



Standard installation guide for COMPACT toilet.

Another guide is available if you wish to
set up the toilet as wheelchair accessible.

Mk 2 COMPACT INSTALLATION

The COMPACT is an easy toilet to install providing the building has been correctly prepared. There are some choices about how to lay out the cubicle. See the various cubicle layout drawings to check up on this. We have separate drawings if you intend to comply with disabled access requirements.

The ease with which the urine pipe-work and ventilation duct can be connected will depend on access under the building.

NATSOL does not supply pipes for the soakaway connections and vent pipe. Carriage would cost more than the pipes. Additional pipe fittings may also be required though some are included in the pack.

You also need to construct an outdoor composting facility in line with our specification.

It's a good idea if we discuss the height of the toilet cubicle floor in relation to ground level outside the building before you start.

You should install a NatSol fan unit on the vent pipe if the toilet is situated inside a reasonably airtight heated building, and has electricity.

If in doubt about any aspect of the installation don't hesitate to call.

Please note:-

We do not guarantee our products either in terms of durability of components or correct function unless properly installed.

If you are an experienced installer of our COMPACT toilet it's still worth checking through to see if there is anything new.

Contents:

Summary of tool and personnel requirements for the whole job
Installation instructions for the toilet
Technical drawings of the product and cubicle layout
Soakaway specification
Composting facility specification

T 01686 412653

NATSOL - COMPUS COMPACT

SUMMARY OF TOOL AND PERSONNEL REQUIREMENTS -

- 1. Materials required - NOT supplied by NATSOL**
 - a. Materials to construct outdoor composting facility. See **Tyre Stack Composter**
 - b. BROWN 110mm soil pipe to connect to soakaway
 - c. GREY or BLACK 110mm pipe and clips for vent pipe. Rain cowl if fan driven.
 - d. Add' pipe connections as necessary.
 - e. Vent pipe flashing if the vent pipe is internal and has to pass through the roof.
 - f. Hardcore for soakaway
 - g. Silicone lubricant for push fit joints on pipe-work
 - h. Solvent weld to connect 110mm pipe to back inlet gully
 - i. Clear silicone to seal around base box.
 - j. Sufficient hardcore to install the back inlet gully
- 2. General building tools & equipment including the following:**
 - a. Cordless drill, mastic gun, plastic and wood saws
- 3. Personnel & skills required**
 - a. General building skills. Two people makes installation of the vent pipe easier.
 - b. If the vent has a fan it will be necessary to employ a qualified electrician to connect it.

Construction times

Fitting the base box, pedestal and vent pipe could be achieved in half a day by one or two people if the building is correctly prepared. Time taken to construct the soakaway is very dependant on its location and the soil type. Time taken to construct the composting facility along the lines we suggest might be a couple of hours plus whatever time is taken to construct a protective fence to your own specification.

NB. These construction times are given in good faith but NatSol Ltd cannot be held responsible for the additional cost incurred by installation times in excess of these or for any other circumstances [e.g. caused by delay in completion of the installation] which may arise as a result of extended installation times.

Outdoor composting facility

See the attached drawings and specification and our proposal on how to build a suitable facility. You may need more than two tyre stacks depending on levels of use. Worn tyres are normally freely available from tyre depots. Low profile ones are best.

Building and site preparation

The building should be prepared in line with one of the following drawings. If you require wheelchair accessibility you need different drawings, so please ask for these.

Don't install a Compact too low in relation to the level of the ground in the area where the soakaway is going. This could result in ground water coming back up from the urine soakaway into the base box. (You really don't want that!) Either raise up the building (or the toilet within the building) or set the soakaway downhill. On most sites we advise that the floor level should be 300mm minimum above ground level unless the soakaway is sited downhill. To be absolutely certain of avoiding water backing up, the cubicle floor level would have to be 500mm above the level of the ground where the soakaway goes. In very free draining ground it should be alright for the toilet to be less than 300mm above ground level but the back inlet gully (BIG) will then be set deeper in the ground and you may then need extension pieces to connect between the plastic body and the aluminium cover - which needs to be level with the ground. We can supply the extension

pieces though they are readily available from plumbers' merchants. If in doubt, or if you have waterlogged ground then please consult with us.

Installation of base box

The base box fits into the floor aperture with the urine exit pipe at the front RH corner when facing the toilet. It will be necessary to work out how a 110mm soil pipe is going to be connected to the outlet spigot. (For shepherd's hut installations using a NatSol side gully see separate pictures and discuss with us.)

The floor aperture will need a vertical groove each side towards the front to accommodate the bulges on the sides of the base box. These grooves are not shown on the drawings. If you fail to do this the box may be compressed sideways and this will prevent the brown retaining board inside sitting down fully in its slot. It will then interfere with the urine separation.

The top edge of the base box is around 6 or 7mm thick. Try to arrange for the flange on the top of the base box to end up level with your finished floor level (FFL). You could put packers between the flange and the sub-structure. If that's not possible then it's OK for it to be set down by a maximum of 10mm from the FFL.

You could rebate a timber floor so that the box finishes flush with the floor OR it may be that you have a floor covering (e.g. timber laminate, linoleum or tiles) which will come up to the base box edge. The base box should sit on a bead of mastic to eliminate draughts into the cubicle.

If the top of the base box is set lower than the finished floor surface you will find that the pedestal does not locate quite so tightly on the base box and there will be a bit more slack.

The base box edge must NOT be higher than the surrounding floor surface.

The bottom of the box should not rest on the soil beneath the building. A 50mm tolerance is advisable to allow for possible settling of a shed or building.

