

	Contract:	General Guidelines		Job no:	001		
				Sheet:	01	By:	CEL
	Item:	Backfilling Guidelines		Date:	02/05/19	Chkd:	

### Guide to Backfilling Pre-stressed Vertical Cantilever Walls

1. Backfilling whilst propped – Walls can be backfilled when the foundation concrete has reached a characteristic strength of  $25 \text{ N/mm}^2$ . This is usually achieved within 4 days although this is influenced by weather conditions. The props should be designed to account for early backfilling.
2. Backfilling unpropped – Walls can be backfilled when unpropped, but only when the foundations have reached full strength i.e.  $35\text{-}40 \text{ N/mm}^2$ . This is usually achieved at about 20 days, but again this is influenced by weather.
3. Propped Cantilevers – Walls that are designed as propped cantilevers are walls that are tied into a slab at the top of the panel, using a mechanical tie or projecting rebar. These panels must always be propped when backfilling and until top restraint is fully operational.
4. Fill Material – The fill material must be granular and free draining. Unless notified otherwise the material should not have a density greater than  $18 \text{ kN/m}^3$  and an angle of repose of not less than 35 degrees. Excavated material is not to be used as backfill, unless suitably graded and complying with the above criteria. Material such as Clay is not to be used in any circumstance.
5. Compaction – The fill material should be compacted in 300 to 500mm layers.
6. Load from the compacting vehicle should not exceed 10 tons up to half wall height and should not exceed the designed surcharge load above half the wall height.
7. The compacting vehicle is not to approach within 300mm of the concrete panel.
8. Under no circumstances is the compacting vehicle to come into contact with the concrete panel.
9. Drainage - To avoid the build up of hydrostatic pressure, weepholes are cast into the concrete panels. If the panels do not have weepholes then drainage to the back of the wall is necessary, “french drains” or “fin drains” are usually employed with a perforated pipe.