

QUEEN ELMS STUDENT VILLAGE QUEENS UNIVERSITY, BELFAST N. IRELAND

RETAINING STRUCTURES

Product: MacWall

Problem

Founded in 1845, Queens University now has 24,000 students. In keeping with this prestigious seat of learning, the University wished to replace a collection of 1960's style tower blocks with an attractive village type environment to house over 1500 students.

Poor ground conditions and challenging site topography meant that new building-levels for many of the 47 accommodation blocks had to be created by introducing bold terracing, enclosed within a series of engineered retaining walls.

Conventional in-situ retaining walls would have needed temporary sheet piling to protect the working area during construction together with substantial concrete foundations, both of which would add to costs and slow down the building schedule.

As the retaining walls had to be designed and installed as the site progressed and the old accommodation blocks were being demolished, the need for a flexible system that would cope with curves and slopes was paramount.

Solution

The MacWall system, specified by Robinson and Patterson, solved these problems because of its speed of installation, flexibility and ease of construction without the need for complex formwork and shuttering.

MacWall is a dry built, segmental retaining wall system comprising concrete facing blocks in conjunction with soil reinforcing geogrids and compacted back-fill to form a highly efficient, engineered retaining wall. Unlike conventional retaining walls, MacWall does not require concrete foundations or the temporary shuttering that would be required to retain concrete footings of conventional walls are allowed to cure. This speed of



Post construction



Post construction

Architect:

ROBINSON & PATTERSON LTD, BELFAST

Main contractor name:

O' HARE & MCGOVERN LTD, NEWRY

Designer:

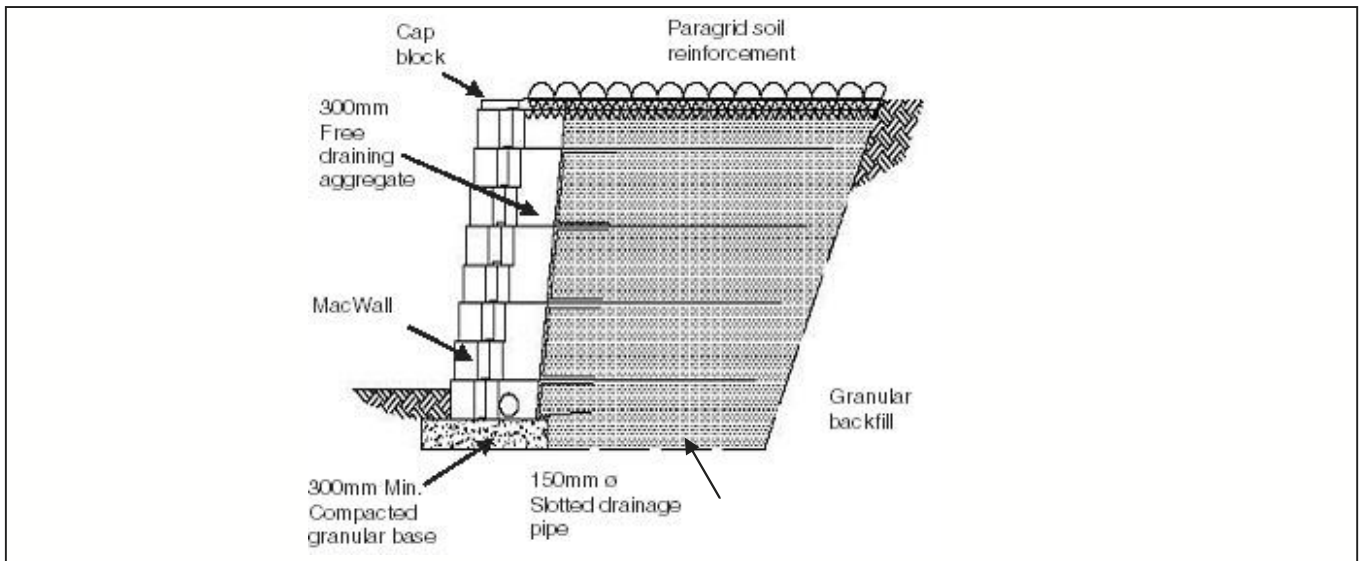
MACCAFERRI LTD, BELFAST

Product used:

MACWALL

Construction date:

SUMMER 2003-2007



Typical section

installation meant that the underlying “Malone” sands, a feature of the Queen Elms site, could be excavated and the wall installed before the ground weakened and collapsed. MacWalls of 10m in length and 2m high were built in a little as two hours – a fraction of the time needed to install an in-situ concrete wall and at significantly reduced cost. The MacWall system also showed its positive environmental credentials in the scheme. Much of the excavated sands could be reused as structural back-fill to the retaining walls so spoil removal and the vehicle journeys that go with it were reduced and imported stone was kept to a minimum. The BBA Certified Paragrid geogrids are ideally suited to reinforcing many types of soils.

Stephen Burke of main contractor, O’Hare McGovern said, “It’s a fantastic system. You can install an anchor wall 3m high and 30m long in three to four days when a reinforced concrete wall would take three to four weeks.”

Construction of The Queens University Accommodation Village began in 2002 and will continue until 2007.

The use of MacWalls has allowed additional accommodation blocks to be included on the site so making maximum use of available building space yet still retaining the open, village type environment required by the client.



Post construction



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