Urine connection to back inlet gully and soakaway

Study the schematic drawing showing the layout of the urine connections and vent pipe.

NatSol provides the following 110mm connections in BROWN:- straight; d/s 90 deg bend; T connection for branching off to the vent pipe. Remember that BROWN pipe and fittings should ONLY be used where they are NOT exposed to daylight.

The **back inlet gully** (BIG) must be situated in an easily accessible place outside the building. If the invert of the urine pipe (i.e. the bottom of it) is set deeper than about 200mm in the ground then you may need extension pieces to reach up to ground level where the aluminium cover is situated. We could supply these extensions, or they can be easily obtained from a builders' merchant. Glue on the aluminium cover using an adhesive mastic and support the gully in the ground with compacted hardcore. Make sure the urine pipe runs at not less than 1:60 downhill to the gully and soakaway.

NB: What's the BIG for anyway? It acts like a trap on the underside of a sink and prevents air coming into the toilet from the soakaway. Ground is very porous to air. Such air ingress would spoil the pull of the vent duct and result in smells. The BIG also prevents small furry creatures (e.g. moles, mice, voles, rats) and insects finding their way from the ground into the toilet. (You really don't want that!)

Pour water down the base box and make sure it emerges in the soakaway before covering the soakaway over with the soil exclusion membrane and soil.

Soakaway construction

See separate instructions for soakaway construction.

Vent pipe and connection to urine pipe

If you are installing this toilet in a reasonably airtight building with heating and electricity then you really should be using our fan unit rather than a passive vent. If you didn't order the fan we'll take back the directional cowl and credit it against a fan unit. You will only need a rain cowl on a fan driven vent. We don't supply that as the colour needs to match the vent pipe which you are buying.

Remember that the vent pipe must be GREY or BLACK all the way down into the ground. BROWN is not UV protected. In order to comply as closely as possible with building reg's the pipe should terminate at 900mm above the highest opening window on the building.

If you are doing the ventilation passively then the closer you get the vent pipe 'T' to the toilet base box the better. If the vent is fan driven then the vent pipe 'T' can be much further away.

If the fan unit is being fitted the label on the fan itself should be uppermost. The fan should run continuously. This will cost £2 to £3 a year in electricity and the fan is likely to run for 10 years without difficulty. The fan unit can be installed outside the building but the low voltage connection must be protected from the elements. Tucking this connection under the eaves is a good solution. The power supply must be installed by a qualified electrician.

Fit the cowl to the top of the pipe. Secure the directional cowl with adhesive mastic or self tapping screws. A rain cowl can be fixed with solvent weld or self tapping screws.

Setting up the toilet

First make sure that the brown retaining board is fitted inside the base box. Then fit the trug with a biodegradable liner and place it in the base box with the handles to the sides. The liner should be tucked down all round between the trug and base box sides and particularly at the front between the retaining board and trug. The trug should distort and will be pushed into the corners of the base box. Add some wood shavings or shredded paper and position the pedestal on top. Fit the catch at the back to prevent tipping. Hand the short urine plate on the hooks inside. It passes through the aperture and can be removed this way for cleaning. The toilet will still work if the short plate is not present but the urine separation may be less effective.

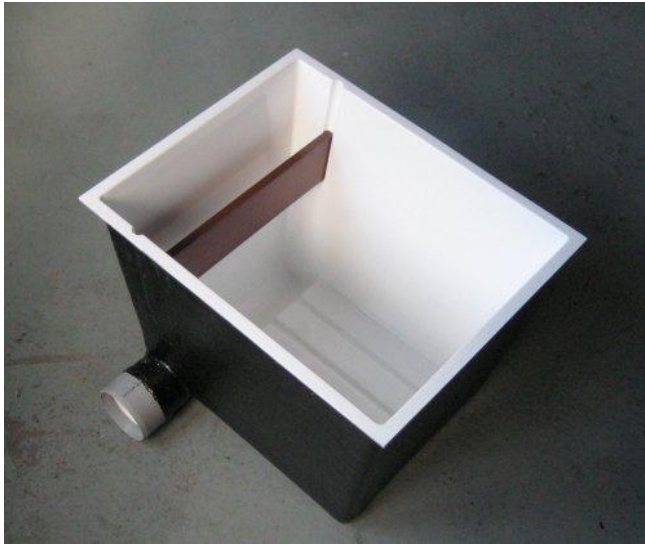
Pictures showing installation of a Compact in a garden studio.

The studio has a suspended timber floor. The space available for the Compact was the minimum shown on our cubicle layout drawings – example A, no soak box. The ventilation is fan driven. The base box was set into a rebate in the floor surface.



The brown pipe to the left of the urine pipe is carrying waste water from a shower. The urine pipe must NOT connect to this before the back inlet gully (BIG). Combining the two waste streams after the BIG is acceptable if the soak away is large enough. The vent pipe 'T's off between the toilet and the BIG. The fan is situated close to the barge board on the rear roof extension. This provides protection for the electrical connections.

Compact toilet components



Base box uninstalled. Retaining board fitted.



Trug fitted – liner not shown.

