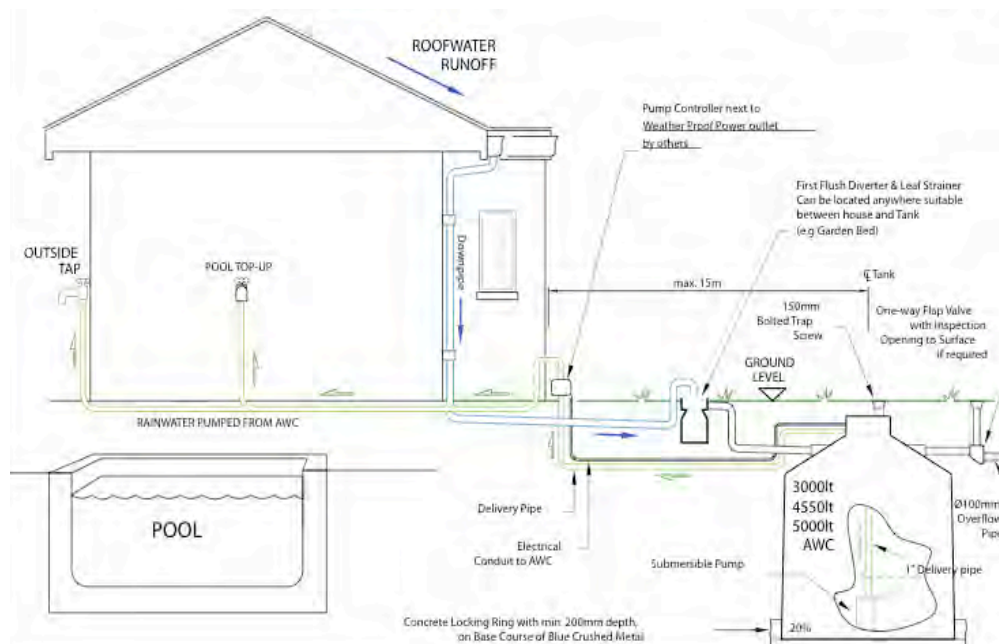


Installation – Pool & Garden Mate

Underground Rainwater Harvesting System for pool top-up and outdoor tap



IMPORTANT

- Plumbers, drainers and electricians must refer to the Action Tanks Installation Instructions and Onga Pump Owner Manuals.
- Please leave the installation instructions in a safe dry place inside the control box for reference by others.**
- All instructions, homeowner manuals and warranty information must be passed onto the owner OR builder.**
- Check that these instructions correlate to the tank model to be installed.** Correct installation of this Action Tank by a qualified tradesman, licensed in the state and local authority in which the system is to be installed, is mandatory for warranty and the quality of water stored.
- The installation must be undertaken with due consideration given to the attached Action Tanks -OH&S Risk Assessment Form and the Excavation Code of Practice.
- Product Warranty Information & Commissioning Form must be returned to Action Tank Industries to activate the Warranty. Failure to do so will void the Warranty

CONSIDERATIONS

- Where ground water or high water table exists (i.e. tidal areas): de-water your excavation and follow steps 2 to 6 whilst maintaining de-watering. **NOTE: these requirements apply to both Master and Servant Action Tanks.**
- Action Tanks DO NOT recommend the use of Split Master systems for 'charged' system installations.**
- Consideration should be given to the volume of water and area of roof space that is being directed into the tank system (maximum suggested water volume of 8L/sec or 170m² of roof space to be directed into each 100mm First Flush Diverter, refer AS3500).
- Action Rainwater Harvesting Systems in most cases will require no other backflow prevention devices but you are advised to seek confirmation from the relevant local authority or council.

REQUIREMENTS (items not supplied)

Items listed below are a guide only, all other materials required to complete the Action Tank installation are standard products and fittings, which will be subject to your site conditions and installation requirements.

