promises, agreements, terms or conditions which expressly appear herein or which are implied by law and not expressly excluded herein.

13.0 GST:

13.1 In these Terms:
- 13.1.1 "GST" or "Goods and Services tax" means a tax, duty, levy, charge or deduction, imposed by or under a GST law, together with any related additional tax, interest, penalty, fine or other amount imposed in respect of the above.
- 13.1.2 "GST law" means the same as in the A New Tax System (Goods and Services Tax) Act 1999.
- 13.1.3 "Supply" has the same meaning as given by section 195 of the GST law.

13.2 The parties agree that, unless otherwise stated, any consideration payable to the Company shall be exclusive of GST and the Customer shall pay the amount of GST to the Company with the payment of the consideration.
13.3 To the extent that any moneys payable by the Customer to the Company under an indemnity in this contract or for a breach of the Terms are regarded, for the purposes of the GST law, as consideration (in whole or part) for a taxable Supply made by the Company, the Customer must pay an additional amount to the Company calculated by multiplying the prevailing GST rate by the consideration payable to the Company for the relevant supply.

14.0 MISCELLANEOUS:

14.1 The Customer shall not be entitled to withhold or set off payment of any amount due to the Company under these Terms whether in respect of any claim of the Customer in respect of faulty or defective goods or services or for any other reason which is contested or liability for which is not admitted by the Company.
14.2 No order or accepted quotation may be cancelled except with consent in writing and on terms which will indemnify the Company against all losses.
14.3 Any delay in or failure by the Company to insist upon strict performance of any term, warranty or condition of these Terms shall not be deemed a waiver thereof or of any rights the Company may have and no express waiver shall be deemed a waiver of any subsequent breach of any term, warranty or condition.
14.4 If any provision of these Terms shall be determined by any statute or any court having jurisdiction in relation thereto to be illegal, invalid, void, voidable or unenforceable the legality validity or enforceability of the remainder of these Terms shall not be affected and the illegal, invalid, void, voidable or unenforceable provision shall be deemed deleted to the same extent and effect as if never incorporated herein but the remainder of these Terms shall continue in full force and effect.
14.5 These Terms shall survive any accepted repudiation or other termination of the contract to supply to goods or services existing between the Company and the Customer.
14.6 These Terms shall be governed and interpreted according to the laws of Victoria and the parties agree to submit to the non-exclusive jurisdiction of the courts of Victoria.

PLEASE REFER TO YOUR WIRING DIAGRAM AND PUMP MANUAL FOR OTHER IMPORTANT PACKAGE INFORMATION.