Excavation of side tunnels

In November 2007, work began on the excavation of one of the side tunnels in Tunel Ravne. The aims of this excavation were:

- To better understand the purpose of the walls' construction.
- To attempt to establish a relationship between the walls and sediments behind, and search for material that could indicate dates of past activity in relation to the side tunnels
- To understand the processes of deposition of sediments behind the walls, and their origins
- To develop an excavation strategy that is suitable for application to the excavation of further tunnels.

As excavation is essentially a destructive investigative approach, it was agreed that the first wall to be excavated would be one in a relatively poor condition, and in an area of the tunnel complex already accessible to the public. A side wall located (X)m from the entrance was chosen, as displayed in the map below. The whole scope of this investigation is to be carried out in a number of stages:

- the cleaning, measuring, and recording of the existing wall
- a box excavation to attempt to unveil any evident stratigraphic relationship between the walls and sediments
- the taking of sediment samples for potential palaeoenvironmental and dating evidence
- the sieving of extracted material for artefacts
- the writing up and publication of results, and an evaluation of the methodology employed
- the processing of artefacts and samples recovered during excavations

Cleaning, measuring and recording

The first stage of excavations involved the in-situ recording of the wall and removal of the upper layers of sediments. The wall was photographed, and 1.5m scales were included. After this, it was decided to clear upper sediment layers back to a depth of 0.8m. Due to the nature of these deposits, it was quickly established that a vertical profile of the sediments could not be made, hindering slightly the aim of a box excavation. Therefore, the primary target of the excavation was shifted so as to focus on any discernable changes in sediment types, and the sieving of excavated material for dating/environmental evidence and artefacts.

The upper sediments consisted of a mixture of ancient riverine deposits. Some of these undoubtedly were derived from the compacted sediments within which the tunnels have been cut. The deposits contain a wide array of small rounded stones of many types, typical of low-mid course riverine sediments. A wide range of mineralogical compositions are evident, and it is clear that these tunnels are not compatible with mining and mineral extraction.

Overall, this upper fill can be described as a homogenous mixture of loose and weakly cemented coarse-grained sediments of a light-mid grey-brown colour. The matrix is a sandy clay, with many (~80%) well rounded small (<10mm) stones. At this level, the sediment is consistent throughout.

The removed sediment was thoroughly examined and passed through a 10mm mesh sieve. 4 stones were retained for further interpretation. The colour of 2 of these suggested possible staining by copper ores. 1 stone had a patternation indicative of possible abrasion, although whether through human action or not it is not possible to say at the moment. The final stone is of an unknown material, but possibly has a very high iron or organic content, due to its colour, tendency to stain, and fracture pattern.

Excavation of material behind stone walls

Layer 1: 0.00-0.25m

On 25th June 2008, the first layer of sediments lying immediately behind the stone wall was excavated. As no discernable stratigraphy was evident in the sediments above the wall during the initial cleaning, measuring and recording hase, it was decided to excavate material to a depth of 0.25m as the first layer of deposits.

Several difficulties were encountered during this phase of excavations. The first of these was a lack of adequate lighting, which meant that subtle changes in sediments, indicative of stratigraphic layering, were impossible to distinguish. Secondly, due to the tunnel roof height, and relatively small size of the box excavation, difficulties were encountered in the removal of deposits whilst leaving the wall intact. However, this was overcome by using a smaller shovel, and no damage to the structure occured. Finally, material from behind the box excavation was continually collapsing in, due to the loose nature of deposits. This posed the extra problem of potential mixing and contamination of sedimentary layers, as well as possibly hindering the recognition of distinct stratigraphic layers.

All sediment removed was taken outside of the tunnel system for examination, and seived through a 10mm mesh. After this, a small sample (number <7>), approximately 2 litres, of material was taken and stored in the Foundation's sample refrigerator for potential microanalysis in the future.