

## PLOT OPTIMISATION AT HOUSING DEVELOPMENT STANNINGTON, SHEFFIELD, UNITED KINGDOM

### Reinforced Soil Walls and Slope Reinforcement

#### Problem

A new development by Newett Homes in Sheffield required retaining structures to optimise the plot layouts across the site.

Maccaferri were approached to offer solutions for the site, recognising the aesthetics needed and the budget available.

#### Solution

A 130m long structure had to have a green vegetated finish and be up to 6m in height. This reinforced soil structure was around the perimeter of the site and therefore visible to the existing neighbours. Maccaferri proposed the Green Terramesh soil reinforcement system with a 70' front face that establishes vegetation.

The Green Terramesh (GTM) system has a BBA HAPAS certificate with a design life of up to 120 years. It is made from double-twist steel mesh and features a rapid-to-install fascia system with all components assembled in the factory. This reduces work on site and makes the installation much quicker and safer compared with other 'soil bag' or wrapped face style geogrid structures.

ParaDrain geogrid was proposed in conjunction with the Green Terramesh, to enable the reuse of site-won marginal fills that would otherwise have been removed to tip. ParaDrain is a unique geogrid with integral drainage channels to rapidly reduce the pore water pressure of marginal fills. This offered a sustainable approach to providing the backfill to the reinforced soil structure as it avoided the need to import quarried aggregate to the site and also helped to keep the cost of the installation to a minimum. Reducing pore water pressure not only improves the backfill characteristics but enables quicker construction times as the time for pore pressures to dissipate is reduced.

The drainage geocomposite MacDrain W was also installed to the rear of the reinforced soil block to prevent the build-up of water pressure behind the reinforced soil slope.

The Green Terramesh and ParaDrain reinforced soil slope was designed in accordance with Eurocode 7 and BS 8006-1 using Maccaferri-approved software MacStars.

Seeded topsoil is placed immediately behind the face to establish vegetation on the slope. This provided habitat to flora and fauna whilst also improving local air quality through the absorption of CO<sub>2</sub> from the atmosphere.

**Client:** Newett Homes

**Designer / Consultant:** Maccaferri Ltd

**Contractor:** Castle Construction

**Products used (Qty.)**

- |                      |                    |
|----------------------|--------------------|
| - Terramesh          | 641m <sup>2</sup>  |
| - MonoAxial GeoGrids | 3372m <sup>2</sup> |

**Date of construction:** 03/2021 - 08/2021

[Google Maps](#)

[Google Earth](#)



Green Terramesh unit erected - no external formwork



Green Terramesh - note factory-fitted braces and face support



Green Terramesh structure complete and vegetation establishing well



MacDrain installed between reinforced soil block & existing soil



Gabion walls between plots