

# **Report on the Excavations Undertaken at the Summit of Plješevica Hrašće, or ‘Bosnian Pyramid of the Moon’, July - October 2007**

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## **Introduction**

The 2007 excavation season saw the opening of several new sectors in the large-scale excavations near the plateau, known overall as Sonda 28, as well as two small trial pits on the northern face, which have been recorded as Sondas 29 and 30.

This season also saw the introduction of a regulated systematic methodology, involving the recording of profiles, and the measurement of all excavations within a particular sector from a fixed point, which can be digitally located at a later date using GPS or other geo-positioning methods. This methodology has facilitated a collection of records which are readily interpretable to a trained archaeologist, and can be permanently stored independently of a report, which could potentially introduce bias to the results. This record of excavations includes sheets of profile measurements, digital photographs, and trench evaluations all conforming to a written protocol (see The Archaeological Park: Bosnian Pyramid of the Sun Foundation Archaeological Fieldwork Manual, First Edition).

Due to financial and time constraints, the excavations carried out this year were not recorded as fully as they might have been, and the end of this report contains a plan of some of the further improvements to be introduced to excavation and recording techniques in preparation for the 2008 season.

## **Acknowledgements-**

All photographs contained within this report were taken by Jasmin Čabaravdić

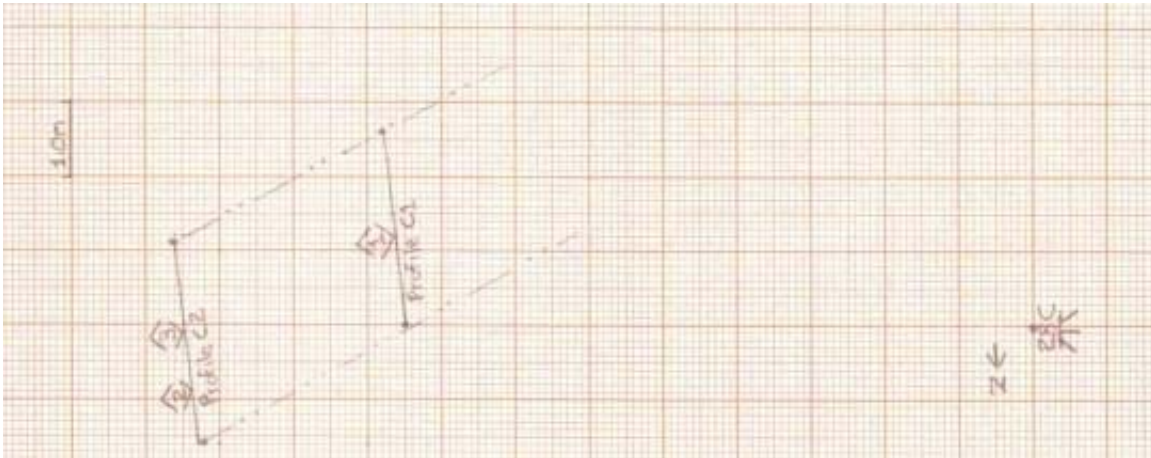
## Excavations

### Sonda 28

This sonda covers a vast area, and has therefore been divided into numerous sectors. These are labelled alphabetically, based in part both on the chronological order in which they were dug, and their relative locations.

Sectors A, B and D were dug completely during the 2006 excavation season, the period during which work on sector E also began. At the start of the 2007 excavation season, work on sector E continued, and a new sector, sector C, was opened. The new methodology introduced to excavations undertaken by and on behalf of the Foundation was introduced throughout July 2007. By this time, much of the work in sector E had been completed, and it was agreed that further work would focus on the uncovering and recording of stratigraphic profiles, and the collection of palaeoenvironmental and potentially datable samples. Late in the 2007 season, sector F was also opened. Due to the shallow nature of the sediments encountered in this area, a new approach to the excavations in this sector was adopted. This is discussed in further detail below.

### Sector C



**Figure 1- Plan of Sonda 28 Sector C Excavations**

This sector has a roughly 'L' shaped plan. The vertical soil profile has well preserved stratigraphy, with sandstone flags at the bottom. Toward the southern end of this sector, it

was decided that the aim of excavations would be to create a fuller understanding of the stratigraphic layers overlying the sandstone flags, and so the excavations were extended in a direction, in order to look for layers which may yield datable evidence.

