

## Quick Guide – Installation OsmaDrain

### Installation Notes

The information included on this page is based on the recommendations given in: BS 8000-14: 1989, BS EN 1610: 1998, BS EN 752: 2008 and British Board of Agreement Certificate: 87/1835.

Bedding and backfill must be of the correct specification. Excavated 'as-dug' material may be suitable. (See BS EN 1610 and BS 8000: Part 14).

### Excavation

It is important to take precautions against trench collapse. Do not open trenches too far in advance of pipe laying. Support the sides of trenches that are deeper than 1.2 metres. Keep trench widths as narrow as practicable but not less than 300mm wider than the pipe diameter, i.e. 150mm clear each side of the pipe to allow proper compaction of the sidefill.

### Bedding

#### OsmaDrain pipes laid on trench bottom

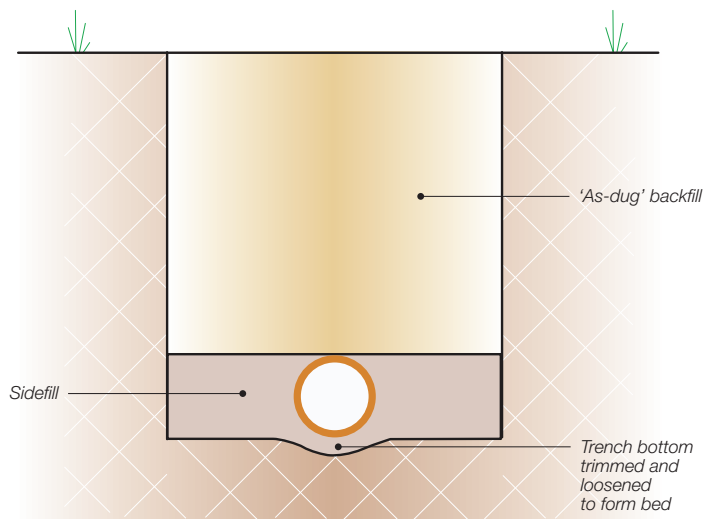
Where the 'as-dug' material is suitable\*, the bottom of the trench may be trimmed to form the pipe bed (See Figure. 4).

\*Suitable material is defined as granular material in accordance with the recommendations of BS EN 1610 and BS 8000 -14.

Small depressions should be made to accommodate sockets. After the pipe has been laid these should be filled carefully ensuring that no voids remain under, or around, the sockets.

When the formation is prepared, the pipes should be laid upon it true to line and level within the specified tolerances. Each pipe should be checked and any necessary adjustments to level made by raising or lowering the formation, ensuring that the pipes finally rest evenly on the adjusted formation throughout the length of the barrels. Adjustment should never be made by local packing. When the formation is low and does not provide continuous support, it should be brought up to the correct level by placing and compacting suitable material.

Figure 4: OsmaDrain pipes laid on trench bottom



## Quick Guide – Installation OsmaDrain

### OsmaDrain pipes laid on a 50mm minimum processed granular bed

Where the as-dug material can be hand trimmed by shovel and is not puddled when walked upon, a 50mm depth of bedding material may be used. In this case the material must be nominal 10mm single sized aggregate with no sharp edges, i.e. pea gravel (See Figure. 5).

### OsmaDrain pipes laid on a 100mm minimum processed granular bed

When the as-dug material is not suitable as a bedding, a layer of suitable granular material as defined in BS EN 1610:1998, section 5.3.3.1, must be spread evenly on the trimmed trench bottom before the pipes are installed. The trench should be excavated to allow for a minimum thickness of 100mm granular bedding under the pipes (See Figure. 6).

The trench formation should be prepared, the bedding placed and the pipes laid in accordance with BS EN 1610:1998 and BS 8000-14:1989.

When the pipes are to be laid on rock, compacted sand or gravel requiring mechanical means of trimming should be used, or in very soft or wet ground, the bedding should be as detailed above.

