

CASE STUDY

Geotextile

Project: Porowini Ave Extension
Date: February 2010 - April 2010
Client: Whangarei District Council
Location: Whangarei



Mirafi PET

The aim of the extension to Porowini avenue is to create a new route for traffic from the northern and western parts of Whangarei out to the port area without having to pass through the central business district.

The new route crosses the Hatea river and incorporates a bridge with an approach fill embankment up to 8m in height. The fill embankment is located over soft compressible soil within an estuarine area that is subject to tidal flow.

The designers had to consider the expected rate of consolidation of the marine sediments and time to safely construct the fill embankment against the target completion date set for prior to the start of the Rugby World Cup.

The construction of the fill embankment could only take place once the foundation soil had consolidated to a level that provided sufficient strength to support the 8m high fill embankment. The designers selected **Colbondrain CX1000**, a Prefabricated Vertical Drain (PVD), to reduce the consolidation period to less than a year thereby allowing earthworks to begin during the summer of 2010/11.

Hauraki Piling were appointed to carry out the installation of **Colbondrain CX1000**. A layer of **bidim® geotextile** was laid over the soft ground followed by a sand blanket that provided support to the PVD installation rig. It was noted that **Colbondrain CX1000** provided approximately 70-80% of consolidation within the first 3 months of installation.

Mirafi PET1000/100, a high strength woven geotextile, was laid over the drainage blanket followed by the embankment preload. The placement of **Mirafi PET** across the width of the embankment ensured that embankment stability was maintained whilst the foundation soil consolidated.

The use of **Colbondrain CX1000** and **Mirafi PET 1000/100** helped ensure the completion date for the project was met.

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Existing ground conditions



Installation of Colbondrain



Start of installation of Mirafi PET over treated area

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