In the NatSol premises. ►

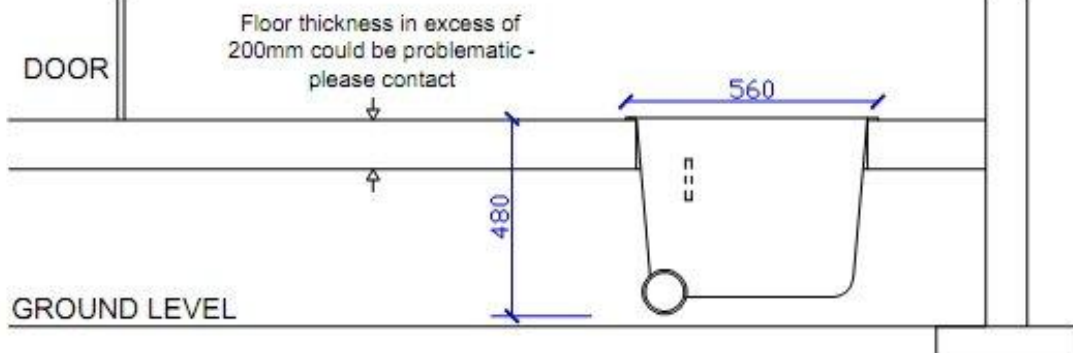
A soak box has been fitted on the wall behind. This is an optional extra.



Liner fitted inside trug.



An uninstalled compact showing how the pedestal sits on the base box.



Compact cubicle dimensions – see attached drawings:

The dimensions X,Y and Z depend on how:

- i. how much space you have
- ii. whether the door opens in or out
- iii. how you wish to access the trug beneath the pedestal.

If you need a wheelchair accessible cubicle then please ask for the relevant drawings.

The dimension 'X' between the back of the floor aperture and the rear wall of the cubicle can be set as follows:

1. If you are intending to access the trug beneath the pedestal by placing the pedestal to the side or removing it out of the cubicle altogether then 'X' could be as little as 60mm. One consequence of this set up is that the toilet lid will not have anything to rest back against unless you fit something to the rear wall of the cubicle for that purpose.
2. If you are purchasing a wall mounted NatSol soak box and wish the lid to rest against it then 'X' should be 265mm.¹ With this arrangement it will be necessary to access the trug as in 1. above, i.e. by removing the pedestal to the side or out of the cubicle altogether.
3. If 'X' is at least 450mm then the pedestal can be rotated through 90 degrees and placed behind to access the trug. With this arrangement a NatSol soak box can be fitted to the rear wall of the cubicle but it will not act as a lid rest being too far back.

The dimension 'Y' depends on whether you choose to have an outward or inward opening door and, if inward opening, how wide it is. We recommend that the unimpeded space in front of the floor aperture be 400mm **minimum**. So 'Y' could be 400mm if the door is outward opening or 400mm + the door width, if inward opening. We recommend that you experiment with how much space you need in front of a WC before setting up your cubicle.

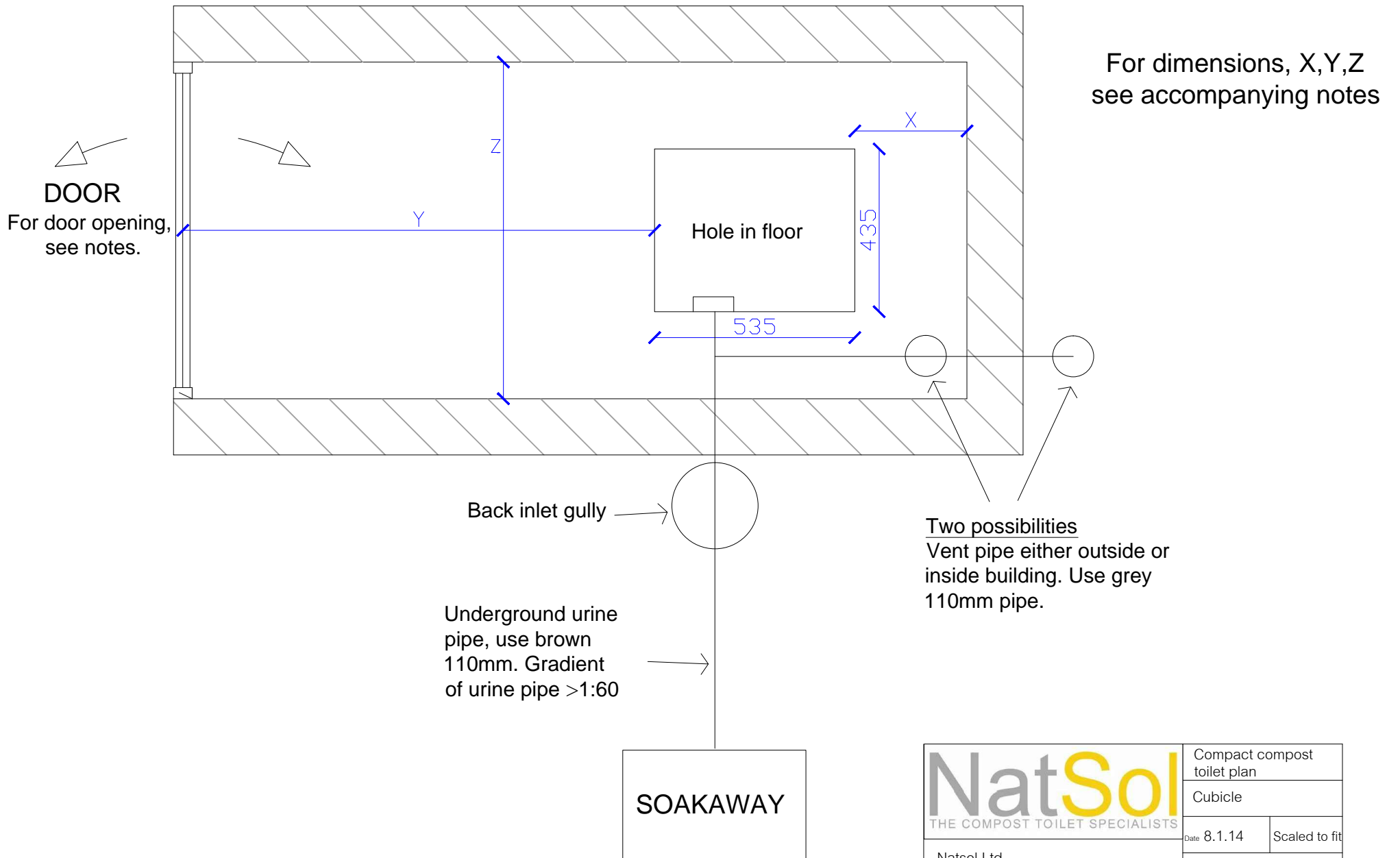
The dimension 'Z' depends on whether or not you wish to access the trug by removing the pedestal and placing it to one side. We would recommend a minimum of 800mm width of cubicle if the pedestal is not to be placed to one side and 1100mm if it is. The additional 300mm should all be on one side with the floor aperture offset from centre.

