

# CASE STUDY

## 10-metre crib wall at Toowoomba School



Old fill material and restricted site access were among the challenges that had to be overcome when designing and building a retention structure at Toowoomba Grammar School. The construction of a new aquatic sports centre (below the main playing fields) required a retaining structure on the east side of the building — some 10 metres below the main oval.

Concerns were that the corrosive nature of the leachate could degrade the soil nails prematurely, and that the poor angle of friction would make it difficult to use a steep retention structure with a small construction footprint.

Concrib was invited by the builder, McNab Construction, to offer a design that would best address the on-site issues. The resulting design was a triple-cell, three-tiered crib wall — 10 metres in height, with a face area of 810 square metres. The tiers on each level would provide an area for planting shrubs and creepers post-construction, which will enhance the aesthetics and amenity of the wall structure.

Access constraints made it impossible to use the necessary compaction equipment behind the wall. So, Concrib, cut the old fill material back to a 45-degree angle, and filled this area with self-compacting, recycled concrete. This provided an excellent friction angle and was an integral part of the overall wall design.

The use of a “telebelt” materials handler to place the recycled concrete, wall infill, and soil meant a massive overall saving in time and construction efficiency. It cut the projected 12-week construction time to 8 weeks from foundation pour to wall top out.

Concrib’s cribwall design saved time AND money. The estimated saving by using the crib wall system over soil nailing was in the order of 20%.

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