- **5 - 7 mm Crushed Blue Metal or Recycled Concrete approx. 8 tonne per tank. (Step 1 & 2)**
- **200mm concrete locking ring approximately 1/2 m³ per tank (Step 1 & 2)**
- **13mm poly pipe or 3/4" Rehal (Step 4)**
- **40mm Conduit (Step 6)**
- **1" Flexible hose (Aust. Standard Approved) in suitable length for your connection (Step 7)**

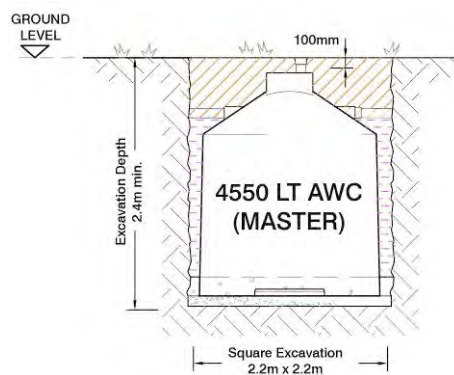
EXCAVATION Refer to Excavation Code of Practice and OH&S Risk Assessment attached.

- 1.1. **IMPORTANT:** BEFORE STARTING YOU MUST DETERMINE FINAL FINISHED GROUND LEVEL TO DETERMINE EXCAVATION SIZE. **TANKS MUST NOT BE MORE THAN 200MM BELOW FINISHED GROUND LEVEL** TO ENABLE PROPER MAINTENANCE.
- 1.2. **Excavate using the specified minimum excavation size** (see Table 1 below & Figure 1 below). Using minimum excavation size enables the top of the tank to be 100mm below finished ground level.
- 1.3. **IMPORTANT:** If joining tanks of different sizes please plan your excavation accordingly see **servant excavation details below**. It is recommended the Master Tank (with pump) be the larger tank. If unsure call Action Tanks for advice. **IF INSTALLING MULTIPLE TANKS OF SAME SIZE - PLEASE NOTE EXCAVATION REQUIREMENTS.**

Table 1: Tank Excavation Measures

Tank Type	Min. Excavation Width	Min. Excavation Depth (Master)	Min. Excavation Depth (Servant)
5000lt PG Mate	2.4m x 2.4m sq	2.4m	2.4m
4550lt PG Mate	2.2m x 2.2m sq	2.4m	2.4m
3000lt PG Mate	2.2m x 2.2m sq	1.9m	1.9m

Figure 1: Excavation



2. PLACEMENT

Materials needed:

- a) 100mm of 5 to 7mm crushed blue metal or recycled concrete below base of tank
- b) 200mm concrete locking ring approximately 1/2 m3 per tank

- 2.1. **Backfill excavation with a minimum of 100mm** of 5 to 7 mm **Crushed Blue Metal** or **Recycled Concrete** (free of rocks), before placement of tank. NOTE: the depth of the tanks underground is up to the designer, however not more than **200mm under finished ground level** is advised. A mounded area around the tank to shed the water away from the bolted trap screw is preferred.
- 2.2. **Before placing the tank into the excavation**, check that the 50mm bung at base is tight (for single systems) and has not been damaged during unloading and site handling.

LIFTING OF TANKS: Each system weighs approx. 275 kg. You must ensure your lifting gear is in good condition and capable of lifting more than 275 Kg. The excavator used to install the tanks must have a capacity greater than 275 kg, at its full extension.

- 2.3. **Place** Action Tank on a level 100 mm base of 5 - 7mm Crushed Blue Metal OR Recycled Concrete.

