



Arts & Humanities
Research Council



REPORT ON TOPOGRAPHICAL SURVEY & DEM MODELLING AT CASTELPORZIANO

September-October 2006

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Introduction

The fieldwork season 11 September to 21 October 2006 continued the collection of data for a high-precision topographic model. The area from the westward boundary of the estate ('Villa del Confine') as far as the eastern limit of the *vicus Augustanus* had been covered during the September 2005 and April 2006 fieldwork seasons. This season therefore focused on the 60 metres margin beyond the eastern limit of the *vicus Augustanus* together with a 100 metres zone on the inland (northern) side of the Via del Telefono, along its entire length, so as to include the line of the Via Severiana and its associated terrain.

Aims and Objectives

The model aims to map both the archaeological and natural features of the present landscape in order to form the basis for both the more detailed documentation and analysis of Roman occupation along the ancient sea front (c. 200 BC-c. AD 500) and the study of its environmental and geomorphological context (to be carried out by Prof. Helen Rendell, Loughborough University). It is intended to use the model to explore and explain how the architecture of the Roman villas, the associated *vicus Augustanus* and a possible harbour responded to the continuing evolution of the coastline and to the environmental changes associated with this development.

Methodology

Since the site is heavily forested, the most feasible way of recording the surface co-ordinates is using a total station and a prism. The dense foliage impedes the use of a reflectorless laser setting for the total station, differential global positioning system and also remotely sensed images. The Total Station employed is a Leica TPS400

Results

The area surveyed now covers 660 by 290 metres, within which 16,750 points have been taken and used to create a three-dimensional digital elevation model (DEM) in the geographic information system ArcView. The DEM has already highlighted several areas which require further investigation by other means, such as test trenches, geophysical survey and geomorphological coring. Work on integrating the three-dimensional data of the previously recorded archaeological features and new reconstructions into the model is currently ongoing: this phase is carried out in CAD and the resulting models are imported to ArcScene. The whole model in its current state is reproduced in Fig. 1 with details of the points taken during this fieldwork season.

Future work

Work remains to be done on the northern limit of the 100 metres zone on the north side of the Via Severiana.

A second high-precision topographic model is also planned for the area around the possible fish farms approximately 1.2 km east of the *vicus Augustanus*.



Fig 1 Digital elevation model (DEM) of Vicus Augustus and the northern side of the Via del Telefono