

## *Tri-Cel P6, P10 & P12 Technical Manual.*

**It is important, that the installer of the system and the end user / homeowner, receives this handbook.**



**Please read this Handbook carefully.**

### **SEQUENCE OF EVENTS.**

- Delivery of the Tri-Cel to site.
- Inspection for any damage.
- Installation of the system (by others) as per manufacturers instructions.
- Fill the tri-cel with water, to ballast it and inspect for leaks.
- Plumbing of the Tri-Cel to the house.
- Back filling of the Tri-Cel & drainage of water from the system.
- Electrical connection and System Start Up.
- Contact Killarney Plastics Ltd at 064 32421 - extension 110 for the Final Commissioning of the Tri-Cel system
- Or
- the DISTRUBUTOR that supplied the system to you.
- Final commissioning should take place, within one week of system start up or 2 days for a pumped system.

### **ALWAYS**

- Handle with care.
- Obey Health and Safety Legislation at all times.
- Install as per instructions (full version in installation manual).
- Use suitably qualified personnel for all parts of the installation.
- Ensure electrical connections are completed as soon as possible after installation.
- Contact supplier to commission the unit.
- Connect the unit to a properly designed and constructed polishing filter.

### **DO NOT**

- Drop unit.
- Lift unit while there is water inside.
- Apply superimposed loads on the tank (see installation manual).
- Block tank vents.
- Make modifications to the unit without permission from supplier.



**The cover of the system must never be placed below ground level.**

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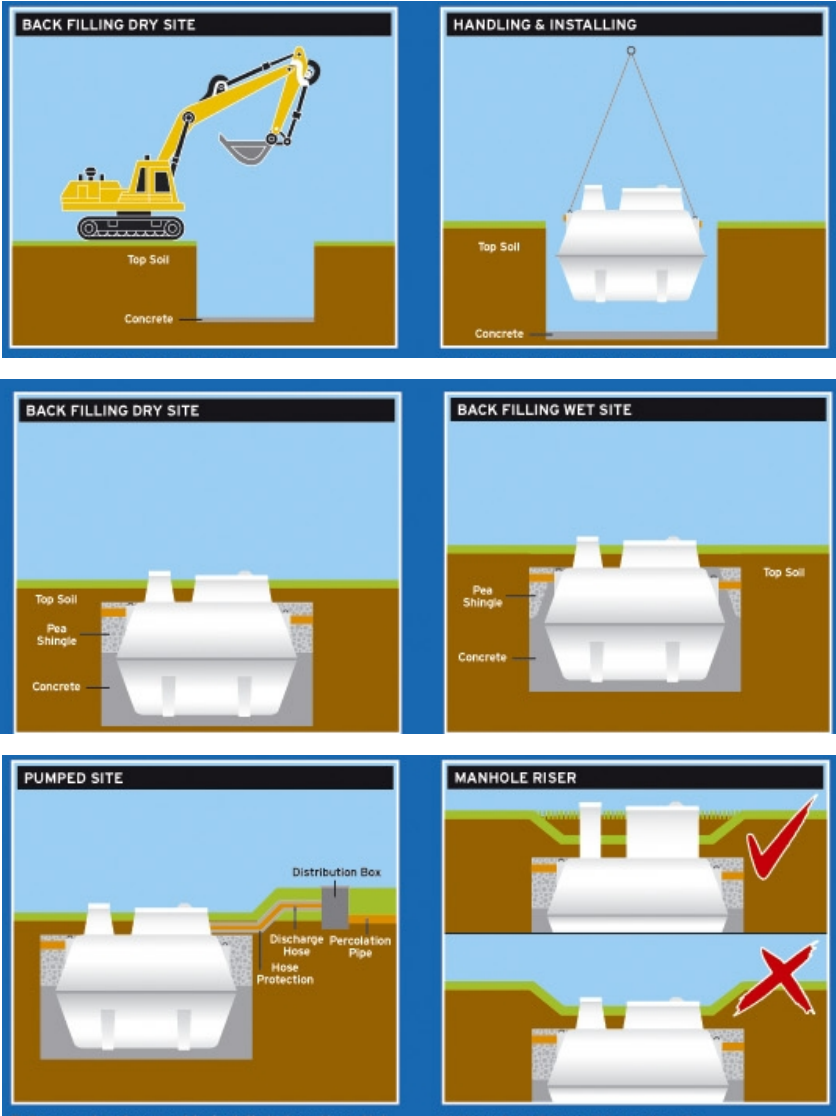
**Tri-Cel<sup>®</sup> Wastewater treatment systems,  
Killarney Plastics Ltd.**

Tri-Cel P6 Standard Gravity system.

**Optional extras:**

- Site assessment.
- Servicing agreement.
- Pumped system
- Manhole Riser (Deep invert).

This handbook pertains to tri-cel bio systems (Tri-Cel<sup>®</sup> Waste water treatment systems). Further information is available through IAB certificate number 06/0208. Where there is a reference to the EPA, this is referring the EPA WASTEWATER TREATMENT MANUALS, TREATMENT SYSTEMS FOR SINGLE HOUSES © Environmental Protection Agency 2000.

