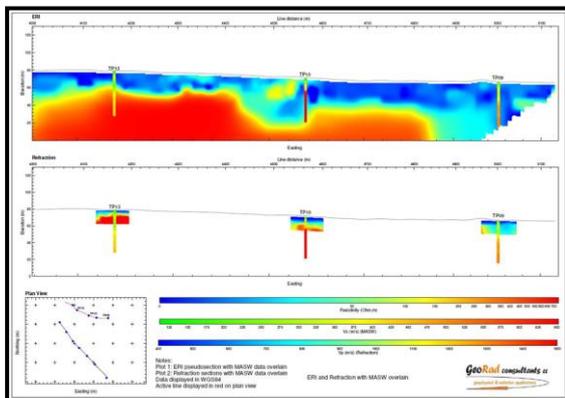


GEOHART is a geotechnical consultancy specialising in the mining and civil areas of:

- **Geotechnical investigation and material classification**
- **Geological interpretation**
- **Geophysical consulting services for mining & civil engineering projects**

GEOHART Limited is in the business of providing an efficient geotechnical, geological and geomechanical consulting service, through innovation and experience in mining and civil projects. GEOHART and its associates have the capability to provide clients with an excellent service in geotechnical and geophysical assessments.

- Conduct shallow seismic surveys through (i) Refraction (ii) Refraction Micro-Tremor (ReMi) and (iii) Multi-channel Analysis of Surface Waves (MASW). This is represented in a two dimensional section for interpretation.

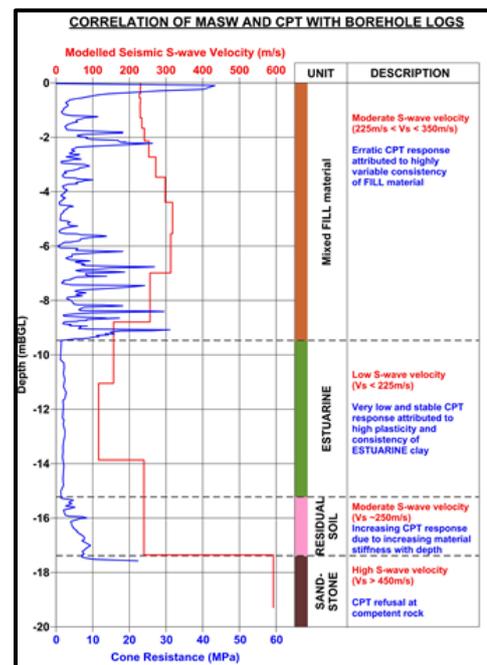


2D representation of MASW, ERI and Refraction data

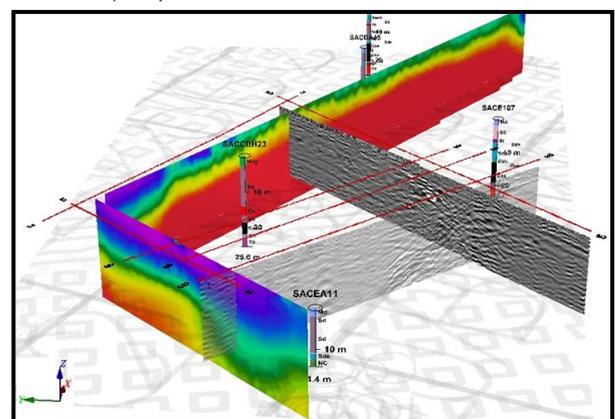
These surveys are quite useful for contractors and designers to understand the composition of their foundation. It is also of extreme value prior to excavation.

- A number of seismic investigations around underground infrastructure using Multi-channel Analysis of Surface Waves

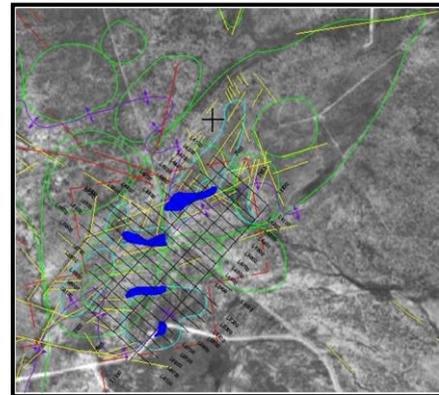
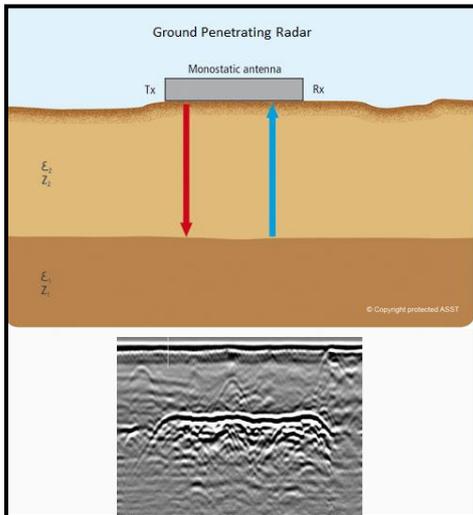
(MASW) have been undertaken. Unlike traditional seismic methods which utilise the first arrivals seismic waves, MASW utilises all the generated seismic waves and hence a long time window is required. The software produces a frequency/velocity distribution curve that is analysed to provide a 1d velocity model for that single seismic measuring point (similar to a CPT reading but based on seismic velocity). The image below is a single 1d MASW shot velocity model overlain on a CPT reading at the same point.



- Shallow (0-15m) and Intermediate (15-50m) depth void detection.



- We conduct Ground Penetrating Radar investigations (GPR) for detection of shallow cavities.

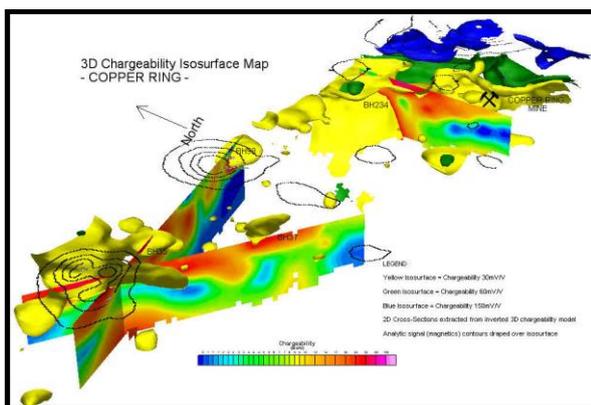


Aerial photography interpretation with planned CSAMT survey lines

Our staff have vast experience in running and processing the following geophysical surveys and data sets:

GPR is an active method that uses a towed antenna to pulse microwave electromagnetic energy into the subsurface. As the polarised pulse travels downwards it interacts with materials within the ground and part of the energy is reflected back to the antenna at the surface. Whilst the method is highly versatile it is not suitable for use over highly conductive ground (e.g. Some Clays).

- Resistivity and Electromagnetic Surveys
- Induced Polarisation
- Electrical Resistivity Imaging (ERI)
- Downhole Electro-Magnetic Surveys (DHEM)
- Shallow Electro-Magnetic Surveys
- Airborne Survey (SkyTEM)
- Shallow Seismic Surveys (Refraction, Refraction Micro-Tremor (ReMi), Multi-Channel Analysis of Surface Waves (MASW))
- Ground Penetration Radar



3D Display of chargeability isosurfaces with 2D chargeability cross sections with analytic magnetic contours draped over isosurfaces