Summary of minimum cubicle sizes with outward opening doors

- A. **With removal of the pedestal outside when emptying:** 800mm wide; 1m front to back without a NatSol soak box or 1200mm with one.
- B. **With the pedestal placed to one side:** 1100mm wide. Front to back dimensions as in A.
- C. **With the pedestal placed behind:** 800mm wide; front to back dimension 1400mm.

¹ The soak box is normally fitted so that its base is about 650mm above floor level. However, the front of the soak box is not vertical and by fitting it higher or lower on the wall one can adjust the extent to which the toilet lid goes back.

GENERIC CUBICLE PLAN

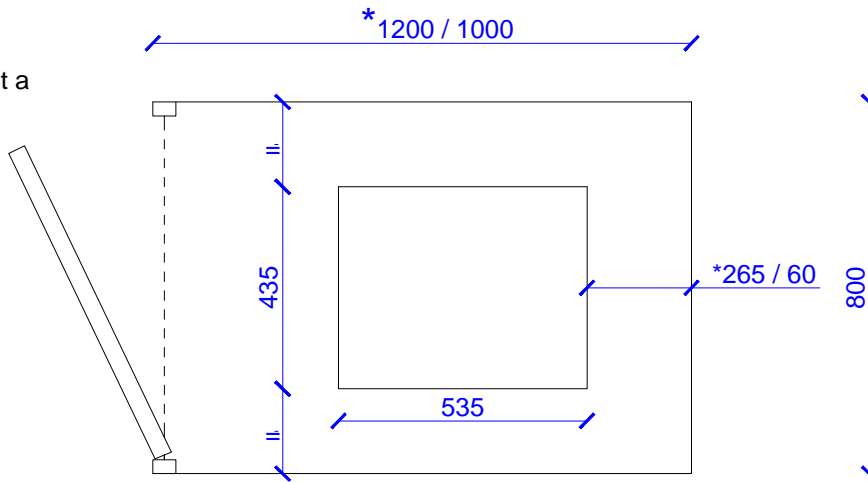


 THE COMPOST TOILET SPECIALISTS	Compact compost toilet plan	
	Cubicle	
Natsol Ltd Tel: 01686 412653 www.natsol.co.uk	Date 8.1.14	Scaled to fit
	Drg. No.004	
	Drn.M.Waterfield	

Minimum cubicle sizes with outward opening door

A.

*With or without a Soak box

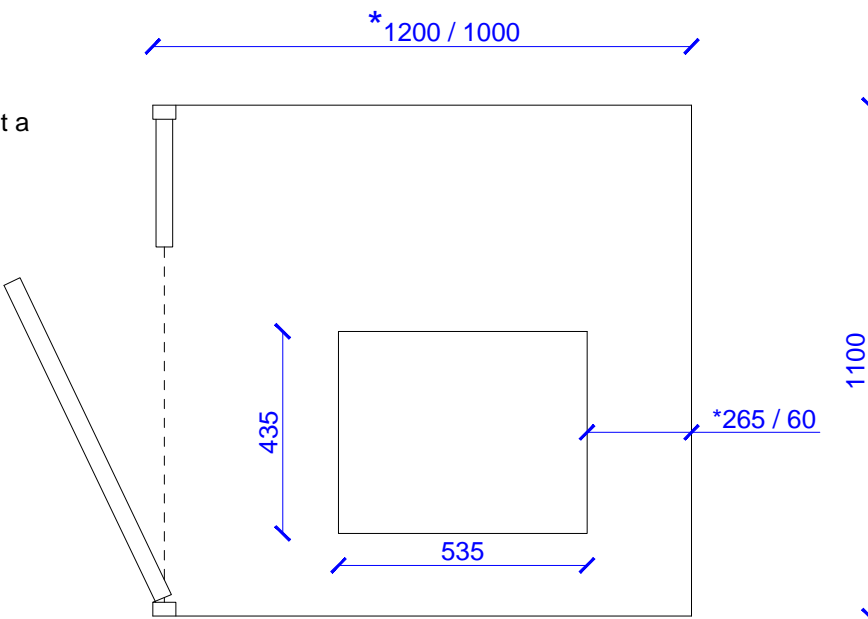


SMALLEST POSSIBLE CUBICLE

PEDESTAL TAKEN OUTSIDE

B.