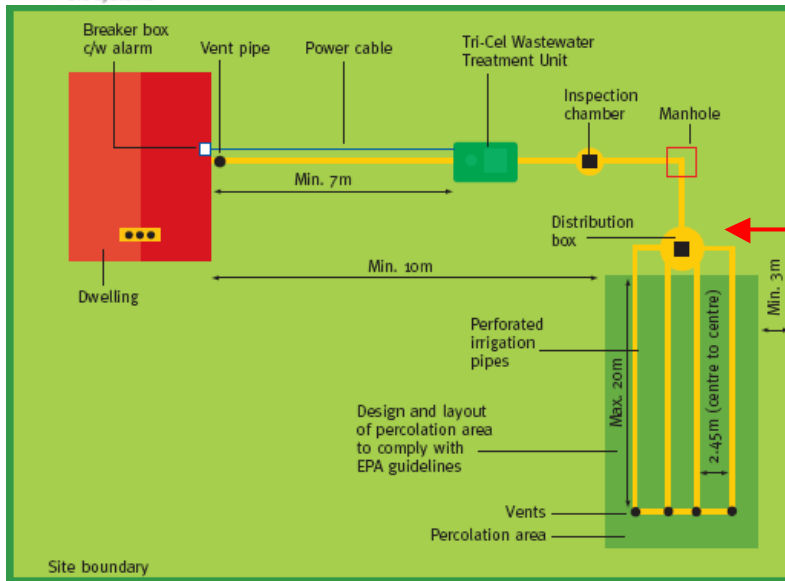


**Do.**

- Ensure that all of the information contained in the technical handbook is adhered to at all times.
- The end user (not the purchaser) of the Tri-Cel<sup>®</sup> Wastewater treatment System is responsible for the operation and maintenance of the system and its percolation area.
- It is important that the unit is operated under the conditions for which it is designed. Any variation in these conditions could lead to the unit not performing to its full potential and the discharge may not meet the required standards.
- Ensure that the system has been installed correctly, in accordance with the manufacturers specifications.
- Ensure that the air pump has been wired up, by a competent electrician.
- Once it is put into use (plumbed to the house and electrical wiring completed) it is now up and running. Check that there is a hum from the blower and that there are bubbles rising from the middle chamber.
- Maintain the system in accordance with section “Homeowners maintenance” of this handbook.
- Servicing is mechanical only, and does not include de-sludging (emptying of the system). You must de-sludge the system in accordance with the guidelines laid down in this handbook.
- Soak ways, drains and the emptying of primary tanks remain the responsibility of the client and damage to the installation due to the influx of surface water or the backing up of soak ways or drains is not covered by this service agreement
- Phone us at 064 32421 if you have any technical queries regarding the maintenance and servicing of your system.

**Don'ts.**

- Alter in any way, any part of the system or internal parts supplied with the system.
- Open the Tri-Cel cover without firstly isolating the mains power.
- Killarney Plastics shall not be liable for any damage or loss, including consequential loss, caused by the failure of any plumbing equipment or failure caused by the inclusion of gross solids, (e.g. – disposable diapers or sanitary towels etc) in the waste water treatment unit.
- To ensure the continuance of the systems performance, the user has to take certain precautions including the following:
  - The design loading of the plant should not be exceeded.
  - High volume discharges such, as those from swimming pools and Jacuzzi's must never enter the system.
  - Surface water must not enter the system.
  - Do not allow large quantities of chemicals to enter the system including:
    - ~Water softener regenerate.
    - ~Disinfectants.
    - ~Strong Acids and Alkalis.
    - ~Oil or Grease.
    - ~Pesticides.
    - ~Photographic Chemicals.



Distribution Box available from Killarney Plastics

**Typical layout of house, Tri-Cel and the percolation area.**

**Site assessment & installation.**

Killarney Plastics Ltd is pleased to offer a site-specific assessment to our customers. Once we have a qualified engineer’s report we can provide all of the necessary paperwork required in relation to wastewater treatment planning issues.

We can direct you to installers that will be able offer a full installation service.

**Locating the TRI-CEL® Wastewater Treatment System.** (EPA WASTEWATER TREATMENT MANUALS, TREATMENT SYSTEMS FOR SINGLE HOUSES © Environmental Protection Agency 2000).

Minimum distances for locating the TRI-CEL unit are set out below. These are minimum distances only; the unit should in fact be located as far away as is practically possible. However, when locating the unit, consideration should be given to allow adequate access for the vacuum tanker.

The unit should be located not nearer than 7 meters from any other dwelling as set out in EPA wastewater treatment manual. Guidelines of minimum distances for locating the TRI-CEL® system are:

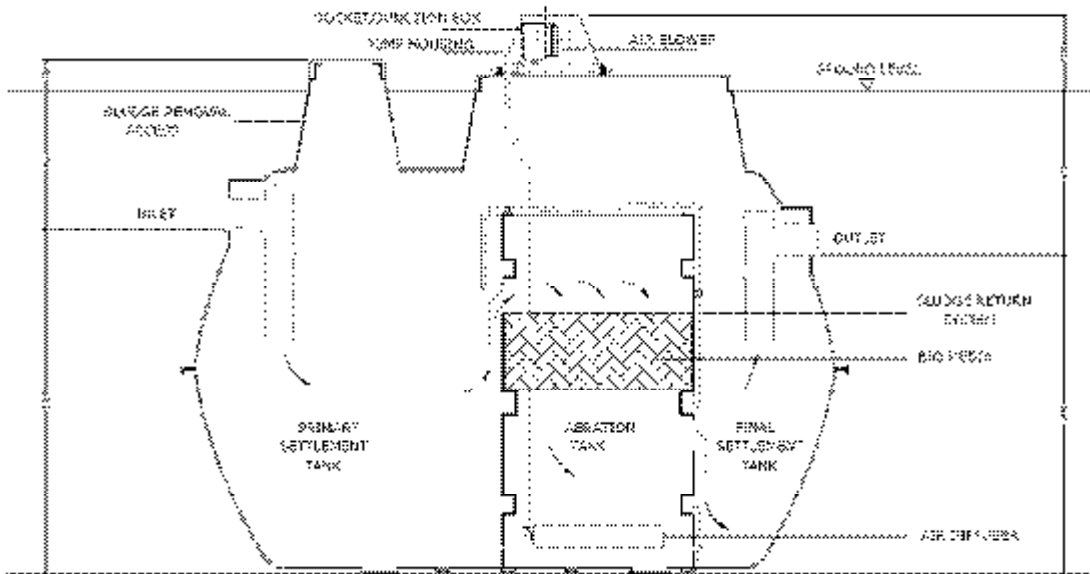
	Any dwelling	Watercourse or stream	Spring or well	Lake	Site boundary	Road	Slope, break or cuts
Tri-Cel system	7m	10m	10m	50m	3m	4m	4m
Percolation area	10m	10m	30m	50m	3m	4m	4m

*Minimum separation distances in meters.*

This applies to wells down gradient or where flow direction is unknown. For information on wells alongside or up -gradient consult DELG/EPA/GSI ground water protection scheme.

Liquid is introduced and discharged from the TRI-CEL unit under gravity. This may have a bearing on the location of the unit. Where site conditions do not allow gravity discharge, a pumped discharge option is available. The TRI-CEL system is designed for pedestrian traffic only. Adequate protection should be given to avoid super-imposed loads. Vehicles must be restricted from the region surrounding the TRI-CEL unit. Vehicles should maintain a distance of 4 meters of the system. The manufacturer will advise on the suitable protection. Suitable fencing to restrict farm animals should be erected. Do not plant trees close to the system or any trees or plants over the percolation area.