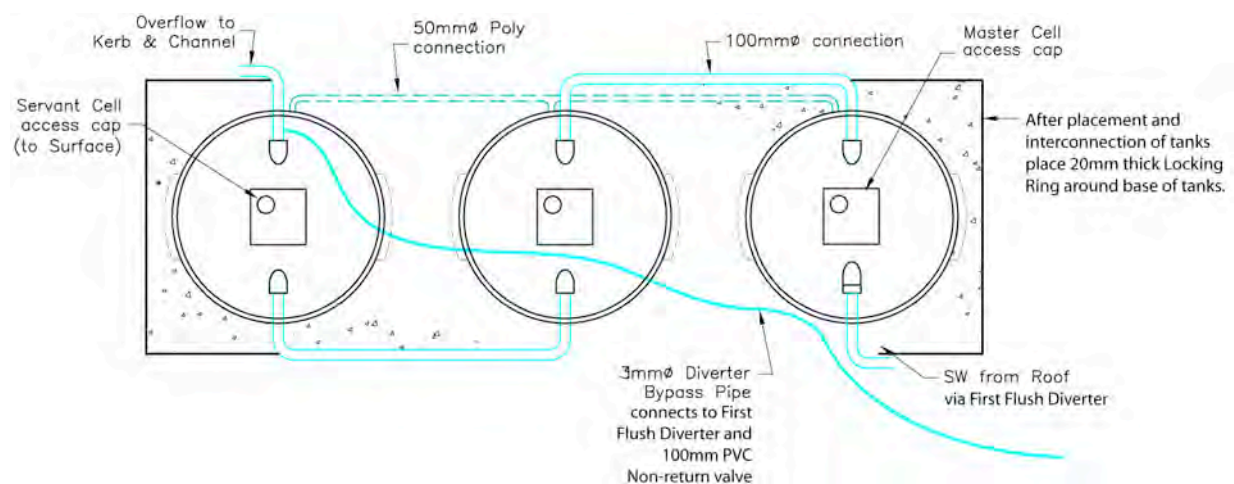
- 2.4. **Position tank in the hole to suit desired site connections using *lifting lugs* on the tank.**
- 2.5. **Multiple tanks - IMPORTANT-** If installing additional servant tanks, position all tanks with outlets facing the same side wall of the excavation. Remove 50mm bungs at their bases and make the interconnection between the tanks with 50mm high-pressure poly pipe & fittings (at the base of the tanks). Tighten all connections (**Refer to figure 2**), making sure to support this pipe work with bricks or the like, and surround with aggregate.

NOTE: When connecting multiple tanks, for base connection you should use high-density black poly fitting and pipes. Failure to do so may result in cracking of PVC pipes due to ground movement and void warranty

- 2.6. **Fill the tank with a minimum of 50% water.** These requirements apply to both Master and Servant Tank. Check to make sure all fittings are tight and there are no leaks
- 2.7. **Pour a 200mm min. thick ring of concrete around the 'feet' (base) of the tank** (approx. ½ m3 per tank).

NOTE: DO NOT enter the excavation unless the excavation has been benched or battered to reduce the depth of the excavation to less than 1.5m.

Figure 2: Tank Interconnection



3. BACKFILLING

Materials needed:

- **5 - 7 mm Crushed Blue Metal or Recycled Concrete approx. 8 tonne per tank.** The use of specified backfill is important to prevent floatation and minimise soil settlement and the risk of connection failure resulting in water contamination or loss.

