

File note on Arthur McCallum's survey data from March 2008-08-01

Arthur surveyed several features visible in section along the south edge of the crater on the hilltop in conjunction with archaeological examination carried out by Sarah May. In the survey data there are no calculated co-ordinates (other than a back-sight to the reference station) – only angles. I plotted the vectors with an arbitrary length of 20 metres, then moved the whole dataset based on the one back-sight, and finally rotated the data to align the other station vector with the known location of the station marker. A separately acquired outline of the crater (surveyed by Duncan Stirk in April 2008) was overlaid, and the vectors all trimmed to length where they met the outline in plan. The ends of the vectors were then connected with linework to create a section drawing. Because of the assumptions and machinations involved in the rescue of this data the exact position of each point in the linework is subject to some minor uncertainty that in most cases is likely to be measured in centimetres.

The raw TST output lives in file <S:\oldshare\Projects\PR66 I - Silbury Hill\Remedial works 2007\Silbury308\CRATER.txt>

The processed CAD product lives in file <S:\oldshare\Projects\PR66 I - Silbury Hill\Remedial works 2007\Silbury01April08\Arthur crater.dwg>

In the CAD drawing the linework is arranged on layers corresponding to the stratigraphy for convenience, and can be inserted into any other suitably geo-referenced CAD drawing of Silbury Hill.

Arthur also surveyed features inside the tunnel mouth, and again there is an issue regarding the data. There are three separate data files, which are each discussed below.

Silbury Tunnel 1 shows two lines (one each side of the tunnel) but aside from one back-sight to a control point again there are no distance measurements in the data. Again the vectors were plotted with an arbitrary length, and the data then moved and rotated into position. However, there is no precise model of the tunnel sides to use as a plane of truncation. (The tunnel as surveyed during excavation was subsequently widened by the removal of the steel arches and no doubt an unspecified amount of scraping-back of loose material before Arthur surveyed it.) So, a “best guess” was employed to produce a set of probable tunnel edges at which the vectors were trimmed. The ends were linked into lines, but as the trimming was a guess the exact line lengths are open to a large tolerance (+/-300mm?) and should be used only as a representation of the height of interface rather than a true 3D boundary. In short, they are adequate in elevation but not in plan.

The raw TST output lives at <S:\oldshare\Projects\PR66 I - Silbury Hill\Remedial works 2007\Silbury308\SILBURY TUN1.txt>

And the processed CAD lives at <S:\oldshare\Projects\PR66 I - Silbury Hill\Remedial works 2007\Silbury01April08\Arthur Sil Tun 1.dwg>

Silbury Tunnel 2 is a slightly different problem, in that distance data was captured for the linework as well as one of the back-sights, but not for the other back-sight. The data can therefore be rotated round the one back-sight in an attempt to line up the vector of the other back-sight with its control marker, but the divergent angle is too great to fit. (Clearly something went wrong, but there is no way to tell.) I have rotated the data by eye as a "looks right" fit, but bear in mind the potential inaccuracy.

The raw TST file is at <S:\oldshare\Projects\PR661 - Silbury Hill\Remedial works 2007\Silbury308\SILBURY TUN2.txt>

And the CAD at <S:\oldshare\Projects\PR661 - Silbury Hill\Remedial works 2007\Silbury01April08\Arthur Sil Tun 2.dwg>

Silbury Tunnel 3 again had no distances in it, but because it did not even have a single distance to one control point there is no practical way to place it in real space. (In essence it can occupy a range of locations and rotation angles along a wide arc that get the back-sight vectors to pass through the control points.) This file has not been saved as a CAD drawing.

The raw TST file is at <S:\oldshare\Projects\PR661 - Silbury Hill\Remedial works 2007\Silbury308\SILBURY TUN3.txt>

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1 August 2008