

Karapiro Gully Viaduct

Quick facts

- 200m long structure
- 40m high
- 23m wide bridge deck
- 3 piers with 4 spans
- 1100 tonnes of structural steel.

Did you know the Karapiro Gully Viaduct is founded on 64 piles?

- The deepest pile is founded 63m below ground level
- To form these piles 2500m of steel casing was driven into the ground and filled with concrete
- It took 77 days to complete all 64 piles. That's an average of 1.2 days to drive and fill each pile with reinforcing steel and concrete.

Working in difficult conditions

The steep banks of the gully and the meandering Karapiro Stream makes the gully a challenging site to work in during construction.

To overcome challenges during construction:

- An access track was built to get everything to the gully floor
- A temporary bridge was built to cross the stream
- Slopes were cut back and temporarily retained to create a safe working space
- Rock was used to replace weak ground, making it stable enough for the heavy bridge building equipment and to accommodate the existing flood plain.



Artists impression of the completed Karapiro Gully Viaduct.



The piles are made from 711mm diameter casing driven into the ground and filled with concrete. The casing is 16mm thick and an 80mm thick driving plate is welded to the driving end of the pile.

Did you know the bridge beams will be lifted into place from the bottom of the gully?

A 280 tonne crane will lift these beams into place with assistance from a 150 tonne crane for the more difficult lifts. Special working platforms will be built and hung from the beams to allow men to bolt them in place. 23,000 bolts will be used for this bridge.



The viaduct columns are 2.6m diameter solid concrete. The two columns for the central pier are the tallest at a staggering height of 35m.

Facts: Self compacting concrete

The concrete used on this bridge was designed to be 'self-compacting'. This means it is designed to consolidate under its own weight, which eliminated the need for manual compaction.