Approximately 8.5m into this extension of the sector, from Base Mark 'C' sediment profile C1 was created, photographed and recorded. One sample, <1> was taken from this profile, approximately 0.24m above the sandstone flagging, as it contained a black (possibly organic) material, and has been retained by the Foundation. After recording, work continued, and at a distance of approximately 11.8m from Base Mark 'C', sediment profile C2 was created. From this, two samples, <2> and <3>, which also appeared to contain blackened organic material, were extracted from sealed stratigraphic layers, at heights above the sandstone flagging of 0.24 and 0.55 metres respectively. These may have potential for analysis which could lead to reliable dating of the layers, and are shown in the profile photograph below (# DSCF2028), and recorded in detail on profile sheet C2.



**Figure 2- Profile C2 (Taken from W)**

Following the discovery of these sealed carboniferous layers, it was decided to attempt to discern whether these layers were continuous or discrete, and another area of this sector was opened behind the profile, with the aim of leaving it intact for future study and sample extraction, whilst at the same time enabling further study of the stratigraphic layers overlying the sandstone flags at the base of the profile.

The excavations of this sub-sector were hindered by rain. The sediments consist largely of clays, which drain slowly and retain large amounts of water. The lack of both pumping equipment and direct sunlight, (below depths of approximately 0.4m), which would have hastened drying and evaporation rates, made it unfeasible to continue digging this portion of the sector during the 2007 season.

### **Sector D**

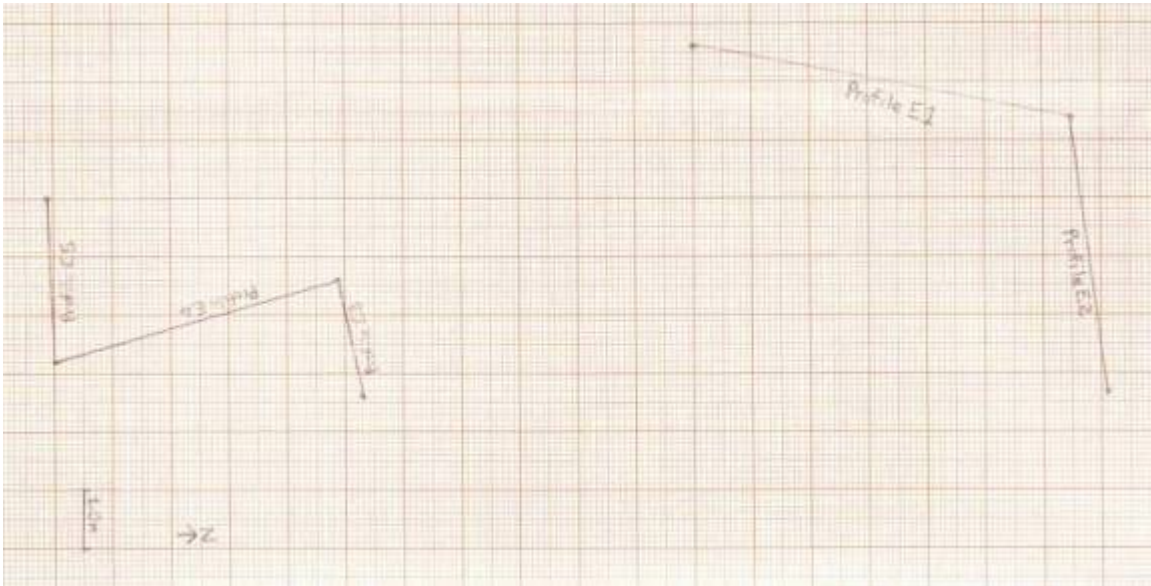
No excavations were carried out in this sector during the later period of the 2007 excavations. However, the Permanent Archaeologist was alerted to the presence of dark material underlying some of the stone flags in this sector, and took sample <4> for potential future analysis from the approximate location depicted in the below picture.



**Figure 3- Sector D (Taken from SW)**



## Sector E



**Figure 4- Plan of Sonda 28 Sector E Excavations**

This sector was initially opened during the 2006 season, although it remained incomplete at the end of the year, and therefore work resumed on it in 2007. There are certain difficulties posed by the nature of this sector, especially its recent history. During the 1992-1995 war, the Bosniak front line lay across this sector, and the upper sediment layers are heavily disturbed and contain much evidence of the conflict, including trenchworks, foxholes, shell impacts and artefacts such as spent ammunition rounds and remnants of ration packaging. The trenchworks, especially, pose several problems, falling into a variety of categories. Firstly, they are a major disturbance to soil in this locality, and may influence archaeological interpretation. Secondly, their condition is such that it is impossible to create a clean profile through an area where one lies. Thirdly, the aeration of the soil by these recent disturbances has left it prone to the invasive growth of roots, which has slightly altered the nature of the soil in this sector. The final consideration is one of ethics; whether such sites should be disturbed for the purpose of archaeological excavation, and also if the archaeologist should endeavour to preserve or record these trenches for future study.

