

These guidelines cover the installation of large Ecosure underground water tanks with a capacity over 7,000 litres. Please ensure that you have read and understood the entire document before attempting to install the tank.

**Please note:** *responsibility for the tank passes to the buyer once unloading commences; it is therefore important that the buyer accepts the condition of the tank on arrival before attempting to move it.*

Ecosure underground water tanks are designed to be lifted and manoeuvred only when empty. Under no circumstances should they be lifted or manoeuvred when containing water.

It is recommended that these tanks be unloaded, moved around site and lowered into position by attaching lifting chains and appropriately sized D-shackles to the lifting points provided, or by use of lifting straps around the whole tank. The use of extended forks is also recommended. However, some initial swing should be anticipated. This must be stabilised before the tank is moved further. To stabilise the tank when moving around the site, guide-ropes should be attached to the chains, enabling operatives to control the load from a safe distance.

## IMPORTANT INFORMATION

It is not advisable to install large underground water tanks in wet ground conditions (where at any time the ground water may rise above the base of the tank).

**All large underground tanks should be encased in concrete.** The top of the tank should also be protected with reinforcing mesh (see instructions below).

Superimposed loads, such as vehicles or walls, should NOT be allowed within the protection area which is a minimum 2m from the outer edge of the tank. The area should be fenced or clearly marked to restrict access. If this cannot be followed, a reinforced concrete slab must be designed and installed by a qualified civil or structural engineer so that no loads are transmitted directly on to the tank.

### **Please note:**

- The tank is designed to take pedestrian traffic only.
- The standard installation depth of 500mm, to the top of the tank body, must not be exceeded.
- The tank must not be located where root matter can disturb the concrete surround.
- Pipe-falls should be a minimum of 2:100 in the direction of water-flow, i.e. rainwater pipe and service duct towards the tank and the overflow away from the tank.

## BEFORE DELIVERY

Please ensure that

- suitable access and parking arrangements have been made for the delivery vehicle
- plant is available to unload the tank
- a clear route has been designated between the delivery vehicle and the installation site
- a risk assessment and method statement for unloading and manoeuvring have been prepared and signed off
- the installation site is level and clear of obstacles and site debris

Ideally:

- the water ingress pipework should be complete and ready for connection
- the water overflow pipework should be complete, ready for connection and itself connected to the surface water management system (soak-away, storm drain or attenuation as appropriate)
- the service duct is ready for connection

Before starting the installation, confirm no added precautions (see table above) apply and there is no requirement to:

- Carry the weight of vehicular traffic (in which case, a structural engineer's design is required)
- Locate closer than 4 meters to adjacent foundations (in which case, a structural engineer's design is required)
- Install adjacent to an earth bank or raised patio (in which case, a structural engineer's design is required)

## INSTALLATION GUIDELINES

### EXTERNAL WORKS

The installation of the Ecosure rainwater storage tank and its connection to the water supply, water overflow and service duct pipes should be undertaken at the same time as the overall underground works for the project.

The tank should be sited to provide the straightest possible service duct run between the tank and the building as other pipe-work and cabling etc. may need to be fed through this duct at a later stage.

### Excavation

- Allow 250mm all round the tank and approximately 500mm below the tank for the hard core can concrete base
- Allow for suitable pumps to keep the excavation dry until the installation is complete.
- Use suitable planking and strutting as necessary.
- The top of the tank must be no more than 500mm below ground level.
- Use suitable planking and strutting as necessary
- Dig out trenches for pipe work and inline filters.

Once installed, the position of the tank is to be clearly marked and driving vehicles within 2 meters of a tank edge is strictly forbidden.

### The Base

The tank must be installed on a firm, smooth base built in accordance with good building standards and engineering principles.

