

## Project Report

Marine Parade, Great Yarmouth, UK

March 2007

**CLIENT: MAY GURNEY**

**SPECIFIER: NORFOLK COUNTY COUNCIL LABORATORY / MOTT MACDONALD**

**MAIN CONTRACTOR: ENNSTONE JOHNSTON LTD.**

**PAVING FABRIC INSTALLER: FOSTER CONTRACTING LTD.**

### Background

Marine Parade, Great Yarmouth runs north to south and is the main route along the seaside towns' historic promenade. With the carriageways proximity to the sea, it presents a harsh environment with very high water tables that constantly vary throughout the tidal cycle. The harshness of this environment, coupled with the rigours of modern day traffic loading had caused the road surface to deteriorate, leading to brittle cracking of the Thin Surface Course and also reflective cracking from overlain service trenches and patches.

The town centre was already undergoing a major regeneration as part of the EU funded 'InteGREAT' scheme to improve lighting, restore historic buildings, undertake highway improvements, install CCTV, provide hi-tech tourist information, and create landscaped areas. Coupled with marketing initiatives, the scheme would encourage economic development into the area. As part of this scheme, the decision was taken to carry out essential carriageway repairs to Marine Parade, with Phase 1 running between Euston Road to the north and St. Peter's Road to the south.

As part of the works the width of the road would also be decreased to allow for the construction of a safe, separate lane for horse and carriage rides for holiday makers and create a more pedestrian friendly environment. 'Build outs' would also be constructed in the road to address the problems of speeding traffic.



Two views of the reinstated carriageway

## Solution

Core samples taken in October 2006 confirmed the existing road construction comprised a thin pavement with a maximum of 125mm of asphalt overlaying sand and gravel. Drawings confirmed the existence of old tram lines, power cables and a gas main, all at a shallow depth beneath the road surface. In order to prolong the life of the new road construction, the polymeric Geocomposite, PGM-G 100/100, manufactured by TenCate Geosynthetics was installed with the following objectives:

- To retard the formation of reflection cracks in the bituminous inlay
- To seal the cracks in the underlying layers and prevent penetration by water and oxygen
- To reinforce the asphalt layers of the carriageway
- To prolong the life of the carriageway

## Installation

Prior to the installation of the PGM-G 100/100, main contractor Ennstone Johnston planed the carriageway to a depth of 40mm, cleaned the exposed surface, and filled exposed cracks greater than 4mm width. This process ensures a 100% bond between the planed surface and the paving fabric.

TenCate's specialist installation contractor, Foster Contracting Ltd, then used their calibrated tanker to spray a bond coat of 160/220 pen bitumen at a rate of approximately 1 litre/m<sup>2</sup> and a temperature of 180°C onto the planed surface. Foster Contracting then used their bespoke laying machine to install the PGM-G 100/100 under tension onto the hot bond coat. In order to ensure that the works were complete before the busy summer season, the speed and accuracy of installation were key measures of success.



Installation of the PGM-G 100/100



Installation of the Polymer modified surface course

Over 40 years of experience has shown that the PGM-G 100/100 does not need to be installed over a