



INDUSTRY

BELFAST

Bi-Modulus Columns

UNITED KINGDOM



Owner

Translink

Engineer

Doran Consulting

General contractor

Henry Brothers

Period of works

July 2017-September 2017

Main figures

Bi-modulus columns

2316no.

23,623lin.m

6no. CMC Load Tests

28no. BMC Load Tests



Project description

The development is for the construction of a workshop and associated hard standing for the transport maintenance depot to support Belfast's new dynamic public transport scheme. Once opened the facility will service and maintain the city's new fleet of state-of-the-art articulated buses. The site was previously of historic industrial use- located on the docks just a stone's throw from where the Titanic was constructed!

Ground conditions

Soils typically comprised of 1.0m – 3.5m of made ground overlying soft clays and loose sands to a depth of to 5.7m – 11.3m where medium dense sands and gravels where encountered.

Solution

Bi-Modulus Columns (BMC's) were identified to provide the ideal value-engineering solution, providing an improved ground bearing capacity with minimal spoil. To prevent surface disturbance (i.e. 'egg-box deformation') across the final pavement, the compacted granular BMC head along with an overlying granular load distribution material was sufficient to offer a 1.8m of coverage above the concrete element. The alternative would have required the Main Contractor to have carried out a considerable reduced level dig to remove around 1.8m of unsuitable material across the whole of the site- both costly and time consuming.

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