Vectorworks Landmark and Vectorworks Architect include tools that take the height data from a survey and convert it into a model of the terrain. This model can be adjusted to accommodate design changes to the site, and cut and fill calculations produced.

Request Appropriate Survey Data

After completing this chapter, you will be able to:

- Ask your surveyor for level data in an appropriate format

Typically, professional surveyors will use sophisticated equipment such as a Total Station to record the data the levels on a site. They will then convert this information into a drawing which is often created in AutoCAD. The file will be sent to you in DXF/DWG format, which Vectorworks can import ready for you to work on the site. However, if you are hoping to produce a 3D model of a site using Vectorworks Site Modelling technology, it can be helpful to ask for the information in the correct format so that it's easier for you to make direct use of it and have less editing to do.

The following page of this document explains the different types of information available and ranks them in order of preference.

Please feel free to pass this document to your surveyor and ask them to contact us if they would like any clarification.

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Exercise: Ask Your Surveyor for Appropiate Level Data

Before starting this exercise, you will need the courage to ask for what you need!

To discuss the information covered in this document, or find our about our Site Modelling courses, call 01635 580318

Suitable source data for a Vectorworks site model will be in any of the following formats: Note that a combination of 3D Points and 3D Polygons can be useful.

3D Points

These 3D points should include the appropriate Z value for the terrain where the point was marked. To make life easier for the designer, please ensure that height data which is NOT from the terrain (e.g. Sill, eave or ridge heights) is included in a separate class (AutoCAD Layer) so that it can easily be excluded from the source data for the model. Each AutoCAD point will be converted to a Vectorworks 3D Locus and used as the source for the model. The model will be triangulated from these points, and a contour plan with 3D solid model will be produced.

X,Y,Z file

This is a comma separated value file (.csv) which is produced at the time the data is moved from the survey equipment into AutoCAD. Each row should contain a minimum of three columns, each containing one of X, Y and Z co-ordinates to pinpoint the location of the level reading and the height This file can be read directly into Vectorworks to create 3D Loci which can be used as source data for the site model. Again, ensure that height data which does NOT relate to the terrain is excluded from the file. CSV files can be opened and edited with any spreadsheet package.

3D Polygons

3D Polygons representing contour lines, each one containing the appropriate Z value (height). 3D Polygons should be unbroken and should not be crossing. Avoid smoothing of 3D Polygons, as these will create an unnecessary number of excess points.

2D information should be used as a last resort, as it will require extra effort for the designer. 3D information can be imported and used straight away.

2D Polygons

2D Polygons representing contour lines. These should be unbroken lines if at all possible — in other words ask your surveyor to label the contours to the side of the lines rather than break the line to do so. If lines are broken, they can be joined in Vectorworks using the **Connect/Combine** tool, but if you can avoid this extra step, why not? Contour lines should not cross one another. We also recommend that the surveyor does not "smooth" the contours for you. Although it may look prettier, it means that the information you received has been changed from the original points and therefore not as accurate as it was. Once imported, Vectorworks can convert these contours to 3D Polygons which can be assigned height and used as the source data for the model.