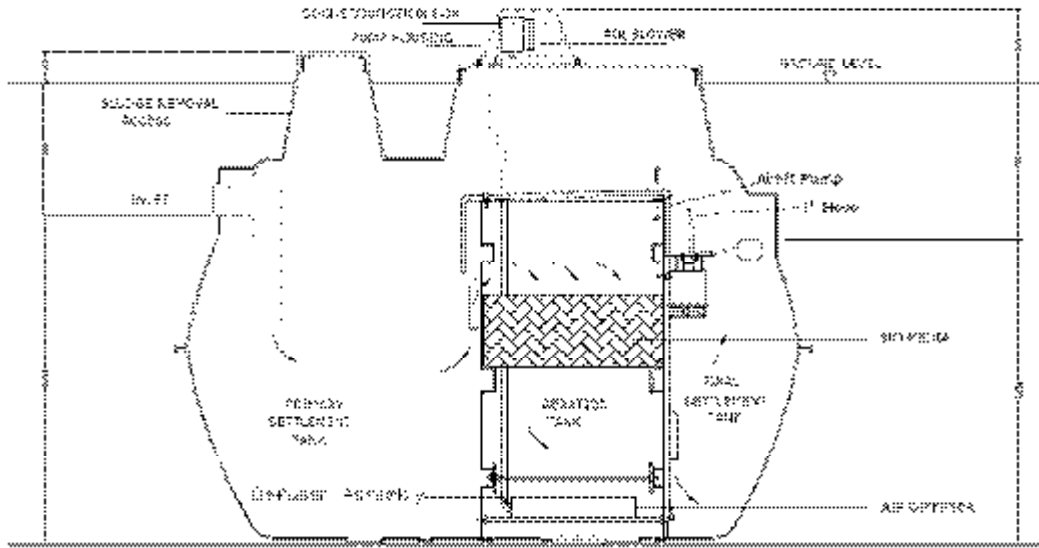
**Tri-Cel P6 Gravity System.**



**Length: 2.7m**  
**Width: 1.7m**  
**Height: 2.15m**

**Tri-Cel P6 Pumped System.**

**Note:** Pumped systems wired by an electrician immediately after installation in order to prevent flooding.



**Installation of the Tri-Cel wastewater treatment system.**

**Note:** We recommend that when the system arrives on site that it is inspected for damage, from miss-handling etc. If any damage is seen or suspected, please notify the manufacturer immediately, as problems cannot be rectified easily after installation. It is then the responsibility of the homeowner or builder to undertake the installing of the unit, as per manufacturers instructions. A suitably sized digger will be required to excavate the hole and lower the TRI-CEL system. Once a suitable site has been chosen and excavated the following steps must be followed: When installation is completed and the system filled with water and is plumbed to the relevant sewers etc, the electrical installation must be completed. Only then, can Killarney Plastics Ltd call back to commission the system.

**Note: water logged sites.**

The Tri-Cel<sup>®</sup> Wastewater treatment System should not be placed into water logged site. Please contact the manufacturer if there are difficulties on site due to adverse water logging.

Adequate drainage is important to improve wet sites, or sites with a high water table level. It is critical that water is removed from the area surrounding the system to prevent flotation, or ingress of water that could cause electrical failure within the system. Even with the addition of cement to hold the system down, water that is allowed to flow between the cement and the system can cause harm to the system. Proper drainage is critical to the proper functioning of the system. Excessive loads or point loading can be caused by excessive site water. Please consult with the manufacturer or a qualified engineer if in doubt.

**Installation of the unit.**

**The cover of the system must never  
be placed below ground level.**

- A partial concrete installation is required for a dry site. A dry site is one where the water table never rises higher than the base of the unit
- A complete concrete backfill may be required for wet sites. A Wet Site is one where the water table may rise higher than the base of the TRI-CEL unit.
- A complete concrete backfill may also be required where the TRI-CEL system may be prone to some superimposed load.
- Manhole risers may be required for deep installations.

**Installation procedure guidelines.**

1. It is the responsibility of the on site engineer to ensure that a correct installation procedure is followed. If in doubt, please contact the manufacturer.
2. Dig a hole circa 3.0m x 2.0m in plan. The unit shall be installed at the required depth to accommodate incoming drainage pipes. Remove any soft spots or boulders or sharp objects of any significant size (tennis ball) from the base and sides of the excavation. A level graded base is then formed using sand binding.
3. A foundation of semi dry concrete is laid and levelled. The concrete shall be of sufficient grade and thickness (minimum 150mm and grade 25 N) to ensure that the unit is fully supported with due regard to subsoil conditions and loads imposed by the unit. Care shall be taken to eliminate voids.
4. The system is lifted carefully into position using slings in accordance with the certificate holder's instructions. Lifting hooks are provided with the Tri-Cel system. Care should be taken

to prevent damage to external flanges or pipe work and to ensure the CORRECT ORIENTATION of the inlet and outlet pipe work. These are clearly marked on the system.

5. Level the unit using a spirit level. The unit should be 100% level. The lip of the lid should sit flush with proposed finished level of the ground so just the lid will protrude above ground. Line up the inlet and outlet pipes with the house pipes and percolation pipes respectively.
6. The concrete is hunched up around the base of the system. Ensure that the “feet” are embedded. Ensure that the top of the tank is “dead” level and that all of the connections are lined up correctly.
7. As backfilling progresses, the system is progressively filled with water, to prevent uplifing (stop the system popping out of the ground).
8. The excavation is then backfilled to above the joint (flange) with a minimum of 200mm surround (Grade 25 N concrete).
9. The backfilled concrete is to be carefully compacted around the system, to ensure transfer of ground loads and to prevent concentrations. Vibrating pokers must not be used, as these may damage the GRP system.
10. The remainder of the excavation is then backfilled, with suitable selected self-compacting Pea Gravel or suitable granular material (compaction factor of 0.2 or less), to the underside of the pipe work connections. Ensure that the connections remain exposed.
11. Connect up the pipe work. The TRI-CEL system is plumbed for 110mm uPVC pipe. A short length of pipe with flexible joints should be used immediately before and after the unit to allow for movement between the tank and the pipe work.
12. A suitably qualified person should then connect up the power according to the electrical installation instruction.

