

INSTALLATION OF GEOMAC MATTRESSES ONTO SLOPES

STONE FILLED GEOMAC

A stone filled GeoMac mattress consists of a Maccaferri Reno mattress attached to a steep slope to form a coursed stone finish. The slope is to be inherently stable either on its own, or by soil nailing / ground anchoring as the mattress offers only scour protection and aesthetics. The soil nails / ground anchorages fasten the GeoMac mattress to the slope.

The design of the soil nails / ground anchorages is the responsibility of others.

Each installation will be unique, but the following guidelines will be of assistance.

- The slope is to be structurally stable prior to the installation of the GeoMac mattress. The heads of the anchorages are to be left protruding by approximately 200mm. The slope face is to be generally planar, with any vegetation and protrusions to be removed.
- The GeoMac mattresses are to be unfolded and fastened together on a level surface, ensuring that all the joints are tight, **particularly those between the base panel and the internal diaphragms**. The lid is to be left off the mattress base at this stage.
- A geotextile (e.g. Bidim S42) may be required on the slope beneath the GeoMac mattress to limit rainwater washing material from the slope face.
- The empty mattress base is lifted into position over the soil nail / ground anchorage heads and toed into the ground by 300mm. Light tension should be applied along the slope (horizontally) to the GeoMac units to remove creases from them, before being bolted back to the slope surface. A number of GeoMac units could be laced together and tensioned along the slope face at once.
- The base panel of the GeoMac mattress is to be fastened to the slope using anchor plates with hemispherical nuts to ensure the plate has a good contact with the slope face. The anchor plates are likely to be 300-450mm square / diameter.
- The orientation of the mattress on the slope is to be such that the diaphragms in the mattresses are horizontal, i.e. 1m between diaphragms up the slope. Internal ties between the lid and rear panel in the mesh will be required to secure the face of the GeoMac mattress.
- The GeoMac lid is to be laced to the base, at the bottom of the slope only, thereby forming a 'pocket' into which stone fill will be placed.

- Stone is placed by hand into the GeoMac mattress from the bottom of the unit upwards. Care should be taken to ensure that stone is packed in a ‘coursed’ arrangement, making sure the unit is packed tightly, particularly into the corners. Ties should be installed between the front and back panels at 500mm centres, to secure the face of the unit. These are to be made from the tying wire supplied with the units, and engage at least two mesh widths (160mm) on each of the front and back panels. The lid is to be fastened to the base unit as the GeoMac mattress is progressively filled.
- The lid is to be attached to all the diaphragms of the base unit. Light tension, applied to the lid, pulling it towards the diaphragm, will assist in this operation.
- Where necessary, the units can be folded and cut to form new shapes and suit site conditions. Any exposed edges of mesh should be laced together neatly to maintain the integrity and aesthetics of the unit.

Notes

GeoMac mattresses are available in the following sizes:

6x2x0.23m

3x2x0.23m

The mattresses are galvanised and PVC coated, and have a British Board of Agrément Certificate recommending a life expectancy of 120 years.

GRASS ON STEEP GEOMAC® SLOPES

ESTABLISHMENT

Establishing grass on steep slopes is more difficult than on flat ground. On flat ground all the rain infiltrates readily and the moisture retaining topsoil is also often of a sufficient depth to provide a good soil moisture reservoir for the establishing plants.

However on slopes of more than 30° from the horizontal, the topsoil (moisture reservoir) is likely to become thinner the steeper the slope. The plan area for catching rain also becomes less the steeper the slope. In addition the steeper the slope the more rapidly the moisture drains away. It is therefore imperative that the best topsoil available is used for the stone/soil combination in a GeoMac® as shown in Maccaferri's drawing Eco 45. To identify 'best topsoil', please refer to Maccaferri's "Soil Definition No. 1". By paying attention to the above advice, grass can be established on a slope. Available moisture at the time of seeding, in combination with temperatures above 10°C, determine germination and successful establishment of vegetation.

GRASS MIXTURE

To establish grass on slopes, the mixture should have about 25% by weight of faster establishing Ryegrass which will 'nurse' the slower growing and less demanding fine grass types. Also recommended as part of the 'nurse' should be a range of legume clovers. Such a mixture is Maccaferri's "Pioneer" mix or Pro 95 from Perryfields Seeds. The 'nurse' types will normally die away over two or three years, leaving only those grasses suited to the slope conditions.

MAINTENANCE

As with establishment, moisture is often determining factor on levels of growth activity. It follows that the steeper the slope the earlier the soil moisture deficit reduces the growth in the summer.

Therefore, on a slope the 'nurse' types tend to die out and the conditions favour the slower growing, less demanding fine grasses. A low maintenance sward results.

On many south facing slopes, no mowing may be needed but where growth conditions are more favourable, e.g. north facing slopes, provision for one cut in early summer may be necessary. To reduce the maintenance, and maybe to improve the visual appearance, creeping ivy type plants could be planted into the grass. These types of plants could be selected to eventually take over the whole area.

Maccaferri Seed mixture recommendations:

Details are available on a separate sheet.