

Our ref: 2000261

07 September 2021

Robben Island Museum
Nelson Mandela Gateway
Victoria & Alfred Waterfront
Cape Town
8001

Attention: Seithati Dutywa

Robben Island Wastewater Treatment Plant – Geotechnical investigation

Element Consulting Engineers was appointed by the Robben Island Museum to act as service providers for the design and installation of a new wastewater treatment works on Robben Island.

The project will include the construction of the following components, with the associated bulk earthworks and internal pipework:

- Primary settling tank / septic tank with founding level approximately 3.8 m below NGL
- Rotating biological contactor aeration units with founding level approximately 1.0 m below NGL
- Secondary settling tank with founding level approximately 4.5 m below NGL
- Chlorination contact channel with founding level approximately 1.2 m below NGL
- Sludge dry beds with founding level approximately 1.2 m below NGL
- Fencing around new wastewater treatment works

Construction is expected to commence in November 2021 and the time for achieving practical completion will be approximately 26 (twenty six) weeks.

The purpose of the geotechnical investigation will be to determine the bearing capacity of the soil, the expected settlement and the soil conditions for excavation and backfilling purposes. We suggested a minimum of 3 test holes to refusal or to maximum depths as follows: 1 x 5.0 m, 1 x 4.5 m, 1 x 2.0 m, as achievable, to suit the depths of the relevant components. The positions of the holes will be confirmed on site and would need to represent the shallowest rock expected over the excavation footprint.

The deliverable of the investigation will be a geotechnical report which will include the following information:

- Coordinates (WGS84 LO25) of trial holes, with positions indicated on google earth image for referencing purposes;
- Water table and drainage of materials;
- Depth of the bedrock under the footprint of the treatment plant;

EXECUTIVE DIRECTORS: • F DE V RYKE (CEO) PrEng • PA ROSSOUW PrTechEng • NP MANTUNGWA ND (Civil) • ET WALTERS Pr Eng • SBL DYANTYI PrTechniEng

NON-EXECUTIVE DIRECTORS : • JA TURNER (CHAIRMAN) PrEng • S LAKHI • Y MOHAMED • MMA SHEZI • BG ZIETSMAN PrEng

- Ease of excavation for services, say soft and rock and possible collapse of excavated faces, etc.;
- Proposed foundation types at founding depth(s);
- Proposed allowable safe bearing capacities of spoil at founding depths;
- Expected settlements, heave, collapsing soils etc.;
- Stability of the soil and if lateral support may be required for deep excavations;
- Site & soil classification, profiling and characterization of the soil (together with photos);
- Suitability of excavated material for use as backfilling against structures and bedding of pipes;
- Presence of termites or other factors which may have an influence on the foundation design;
- Any other observations and recommendations pertinent to founding conditions on this site

Drilling will take place in the following location:



The drilling operation will take approximately 5days please see below the program and the work to be completed each day:

ROBBEN ISLAND - 3 HOLES

ID	PLANT	TASK NAME	DESCRIPTION OF WORKS	DURATION DAYS	WEEK 1				
					1	2	3	4	5
					M	T	W	T	F
1	ALL	Establishment to Site	EST	1 DAY	█				
2	RIG 1	BH1	7 meters	1 DAY		█			
3	RIG 1	BH2	7 meters	1 DAY			█		
4	RIG 1	BH3	7 meters	1 DAY				█	
10	ALL	DEMOB	DEMOB	1 DAY					█

Access to site will be from the harbour along existing roads to the site. Once established the sub-contractor will drill three boreholes of 150mm in diameter to the depths required to ascertain the quality of materials that will be encountered during the construction of the works.

The subcontractor provided a comprehensive method statement, risk register addressing safety and supervision as well as, a health and safe document.

We trust that the information provided in this letter will be sufficient to address your request for information to obtain the SAHRA permit.

Yours sincerely



John Sherriff (Pr Tech Eng)

Technical Manager: Infrastructure Department