

Bedding and backfilling drains

Plumbing Advisory Note

Issued August 2014

Plumbing contractors undertaking sanitary drainage installations need to ensure that pipework is properly supporting and bedded. Incorrect installation or use of backfill material containing soil lumps larger than 75mm may result in drainage materials being damaged. The resulting leaks can result in structural damage to buildings.

Office of the Technical Regulator (OTR) officers conduct audits to ensure that the bedding, laying, supporting and backfilling requirements for drains complies with Section 5 of AS/NZS 3500 Plumbing and Drainage.

Bedding drains

Extract from Section 5 of AS/NZS 3500.2 Sanitary Plumbing and Drainage

5.4.1 General

The bedding onto which drains are laid shall provide adequate and continuous support while accommodating the loads from the pipeline and backfill material. Bedding of drains shall comply with the following:

- a) In stable soil, drains shall be directly supported on the undisturbed base of the trench, provided that the base of the trench is free from any rocks or tree roots.
- b) In loam, clay, rock, shale, gravel or ground containing hard objects, drains shall be supported on a bedding material placed in the base of the trench.

5.4.2 Bedding materials

Filling materials used for bedding of drains (see figure 5.1) shall comply with one of the following:

- a) Crushed rock, gravel screenings or recycled crushed concrete, roof tiles or bricks of nominal sizes 7–10mm.
- b) Cement mortar containing one part of Portland cement and four parts of sand by volume thoroughly mixed with clean water to a workable consistency.
- c) Cement mortar bedding shall be used where the base of the trench is rock or shale and where the grade is greater than 20% and it shall:
 - i) be a minimum depth of 50mm measured below the barrel of the pipe
 - ii) be not less than 75mm wide

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- iii) be kept clear of flexible joints and
- iv) have pipes supported at not greater than 1.5m from the centre, prior to placing the mortar bedding.
- d) Sand shall be free running, capable of passing through a 2mm mesh sieve, and shall not contain clay, organic or any other deleterious materials.
- e) Rubble comprising of a combination of a) and d) as described under bedding materials.

5.4.3 Pipe side support and overlay materials

Pipe side support and pipe overlay material shall not be inferior to the pipe bedding material.

5.4.4 Bedding and backfill

The sanitary drainage services shall be surrounded with not less than 75mm of compacted sand, or fine-grained soil, with no hard-edged object permitted to come in contact with or rest against any pipe or fitting (see figure 5.1).

Backfilling drains with appropriate materials

- Soil from excavating the trench may be used, provided it is free from rock or hard matter larger than 25mm and broken up so that it contains no soil lumps larger than 75mm.
- Backfill material shall be free of builder's waste, bricks and concrete.
- The backfill shall be compacted to restore the trench as near as practicable to the surface ground level.

Other factors to be considered when bedding and backfilling drains

- Trenches should allow a minimum clearance of 100mm on each side of the drain barrel, measured to the inside walls of the trench.
- Ensure that any ground water or surface water entering the trench does not disturb the bedding materials.

Contact the Office of the Technical Regulator for more information

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