It was decided to partially create the limits of this sector in respect to the wartime trenches. As a result of this, several of the soil profiles were left both unfinished and

unrecorded towards the western side of the sector, and a baulk of soil was left unexcavated to separate this area from the rest of the excavations (See **Figure 5**, below). However, five profiles were recorded fully. The overlying soil in this sector varied greatly in depth, with the general trend being that it became shallower towards the south and east. The stone flags apparent throughout were covered by only approximately 0.3m of sediment towards the South, and the stratigraphy of these sediments was uninterpretable, largely due to root disturbance. A step in the sandstone flags was easily discernable midway through the sector, with the southern portion of flagging being approximately 0.3m higher than the northern and eastern. However, although it is worth noting that this height variation has been slightly exaggerated in parts due to the step being obliterated by wartime trenchworks, it evidently existed before this time.



**Figure 5- Sonda 28 Sector E Profiles E1 (L) and E2 (R) (Taken from SE)**

### **Sector F**

In this sector, the deposits covering the sandstone surfaces were much shallower than elsewhere upon the plateau. Therefore, the excavational approach adopted for this sector was one of grid excavation. This has several advantages for deposits of this depth range

(c0.3-0.8m). Firstly, a large amount of the stone surface below the soil is uncovered (approx. 64% in this instance); whilst at the same time large amounts of material are left in situ at regular intervals throughout the sector. Grid excavation also optimises the potential for the study of sediment profiles.

It was decided, for this sector, to dig within a framework consisting of mainly 4x4m grids, leaving a 1m wide baulk in between, which would provide profiles and also reference points for planning and measuring. When this system is hindered by natural obstructions such as trees and root systems, the grid will be adjusted accordingly.

A standardised recording sheet was devised, so as to ease the basic recording of each grid. These sheets can be easily cross-referenced with profile records, photographs, the artefact database and samples. A copy of the grid record sheet (in English and Bosnian) is included in the appendix to this report. The sheets, samples and artefacts pertaining to each grid excavated within sector F, as with all other sondas and sectors of the Pyramid of the Moon have been retained by The Archaeological Park: Bosnian Pyramid of the Sun Foundation.

Grid 1 was found to contain evidence of possible human activity. The edge of a trench (predating the Bosnian War) was found cutting through the stone layers in approximately NNE-WSW direction. Due to this, the grid was extended in westerly and southerly directions from 13<sup>th</sup> September, to eventually measure 6.5x7 metres in total, at which point the portion of the trench running through this grid was uncovered in its entirety. This extension was completed on 17<sup>th</sup> September. The trench will be excavated during the 2008 season, as it was discovered too late in the season to carry out the excavation and recording related to it in full. As this grid was on the perimeter of the sector's excavations, it was decided that all grids within this line would have a length of 6.5 metres, so they would align correctly when planning. In total, 7 grids were fully excavated and recorded during this season. As well as the aforementioned grid 1, grids 2-7 measured 6.5x4 metres, and were excavated between 16<sup>th</sup> September and 6<sup>th</sup> October 2007. In grid 2, 4 stones, with evidence of burning were excavated on 19<sup>th</sup> September. However, they were excavated from unstratified sediments, and are therefore of minimal aid to interpretation. Nevertheless, they have been retained by the Foundation.

### Sondas 29 & 30

Essentially, these were two test pits dug on the approximate intersection between the northern and eastern faces of the Pyramid of the Moon, in order to investigate any continuation of the sandstone flags found throughout sonda 28. There are a variety of hindrances in regards to the study of both faces and the location of these sondas was partially determined according to them. Predominantly, these are associated with the possible presence of anti-personnel mines, vegetation, and the location of the access road to the summit. Due to this, only two test-pits could be created during the 2007 season. Because of their distance from each other and the summit, and also to avoid confusion in numbering, it was decided to label them as individual sondas, and not as sectors associated with excavations at the summit, with sonda 29 being located further up the hill.

