PROJECT SHEET

SEISMIC & CONE PENETRATION TESTING, BRAKPAN TSF – SOUTH AFRICA

Client
ERGO Mining (Pty) Ltd

Location
Brakpan, South Africa

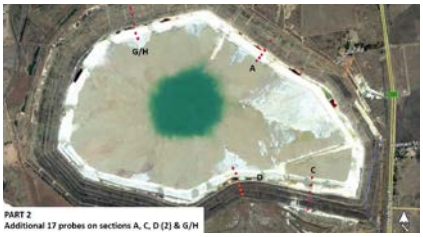
Period
June 11th – July 13th 2019

Seismic and Cone Penetration Testing, Brakpan Tailings Storage Facility – Brakpan, South Africa.

Ergo Mining (Pty) Ltd contracted PMI Construction Services SA (PMI) to execute Seismic and Cone penetration tests at preselected locations on their Brakpan Tailings Storage Facility. The aim of the tests were to measure subsurface tailings parameters to be used for design purposes.

Project Site

The project site was located in Brakpan, on the Brakpan Tailings Storage Facility in South Africa.



The Scope of Work

The scope of works comprised of:

- 20no. CPTu completed to depths between 15.5m and 75m with 77no dissipation tests at various durations, including 5 no. galvanised push-in type piezometers
- 9 no. Seismic CPT testing

Equipment Used

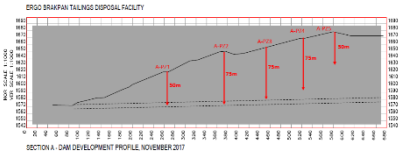
A trailer mounted 20 ton push capacity CPT machine fitted with 4 outriggers and an anchor installation system was used. A piezocone was used for the normal cone penetration testing and pore pressure dissipation tests whilst a seismic cone with corresponding seismic gear was used to determine the shear velocities.

Execution

PMI executed the job using the following methodology;

- Establish and setup CPT equipment at test location.
- Level, install anchors and prepare probing tubes by feeding data cable through.
- Install saturated filter on either seismic or CPT cone
- Set up data acquisition system, install cone, perform initial calibration and commence probing.
- Stop at required depth and perform dissipation or seismic test as the case may be.
- Terminate test at target depth or refusal and move to the next location.

The project offered PMI an opportunity to execute deep CPTu's. 2 no. deep CPTu's were executed to a depth of 75.00m and 75.51m as part of the Scope of Works. A sectional view indicating where these were required and executed are indicated below.



Where push-in piezometer installation was required, the piezometer was pushed in using the hydraulics of the CPT system, tip first then pipe by pipe with each pipe screwing onto the next until target depth is reached.

Results

The CPTu's produced a graph indicating a continuous measurement of:

- Cone resistance (qc) and Sleeve friction (fs)
- Dynamic pore pressure (u) Inclination (i) and Rate of advance (vs)

The seismic tests indicated the shear wave velocities at the specified test intervals.

The measured insitu parameters were used to calculate the required design parameters by the client.

A factual report was produced for the client.

Conclusion

The Project was completed to the clients' satisfaction.