#### **Additional requirements for wet sites.**

1. A wet site is a site where the local water table can rise above the base of the system. Installation in a wet site may be precluded by site considerations in relation to effluent disposal.
2. A 250mm hardcore sub-base is laid, compacted and levelled.
3. The excavation is kept dry, by pumping excess water using a site pump/sump, hole/suction hose arrangement. Dewatering should be continued for as long as necessary and at least until the concrete has set.
4. The excavation is then lined with a continuous layer of 1200 gauge polyethylene sheet. The grade and thickness of the concrete base should be designed to suit the site conditions (minimum 250 mm thickness, grade 25N).
5. The system is to be installed and the excavation backfilled generally in accordance with the requirements for a dry site from this point on, however,
6. The excavation shall be backfilled with concrete to approx. 300mm below the ground level.
7. Allowances must be made for flexible joints at pipe connections where necessary.
8. Connect up the pipe work. The TRI-CEL system is plumbed for 110mm uPVC pipe. A short length of pipe with flexible joints should be used immediately before and after the unit to allow for movement between the tank and the pipe work.
9. A suitably qualified person should then connect up the power according to the electrical installation instruction.

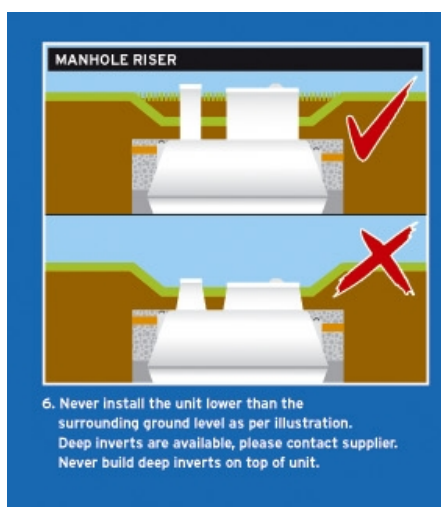
### Plumbing the system.

**Do not** plumb storm-water (water) from roofs, drains, footpaths etc, into the Tri-Cel Wastewater treatment system. Qualified ground-works site personnel or qualified builders should connect the plumbing from the dwelling to the wastewater treatment system.

### Manhole Risers – (Deep invert).

We are pleased to be able to offer Manhole Risers to our customers for deeper installation requirements

- **250mm** and **500mm** manhole risers require a partial concrete backfill.
- **750mm** manhole risers require a **complete concrete** backfill is required.



- Manhole risers .
- Manhole Risers are available as standard 250mm, 500mm and 750mm
- Never install the cover of the system under ground level.
- Systems installed at 750mm underground level must be fully surrounded with concrete.

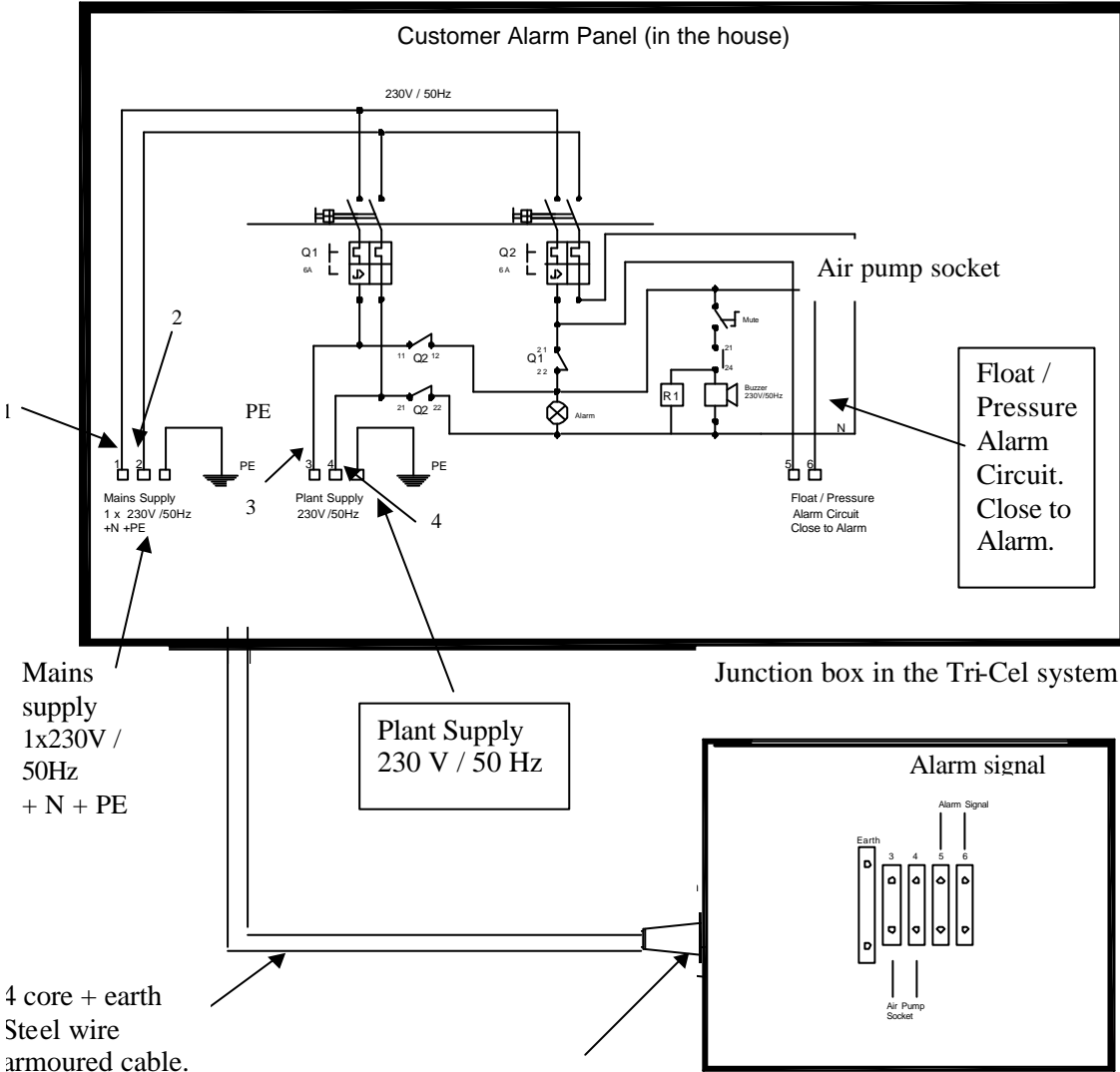
**Electrical Installation of the unit.****Standard gravity system with an alarm & Pumped systems with an alarm.**

Note: All electrical work to be carried out by competent person using suitable materials for the application. Electrical work must be carried out strictly to the manufacturer's instructions and to 'The National Rules For Electrical Installations' (ETCI) published by the 'Electro-Technical Council Of Ireland'

- A 230V, 16Amp, waterproof (IP67) plug and socket connector will be supplied with this unit.
- These will conform to IEC 60309, 1&2 and also to ISEE 60309, 1&2.

