



# SERVICE DATA SHEET

## Automated Ground Information Systems

Frequently critical engineering applications require regular updates with respect to the subsurface regime, particularly in connection with groundwater or gas fluctuations. Allied Exploration & Geotechnics Limited (AEG) have the in-house expertise to design, install, commission and maintain automated ground information systems. Applications may include the installation of an array of vibrating wire piezometers to continually monitor groundwater related pressure variations within and immediately below a concrete dam impoundment structure. Alternatively coastal erosion (cliff stability) offers another constantly changing scenario which can be monitored using an automated solution, namely a groundwater monitoring device installed in combination with an in-place inclinometer measurement system.

Installed systems are configured to continuously monitor the in-ground regime; dataloggers may employ GSM telemetry modules for uploading readings instantaneously to a remote FTP server. This could be then accessed directly for immediate updates. Instrumentation elements can be installed in either rotary or cable percussive exploratory holes in order to target specific points in the sequence whilst using bespoke methods of equipment insertion and sand pocket formation.

Solutions use programmable acquisition equipment units to receive raw data from the in-ground sensors at the desired intervals. Datalogger units can be installed in purpose built man-hole chambers with trenched and ducted cabling so that instruments can be grouped in one place for convenience.

### Application

- ◆ Groundwater movements and pressure changes relating to impoundment structures (seepage and groundwater related failure causation mechanisms), unstable environments (slopes, coastline erosion), determination of in-situ thermal properties (electrical installations and pipelines) and the long-term assessment of structural stress/strain conditions (embankments).
- ◆ Continuous (interval) monitoring using vibrating wire piezometers, Divers®, in-place inclinometers and other in-ground systems installed and configured in accordance with requirement and geotechnical application.
- ◆ Flexible data capture and continuous recording of key ground parameters.



### Summary

The installation of in-ground systems to provide a continuous update with respect to aspects of geotechnical criticality that can affect structural assets.

Expertise in the system installation, data acquisition, its processing and final presentation in a illustrative format.

Wide range of device options and configurations to suit the type of site environment and application.

Detailed documentation and installation process control provided on system hand-over.

Backup maintenance services and on-site problem solving assistance at all stages of the commission.

### Benefits

- Automatic data collection of key parameter values without operator involvement.
- Data acquisition systems that can be configured to function specifically to the needs of the Client.
- Rapid identification of evolving in-ground failure triggering mechanisms.
- Continuous monitoring of observational effects in real time during the course of associated works.

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