

## LANDFILL PROJECT AT GYASPUR VILLAGE AHMEDABAD, GUJARAT, INDIA

### Lining Systems - Base

#### Problem

The city of Ahmedabad with an area of 449 sq km and a population of 56 lakhs produces about 1,200 tons of waste every day. It has faced severe problems related to the diseases caused by the unscientific handling of solid waste. In order to reduce the environmental impacts resulting from uncontrolled dumping of solid waste, Ahmedabad Municipal Corporation identified a remote location in Gyaspur village for building a secured engineered landfill.

The landfill site is a rectangular plot of outer dimensions 349m x 382m with service roads on all the sides which enables the vehicles to dump the waste. 7m wide ramps having a slope of 1:8 are provided at the entry of the site for the smooth movement of vehicles. There are two 2m x 2m x 5m R.C.C leachate sumps. Outside the service roads, an earthen bund having an outer slope is constructed where landscaping is done.

The capacity of this landfill is 500 metric tonnes of waste per day. Its dumping capacity is 13,00,000 cum. The bottom size of the land fill is about 42,000 sq m and total area is 1,33,318 s.m. The secured land fill consists of 4 slopes of approximately 50m height.

#### Solution

The scope of work for Maccaferri was supplying, laying and joining of the geomembrane (1.5mm thick) at the bottom and on the slopes. The geomembrane contained 97.5% polyethylene & 2.5% carbon black content. This membrane has a good environmental crack resistance. Its excellent UV resistance made it possible to lay it on exposed conditions as well.

**Base liner detail:** The bottom most layer was of amended clay of 900 mm thickness. Above the clay liner, 1.5 mm thick HDPE liner, followed by 300 mm thick protective soil layer, 300 mm thick drainage layer & 200 mm thick soil layer was provided.

**Side liner detail:** The side liner system design was similar to base liner system, except the drainage layer and the soil layer above it.

**Client:** AHMEDABAD MUNICIPAL CORPORATION

**Designer / Consultant:** GUJARAT INSTITUTE OF CIVIL ENGINEERS AND ARCH

**Contractor:** M.P.PATEL INFRASTRUCTURE PVT LIMITED

**Products used (Qty.)**

- MacLine Smooth 90,000 sq.m

**Date of construction:** 12/2007 - 05/2008



Photo 1. Site conditions before construction



Photo 2. HDPE geomembrane rolls



Photo 3. Joining of adjacent membranes by wedge welding



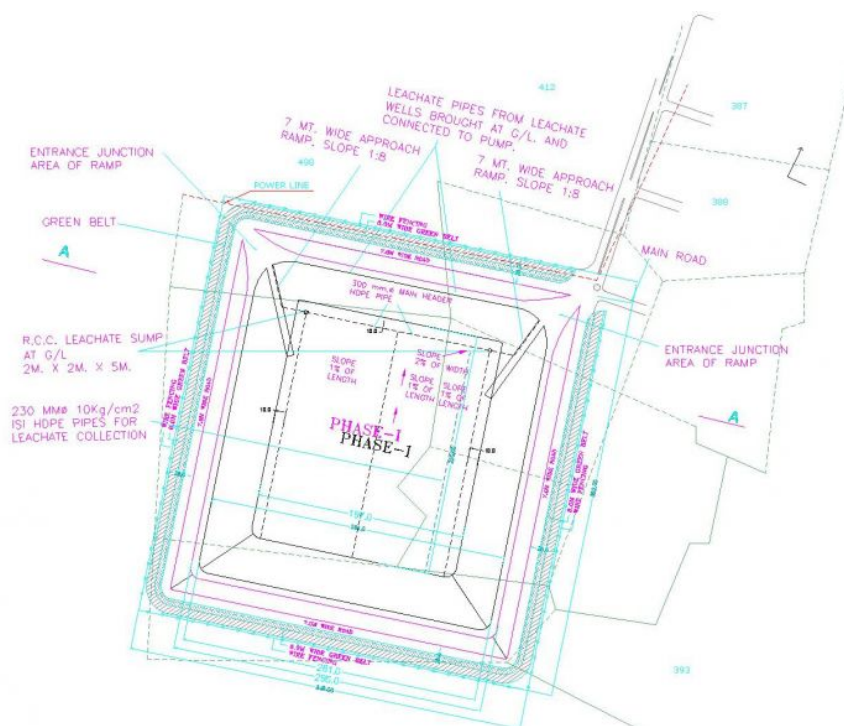
Photo 4. Drainage arrangement for the surface runoff



Photo 5: Leachate collection tank



Photo 6. Base liner and side liner laying completed



## General arrangement drawing

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