



The noise barrier before planting

Good irrigation goes a long way

Your retaining wall has been completed. It looks great, all lush and green and freshly planted. However, in a few months time and after few forgotten watering sessions, it resembles the desert Gobi – the plants are wilted and dry. The reality is that any planted landscape needs proper irrigation and maintenance. But most importantly, in large commercial installations, incorrectly installed irrigation can be a trigger for wall failure.

Silvio Ferraris, Pr Techni Eng. HNDD (Civil) IMM, from ReMaCon Products cc, a Gauteng based concrete retaining block manufacturer believes that irrigation can cause problems, but it is not the actual watering spray action that's the problem, it's how the landscapers install the irrigation system.

Ferraris has the following tips for retaining wall installers, landscapers and anyone who is involved with ongoing maintenance of larger commercial or residential walls: "The class of irrigation pipes used must be at least **class 6**, do not allow class 3 pipes, they are just too soft for

commercial applications. Also ensure that the landscaper uses continuous lengths of pipe to avoid too many pipe to pipe joints, as well as an irrigation system that has **leak proof** jointing, whether it is pipe to pipe, "T" joints or sprayer joints."

When installing the system Ferraris recommends that the pipes and sprayers are placed as far behind the rear of the retaining wall blocks as possible. "Sprayers can propel the water so that it cascades downward into the plant pockets. For high wall sections, pipes can be placed at intermediate height levels against the wall, with spraying again occurring top-down."

For complex irrigation connections into junction and control boxes, says Ferraris, it is best to place these into a sump, so that if leaking occurs, the problem will quickly be detected by the presence of run off water on the surface – this is a far better technical option than allowing slow leaks to seep into the backfill, creating saturated conditions, which are the cause for most failures. But above all, he insists that the system be tested thoroughly: "like water mains are pressure tested, specify that the irrigation system be tested so that before the landscaper leaves site, you have greater certainty that the risk of leakage is reduced."

Two years later and the wall is almost hidden



A sprinkler at L'ormarins retaining wall

Lastly, he add that maintenance of irrigation systems in commercial developments, and particularly retail shopping centres, must be continuously ongoing: "there can be no time limit to this, and the landlord's responsibility must extend to ensuring that the landscape maintenance team regularly checks for leaks." Ferraris mentions that he has inspected sites that have potential failure problems up to 5 years after completion, because of leaking irrigation joints.

A well planted and irrigated retaining wall, besides being more structurally safe, also looks good. In 2005, a large noise barrier wall (or berm) using Terraforce L12 blocks was installed by Decorton Retaining, Cape based retaining wall contractor, at the Oasis Retirement Village near Cape Town. The three meandering Terraces, specified by Planning Partnership, well known landscape architects, were later used by the landscaping team from Real Landscapes to create instant hanging gardens with mostly water wise indigenous planting. In October that year, the project won the Premier award for retaining block walls, the Cathay Pigments Trophy, impressing the judges with its lush vegetation softening the overall visual impact of the wall.



Now, almost two years later, after one major extension to the project in the form of a double sided, near vertical noise barrier and considerable growth of the established indigenous vegetation, the project continues to be a flourishing success. The wall is well overgrown and the plants look healthy. Charl Le Roux of Cape Irrigation Systems feels that this is largely due to a good irrigation system that was implemented end of 2005: "The complete irrigation system was installed in three phases, following the construction programme, with the first phase being the Health Care Centre as well as the screening berm along Ratanga Road. Fully automated irrigation was installed on all three levels of the retaining wall to ensure sufficient and efficient coverage of all areas."

Charl say that various factors had to be considered during the design stage, such as prevailing winds, road traffic adjacent to the berm, as well as the accurate application of water to ensure that the soil does not become saturated due to overwatering. He adds that drip irrigation was a brief consideration, but due to fluctuations in effluent water supply quality, ranging from poor to extremely poor and the implications of maintenance of a drip irrigation system on a project of this nature, a conventional overhead "blanket type"

irrigation design was decided on. "The irrigation system on the berm consists of just over 200 static type shrub sprinklers with nozzles varying from 3m - 4.5m radius", says Charl, describing the system.

"A total of 30 gear drive rotor sprinklers with a spray radius of 10m were also installed to stabilize the "back" of the retaining wall. Approximately 700m of 50mm HDPE pipe was used for mainline reticulation and 1300m of Class 6 LDPE piping was used for the sprinkler lines. A Hunter ICC modular controller, dedicated to irrigation only, runs 18 Hunter PGV 25mm Solenoid valves."



Near vertical, double sided extension at Oasis

The extension converted to hanging gardens



Holger Rust, owner of Terraforce and pioneer of the reversible, interlocking concrete block used for the noise berm explains further why drip irrigation can sometimes prove problematic when used in conjunction with recycled water: "particles in treated effluent water can cause blockages as the flow-path in the drippers is too small and when the system is shut down during the wet winter months, algae can grow and further compound the problem."

He adds that the "blanket type" overhead irrigation system chosen can easily reach all areas in the terraced type installation such as this one and would only be hard pressed on very high walls were supplementary measures would have to be considered. At another installation at L'Ormarins Wine Estate near Franschhoek, Cape Irrigation Systems put in place a similar system that is successfully getting water to all areas on a 9m high Terraforce wall built by Decorton Retaining.