

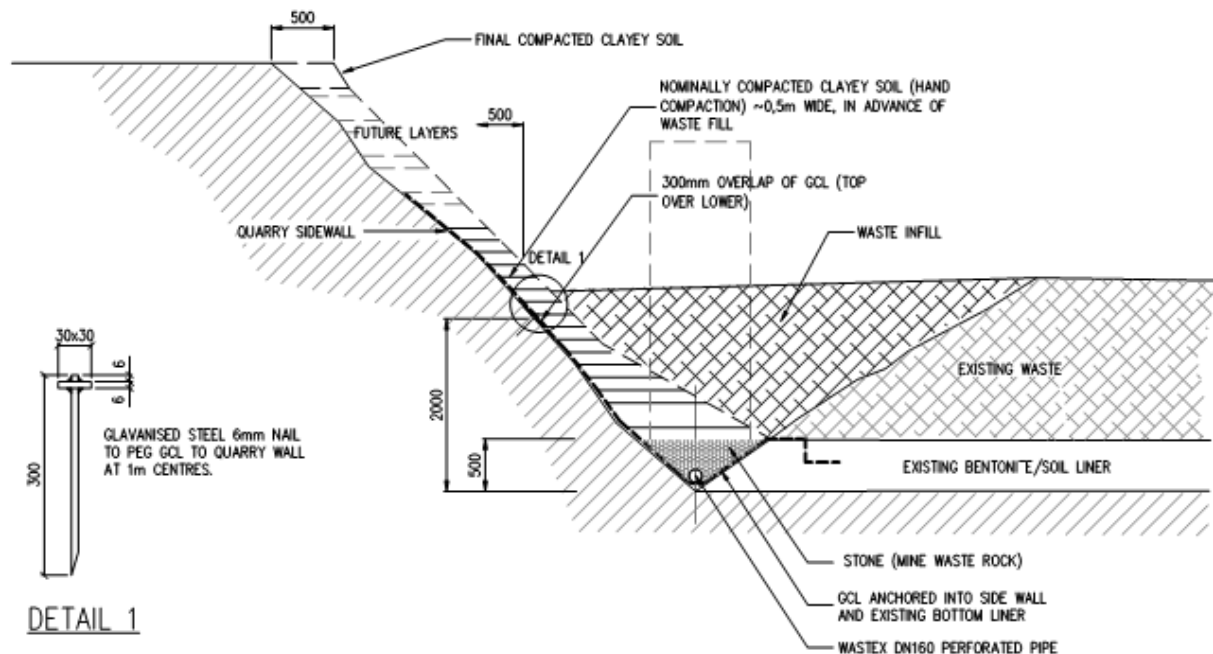


Waste Containment Landfill Lining Mooinooi, North West Province

Case Study

Project:	Mooinooi Landfill Site, North West Province	Date:	July to September 2009
Client:	Jumbou Construction / Lonmin	Product:	EnviroFix® X800
Consultant:	Peter Legg Consulting (Geo-Environmental Engineers)	Quantity:	23 000 m ²

Lonmin originally constructed the Mooinooi Landfill Site as part of a community project. The landfill site needed to be expanded for increased volume handling.



The existing site had as its base a bentonite soil liner. The idea was to use a GCL (Geosynthetic Clay Liner) on the slopes of the landfill site and to tie it into the existing bentonite soil liner.

Construction started with clearance of the site and then compaction. Approximately 5 600 m³ of material was removed on the southern slope and stored to be used as a cover layer for the GCL. The northern slope is steep, approximately 1:2, while the southern slope varies from 1:3 to 1:5. It was therefore possible to use a 10 tonne roller compactor for compaction prior to installation of the GCL on the southern slope but not on the northern slope. The flatter slope on the southern side is more ideal in terms of the volume of waste that could be stored on the landfill site. An anchor trench was constructed at the crest of the slope for anchoring of the GCL. The GCL was placed on the prepared surface with an overlap of 300 mm. 300 mm cover soil was compacted to approximately 98 % standard proctor density on the southern slope. On the northern slope hand compaction was done due to the steepness of the slope (1:2). This was covered with a 150 mm thick leachate collection layer consisting of waste mine rock (< 50 mm). A V-shaped leachate collection drain was constructed at the bottom of the slopes on both the northern and southern sides.

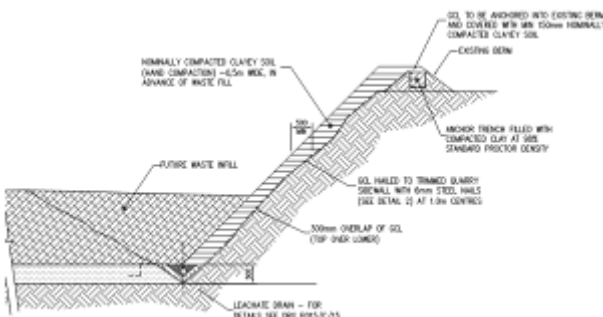
The contractor found the GCL easy to work with and the project was completed on time.



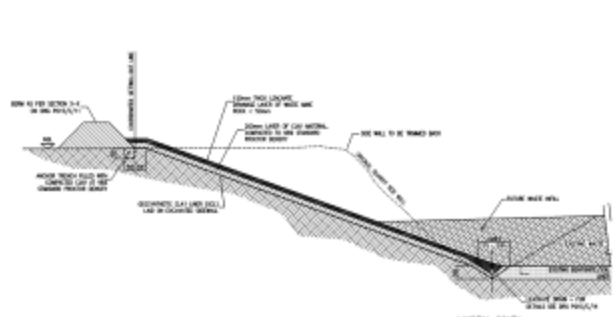
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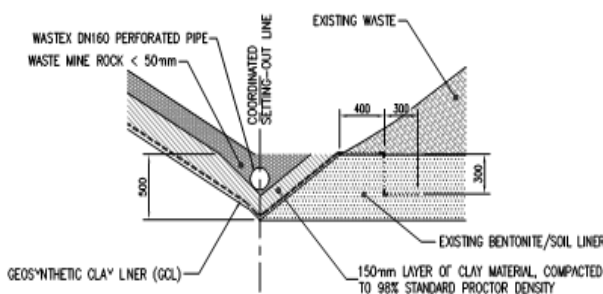
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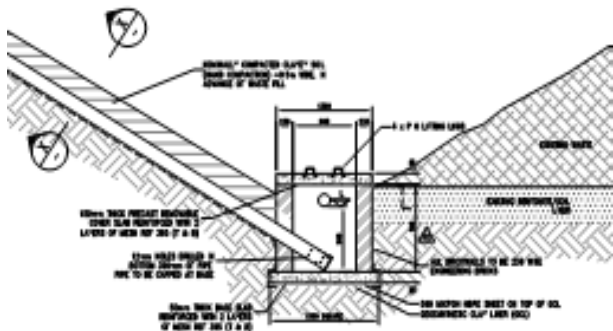
North face details



South face details



Leachate drain



Leachate sump

Drawings by Peter Legg Consulting.