**The customers' minimum responsibility shall consist in the provision of:**

- A single run of 1.5mm<sup>2</sup> FOUR core + earth – two conductors plus earth conductor – steel wire armoured (SWA) cable from the customers distribution cabinet to the tank unit socket
- Cable protection via 10 amp MCB protected by residual current detector (RCD), rated 230V, AC and tripping current 0.03amps.
- The cable armor must be properly bonded to the main earth at the premises.
- A control panel with alarm is available. Please refer to the manufacturer for further details.
- Once commissioned, never disconnect the power to the air pump. It is imperative that it is running 24 hours a day, every day.



Cable to be glanded with E1W IP 67 gland and inserted into predrilled 20mm hole.

**Note:**

All electrical work to be carried out by competent person using suitable materials for the application. Electrical work must be carried out strictly in accordance with the manufacturers instructions and to the “National Rules for electrical installations (ECTI)”, published by the Electro-Technical Council of Ireland.

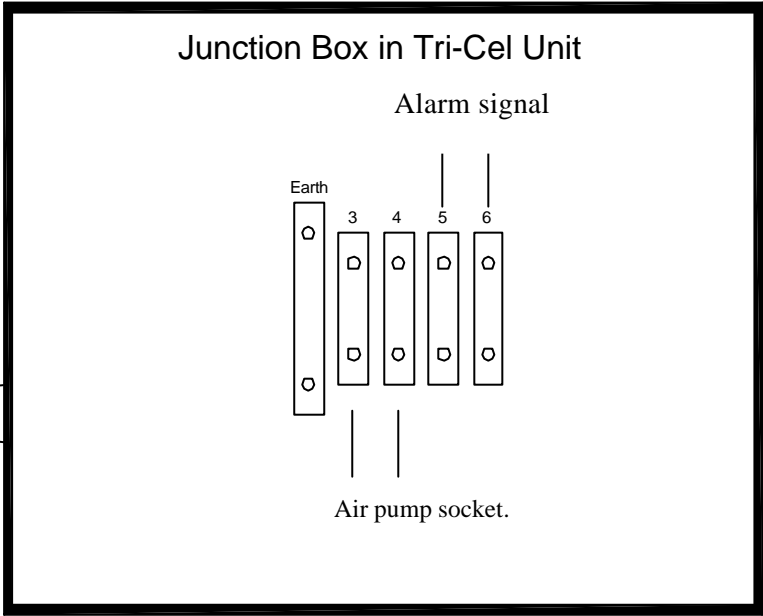
**Note:**

The steel wired armoured cable is to be routed through 25mm glands in the pump chamber, then to be terminated to the junction box.

**Connections:**

- One core from 3 to 3.
- Neutral core from 4 to 4.
- One core from 5 to 5.
- One core from 6 to 6.
- Earth core from PE Terminal to PE Terminal.

Mains 240 V AC supply and earthing come from the Alarm panel via 10 A MCB



**System Start Up:**

Once the electrical connection has been put in place between the house and the tri-cel, the system is now operational. If the system is running correctly, a slight “hum” will be heard from the air blower and there will be air bubbles coming up from the bottom of the middle chamber, rising to the surface. The customer must phone Killarney Plastics Ltd (or DISTRIBUTER) for a Final Commissioning of the Tri-Cel wastewater treatment system, which should be done within one month of System Start Up. It is imperative that Final Commissioning takes place. Phone 064 32421 extension 110.

**Alarm options.**

We are pleased to be able to offer our customers, the protection and peace of mind of an alarm in the tri-cel Bio system. Other alarm systems are also available. Please consult with Killarney Plastics Ltd, in order to get an alarm system that will suit your requirements.

**Note:**

The alarm option that you choose, may require a variation in the electrical connections used.

**Why install an alarm?**

The alarm will warn you of failures in the system – giving you peace of mind.

**What protection does it offer?**

- Air pressure failure in the system.
- Air compressor (blower) failure.
- High water level detection.
- Float switch failure.
- Pump failure in a pumped system.
- Overload protection for the Tri-Cel, in the fuse board.
- Short circuit protection for the Tri-Cel, in your home.

**How am I warned?**

- Audio sounder attached to the RCD {fuse board in your home} with a mute facility.
- The sounder can be muted, once you realise that there is a problem with the system.
- Visual light attached to the RCD.

**How does the reset facility work?**

- If no failure is detected, the system automatically resets.
- It will also reset automatically once a fault has been rectified.

## GENERAL INFORMATION

**Wastewater Treatment Systems.** EPA WASTEWATER TREATMENT MANUALS, TREATMENT SYSTEMS FOR SINGLE HOUSES © Environmental Protection Agency 2000

### **Mechanical Aeration Systems.**

In recent years many mechanical aeration systems offer a solution in some cases where a site may be unsuitable for a septic tank. These systems may be biofilm-aerated systems, rotating biological contactor systems or sequencing batch reactor systems. A biofilm system, consists of a primary settlement chamber, a secondary chamber containing aerated filter media and a final settlement chamber

### **Polishing Filters.**

Polishing filters should be used to treat wastewater from intermittent filters, constructed wetlands and mechanical aeration systems. These filters consist of either soil or sand and are employed to reduce microorganisms, phosphorus and nitrate nitrogen. Soil polishing filters may comprise in-situ, improved soil or imported soil, whereas sand-polishing filters comprise stratified layers of sand. This is simply passing the discharged water through a specially designed sand filter. A discharge pump will be required for this application. The guidelines set out by the EPA in EPA WASTEWATER TREATMENT MANUALS, TREATMENT SYSTEMS FOR SINGLE HOUSES © Environmental Protection Agency 2000 or the manufacturer should be consulted.

