3D Modelling & Fly Throughs

Although the LiDAR survey produces a fully 3D dataset a lot of the analysis performed is still looking from a traditional vertical (planar) view point, similar to looking at aerial photographs. Certainly in the case of paleochannel studies and in the case of the Palaeofluvial analysis this is the best way to readily identify features of interest. However, the fully 3D nature of the data must not be over looked. 3D visualisation of the WRM focus data had already been performed as a part of the earlier stage of point processing (TGS Amira) looking for trends, errors and structures in the raw point data that may be lost in the later surfacing. However in both the main software packages now being employed by the WRM project (ESRI's ArcGIS 8.3 3D Scene & ERDAS Imagine 8.6) 3D visualisation can be renewed.

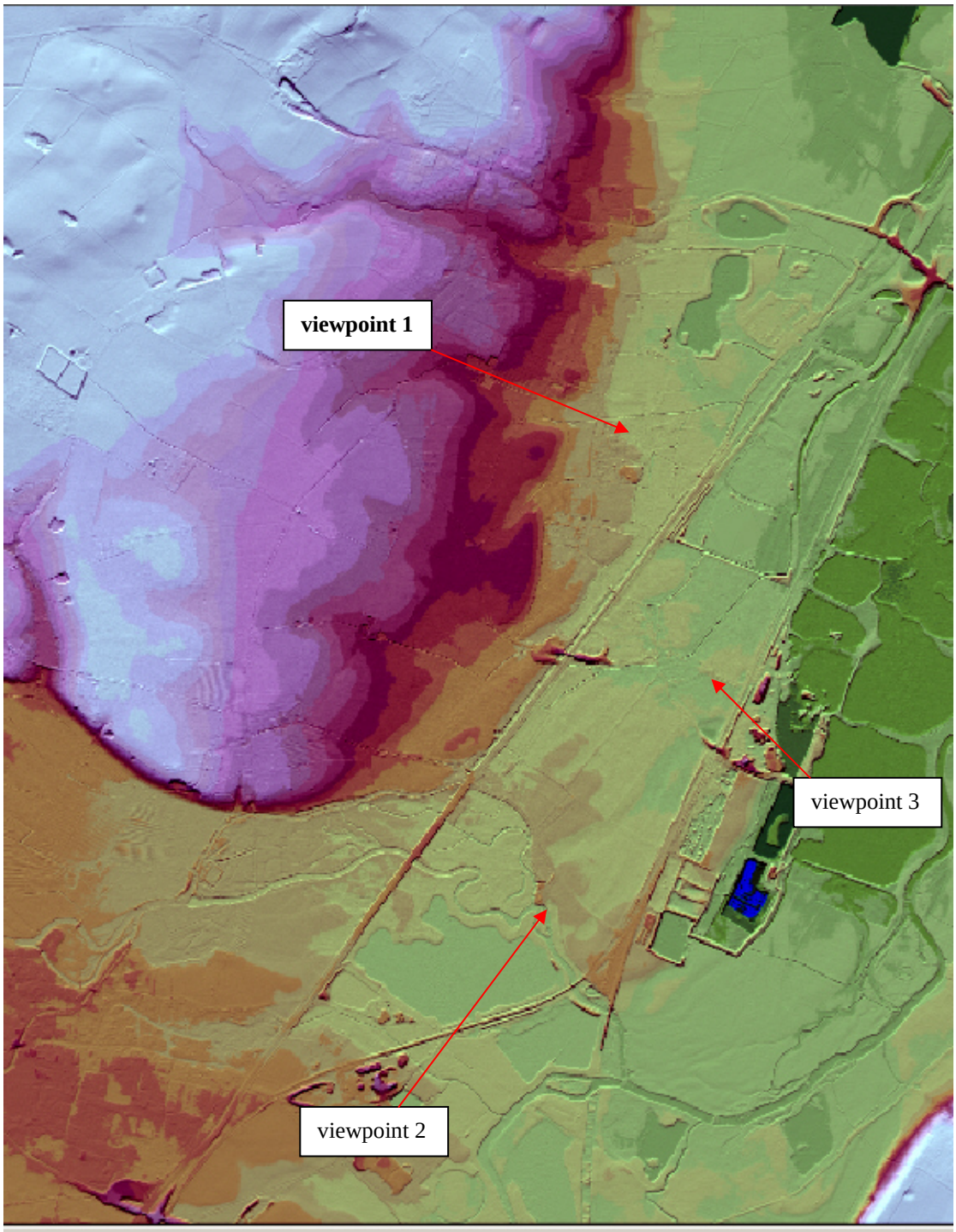

Figure 17: Overhead coloured DTM from ERDAS Imagine. Numbers related to 3D viewpoints below

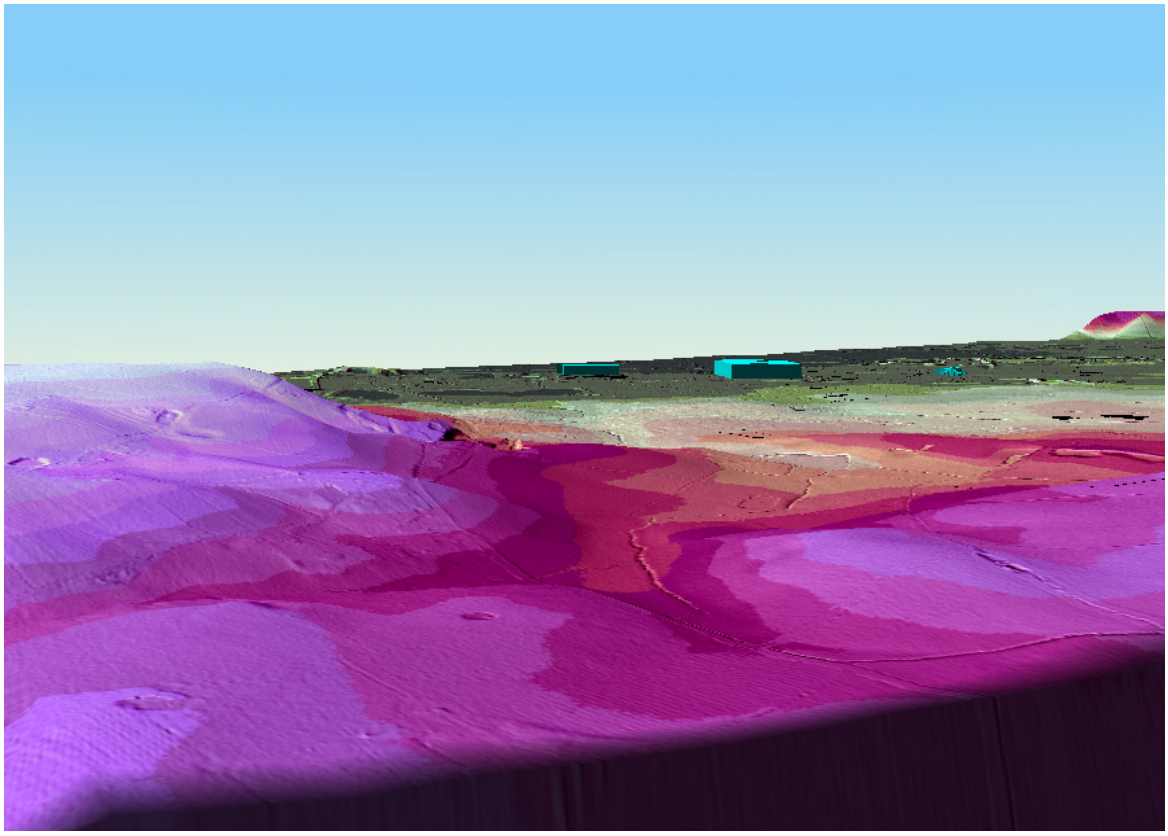

Figure 18: Viewpoint 1, a low-level first person perspective from a valley leading down to the focus area from the north-west