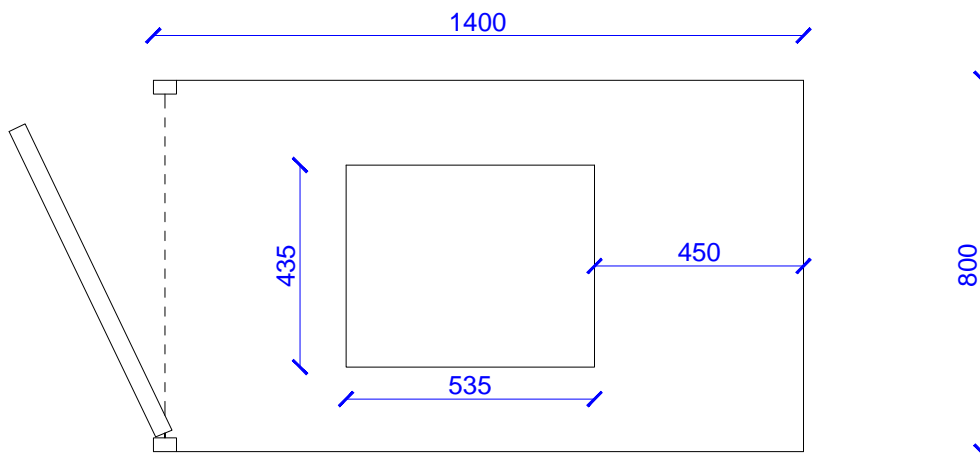
*With or without a Soak box



WIDER CUBICLE

PEDESTAL PLACED TO ONE SIDE

C.



LONGER CUBICLE

PEDESTAL PLACED BEHIND

 THE COMPOST TOILET SPECIALISTS	Minim cubicle sizes	
	outward opening door	
Natsol Ltd Tel: 01686 412653 www.natsol.co.uk	Date 8.1.14	Scaled to fit
	Drg. No.006	
	Drm.M.Waterfield	

URINE [AND RAINWATER] SOAKAWAYS

As levels of use, site conditions and local regulations will vary considerably, **NatSol** is unable to provide site-specific design advice on disposal of urine from the toilet or rain from the roof of a building. These notes are provided as an illustration of typical requirements to allow the planning of an installation but do not guarantee compliance or adequate performance for a given site. Whilst the volumes discharged are generally too small to cause concern, Building Control and the Environment Agency should be consulted.

The volumes of urine or roof run-off from stand alone toilet cubicles are small but under-sized soakaways in heavy soil or where there is a high water table will fail. This could result in surface water backing up and flowing into the toilet base box via the urine outlet. Where this is a concern contact **NatSol** to discuss possible solutions.

Roof water

Typically this will be collected in a water butt. However any overflow must be directed away from the building foundations. It is usually recommended that the roof water is kept out of the urine soakaway and directed to a separate soakaway. Construct a pit 600mm square by about 600mm deep filled with broken bricks, or similar, to a depth of 500mm should suffice in all but the heaviest soil. See fig 1. A layer of geotextile excludes soil.

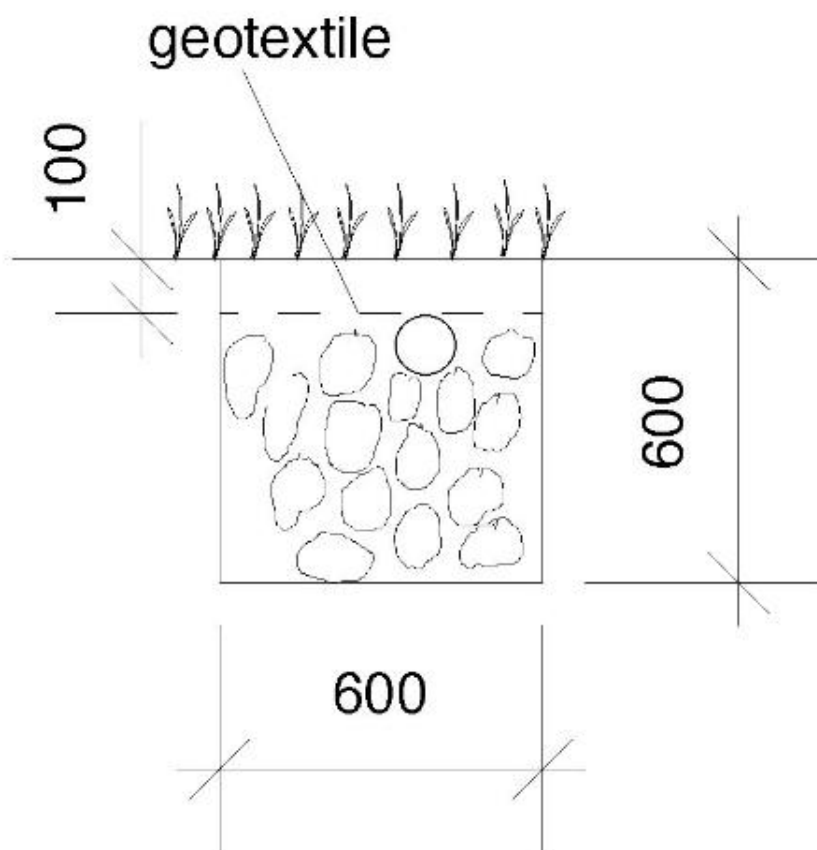


Figure 1. Rainwater soakaway.

Urine

We can now supply a ready made GRC soakaway for urine . Alternatively, a soakaway can be constructed quite easily on site using hardcore and the geotextile we supply - see figure 2. It is fairly shallow so as to allow dispersal and treatment in the biologically active topsoil. Length of the soakaway will depend on expected usage. In low use situations e.g. a garden summer house, 1 metre will be sufficient in most soils.