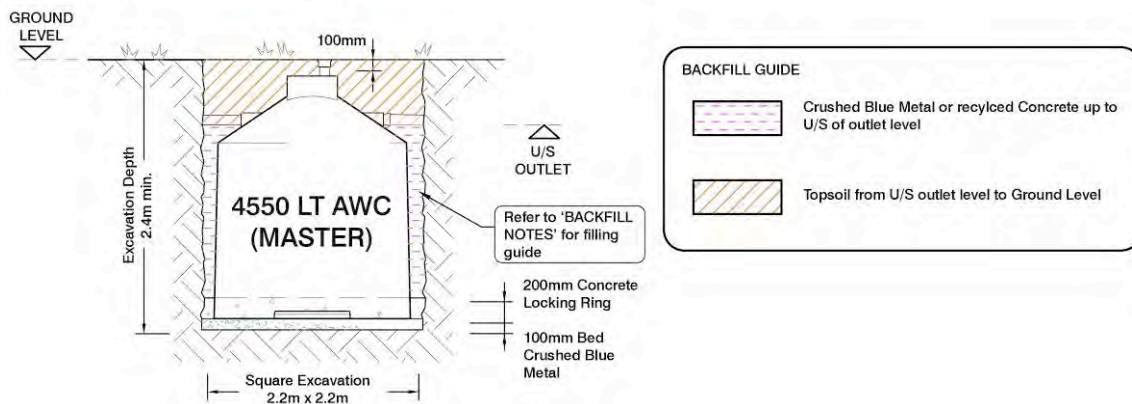
SAND AND SOIL ARE NOT RECOMMENDED BACKFILL MATERIALS

- 3.1. Backfill evenly around the Action Tank with 5 to 7 mm Crushed Blue Metal or Recycled Concrete, up to the under side of overflow outlet.

WARNING: DO NOT DUMP FILL MATERIAL ON ONE SIDE OF THE TANK AT A TIME OR USE MECHANICAL COMPACTION OR WHEEL ROLLING (To do so will void warranty and may reduce the Action Tanks capacity).

***The Action Water tank has been tested and certified by a geo-technical Engineer, not to lift out of the ground when installed in accordance with these installation requirements, even when the cell is empty and the external ground water level is 200mm from the top of the Action Tanks.*

Figure 3: Back filling



4. CONNECTIONS (TANK)

REQUIREMENTS / RECOMMENDATIONS

Materials needed:

Inlet / First Flush Diverter: 13mm poly pipe or ¾” Rehal is required to be connected from first flush diverter to 100mm PVC non-return valve (not supplied).

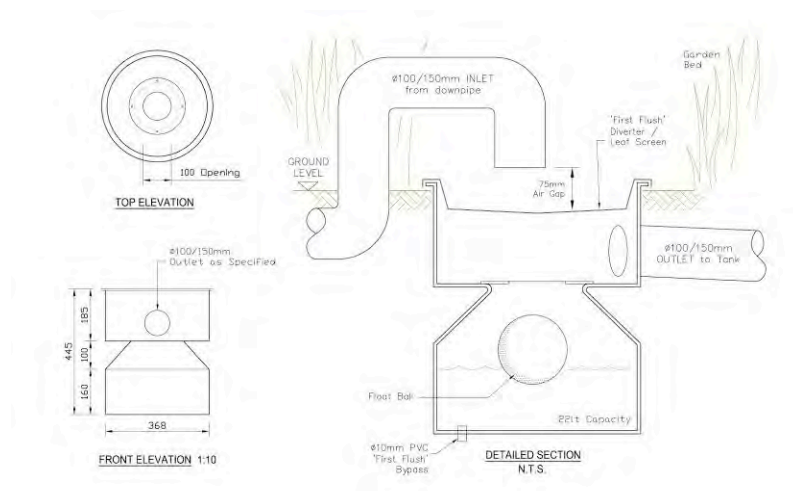
INLET

- 4.1. **1st flush Diverter Leaf Screen** is designed to be installed at a higher RL level than the water tank inlet and be located away from house and tank in an aesthetically pleasing position i.e. garden bed.
- 4.2. **Connect roof water from downpipes to 1st flush diverter / leaf screen** (optional – supplied separately, see diagram below). The 100mm inlet stormwater pipes from the downpipes should rise up out of the ground and empty into the top of the 1st flush diverter / leaf screen. This pipe should be deflected in the leaf screen with a non-glued 45-degree bend leaving a 100mm clearance to allow for the easy removal of the 400mm leaf screen for cleaning.
- 4.3. **Install the 1st flush diverter / leaf screen** so that the leaf screen is above all landscaping material and soil. Landscaping should make provision for over flow from the strainer during periods of heavy rainfall. (See Figure 4)
- 4.4. **Connect (black) 13mm poly pipe or ¾” Rehal (supplied by you)** from underside of first flush diverter nipple to nipple on the tank overflow 100mm non-return valve. Alternatively dig a hole one metre (1m) deep and place the diverter at the correct level (min 50mm above finished ground level) on a bed of coarse aggregate to allow it to act as an absorption pit. TO ALLOW THE DIVERTER TO WORK CORRECTLY, WATER MUST BE ABLE TO ESCAPE FROM THE NIPPLE.

