

## SCOPING REPORT ADDENDUM

### IMPACTS TO BE INVESTIGATED

The investigation described below will be undertaken to address the following impacts:

- Geological setting in terms of the stratigraphy and lithology;
- Depth to bedrock;
- Quality and quantity of availability cover material;
- Nature, extent and engineering properties of surface transported and residual soil;
- Excavation characteristics of near surface material;
- Founding conditions.

### EIA INVESTIGATION METHODOLOGY

Once having selected the preferred site a more detailed geotechnical evaluation will be carried out, entailing exploration. The principal objectives of this exploration phase will be to:

- determine in the geological structure of the site, including the thickness, sequence and extent of the underlying strata.
- determine shallow groundwater conditions.
- obtain disturbed and undisturbed samples for identification and laboratory testing.
- carry out tests to determine the mechanical properties of the soil *in-situ*.

This will be a two phase investigation, described below.

#### Phase 1

The extent and depth of the investigation will depend on both the nature and variability of the soil strata and the form and extent of the works. As a minimum, it is proposed that trial pits be excavated at between 100 and 200 m apart.

The trial pits will be put down by means of a TLB backacter excavator and they will be logged and sampled in accordance with standard methods and procedures. It is proposed that undisturbed block samples are recovered for laboratory testing purposes, from which settlement, permeability and bearing capacity analyses will be computed. Large disturbed samples will similarly be recovered from the trial pits for the purpose of providing design information for the subsurface services, capping material, terracing and road layerworks.

Typical laboratory tests will include *in-situ* moisture content, dry density, particle size distribution, Atterberg limit determinations and linear shrinkage tests, modified AASHTO compaction, consolidometer, permeability and shear strength tests such as drained shear box.

Once excavated, profiled and sampled the test pits will be co-ordinated with a hand held GPS after which they will backfilled.

#### Phase 2

This would entail carrying out a detailed subsurface exploration investigation at the selected site to supplement the information obtained during the Phase 1 stage, and for which detailed design is required. Ideally some firm indication as to the layout of the various components making up the development should be finalised at this stage of the investigation.

Unless encountered in the test pits, it is proposed that boreholes are drilled to depths sufficient to penetrate all relevant strata, including bedrock. It is proposed that the soil horizons are penetrated

using the rotary coring technique in conjunction with Standard Penetration Tests (SPT), carried out at 1,5m intervals. Rock and very dense, or stiff, material will also be recovered by means of rotary core drilling, employing the triple tube core barrel for full core recovery.

Depending on site conditions, other exploration and *in-situ* testing techniques may be employed, such as falling head permeability tests. All boreholes will be logged in accordance with standard methods and procedures and standpipe piezometers will be installed and monitored for groundwater level fluctuations.

Additional trial pits may also have to be excavated in some areas. However, depending on the outcome of Phase 1, it will not be possible to provide a detailed description of the extent of this Phase, but it is estimated that at least 3 boreholes will be drilled within the site.

Upon completing the investigation a report will be prepared providing the test results and logs of the boreholes and trial pits, together with recommendations for the landfill and hazardous waste sites other facilities such as foundations to structures and infrastructure services.