

JACOBS TEMPORARY SLOPE STABILISATION DURBAN, KZN, SOUTH AFRICA

BASAL REINFORCEMENT

Problem

The Quality Street bridge which spans the M4 Southern freeway, has in recent years experienced a major increase in traffic volume. A large percentage of this traffic volume includes articulated trucks travelling between the 3 lane, M4 Southern freeway and the Jacobs industrial area. To cope with this increased traffic volume, the Ethekeeni Roads Provision Department & their consultant, VelaVKE / Eyethu Engineers Joint Venture prepared a design which required Quality Street bridge and the existing approaches to be widened.

Extending the existing bridge required the widening of the bridge support structures. To extend the reinforced concrete bridge support, the existing material had to be excavated using heavy plant machinery. The roads had to remain open to traffic during construction, which posed several problems to the contractor, one been that access to the slope adjacent to the busy freeway and Quality Street was difficult. Furthermore, the excavation of the slopes that supported Quality Street had to be near vertical, in order to keep the road open to traffic, whilst allowing the base of the retaining wall and bridge support structure to be built. The cut slopes which varied between 1m and 8,5m required temporary support during construction.

Solution

A temporary ramp was constructed over one of the lanes of the freeway for access to the area adjacent the existing bridge support. The ramp was supported by a 3m high temporary vertical mass gravity gabion structure. To prevent the spill of excavated material over the gabion wall onto the M4 freeway, AG200 geotextile positioned along the perimeter of the structure was used as a temporary catch-fence.

Various options were investigated for the temporary lateral support. However, Maccaferri Africa/African Gabions provided a unique alternative that was eagerly adopted by the contractor. MacMat™ R was laid on the slope, secured through 300x300mm anchor trenches at the top and bottom of the embankment.

Client: ETHEKEWENI ROADS PROVISION

Designer / Consultant: VELAVKE / EYETHU ENGINEERS JOINT VENTURE

Contractor: ERBACON/CORPCLO 1345cc

Products used (Qty.)

- MacMat

unknown

Date of construction: 09/2004 - 12/2004



Aerial View of Site



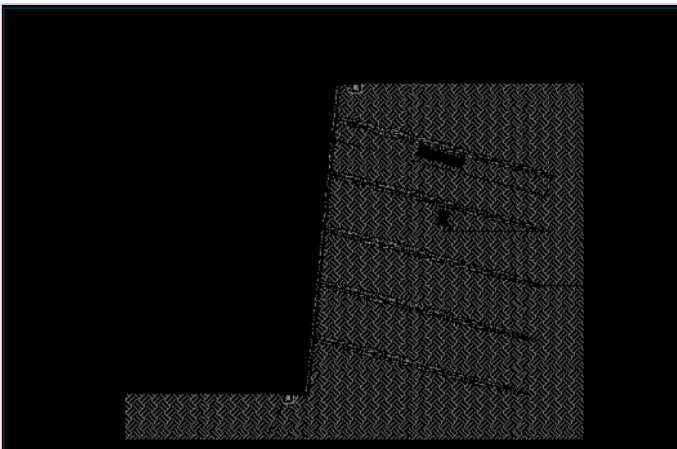
Gabion ramp section



Temporary Gabion Wall



Installed Soil Nail



Soil Nail Cross-section



Finished soil-nailed and shotcreted face