

# JOONDALUP STATION SQUARE TUNNEL

## STONE COLUMNS



**Client: Joondalup Development Corp.**

**Specialist Contractor: GFWA**

## THE PROJECT

In spring of 1990 construction work commenced on the railway tunnel in Joondalup City Centre where the then proposed northern suburbs railway was to pass through Joondalup Station. The 160 m long tunnel is adjacent to the station structure and was designed to provide future support to a multi-level building above.

The geotechnical investigation revealed that very loose sands with CPT cone resistance sometimes as low as 1 MPa were present with variable thickness up to a maximum depth of 20 m.

In order to limit total settlement to 35 mm and differential settlement between two adjacent pad footings to 15 mm, ground improvement by Stone Columns was recommended as being both effective and economical.

## THE ROLE OF GFWA

GFWA was awarded the contract for performing the Stone Column works in 1991.

A total of 212 stone columns were installed using screened limestone as backfill material.

Post ground improvement CPT indicated that below 1 m depth cone resistance values typically exceeded an impressive value of 15 MPa.

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