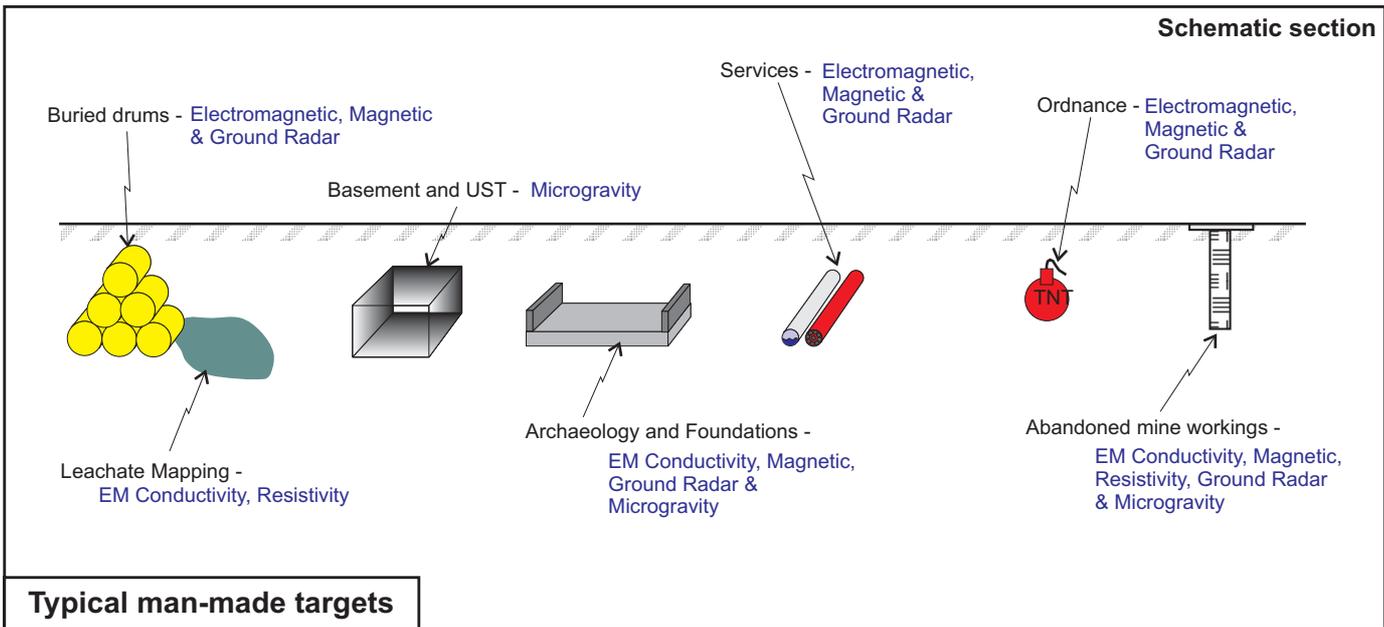
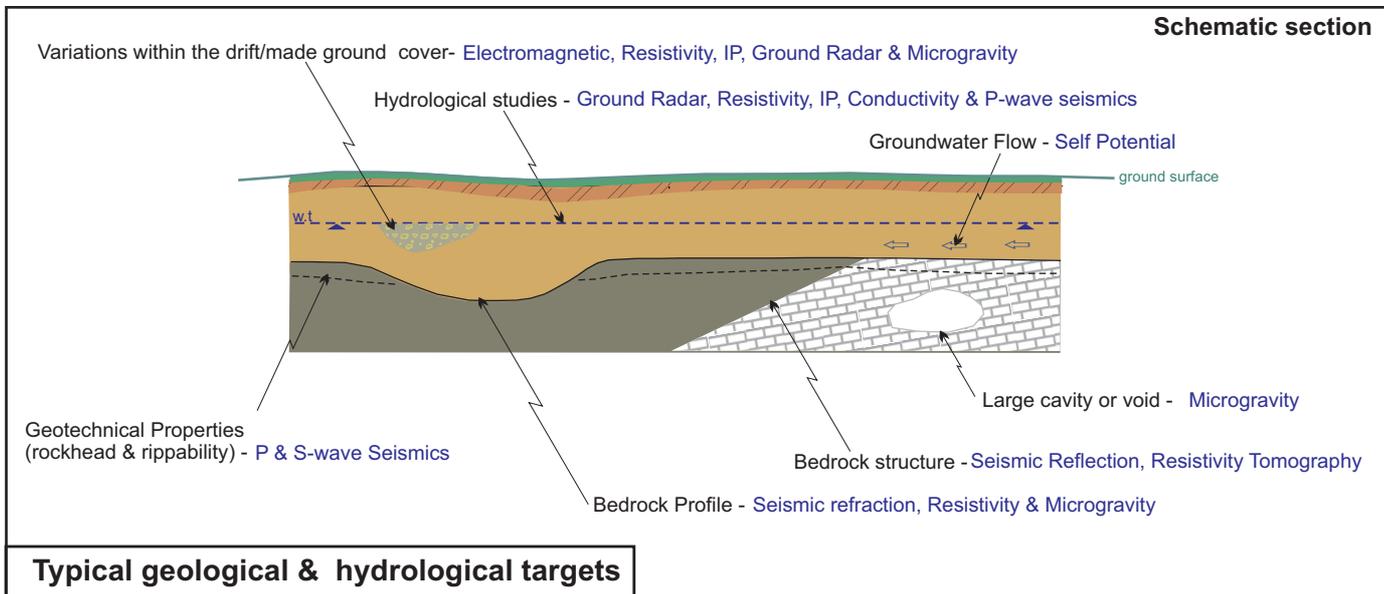


Geophysical Surveys are designed to exploit one or more of the physical properties of a target feature that is in contrast with its host environment, e.g., the low density nature of a void is in contrast to the high density nature of surrounding bedrock, etc. Careful examination of the likely physical characteristics of the target (size, depth and properties) is required to enable reliable assessment of whether it is detectable or not. Geophysical surveys are generally carried out at surface using sensitive equipment, so it is also essential to consider the possible influence of the site conditions and the overburden at the design stage, e.g, the presence of thick fill or metal scrap at surface can adversely affect some methods.

Some geophysical methods such as *resistivity tomography*, *seismic refraction* and *ground radar* provide detailed cross-sectional information and are particularly useful for imaging geological structure, groundwater distribution/contamination and determining elastic properties. Other geophysical methods such as *electromagnetics (EM)*, *magnetic gradiometry* and *microgravity* generally involve acquisition of data on a grid format across the survey area and the results are presented in plan view. These methods lend themselves to reconnaissance because of the lateral ground coverage but the results can also be analysed to produce information about any observed anomalies.



(ABOVE) Schematic representation of typical targets (natural and man-made) and the most appropriate geophysical methods for a survey. The final choice of method (or combination of methods) will also depend on the prevailing ground conditions depth and size of target etc.