### **Site Development.**

Where a site is initially unsuitable for a septic tank system site development works may improve the site and make it suitable for the development of an on-site system.

### **Disposal of treated water.**

The TRI-CEL system discharges treated water to the required standards (BOD 20: SS 30) or better. This water is now suitable for disposal. Disposal can be by any of the following means:

- Sub-surface irrigation
- Raised bed

The best disposal method can depend on a variety of site factors including percolation results, soil type, water table level and topography of the site. Please refer to the manufacturer for further details.

### **Sub-surface irrigation:**

The main factor for sub-surface irrigation is the 'T' value as obtained for the percolation test. This will determine the length of pipe needed in the percolation area based on 450mm-meter wide trenches.

1. 'T' values <5 may indicate a percolation rate that is too fast. Consult the manufacturer for percolation area sizing.
2. 'T' values >60 may indicate a percolation rate that is slow. Consult the manufacturer for percolation area sizing.

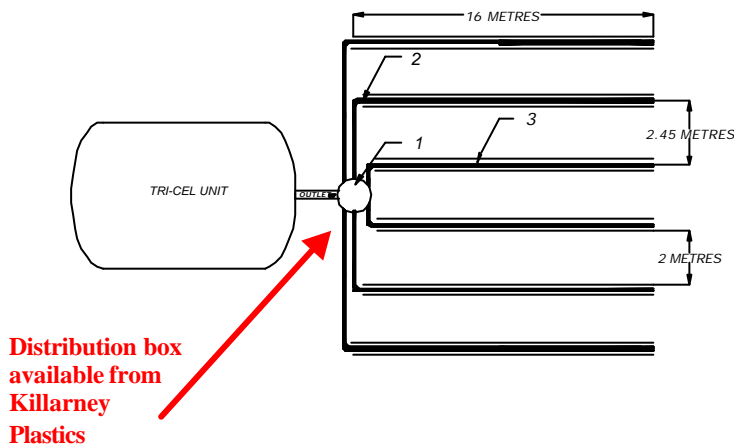
Estimated number of people in the house based on number of bedrooms.	Required length of trench (m) for T/P values 21-50 (loading at 25 l/m <sup>2</sup> .d)	Required length of trench (m) for T/P values 1-20 (loading at 50 l/m <sup>2</sup> .d)
6	96	48

The treated water is discharged by gravity. A network of 100mm perforated pipes is laid in the percolation. The percolation area spreads the treated water evenly over a large area thus minimising the risk of the ground getting over saturated.

The length of percolation pipe recommended should be sub-divided into a number of equal lengths. No trench should be longer than 20 meters. There should be a minimum distance of 2 meters between any two trenches.

The trenches should be 450mm wide and 800 mm deep. The pipe should be laid on 250mm of clean 20mm stone. The pipe should be covered by another 150mm of stone. A layer of geo-textile soil barrier should be placed on top of the stone and the remaining 300mm should be back filled with topsoil. The pipes should be laid with a fall of not more than 1 in 200. There should be at least 1200mm of unsaturated soil from under the bottom of the trench to the bedrock / water table.

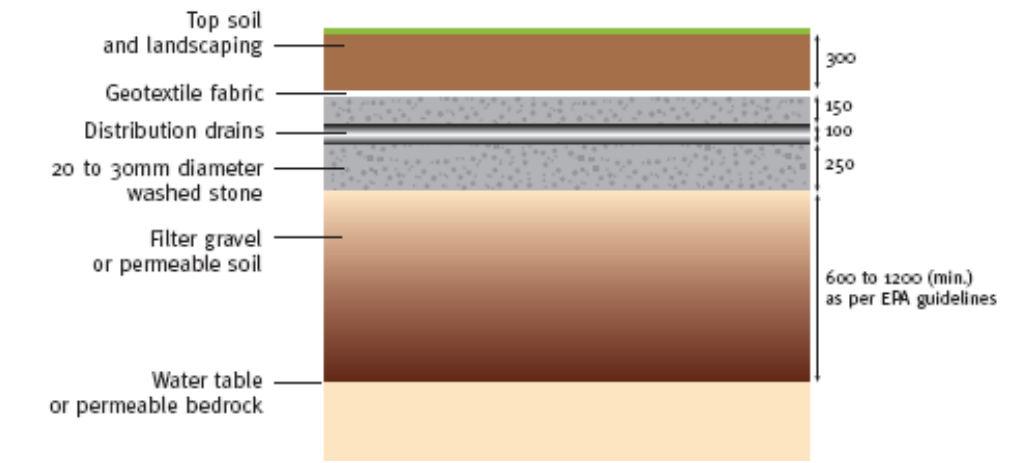
**Typical arrangement of percolation trenches.**



**Percolation Trench Characteristics.**

**Note:** Always connect from the Tri-Cel System, to a correct Distribution Box and then into the percolation trenches.

- Length of distribution pipe, 20 meters maximum.
- Minimum separation distance between percolation trenches 2 meters (2.45 centre to centre).
- Diameter of pipe from system, 100mm.
- Slope of pipe from tank to distribution box. 1 in 40 for earthenware or concrete. 1 in 60 for uPVC.
- Slope of percolation trench from distribution box, 1 in 200.
- Distribution (percolation) pipes. 100mm bore, perforated (typically at 4, 6 and 8 o clock) smooth wall PVC drainage pips with perforations of 8mm diameter at about 75mm centres along the pipe or pipes with similar hydraulic properties.
- Width of percolation trench, 450mm.
- Depth of percolation trench is about 800 mm below ground surface depending on the site.
- Back-filling of percolation trench. 250 mm of 20 to 30 mm washed gravel or broken stone aggregate on invert; pipe laid at 1 in 200 slope surrounded by 20-30 mm clean washed gravel or broken stone aggregate and width 150 mm of similar aggregate over pipe: goertextile layer followed by topsoil to ground surface.



**Distribution Box – Inlet and 6 number outlet holes with snap in seals.**



**Distribution Box with Snap In Seals.**

**150mm (6”) Riser extensions**

**Raised bed: if required.**

Where the existing pipes have to be above ground level or where there is a very thin layer of topsoil a raised bed percolation system is required. It is similar to the sub- surface percolation only it is man-made. In this case a discharge pump must be used to elevate the treated water into the percolation system. Full details available upon request from the manufacturer.