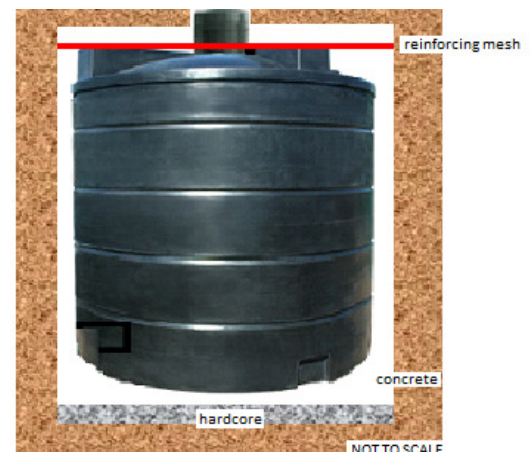
- Lay a minimum 250mm thick hard core, then 60mm sand blinding.
- Lay 500 gauge polythene sheet over the base of the excavation and extend around the sides.
- If necessary, set temporary shuttering to contain the concrete surround.
- Lay a wet bed of concrete 150mm thick (Strength 20N/mm<sup>2</sup>. Slump test 50mm)

### Lowering the Tank

- Once the concrete base has dried, lower the tank into the hole. Make sure that the tank is sitting flat and true before filling it with any water.
- Haunch concrete 350mm up around the base of the tank.

### Installing the Tank

- Once the concrete base has dried, lower the tank into the hole. Make sure that the tank is sitting flat and true before filling it with any water.
- If you have been supplied with a neck ring, this should be cut to length to finish flush with the ground. If the neck ring is loose, position it and apply a good bead of silicon seal around the joint.  
**Please note that the tank lid is designed to withstand foot traffic only.**
- It is vital to ensure that the tank is filled with 300-500mm of water ahead of the concrete back fill.
- Back fill evenly around the tank with concrete (minimum 15 N/ mm<sup>2</sup>) in 150 mm layers. Alternatively the concrete can be placed around an empty tank in four progressive lifts with a 12 hour delay between each lift to limit the concrete pressure.



- Under no circumstances
  - Tamp-down the infill with machinery
  - Tamp-down finished ground level with machinery
  - Drive vehicles over tanks installed as above
- Do not use vibrating rammers to consolidate the concrete and do not discharge concrete directly onto the tank.
- Install reinforcing mesh on the tank, ensuring that the mesh extends over the top of the concrete surround, whilst allowing access for the extended neck and any pipework. Prop up the tank from the inside and concrete over the top.
- Connect all pipework
- Mark out an exclusion zone 2 metres outside the original excavation footprint. Superimposed loads must NOT be allowed within the protection area. If this is not possible, a reinforced concrete slab must be designed and installed by a qualified civil or structural engineer so that no loads are transmitted directly on to the tank.

## Installation Tip

Installation of the tank and effecting connections with the inlet pipework, the outlet pipework, and the service duct, will normally be undertaken by ground-workers as part of the underground drainage works; this work should also include:

- Leaving in place a draw cord in the service duct for subsequent use by the plumber and or electrician
- Feeding the supply pipe through the service duct, section by section as the service duct is installed

## Aftercare

Most underground water tanks do not need aftercare immediately. If the water is undisturbed for a period of time, it may become stagnant. Over years of use the tank may require cleaning, which can be done using a mop.

## Filter Box Installation

- The filter box can be installed anywhere along the inlet pipe *between the tank and the down pipe*. Ensure you can gain access to the filter for cleaning. *Please note that the filter box lid is designed to withstand foot traffic only.*
- Run your pipe work, ensuring that the inlet from the filter has an adequate drop to ensure water flow. A fall of 25mm every meter is recommended.
- Ensure the inlet pipe from the down pipe, is fitted to the 4" connector on the filter box with the 90° elbow on it.
- Back fill the area around the filter box with pea shingle.
- More detailed instructions are available on a separate sheet.

## For Information

The following example risk assessments are available at [www.water-tanks.net](http://www.water-tanks.net) in the technical information section:

Example risk assessment	–	tank unloading and on-site movements
Example method statement	–	tank unloading and on-site movements
Example risk assessment	–	tank installation
Example method statement	–	tank installation

## WARNING

The risk assessments are examples only, and need to be adapted by a capable person to reflect actual site conditions

For further information, please contact our technical helpline: 01762 261 781