OUTLET

- 4.5. **Install 100mm PVC non-return valve** (provided with 1st flush diverter) next to the tank overflow outlet; down stream from the tank (check direction of flow is correct).
- 4.6. **Run 100mm outlet pipe** from this point, at minimum degree grade, to kerb or easement.

Figure 4: First Flush Diverter



5. CONTROL BOX / PUMP INSTALLATION

Loose Items Supplied These are required for tank system commissioning (Please note from time to time some items may vary in colour or brand/type).

POOL & GARDEN MATE KIT

2 x Dog Clips	1 x Nut & Tail	OTHER
2 x Hose Clamps	1 x Yellow High Pressure Hose	1 x First Flush Diverter (Optional)
1 x Hose Tail	1 x Safety Rope (Pump Support)	1 x Submersible Pump
1 x Reducer 1¼- 1"		1 x Pump Controller
		1 x Wall Mounting Kit
		1 x Installation Instructions

IMPORTANT: Prior to installing/connecting the Onga pump and Pressure Controller please read the ONGA Owner Manuals. Should the installer be unfamiliar with the correct installation or operation of this type of equipment you should contact the distributor / manufacturer for the correct advice before proceeding with the installation or operation of these products.



- 5.1. Check contents
- 5.2. Check installation instructions. Make sure they correspond to the tank model you have purchased and are installing.
- 5.3. Remove the new pump from box

IMPORTANT: It is recommended that you DO NOT leave the pump submersed in the tank for longer than two weeks prior to commissioning. Refer to Onga owner's manual for additional information.

- 5.4. Unfurl the 'yellow' high-pressure hose. Using the reducing bush, poly fitting and hose clamps, connect hose to the pump. Be careful not to lose the rubber washer located in the poly nut at the top of the hose.
- 5.5. Connect the nylon rope to the pump via the stainless steel Dog clip.
- 5.6. Go to the Tank - remove the blue/ yellow dust cap from the 150mm snap lock fitting located on top of the tank.
- 5.7. Reach into the tank via the 150mm access, Secure the stainless steel 'Dog Clip' attached to the suspension rope to the stainless steel hook inside the top of the tank (this rope will support the pump)
- 5.8. Remove brass outlet and elbow fitting from side of top of tank and connect 'yellow' flexible hose to brass elbow (fitting supplied).
- 5.9. Holding the 'yellow' high-pressure hose, gently lower the pump into the tank through the 150mm access, ensuring you don't dislodge the float switch.
- 5.10. Re-fit brass outlet and elbow fitting into top tank wall. **IMPORTANT** elbow and flexible hose must be vertical.
- 5.11. Remove the 40mm conduit screw cap (next to brass pump outlet at top of tank) feed both the end of the pump electrical lead through this hole. Coil the cables on top of tank for electrician to connect to control box via 40mm underground conduit.

6. CONNECTIONS BETWEEN TANK AND PUMP CONTROLLER

REQUIREMENTS

Materials needed:

- a) 40mm conduit for electrical cable and float switch (not supplied)
- b) MINIMUM 1" delivery pipe for tank Pump Controller
- c) 1" flexible hose (Australian Standard Approved) in suitable length for your connection

6.1. To interconnect 'Pump Controller' and 'Action Tank', dig trench 500mm deep between Pump Controller and tank (as per electrical requirements)

6.2. ELECTRICIAN to lay a min 40mm diameter PVC conduit in trench parallel to the 1" tank water delivery pipe, to the proposed location of the Pump Controller (see below note)

6.3. Connect 40mm conduit to tank and run to 'Pump Controller' through which the pump electrical cables are to be fed

NOTE: Cable may need to be extended if 'Pump Controller'. If so it is recommended to leave a minimum of 3m of slack in the tank, to allow for easy removal of the pump should the need arise. The electrician should not work on live wires when connecting the system. All cable joints must be waterproofed and comply with Australian Standards.

