



## Land Survey specification

Land Surveys have been produced using CAD for many years. The CAD drawing file (.dwg) is an ideal format for survey data as it is capable of storing a large amount of information in 2D or 3D with highly appropriate presentation and structure (including layers). The basic concept of a CAD “wire frame” drawing rather than just a “2D computer drawing” means that the survey drawing product should be of far greater value than just a 1:500 plot for example. KeyTERRA-FIRMA Land Surveying users are able to provide drawings to their clients of extremely high quality and to provide 3D data that will enable their client (who is also using KTF) to easily create accurate sections plus Ground Models that will be of great help in a variety of design applications. These specification notes are intended to encourage Land Surveyors to provide the most appropriate product and to enable users who require Surveys to easily specify the 3D survey drawing. It is not essential for the survey provider to have purchased KeyTERRA-FIRMA to create well organised 3D drawings but it will without doubt help!

### 1. FORMAT

CAD drawing file (.dwg)

The drawing should be saved in Model Space with World UCS. That is to say on “real world” local or national grid with North “up the screen”. The KeyTERRA-FIRMA template drawing makes CAD very appropriate so third party drawings need to be inserted into a new drawing (having used ktf.dwt) with insertion point of 0.000, 0.000 and exploded upon insertion. The units are metres.

### 2. LAYERS

There are no essential layers that must exist for KeyTERRA-FIRMA to work and it is assumed that many organisations will have their own layer requirements. Input from Total Stations/GPS etc. will automatically generate all survey data onto user defined layers defined by feature codes. Users may specify layers as they wish but are encouraged to keep the list as brief and logical as possible.

### 3. 3D

The distinction between 2D and 3D data is most important. It is suggested that indeed both are specified - supply 2D traditional detail drawing and 3D drawing as explained here.

a. For a SITE the most direct way for the survey to be supplied is by representing it as 3D Faces. The KTF Ground Model can then be created directly from the 3D Faces.

b. For existing ROADS all channels, centre-lines, kerbs, verges and footpaths etc. should be represented as 3D Polylines so that sections can be created directly from them (and also Ground Models). Note that these 3D Polylines should not be spline curve fitted.

c. GENERAL A combination of spot levels and linear features (tops and bottoms of banks, ditches, road channels, centres, kerbs and verges etc). The spot levels may be represented as Point or Block entities with the appropriate Z values (these can be used directly for Model creation or converted to “proper” KTF PL level blocks). The preferred way is to represent spot levels as KTF PL level blocks when the level attribute is used by a number of KTF functions. A KTF PL level block is available on request to any third party. When creating a Model from 3D polylines the “line elements” will normally be recognised as break lines.