

## Surveying and Mapping

### *Capabilities of the Site Investigation Field Unit (SIFU)*

#### Overview

SIFU has high accuracy Global Positioning System (GPS) capability and is able to conduct several different types of mapping activities using different instruments. The collection of GPS points allows precise recording of sample locations, ground water wells, or other land features of interest while performing environmental investigations. This data allows us to create accurate and comprehensive evaluations of a property based on where sample data has been collected and enables the user to return to areas previously sampled.

High accuracy GPS allows Ohio EPA to calculate areas, volumes and distances of features in the field such as square footage of landfills, areas of lagoons, and to establish sample grids. In addition, SIFU can load historical aerial photographs for a property into a GPS unit enabling the field location of features which are buried or have been removed from the property.

#### Mapping Grade GPS

Mapping grade handheld GPS units utilized by Ohio EPA have technology which enables them to achieve sub-foot accuracy even when used in environments which contain tall trees or buildings. Current or historic maps or aerial photographs can be loaded into this unit allowing navigation to areas of concern or land features which may or may not still be present on the current land surface.



#### Subcentimeter Survey Grade GPS

SIFU uses a Trimble R8 survey grade Global Positioning System (GPS) device to achieve coordinates which have the potential for up to 1/100-foot precisions in a very short time period. This data can be used to create ground water flow maps and digital topographic maps of land surfaces. This GPS can also be used to monitor landfill subsidence and can be used in conjunction with a boat to topographically map the bottom of lakes and rivers.



*Subcentimeter GPS unit*

# Surveying and Mapping

## Collection and use of GPS data



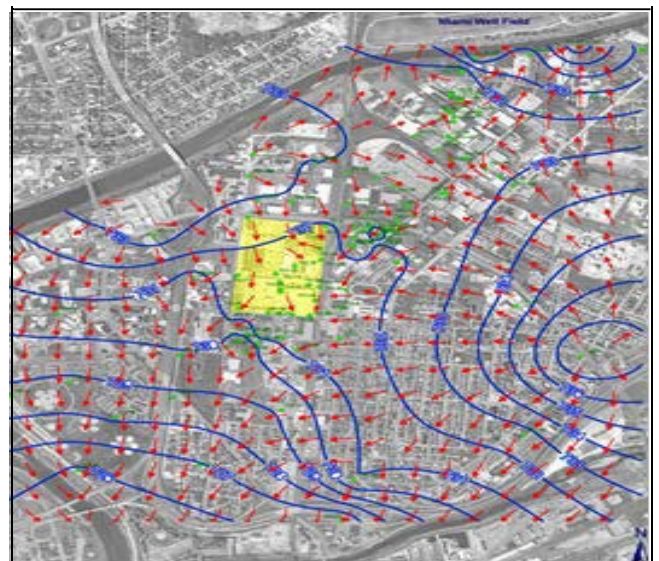
*Trimble R8 GPS unit collecting elevation data.*



*Collecting elevation data from the top of a well casing.*



*GPS unit performing topographic survey of a lake bottom in order to assist in calculating volume of contaminated sediment.*



*Map created using ground water elevation data collected with Trimble R8.*