Figure 5: OsmaDrain pipes laid on 50mm minimum of processed granular material

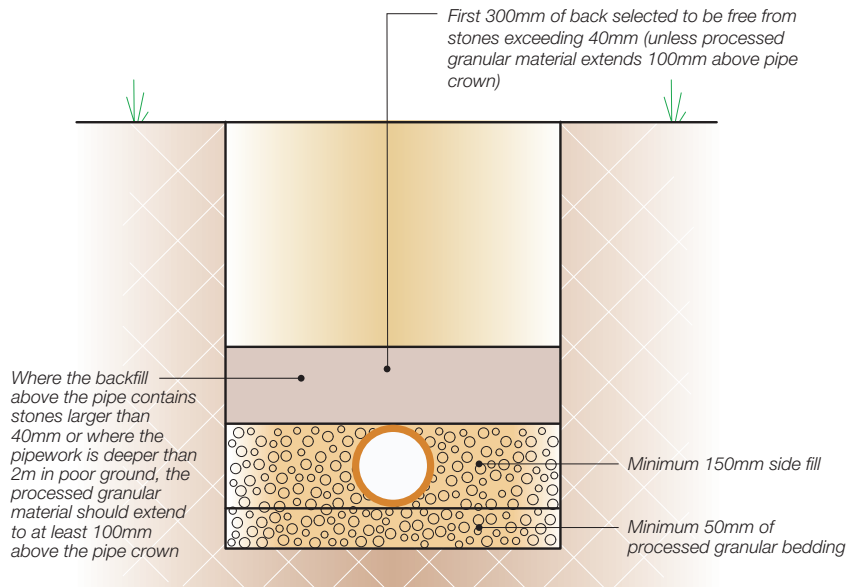
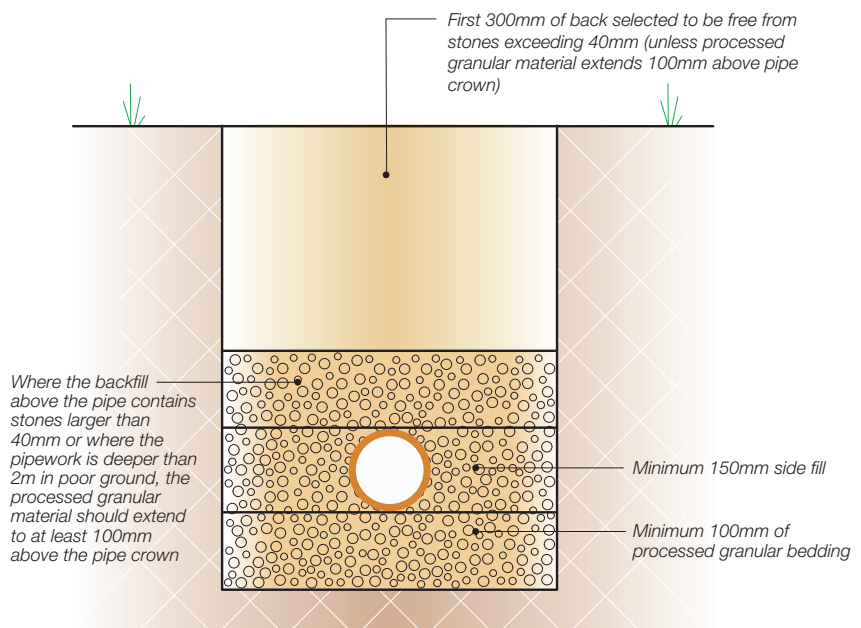


Figure 6: OsmaDrain pipes laid on 100mm minimum of processed granular material



## Quick Guide – Installation

# OsmaDrain

### Backfill Sequence

1. Place suitable sidefill material evenly on each side of the pipe in 100mm layers. Pay particular attention to the area under the lower quadrants of the pipe. Hand tamp well at each layer up to the pipe crown. Leave the pipe crown exposed.
2. If 'as-dug' material is free from stones exceeding 40mm, imported processed granular material is not needed above the pipe crown (See Figure. 5). Cover the pipe crown with a minimum of 300mm of compacted 'as-dug' material. If 'as-dug' material contains stones larger than 40mm, or the pipe is deeper than 2 metres in poor ground, extend the processed granular material for at least 100mm above the pipe crown.
3. In both cases, hand tamp the material fully at the sides of the pipe while tamping lightly over the crown. Continue hand tamping until a finished layer of 300mm, 225mm in adoptable situations, has been placed over the pipe.
4. 'As-dug' material may be backfilled in 300mm/225mm layers and mechanically tamped. Dumpers or other vehicles must not be driven along the pipe tracks as a means of compacting. Surround vertical or steeply raking pipes with 150mm bedding material, suitably tamped up to the invert level of the incoming pipe (Backdrops) or to ground level.

### Pipe Protection

As PVC-U pipes are flexible they can accommodate a degree of ground movement and pressure without damage. However, if the pipe needs protection the following recommendations should be followed:-

#### Traffic free areas

In areas where no loading is expected (e.g. in gardens) pipes at depths less than 0.6 metre, should, where necessary, be protected against risk of damage from garden implements, for example by placing over them a layer of concrete paving slabs with at least a 75mm layer of suitable material between pipe and slab. (See Figure. 7).

#### Public highways / adoptable situations

In areas where loading is expected, pipes laid at depths less than 0.9 metre below the finished surface of a road, (1.2m in adoptable situations) should be protected with a concrete slab of suitable strength which should bridge the full width of the trench so it sits on the trench wall (See Figure. 8). or, alternatively the pipe can be totally surrounded in concrete (See Figure. 9).

Concrete of suitable strength or the requirement for reinforced concrete to be determined by the engineer or adopting authority.