**Homeowners Maintenance.**

“PLEASE REFER TO SAFETY SECTION OF THIS HANDBOOK”.

NOTE: Always isolate the power to the system, before opening any covers, as the system contains a mains powered blower.

NOTE: The air blower must never be turned off. It is imperative that it is left running 24 hours a day, every day to ensure a constant supply of oxygen to the second chamber. If for any reason it ceases working, call Killarney Plastics Ltd or the supplier of the system

To maintain its efficiency, the TRI-CEL system will require yearly de-sludging and maintenance. The de-sludging of the TRI-CEL system is the responsibility of the homeowner. De-sludging should be carried out yearly (maximum time is every two years), however depending on usage and household population, more frequent de-sludging may be required. The EPA guidelines (summary below and available from EPA Ireland) carry detailed instructions on dipping and measuring the depth of sludge in the system. Your tri-cel bio system has a separate desludging access cover, the smaller of the two covers. De-sludging is done with a vacuum tanker (we would recommend the use of a licensed company) or other suitable means. It is the homeowner’s responsibility to provide access for the vacuum tanker, to de-sludge the TRI-CEL system.

Never let this equipment drive over the system. Keep at least 4 meters away from the covers on the Tri-Cel wastewater treatment system.

1. Remove the de-sludging access cover by undoing the M12 nuts. The de-sludging cover can now be removed
2. Empty the TRI-CEL system using the vacuum tanker. Care must be taken not to damage the TRI-CEL system with the hose of the vacuum tanker.
3. Replace the de-sludging access cover.

**Notes:**

- The access cover should never be left off while the unit is unattended
- De-sludging should never be carried out alone
- The TRI-CEL system should be clearly marked and vacuum tanker should never come closer than the dept of the excavation for the system unless the appropriate precautions have been taken. Contact the manufacturer for the correct precautions.

The continued performance of the TRI-CEL unit will depend on regular maintenance and cleaning. It is the homeowner's responsibility to de-sludge the unit and keep the vents clear. There are two vents on the TRI-CEL unit. The inlet vent, guarantees a fresh supply of air to the unit blower. The outlet vent under the de-sludging cover allows gas to escape and stops the tank from becoming pressurised. The TRI-CEL system will require a full service every year to guarantee the efficiency of the unit is maintained. A maintenance contract is available from the manufacturer.

**EPA Guidelines (selected) from Wastewater Treatment Manuals Treatment Systems for Single Houses © Environmental Protection Agency 2000.**

Regular maintenance of the unit and percolation area is very important for the satisfactory performance of the system. Units should be de-sludged a minimum of once per year,

The depth of sludge can be checked using the following technique,

- Use a 2-meter pole and wrap the bottom 1.2 meters with a white rag.
- Lower the pole to the bottom of the tank and hold for several minutes to allow the sludge layer to penetrate the rag.
- Remove the pole and note the sludge line, which will be darker than the coloration caused by the liquid waste.

The percolation area should be inspected regularly.

Note: Signs of ponding indicate blockage or insufficient permeability.

**NSAI, National Standards Authority of Ireland. Standard recommendation, 1991, ref: S.R.6: 1991 © Eolas 1991. 11.5.2.1 General.**

The inlet manhole should be inspected and any solid matter which may clog the inlet tee-pipe should be removed. The cause of any blockage should be investigated. Only qualified personnel should carry out this. The inlet and outlet tee-pipes should be inspected and rodded that scum does not collect and that the vertical leg is not obstructed.

### **Safety Precautions.**

There is potential danger when de-sludging and therefore should never be done alone. Never enter a tank unless qualified to do so and a safety line must be attached to the person entering the tank and a second person is over ground to help if the entrant is overcome by gasses or foul air. Naked flames should not be used in the vicinity of the tank due to the danger of explosion. The manhole covers should never be left off an unattended tank. Disused or abandoned tanks should be demolished, filled in or sealed so that accidental entry is impossible.

As safety and security are of vital importance in small-scale sewage treatment systems, the following aspects are critical,

- Protective clothing / gloves should be worn at all times. Always remove contaminated clothing and protective equipment after working with sewage treatment systems.
- Wash hands and face prior to eating, drinking or smoking.
- Adequate first aid boxes should be present.
- When working with machinery / electrical equipment, proximity of water should be noted. Equipment should not be wet when working with it.
- A second person should be present when carrying out non-routine maintenance.
- The distribution box should be designed (& constructed by the builder) to facilitate sampling and inspection without placing personnel at risk.
- Only qualified personnel should carry out electrical repairs.
- Great care should be taken when handling sludge.
- Always lock the cover of the system.

### **Maintenance of the system & percolation area.**

The system & percolation area should be inspected periodically and any signs of malfunctioning noted. This will show itself by obvious signs of blockage of the distribution box, or by ponding or smells or pollution in the surrounding area.

DO NOT plant trees or deep-rooted shrubs close to the system and especially not anywhere near the percolation area.

### **Warranty and Servicing Contract.**

Killarney Plastics Ltd. offers an initial, full 12-month warranty on every TRI-CEL<sup>®</sup> Wastewater Treatment System installed (provided that it is installed, commissioned & maintained in accordance with the manufacturers instructions and also provided that the unit has not been subject to damage or abuse). This warranty covers all of the GRP components manufactured by Killarney Plastics Ltd, and also all other additional installed components against malfunction. Killarney Plastics Ltd can offer yearly Service Agreements.

Killarney Plastics Ltd offers servicing agreements to customers. For an annual fee, paid fully in advance, we will service and perform preventative maintenance of your Tri-Cel Wastewater treatment system. We can tailor servicing agreements to suit customer requirements, performing one visits per year. It is advisable to have your system serviced a minimum of once per year. Servicing agreements do not include de-sludging the system (emptying chamber one). **See section on De-sludging.**

