SETTLEMENT MARKERS

The settlement marker is used to measure a localised settlement or heave of roads, slopes, embankments, utility pipes and cables.

INSTALLATION AND MONITORING

The monitoring of settlement marker is carried out by leveling survey and readings are taken at regular intervals to check any settlement or heave.
GROUNDWATER STANDPIPE

Measures fluctuation of ground water level. It is used as part of a system for early detection of water loss that could cause ground settlement.

INSTALLATION

Schematic diagram of ground water stand pipe

A cap and protective box is placed over the water standpipe tube opening to prevent disturbance.

MONITORING

Ground water level is measured by using water level indicator. The probe of water level indicator is lowered down into the water standpipe until light or buzzer indicates contact with the water. Depth to water level is measured from the measuring tape attached to the indicator.
**VIBRATING WIRE PEIZOMETER**

Measures changes in the ground water pressure at different depths. It is used as part of a system for early detection of change in water pressure that could cause ground settlement.

**INSTALLATION**

The borehole with vibrating wire piezometer installed is kept in a protective metal box to prevent damage & disturbance to the instrument.

**MONITORING**

The vibrating wire piezometer is connected to the read out unit and the ground water pressure readings are recorded and stored in the data logger.
INCLINOMETER

Measures lateral movements of the ground, retaining walls and piles for early detection of any disturbance or effect to structures and property due to construction activity.

INSTALLATION

After the installation of inclinometer casing in the hole, the casing top is capped to prevent the entry of foreign particles. Metal protective boxes are used to prevent the instruments from being disturbed. Instrument identification is affixed on to the box.

MONITORING

The inclinometer probe is lowered down in to the casing and at every 0.5 m intervals it records the lateral movement. The raw data obtained is transmitted from the inclinometer probe to a read out or a PDA by Bluetooth technology.
MAGNETIC EXTENSOMETER

Measures settlement of the ground at various depths for early detection of any disturbance or effect due to construction activity.

INSTALLATION

Schematic diagram of magnetic extensometer

MONITORING

The magnetic extensometer probe is lowered down into the casing until light or buzzer indicates the contact with the spider magnet. Depth of the magnet is measured from the measuring tape attached to the probe.