

# CASE HISTORY

Application: **Downhole Geophysical Logging**

Technology: **Optical and Acoustic Televewers, 3 Arm Caliper, Natural Gamma, Formation Density and PS Logger**

Location: **GeoAssist Ltd, Salford, UK**

OMI Architects has revealed images of a 55-story residential tower submitted for planning in Salford UK.

The local practice's 51,833-square-meter proposal will create the tallest building in the rapidly developing city, part of Greater Manchester.

The scheme, for Hong Kong-based developer One Heritage, is for 545 apartments in Salford's Greengate district.

It will also incorporate commercial space and public-realm improvements, including a river walkway. There would be car and cycle parking spaces and resident facilities including a library, a gym and a rooftop garden.

As part of the stringent ground investigations: Robertson Geo was contracted to complete downhole geophysical logging, this was conducted on-site from one of its fleet of service logging vehicles. Probes run: Optical and Acoustic Televewers, 3-Arm Caliper, Natural Gamma, Formation Density and PS Logger, to investigate the structural elasticity (stiffness) in the rock formation. A sound knowledge of stiffness parameters at small strain is essential, if realistic predictions of the ground movements that may affect adjacent buildings and underlying infrastructure are to be deduced.

When combined the Formation Density and PS Logger probes are able to provide the client with small strain moduli data allowing the client to measure a formations ability to expand, compress and shear. This is critical when undertaking an infrastructure project of this size.



## How the Formation Density probe works:

When connected, the radioactive source at the bottom of the probe (usually Caesium 137) emits gamma radiation into the formation surrounding the borehole. The Compton Scattering effect means that these gamma rays are scattered by electrons within the formation, some of which are returned to the probe's detectors. As the electron density within the formation increases the scattering effect is increased and the number of gamma rays reaching the detectors decreases. Detected count rate is dependent on the electron density of the formation.