### Sonda 29

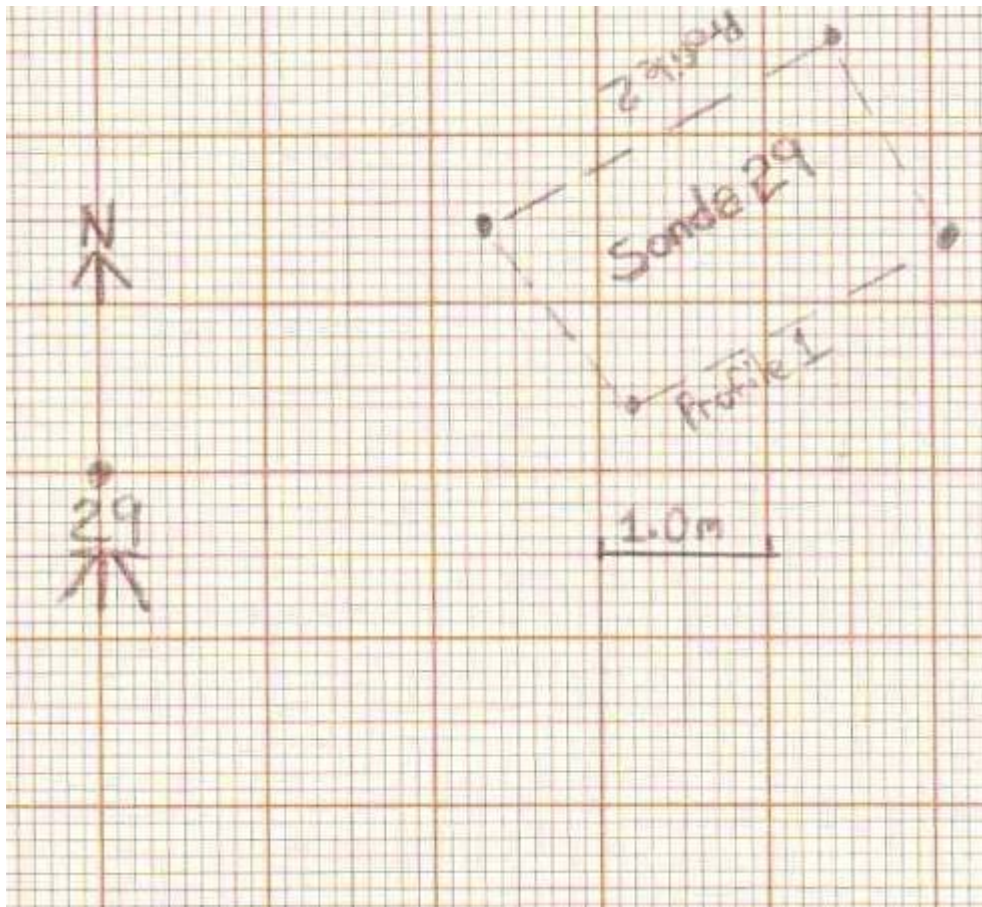


Figure 6- Plan of Excavations, Sonda 29



This sonda is located approximately 35 metres from the entrance gate to the plateau, and is situated to the west of the main access road. As it was essentially a trial pit, it was decided originally to dig an area measuring 1.0 by 1.5 metres, to a depth of 0.8 metres. However, this was soon extended to 2.0 by 1.5 metres, to ease digging, should it be decided to deepen the sonda. Eventually, the depth throughout reached approximately 1.1 metres, and it was decided to deepen the southern portion of the sonda to 1.5 metres, as similarities between the sedimentation patterns here and at the plateau, particularly in sectors B and C, were evident. The below photographs highlight this (Cat Nos. DSCF1902 & DSCF1896 respectively):



**Figure 7- Sonda 29 (Taken from West)**



**Figure 8- Sonda 28 Sector C (Taken from West)**

However, it is worth noting that the topsoil observed in Sonda 29 is much thicker than at the plateau (up to 0.7m), which was unknown beforehand. The sedimentation patterns at a depth of 1.3m here correspond almost exactly to those at a depth of 0.7m in profile C1, including the iron banding evident in **Figure 5** above. From this, it can be projected that if this sonda is enlarged in the 2008 season, there is an acute possibility of finding a continuation of the sandstone flagging at a depth of around 2 metres. However, this is largely dependant on past erosional processes affecting both this area and the plateau at the same rate.

### **Sonda 30**

This sonda is located further down the eastern side of the pyramid, just off the access road. It was dug to a depth of approximately 0.8 metres, at which point it was halted until the next season. At this depth, no evidence of the terracing or tiles observed at the summit was discernible, wholly due to the fact that the topsoil remained unpenetrated. However, during the 2008 excavation season it is intended to deepen this sonda to a minimal depth of approximately 1.5 metres, and possibly extend it in either a westerly or northern direction, dependant on the stability of the access road and a guarantee that the area is totally free of anti-personnel mines.