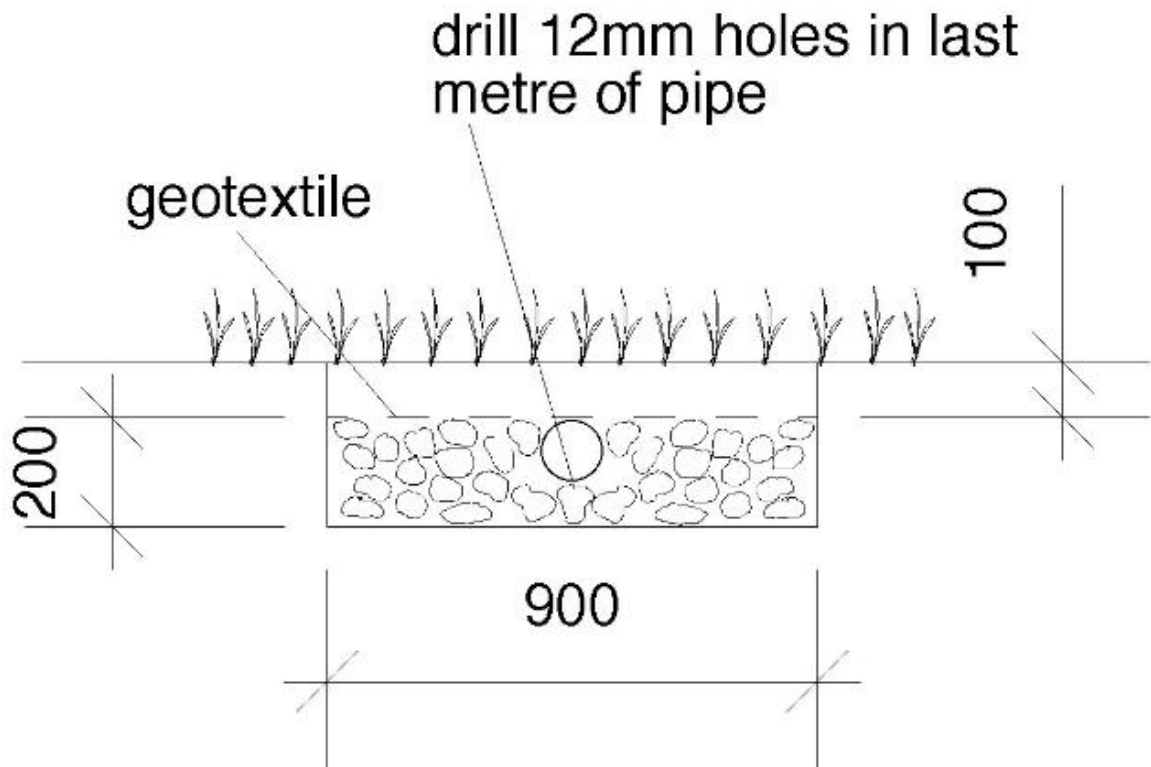


Figure 2. Urine soakaway

Tyre stack composters

One method of making secure composters is to use old car tyres to construct a modular composting bin. This idea has been around for some time and may have been developed by the Centre for Alternative Technology. It makes good use of a waste product.

Some useful points to consider when making and using a tyre composter:

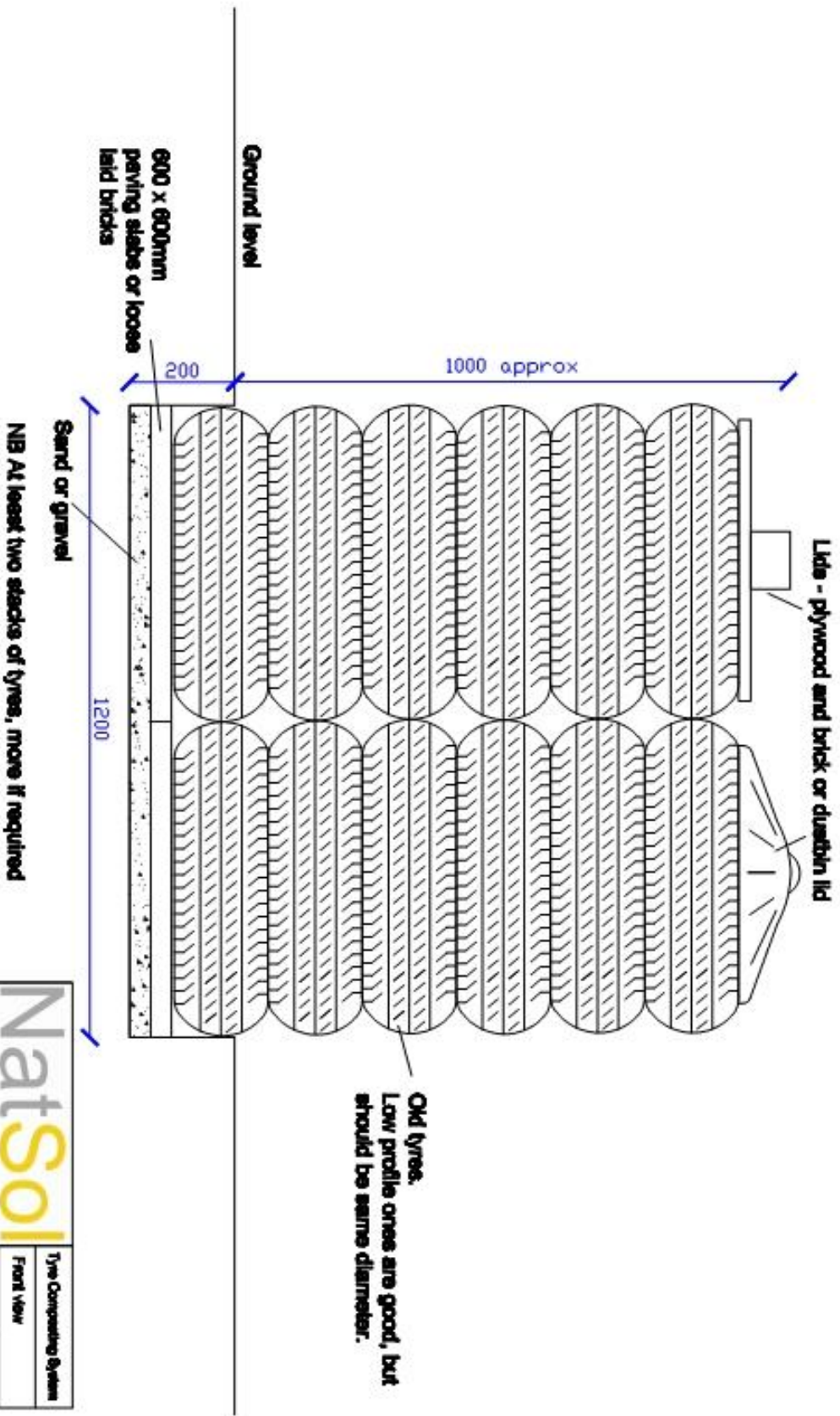
- Radial tyres have steel wire in them making them rat proof.
- The stack should stand on a concrete paving slab or wire mesh (weld mesh) so as to prevent rats finding their way in from underground.
- Using car tyres, the volume of a stack 1.2m high might be around 0.3m³ depending on how much material gets into the rim.
- If you intend to carry out further composting of compost from a COMPUS TWIN FULL ACCESS (or REMOTE) toilet you may need several stacks. Four grouped together in a square would take up an area approximately 1.2m square (4' x 4').
- It is inadvisable to go higher than 1.2m (4') as the stack will become unstable.
- You must keep a record of when stacks were filled. We suggest that they are left for a few years after which the compost should be safe **but we generally advise against the use of finished compost on food crops where the edible part is contact with the soil or might come into contact with the soil.**
- When the stack is eventually dismantled the tyres will have to be shaken or stood on edge to get the compost out of the rim. Low profile tyres are better since the rim is very shallow.
- In the drawings, notice how the bottom tyre is partly underground. This means that any liquid from the composting process disappears into the ground without risk of human contact.
- If using a concrete paving slab it may be wise to drill some 10mm diameter holes around the tread of the lowest tyre to admit soil organisms e.g. worms. Manure worms can also be added from an existing muck heap and will speed up decomposition.
- Some rain ingress into the stack is useful. The lid need not prevent this.
- The fence keeps children and animals away and prevents the stack from being knocked over. Pallets make good fences or old corrugated sheeting.



Use the following drawings as a guide and extend as necessary:-

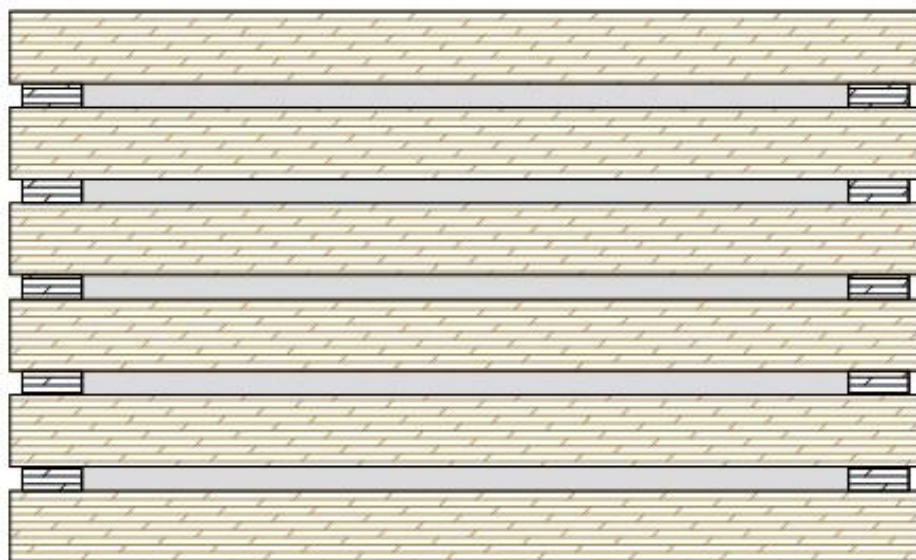
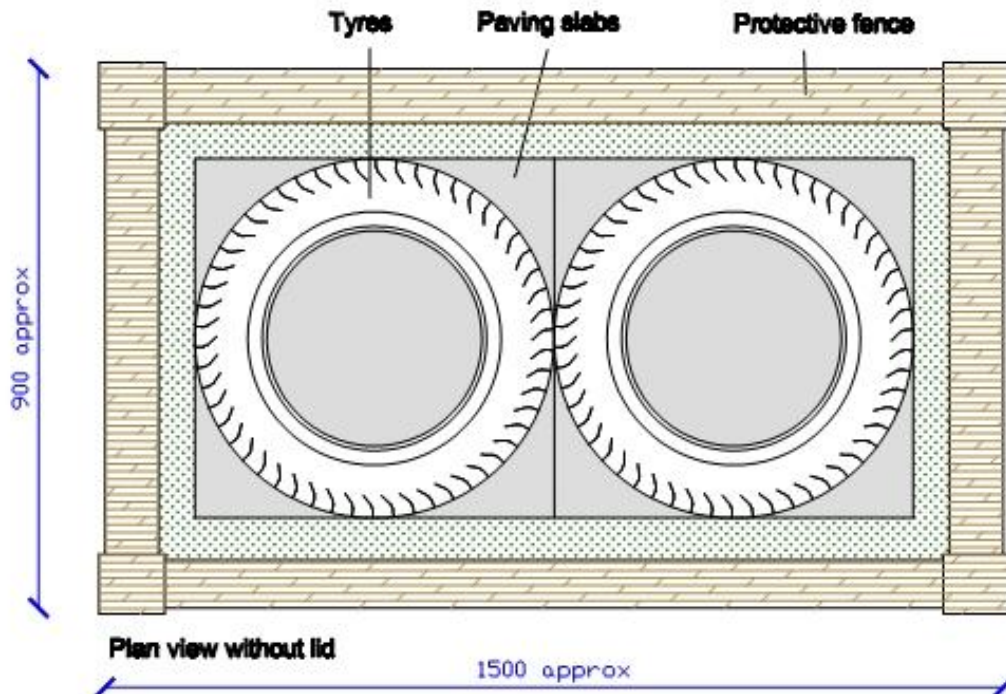
TYRE STACK COMPOSTERS