**Terms & Conditions:**

- The manufacturers instructions outlined in the builders & homeowners manuals must be followed at all times. A service contract does not remove this responsibility from the customer / homeowner.
- It is important that the unit is operated under the conditions for which it is designed. Any variation in these conditions could lead to the unit not performing to its full potential and the discharge may not meet the required standards.
- A certain amount of system maintenance is required, on an ongoing basis to ensure that the system is working correctly. This is the responsibility of the customer. Killarney Plastics Ltd or its contractors will endeavour to do this if contracted to do so. In general, one or two visits per year are required (depending on the capacity of the system) by Killarney Plastics Ltd in order to carryout this maintenance on the system.
- The end user of the wastewater treatment system is entirely responsible for the operation of the unit and for ensuring that the quality of the effluent does not breach the required discharge standards.
- De-sludging is a critical part of the successful operation of the Tri-Cel<sup>®</sup> Wastewater Treatment Systems and is to be done by the customer. All servicing contracts exclude de-sludging. Only competent approved personnel should carry out de-sludging. De-sludging must be carried out a minimum of once yearly, however the system should be inspected every two or three months to check the depth of sludge in the primary chamber. If desludging is required it should be done as soon as possible.
- If the electrical connection fails to the air blower in the system, the system will not function correctly. It is imperative that a continuous air supply, via the air blower, enters the system in order for the system to function correctly.
- The discharge to the ground is also a critical part of the operation of the system. Correctly constructed distribution chambers and distribution drains or polishing filters are necessary as part of the treatment process. Killarney Plastics Ltd will aid in the design of these, however the construction is the responsibility of others. Incorrectly constructed drains or polishing filters could result in poor treatment of effluent and Killarney Plastics Ltd holds no responsibility in this regard.
- If the system is not installed correctly, flooding, overloading, electrical shock or flotation may occur. Killarney Plastics Ltd is not responsible for incorrectly installed systems.
- Soak ways, drains and the emptying of primary tanks remain the responsibility of the client and damage to the installation due to the influx of surface water or the backing up of soak ways or drains is not covered by the manufacturer.
- Killarney Plastics shall not be liable for any damage or loss, including consequential loss, caused by the failure of any plumbing equipment or failure caused by the inclusion of gross solids, (e.g. – disposable diapers or sanitary towels etc) in the waste water treatment unit.
- To ensure the continuance of the systems performance, the user has to take certain precautions including the following:
  - The design loading of the plant should not be exceeded.
  - High volume discharges such, as those from swimming pools and Jacuzzi's must never enter the system.
  - Surface water must not enter the system.
  - Do not allow large quantities of chemicals to enter the system including:
    - Water softener regenerate.
    - Disinfectants.
    - Strong Acids and Alkalis.
    - Oil or Grease.
    - Pesticides.
    - Photographic Chemicals, etc.

- Service personnel must be accommodated with clear access to the system.
- A servicing contract is a contract to perform one routine service (unless extra are specified) on the Tri-Cel® Wastewater Treatment System. This service is usually performed within two months of date of payment for the contract. A Servicing Contract covers travel, the service and the labour cost of these only. Other labour costs are excluded, as are all replacement parts.
- Servicing and / or maintenance of the unit can only be carried out between 8.00am and 6.00pm, Monday to Friday. In special cases only, can maintenance and servicing be done on a weekend? There may be an additional charge to accommodate the customer in this instance. An inspection report will be issued to you after completion of each maintenance / service visit. If additional work is required, being not covered by the service agreement, you will be given an estimate and the work will only be carried out on your specific instructions. The homeowner would be advised if the general maintenance that they are doing does not meet the required standard and would be given advice where possible on what is necessary to help them maintain the system correctly.
- Servicing is mechanical only, and does not include de-sludging (emptying of the system).
- Killarney Plastics Ltd has the right to terminate a service contract. Killarney Plastics Ltd, are under no obligation to offer a further service contract. The issuing of a Servicing contract is at the sole discretion of Killarney Plastics Ltd.
- Emergency call outs to unit failures, shall be attended to as quickly as possible, but no guarantees are given, expressed or implied, with respect to the speed of response. These callouts are to be paid for in advance at the current daily rate plus VAT, such rate not including charges for possible mileage and / or spare parts that may be required.
- If the system has been sized by others, Killarney Plastics Ltd will supply a system to these specification and not its own specifications. In this case, the responsibility lies with others, in relation to the maximum flow / litres per day, the system capacity and retention times.
- If Killarney Plastics Ltd sizes the system, and a greater load is placed on the system, by the addition of extra houses, bedrooms in the houses, schools, crèche etc or by any other means, Killarney Plastics Ltd is not responsible for the system in terms of overloading or the quality of the effluent as the retention times may be compromised.
- Site assessments are completed in good faith in relation to the information given to Killarney Plastics Ltd and Killarney Plastics Ltd cannot be held responsible for completing inaccurate site assessments, due to miss-information being given to Killarney Plastics Ltd.
- If the system has not been installed as per our recommendations, we may not be able to offer a customer a servicing contract. Incorrectly installed systems may not function correctly, and Killarney Plastics Ltd cannot take responsibility for these systems and may not be able to service them. In this case, any servicing contract fees paid in advance will be refunded partially or in full, (deductions may be necessary to cover travel costs incurred, by Killarney Plastics Ltd, or its contractors). In this instance Killarney Plastics Ltd retains the discretionary right to refuse to issue a service contract.

**Note:**

In accordance with Killarney Plastics Ltd normal policy of product development, this specification is subject to change without notice. All sales are subject to Standard Contract Conditions, available on request. July

2006.

**Introduction.**

Killarney Plastics was established in 1973, to manufacture water storage tanks for the building industry. In the intervening years, it has developed a substantial portfolio of products, as diverse as enclosures for gas and electrical metering, safety products for the utility services, train seats, odour and wastewater treatment systems, to mention but a few.

The experience gained from 30 years in the composites industry, together with ongoing research and development, places Killarney Plastics in pole position to offer an advanced range of superior products and systems to meet the requirements of our customers into the future, all from our state of the art 120,000 sq ft. manufacturing facility in Killarney.

**Quality control.**

Killarney Plastics Ltd is totally committed to the pursuit of excellence in quality. We have in place measurable programmes of continuous improvement in quality and productivity and currently are accredited to the Quality Standard ISO 9001:2000

**Also by Killarney plastics Ltd.**

- Sectional water tanks.
- One-piece water tanks, 45 litres to 9092 litres
- Tri-Cel P6 single house Bio Systems
- Tri-Cel large multi house development Bio Systems
- Distribution boxes.
- Separators – Petrol / oil interceptors
- Underground tanks
- Underground rainwater tanks
- Kiosks
- ESB meter cabinets - Gas meter cabinets
- Agri Box - IP65 Metering cabinets
- Cable ETU Box
- Insulated housings.
- Chemical tanks
- Shower trays
- Safety products.



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