6.4. PLUMBER / DRAINER to lay 1" tank water delivery pipe in trench parallel to the electrical 40mm PVC conduit to proposed location of the 'Pump Controller'. (See below note)

6.5. ELECTRICIAN must place weather-proof power outlet (10amp single phase) within 250mm of 'Pump Controller' location.

NOTE: Both the 1" tank delivery water pipe and 40mm electrical conduit should be ended approx 300mm off the wall, 200mm apart, under the proposed location of the 'Pump Controller'. Please use gradual bends of no greater than 45 degrees in the conduit; this will allow cable to be pulled through easily.

7. FIT-OFF OF PUMP CONTROLLER

7.1. Take 'Pump Controller' and screw into bottom male 1" thread, which the installer must fit to pump delivery pipe from tank. Wall mounting kit is supplied if you wish to mount controller on the wall

NOTE: 'Pump Controller' must be installed in upright position with water flow going from base through and out the top of controller

7.2. Plug the pumps' electrical cable into short female plug of 'Pump Controller'. Then plug longer male 3 pin plug of controller into weather proof outlet supplied by the electrician.

Connect outlets to line coming from top of 'Pump Controller' using your 1" flexible hose if required

NOTE: Isolation valve must be fitted at the top of the pump controller (Not Supplied)

8. ELECTRICIAN

NOTE: The Onga 'Dominator' pump comes with a standard 20mt power cable, this allows the max distance from tank to 'Pump Controller' to be approx 15mt. **IMPORTANT:** If the required cable length is to be longer than 20mt, electrician must calculate correct cable size for the extension or contact Onga for advice. Please note additional cable is not supplied. **PLEASE USE THE CORRECT INSTRUCTIONS FOR REQUIRED DISTANCE BETWEEN TANK AND PUMP CONTROLLER WHERE THE PUMP CONTROLLER AND TANK ARE NOT FURTHER THAN 15 METRES A PART USE THE FOLLOWING INSTRUCTIONS (this allows a distance of approx 15mt from tank to 'Pump Controller')**

→ WHERE THE 'PUMP CONTROLLER' AND TANK ARE NOT FURTHER THAN 15 METRES APART USE THE FOLLOWING INSTRUCTIONS (this allows a distance of approx 15mt from tank to control box).

- 8.1. Cut off pump plug 300mm from end of cable and keep aside to reattach
- 8.2. Feed cut pump power cable and extension through conduit from 'Action Tank' to 'Pump Controller' leaving at least 1.5metres of slack in the tank.
- 8.3. Join pump cable back to pump plug using heat shrink
- 8.4. Plug pump cable into Onga 'Pump Controller'

→ WHERE THE PUMP CONTROLLER AND TANK ARE FURTHER THAN 15 METRES APART USE THE FOLLOWING INSTRUCTIONS

NOTE: Additional length of power cable is not supplied – please purchase separately.

- 8.5. Cut off 'pump plug' 300mm from end of cable and keep aside to reattach to extension cable.
- 8.6. Cut the pump power cable exactly 2.5mt in length from top of pump
- 8.7. Calculate extra cable length and type required allowing for slack inside control box and tank
- 8.8. Join the 'pump' cable inside the tank using heat shrink - **IMPORTANT** clip cable through dog clip to keep Heat Shrink Connector at the top of the tank and out of water.
- 8.9. Feed the pump power cable (supplied by you) through 40mm conduit hole located on the side of the top of Action Tank to 'Pump Controller'
- 8.10. Rejoin the pump plug to the extension cable and Plug Pump Cable into Onga Pump Controller

IMPORTANT: ELECTRICIAN MUST COMPLETE STEP 9 IF PLUMBER IS NOT RETURNING TO SITE.

IMPORTANT: DO NOT ACTIVATE POWER TO PUMP IF COMMISSIONING HAS NOT BEEN DONE.