Shown here without protective fence



 <p>NatSol THE COMPOST TOILET SPECIALISTS</p>		Tyre Composting System	
		Front view	
Natural Ltd		Date 04/07/20	Scale 1:50
Tel: 01825 412653		Dwg. No.	
www.natsol.co.uk		Dra. B. Woods	

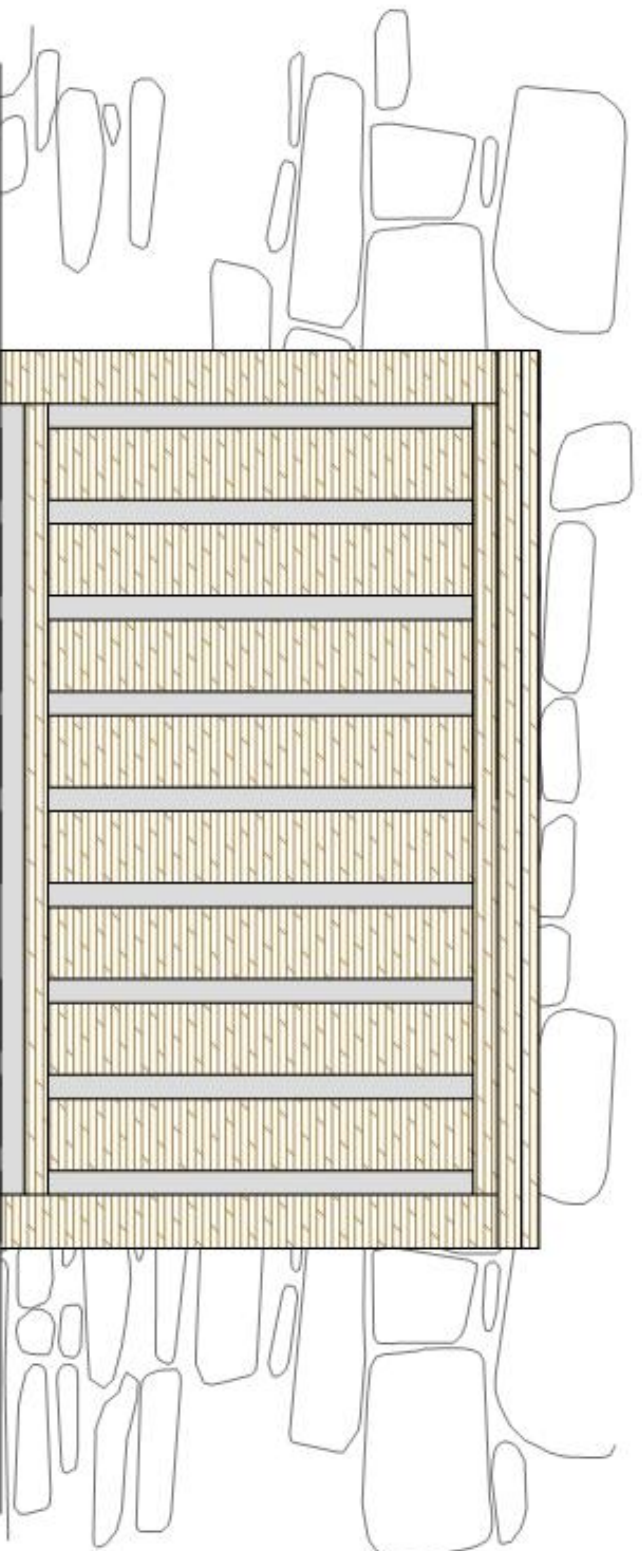
PLAN OF TYRE COMPOSTING SYSTEM



Slatted lid if required

 THE COMPOST TOILET SPECIALISTS	Tyre Composting System	
	Plan views	
NatSol Ltd Tel: 01606 412663 www.natsol.co.uk	Date 01.07.09	Scale 1:10
	Dwg. No.	
	Dwn. S.Wade	

FRONT ELEVATION OF FENCED OFF TYRE COMPOSTING SYSTEM



Notes:-

1. Protective fence around tyre stacks. Approx 3'-4' (900-1200mm) high. Lid is hinged shut. Front section removable.
2. Ideally timber to be larch (European), Douglas or Oak - which are naturally durable. Or make it from recycled pallets!

NatSol THE COMPOST TOILET SPECIALISTS	Tyre Composting System	
	Fence front view	
Natural Ltd Tel: 071808 412803 www.natsoil.co.uk	Date: 01/07/08	Scale: 1:10
	Dwg. No.	
	Dtn. B. Woods	