Burdale Scheme Description

By Eric M. Thurston

The aim of the Wolds Research Project is "the archaeological investigation of the complex interaction of human settlement and natural processes in the landscape from the Iron Age until the present day…" (Roskams 2004). This broad agenda has four General Research Themes, including: I) Examination of landscape processes, current use and future development, II) Landscape Boundaries and communication/ landholding systems, III) Settlement evolution and IV) Socio-economic development (Roskams 2004). Analysis of these key themes will take place at various levels of resolution, from the perspective of the landscape, down to the individual site. The goal of this CAD project is to add digital documentation of results obtained from recent work carried out at the Burdale site in the Wolds study area. This work provides information at the scale of the individual site and aims to further the research agenda proposed by the Wolds Research Project.

Three CAD schemes are presented in the included three files, entitled *BurdaleSitePhases*, *BurdaleSiteFunction* and *BurdaleGeophysicalAP*. Each scheme provides distinct groupings of information for researchers examining the Burdale site. This essay offers a description of the layering schemes used in each CAD file and their relation of to the research goals proposed by the Wolds Research Project. For further reference, a metadata file can be found associated with these files, entitled *Burdale Project Documentation*, which was prepared in accordance with the Archaeological Data Service publication, *CAD: A Guide to Practice* (Eiteljorg, Fernie, Huggett and Robinson 2002).

The original map of the Burdale site was created as part of the 2006 training dig hosted by the University of York, Department of Archaeology. The original scale was 1:50. This map was digitised in AutoCAD using a GTCO CalComp Drawing Board V. Also, the digitised maps use a longitude and latitude coordinate system as well as a local grid coordinate system (termed *local grid*) where either can be made active for easy viewing. Additional site information was then gathered to document the features into the CAD schemes. Contributors to the information presented in the final CAD digitisation include Steve Roskams, Ben Gourley, Kennis Yipp and Michael Charno.

BurdaleSitePhases illustrates a chronological display of the features present at the Burdale site. *Layer 0* was used as the drawing surface and no information is present. For contextualization of the site, *Layer CONTOURS* and *Layer images* was used. The contour data was made available by Ben Gourley and was downloaded from Ordnance Survey. The images include a black and white aerial photograph (BurdaleAP.jpg) and two gradiometry images (burdaleGradiometryWest and burdaleGradiometryWestRealign) and were both geo-referenced by Ben Gourley. The data for the gradiometry originated from work carried out by Kennis Yipp towards MA dissertation research (2006). Both gradiometry images are of the same information, though, the alignment of one has been skewed in order to account for the flux reading response shift (burdaleGradiometryWestRealign). This does constitute a violation of the data (Yip 2006, 42), though the realignment is meant for simple visual association of features. *Layer trenchWalls* represent the outer excavation boundary and lines have been included marking 10 metre intervals along this wall. *Layer Labels* has been employed to document the fill and cut numbers which were present on the original drawing. The *Layer KEY* lists all the information regarding the layers, their description and the colour used on the CAD drawing for easy reference while viewing the digital drawing. *Layer Gradiometry* is present though no information is contained on this layer. The *Layers Group1-15* represent different features at the site present at various times of occupation. A matrix depicting their associations is present within the *Layer KEY*. The occupation phases were defined by Steve Roskams. Similar colour shades were incorporated in the layering scheme to phases existing at similar times.

Displaying features within a temporal scheme is useful towards analysing the site. One particular research question posed by the Wolds Research Project involves the transition of Bronze Age to modern period land use (see Specific Research Area (SRA) A, B and C) (Roskams 2004). In order to understand these transitions it is important to examine the settlement evolution at the micro-level, as laid out in Objective 2 of SRA A and B (Roskams 2004). The *BurdaleSitePhases* scheme allows one to examine changing land use at the scale of individual enclosures. Various periods can be readily turned on and off, providing ‘snapshots’ of the site’s development. Comparing this scheme with artefact assemblages and ecofacts, within a GIS, can also provide information on the social and economic development on a small

scale, as noted in Objective 3 of SRA A and B (Roskams 2004). Finally, this scheme can be compared with other site chronologies in order to refine the cultural processes being carried out across the landscape. Overall, the scheme contributes to the General Theme of Research II: Landscape boundaries and communication/landholding systems and III: Settlement evolution (Roskams 2004).

