

## PROTECTION OF A LANDFILL FOR SOLID URBAN WASTE CASTELCOLONNA – ANCONA, ITALY

### LANDFILLS

**Product:** MacDrain N105M, MacMat R1 200

As the various sectors of the landfill (ref. Figure 1) were completed, the operating company prepared a design for protection of the numerous berms — in accordance with the instructions of the relevant bodies. The design of the surface barrier system was based on two fundamental concepts:

- speeding up installation operations;
- performing the works with the company's own personnel.

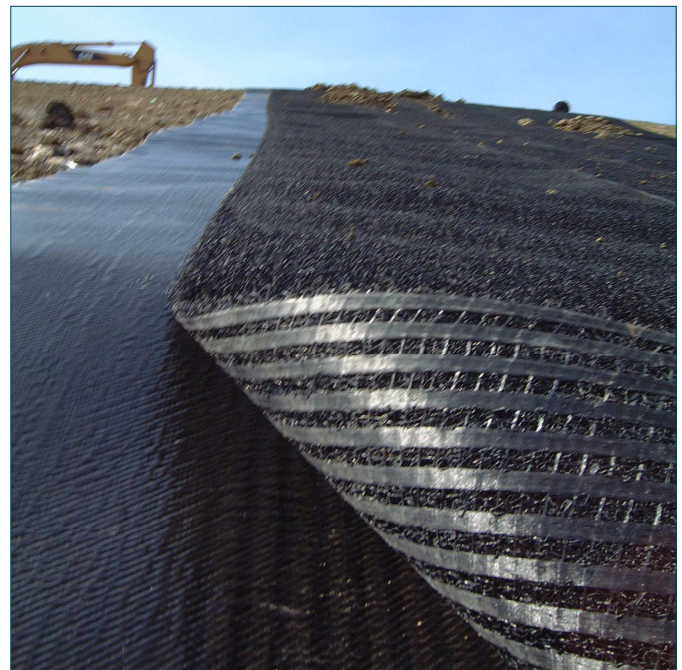
The design package therefore included (ref. typical section in Figure 2):

- Drainage and waterproofing geocomposite MacDrain N 105M (pictures 4 & 5) consisting of a geonet with a filtering non-woven geotextile fabric on one side and a low density polyethylene membrane, on the other;
- Geomat MacMat® R1 200 (pictures 3 & 4) reinforced by a synthetic reinforcement with a tensile strength of 200 kN/m;
- Backfill of approx. 30-35 cm of clay soil.

Figures 6 and 7 show details of the upper channel which fixes the geocomposite MacMat. This channel also collects and drains away the surface water and contamination of the granular layer is prevented by the presence of an impermeable geosynthetic material placed around the channel section.

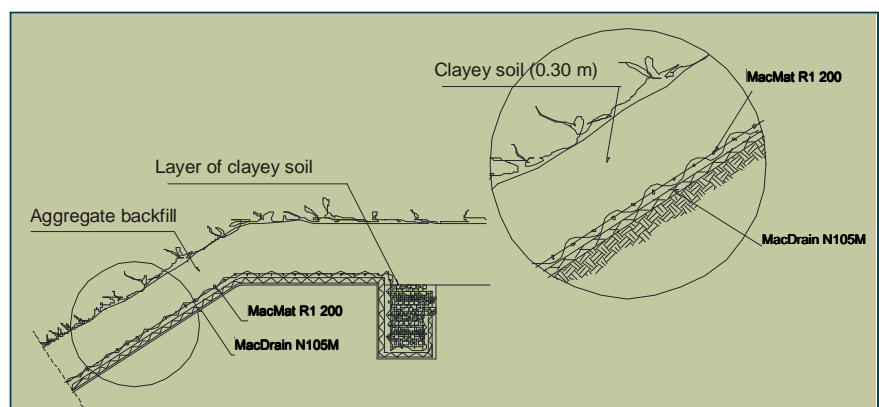


Model of works



MacMat R1 200, during construction

Both the anchorage dimensions and the tensile strength of the geomat have been studied in great detail. Interface tests between the various synthetic and natural materials have been carried out directly on site with trial equipment. Figure 8 shows the final result achieved on the first slope which was treated approximately one year from the completion of the works.

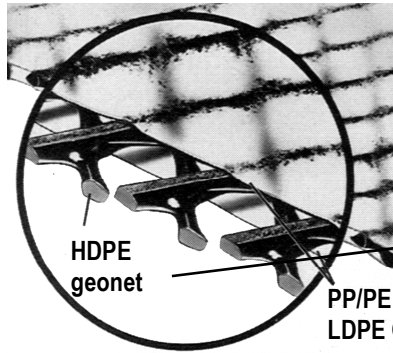


Design layout

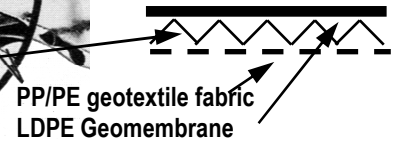




MacDrain N105M



Section through the drainage geocomposite MacDrain N 105M and its schematic representation (International Geosynthetics Society - IGS).



During construction



During construction



After construction

## Officine Maccaferri S.p.A.

Via JF Kennedy, 10 - 40069 Zola Predosa (BO) - Italy

Tel. (+39) 051-6436000 - Fax (+39) 051-236507

E-mail: [comes@maccaferri.com](mailto:comes@maccaferri.com) - Web site: [www.officinemaccaferri.it](http://www.officinemaccaferri.it)



Certified ISO 9001 by

