

# FUNCTIONAL IMPROVEMENT **LANDFILL 76** IN CATANIA

The re-design intervention has provided the functional improvement for morphologic structure by redistributing the original planned waste disposal volume for the non-hazardous waste landfill, situated in Grotte San Giorgio in Catania, authorized by the Regional Sicilian Decree D.D.G. No. 76 03/03/2010 (Integrated Environmental Authorization in accordance with the Legislative Decree D.Lgs. No. 152/06 and further amendments). After the approval of the functional improvement design, the authorization was modified in accordance with the decree D.D.G. No. 1244 07/26/2013.

The extension of the total site is 35.000 m<sup>2</sup>, the cell occupies approximately 23.200 m<sup>2</sup> and with the remaining area holding auxiliary facilities including landfill gas and leachate management systems. The authorized landfill has an equivalent capacity of 1.000.000 m<sup>3</sup>, in a single hillside excavated cell, with a variable depth between 50 and 30 m, respectively upstream and downstream.

The operation stage of the landfill began in August 2012, during the filling an improvement of the original planned structure of the cell was required in order to maintain safety conditions regarding the operation of the haul-road for heavy vehicles transportation and disposing the waste within the cell, for this purpose the implementation of a new cell of approximately 5.850 m<sup>3</sup> was required.

The new cell was constructed downstream of the original cell using subvertical walls (due to natural high strength of the excavated soil). Allowing the authorised volume preservation by decreasing original cell planned height. Furthermore, perimeter screening was constructed using large basaltic rocks and topped off with sand and calcarenite gravel, reaching 10-meter average height and a 6 meters upper-thickness with a 35 degrees slope.



## DESIGN DATA

**Private client** SICULA  
TRASPORTI s.r.l.  
**Tasks assigned and carried out**  
Final Design and Integrated  
Environmental Authorization  
application  
**Cost** € 21.256.995,14  
**Location** Catania (CT)  
**UTM Coord. (Zone 33S)** 502,932  
E - 4,135,702 N  
**Site area** 35.000 m<sup>2</sup>  
**Dump basin surface** 23.200 m<sup>2</sup>  
**Landfill volume** 1.000.000 m<sup>3</sup>  
**Construction period** 2010-2011  
**Designing period** 2013

## TECHNICAL DATA

**Operations according to Encl. B and C referring to Part IV of Law Decree No. 152/06 (D.Lgs. 152/06) and further amendments** D1, D15.  
**Maximum capacity:** 250.000 t/y

## CONSTRUCTION DETAILS

- Functional improvement, through the construction of earth dam with basaltic rocks and sand and calcarenite gravel (average height 10 m, upper width 6 m, bank slope 33-35°) to achieve safer conditions for entering the dump basin;
- Construction of collecting and pumping systems for leachate/biogas and waterproofing system for basin bottom and slopes with the same features of the works already achieved into the operating landfill basin, according to indications/limitations of the Law Decree No. 36/03;
- Project of providing geocomposite drainage layer with high UV resistance to protect the HDPE liner on the slopes, due to the exposure period of the top edge of the basin.