9. COMMISSIONING

- 9.1. To commission system – turn power on, turn hose tap on; allow sufficient water out of the tap to flush the delivery line. Check that all fittings within tank and above ground are tight with no visible leaks.
- 9.2. Check that all strainers are clear of wrapping and other obstructions and that all signage as required by the relevant local authority has been installed. i.e. 'Rainwater in use'

10. OWNERS MANUAL

- 10.1. **IMPORTANT** Complete the 'Owners Manual' enclosed with the warranty sheets located in the kit box making sure that the serial number of the Action Tank has been entered in the manual (this number can be found stamped to the side of the square top of the tank).
- 10.2. **PASS THE COMPLETED HOMEOWNERS MANUAL ONTO THE PROPERTY OWNER OR BUILDER.**

11. TROUBLE SHOOTING

Please see relevant Owners Manuals for Trouble Shooting Steps or call Action Tanks Support on the numbers below.

****It is very important that the attached OH&S Risk Assessment form is referred to prior to the commencement of installation****

Additional information is available on our web site www.actiontanks.com.au
Action Tanks (Qld) 1800 066 587 (NSW) 02 9453 0300 (Vic) 1300 65 40 40

RISK ASSESSMENT

Installation of Underground Action Rainwater Harvesting System

Project Name: _____

Date: _____

Person Completing Form (Name): _____

(Signature): _____

Please tick all appropriate boxes

Equipment to be used	
Ladders	
Excavator	
Power Tools	
Power Leads	
Wheelbarrow	
Shovels	

Personal Protective Equipment	
Hard Hat	
Safety Boots	
Safety Vest	
Hearing Protection	
Safety Glasses	
Safety Harness	
Safety Vest	
Gloves	
Barrier Cream	

Activities	
Excavation of Earth	
Backfilling Excavation	
Drainage	
Plumbing	
Landscaping	
Cement Work	

Incident Codes	
CLASS 1: (High Risk) Permanently disable or kill	
CLASS 2: (Medium Risk) Temporary disable or serious injury	
CLASS 3: (Low Risk) Cause minor injury	

Potential Hazards	Possible Controls	
Fall into Excavation	Do not allow persons into excavation for single tank installs. When required to enter the excavation for multiple tank installations, ensure that excavation is battered or benched as per code and/or that safety precautions are taken to ensure the excavation does not collapse. Refer below.	
Collapse of Excavation	Ensure that a qualified person supervises the excavation. Make sure that spoil from excavation is placed a safe distance away from edge. Enter excavation only during multiply tank installations. Batterer Bench excavation, if required, in accordance with code. Provide stops/barriers to stop machinery approaching too close to the edge of the excavation. Be aware of zone of influence to other structures.	
Slip, trip & falls	Area clear of building material, good working surface available, ensures you are working from stable ground.	
Cuts	Ensure all sharp edges are protected. Glass or broken materials are removed. Gloves are worn to protect hands; All sharp material is stacked and removed from site.	
Lack of Supervision	As installation of Action Tank can be achieved within a few hours never leave excavation unattended without barricading or roping off with safety tape. Continually monitor the works to ensure that conditions remain safe and that excavation does not become water logged or encroached upon by other building works. If excavation is left overnight, barricades and safety fencing must be erected.	
Injury Caused by Machinery	Ensure that high visibility safety clothing is worn and good communication with a competent machine operator is maintained.	
Machinery flipping over	Ensure the excavator is working on stable ground. Plant inspections are carried out. Operator is trained in safe use of the plant. Look for electrical hazards.	
Contact with Electricity	Watch for overhead power lines. Turn off any power that is capable of being cut or touched during excavation, before starting work, ensure all power tools are protected by RCD, Ensure all power tools and leads are tested and tagged.	
Manual Handling	Ensure good manual handling techniques are used when lifting, pushing, pulling, twisting and stretching. If the load is heavy use two man lifts or mechanical devices.	
Safe use of PPE	Ensure correct PPE is being used for the task at hand. Hearing protection, Safety glasses, safety harness, safety boots, high visibility safety clothing.	
Drowning	If there is a risk that the excavation may collect or retain water, ensure fall protection is in place; qualified person is available to perform EAR or CPR. Floatation devices are worn.	