



LARGE-SCALE EROSION CONTROL ON THE WEST COAST

Initiated by the Department of Public Works as custodian of state land, this large retaining wall located on the West Coast, Pepper Bay harbour area, was built to stabilise existing eroded embankments in the interest of public safety.

The embankments consist of multiple layers of sedimentation up to 21m in height and 2.5km in length, where softer material has eroded, leaving harder layers of overhanging and unstable rock. The Terraforce retaining wall system was specified by the consulting engineer, Ulwazi Consulting Engineers, as offering practical, stable and weather-resistant surface protection.

STABILISING A DANGEROUS SLOPE

Before block installation could begin, all vegetation and loose material had to be removed to expose the underlying rockface of the embankments. Says Adriano Guerrini, of Guerrini Marine Construction: “These were swept clean and benched for slip prevention, so the extent of stabilising could then be determined and the angle (generally between 60 and 70 degrees to the horizontal)

of the final face slope set out. Using soil-crete (sand:cement mix) the rockface was covered by backfilling in well-compacted layers, with the depth of the backfilling being monitored and minimised to follow the natural contours of the exposed face.

“At the same time, the block facings were built up and the blocks filled with soil-crete, stepping back towards the rockface where appropriate, to minimise depth of backfill and reduce the visual impact of a sheer wall. Finally, the tops of the step-backs and the finished level are capped with a concrete slab.”

JOB CREATION AND ON-SITE TRAINING

Some of the challenges encountered and successfully managed during installation included the continual navigating and assessing of the steep, 15m-high, heavily vegetated terrain with cranes and telescopic handlers. An estimated 180 000 blocks - supplied by Van Dyk Stene, Terraforce manufacturer on the West Coast - with 100m² backfill sand per 1 200 blocks (100m²), were installed using five TLB loaders, a 20 000-litre water truck and 80 labourers, of which 90% were local untrained labour who underwent onsite training.

Also, under the auspices of the Expanded Public Works Programme, 25 official learners were given basic construction skill training over a period of approximately three months. On completion in March 2018, indigenous plants were planted by a company specialising in establishing the sensitive vegetation of the West Coast.

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