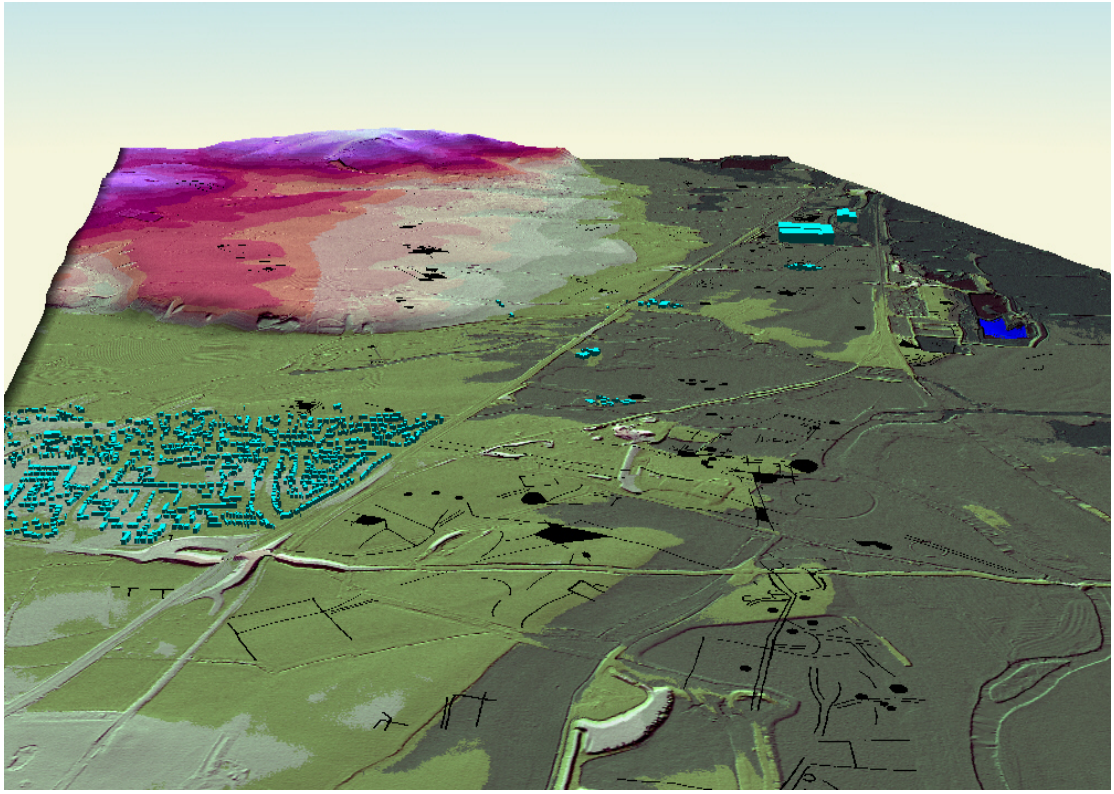

Figure 19: Viewpoint2, a high level oblique flying view of the project area from the south. Cropmark plots can be made out in black