BurdaleSiteFunction is the second scheme created and is layered according to site feature types. *Layers 0*, *CONTOURS*, *images*, *Labels*, *KEY* and *trenchWalls* are supplied and contain the same information as with *BurdaleSitePhases* (see above for full description). Three ditch layers were created including *Layer ditch*, *Layer ditchExtrap* and *Layer ditchPostEX*. *Ditch* and *ditchExtrap* are present on the original drawing for the Burdale site and document visible ditches and extrapolated edges of those ditches, respectively. *Layer ditchPostEX* was incorporated into the scheme due to explain the jagged appearance of the excavated edges. This layer only appears on the *BurdaleSiteFunction* file, though the edges are the same on all three CAD files. This layer seemed of particular importance to the documentation of feature types and was therefore included. There is also an associated layer, entitled *excavatedArea*, which corresponds to these edges and provides a more detailed look at the excavation location. A number of pits were located and are differentiated in this project as *Layer pitSmall*, *pitSmallExtrap*, *pitWithHearth*, *pitWithoutHearth* and *pitWithoutHearthExtrap*. Again, the *Extrap* portion of the layer name signifies edges of the feature which were extrapolated on the original drawing. *Layer postholes* documents postholes and *Layer sunkenBuilding* and *sunkenBuildingExtrap* both document living areas. The final layer, *unknown*, represents features transcribed from the original drawing where no context numbers are associated and data is unknown. The information which determined the site function was principally based on Figure 21 in Yipp (2006, 51).

Separating the features uncovered at the Burdale site into function types can reveal useful information. According to the General Theme of Research III: Settlement evolution, analysing the site function areas will aid in the interpretation of the Wolds settlement shift, nucleation and desertion (Roskams 2004). This scheme provides a visualisation of specific areas used continuously for certain activities. For example, one can view all ditch features from all time periods together in order to examine land

use on an individual site scale or one could examine which areas are preferred for constructing living spaces. As with the *BurdaleSitePhases*, one could combine artefact and ecofact data in this scheme to provide further information regarding site use of space. In sum, the feature type provides a useful method for examining the Burdale site.

The final layering scheme, *BurdaleGeophysicalAP*, documents the results of a gradiometry survey conducted by Yip (2006) and aerial photograph interpretation by Michael Charno. *Layers 0*, *CONTOURS*, *images*, *Labels*, *KEY* and *trenchWalls* are included again, while, additional layering of the gradiometry flux values and the AP interpreted features are present. The gradiometry data is listed in Yip (2006) as Appendix I and all values used belong to the highest reading associated with the feature. The layer values rise incrementally by 1 nanoTesla (nT) and total ten distinct layers and range from *magneticValue0-0.99nT* to *magneticValue9-9.99nT*. The gradiometry data also included negative reading (*magneticValueNegativeReading*) and for some feature the flux value is unknown (*magneticValueNotAvailable*). The aerial photography data (conducted by Michael Charno and supplied by Ben Gourley) consists of *APpospits* which documents possible pits and *APditch* which documents ditches observed. The final layer is *APvisibility*, which relates the possible association of visible feature at trench level with feature visible from the aerial photograph interpretation.

As Yip points out, the Wolds "underlying chalk geology and pedology provide an excellent criteria for outstanding geophysical survey and air photography results (2006, 14)." The magnetometry survey she conducted at Burdale provided a useful opportunity to create a CAD scheme from these results. The data relays information on archaeological visibility of features based on a number of factors, including soil type, feature type, depth and inclusions (both artefacts and ecofacts) (Yip 2006, 57-9). The issue of archaeological visibility is also set forth in the General Theme of Research I: Landscape processes, current use and future development (Roskams 2004). Here, the importance of understanding the processes leading to site visibility and landscape interpretation is stated. Furthermore, when coupled with database information in a GIS, the gradiometry data presented in this CAD scheme can provide a useful method for examining visibility on a localised scale. Aerial photograph

interpretation was also included in this scheme. This can also be examined within the GIS structure to examine the visibility and invisibility of the site features on an additional level.

The Wolds Research Project seeks to gain a deeper understanding of the Wolds landscape and the schemes presented suit these project goals. The three schemes also provide the foundation for continuing research. Extrapolations of the data could be drawn revealing an even greater amount of information of the local area based on the gradiometry and aerial photography. Furthermore, the files could be exported to a GIS combining the excavation results with each scheme. In sum, it is hoped that this CAD project can be utilised to offer new insight into the archaeology of the area.

References

Eiteljorg, H, Fernie, K, Huggett, J and Robinson D (2002) *CAD: A Guide to Good Practice*, AHDS

Roskams S P (2004) 'The Wolds Research Project: research objectives', http://www.york.ac.uk/depts/arch/Wolds/new/index.html. Page consulted 18 February 2007.

Yip, K (2006) *Integration of Geophysical Survey and Other Techniques*, unpublished MA Dissertation, University of York.