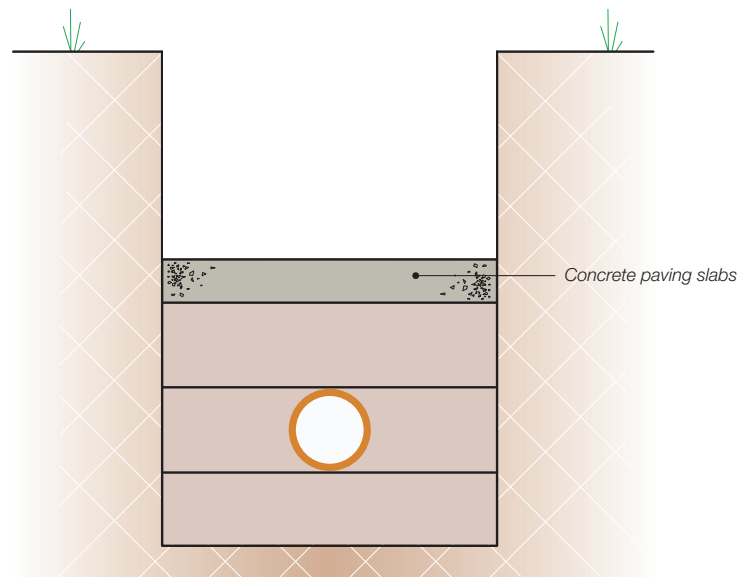
The normal maximum depth for all installations is 10 metres.

#### Use of concrete

If pipes are to be surrounded with concrete, make sure they do not float when the concrete is poured. Filling the pipes with water will generally provide enough ballast but side restraint may be needed to maintain alignment.

To maintain a certain degree of flexibility, insert 18mm compressible material, such as fibreboard or polystyrene, around the pipe joints (See Figure. 9). These boards must be at least the width of the concrete surrounds.

Figure 7: Pipe Protection in Traffic Free Areas – concrete paving slabs



## Quick Guide – Installation OsmaDrain

### Pipes under buildings

A drain may run under a building if at least 100mm of granular or other flexible filling is provided round the pipe. On sites where excessive subsidence is possible additional flexible joints may be advisable or other solutions such as suspended drainage. Where ground settlement is expected and the crown of the pipe is within 300mm of the underside of the slab, concrete encasement should be used integral with the slab (see The Building Regulations 2013, H1 para 2.23)

### Pipes penetrating walls

Where a short length of pipe is to be built into a structure, a suitable wall protection sleeve should be used. The short length of pipe should then be inserted through the wall protection sleeve, and fixed with couplers placed either side within 150mm from the wall face. The length of the next 'rocker' pipe should not exceed 0.6 metre. This will compensate for any settlement of the building or made up ground.

Alternatively, where it is not necessary for a pipe to be built into a structure, the provision of a lintel, relieving arch or sleeve may be used, leaving a gap of not less than 50mm around the pipe. Effective means should be adopted to prevent the entry of gravel, rodents or gases.

Figure 8: Pipe Protection – concrete slab

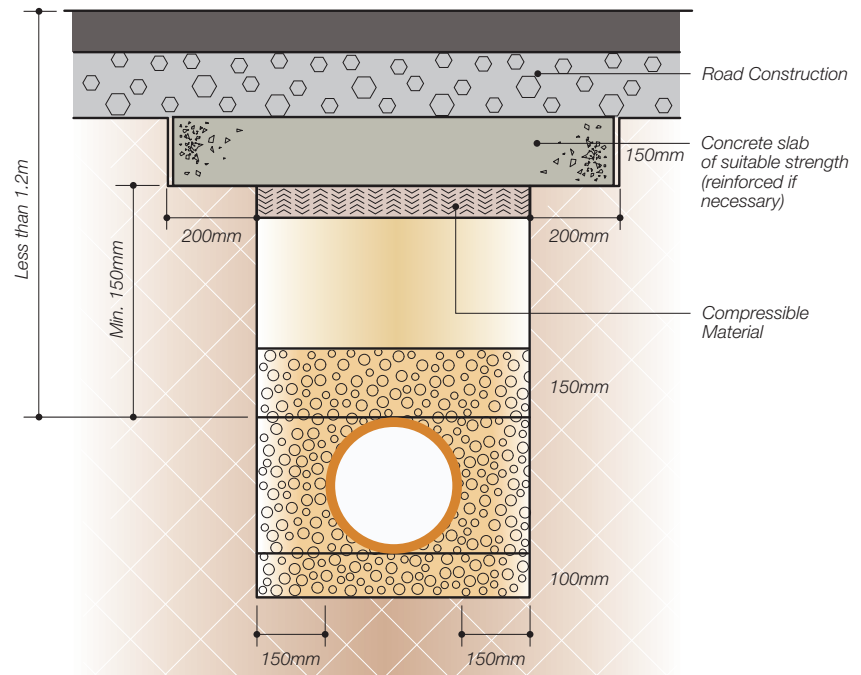


Figure 9: Pipe Protection – concrete surround