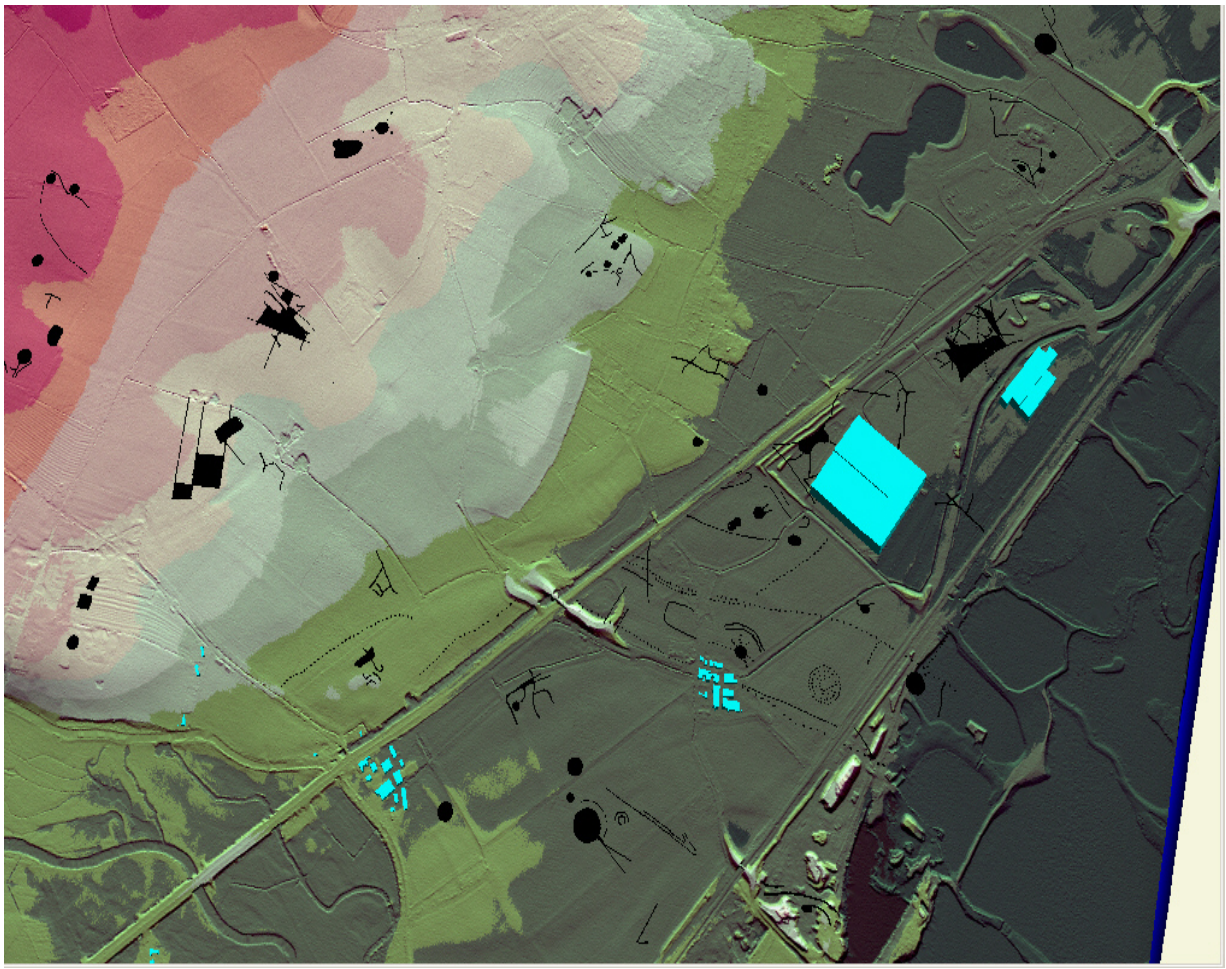

Figure 20: High level near plan view, directly over the focus area

The above figures are taken from a fly through (see attached CD, alsf_wrm1) around the WRM project area, generated in ERDAS Imagine's VGIS module. However, rather than just keeping to the LiDAR DTM extra dataset can be added, due to every dataset being correctly georeferenced to OSGB36. In the larger of the two fly throughs (as above) a false coloured DTM has been combined with the cropmark shapefiles (see GIS below) and building models developed from Ordnance Survey landline polygons. The large building to the north is the new Argos depot with Catholme farm featuring in the centre of figure 16.

To create a fly through a 2D path is digitised over the subject area (figure 17) this gives the initial path and camera fixed points, but is set by default at a specific view direction, altitude, speed, and attitude. These first camera positions can then be added to, and the viewpoints, speed etc. customised to create the desired perspectives and focal points (figure 18). The small of the two fly throughs in this report having over 50 individual camera fix points. The VGIS module then tracks from one point to the next swinging the view to hit the following camera position in as smooth a transition as possible. Once these position have been determined additional datasets can be added to the VGIS world, layering the view, just like the GIS (see below) to create dataset focused flight paths.