## **Evaluation of 2007 Excavations**

During the 2007 excavation season, vast improvements were made to the approach of The Archaeological Park: Bosnian Pyramid of the Sun Foundation towards the planning, excavation and recording of sites being investigated. However, a potential for further improvements has been recognised, and the following is a proposal for actions to be implemented over following seasons.

**1 Recording-** During the 2007 season, several recording sheets were created, in English and Bosnian, to enable the systematic recording of excavations. Unfortunately, these were not employed from the start of the season (1 April), and were only introduced in mid-August. Therefore, the records of the 2007 excavations are partially incomplete. Now that these recording sheets have been created, they can be used from the start of all future seasons, enabling a more complete reference database.

**2 Photography and Illustration-** As with record sheets, a specified photographic protocol was introduced midway through the excavation season. Many photographs of excavations taken prior to this have limitations in their usefulness in later interpretations and publications. The protocol outlined in the The Archaeological Park: Bosnian Pyramid of the Sun Foundation Archaeological Fieldwork Manual, First Edition can be applied to all photographs taken in future seasons.

**3 Volunteer Activities-** Volunteers coming to work for the foundation are an invaluable source of labour, and are often keen to learn many things about excavational practise. However, all volunteers have varying levels of experience and ability. Therefore, it is essential for the foundation to communicate to the archaeologists working upon the sites in Visoko as early as possible when it is aware of volunteers coming to work. Also, it is the responsibility of the foundation to outline a manageable schedule that is agreed to by both the volunteer and the permanent archaeologist.

**4 Visits to Sites and Vehicle Co-ordination-** During the 2007 season, many work hours were lost due to poor allocation of the foundation's vehicles. Admittedly, a major hindrance to this was the fact that one van was damaged and underwent repairs for several weeks.

Much of an archaeologist's work is subject to last-minute changes of plans, and the absence of vehicular transportation can often hinder urgent work, and delay further excavation. In future seasons, it would be better to have a schedule created so as to allow the archaeologists to know where all vehicles are at all times, so one can be easily obtained if a change in the daily plan occurs. Alternatively, if financial constraints allow, it would be advantageous for the archaeologists to have one vehicle reserved exclusively for their use for transportation in the case of unforeseen visits to sites.

**5 Weather and Seasonality-** The excavations on the summit of the pyramid of the moon were unfortunately incomplete at the end of the 2007 season. As well as the aforementioned problem with transport, this was largely a result of a lack of understanding of seasonality and local weather conditions within the Visoko valley and surrounding areas by the permanent archaeologist. The main problem in this regard was the fact that many recording sheets (particularly for the box-grid excavations in sector F) were left incomplete, as the permanent archaeologist did not understand that once snow arrived, the plateau became virtually inaccessible. In future seasons, paperwork will be filled out as excavations are completed, and an excavation timeframe will be developed to allow plenty of time for unforeseen work to be carried out before the arrival of bad weather.

**6 Staff Training-** During the 2006 excavation season, it appears that the primary objective of excavations was to uncover the stone flags and surfaces which appear throughout much of the Pyramid of the Moon. The obvious benefit of this approach is that it reveals features which the public desire to see- obviously tourism has major benefits for both the Foundation and the local populace. However, this approach can be to the detriment of archaeological research, and endeavours have been made to adjust this for the following seasons.



During the 2007 season, the methodology implemented upon the summit of the Pyramid of the Moon sought to reach a compromise between the need to show the public what has been found, and a correct approach towards archaeological excavations and their documentation. Workers were in regular consultation with the Permanent Archaeologist about the best approach to take when excavating a particular sonda or sector, and it was explained to them the importance of preserving and recording stratigraphic layers whenever encountered, and noting accurately the three-dimensional contexts of artefacts (also in relation to stratigraphy), whenever found. By the close of the 2007 excavation season, the workers on the summit of the Pyramid of the Moon were able to plot box-grid excavations, create vertical stratigraphic profiles, and extrapolate measurements from a given base-mark, as well as, more importantly, understanding the reasons for doing so. Beyond this, the workers from the locality have a better understanding of local weather conditions and seasonality than the Permanent Archaeologist, and were responsible for the improvisation of baulk widths in Sector F from the original 0.3m to 1.0m, as they explained that the original width of 0.3m would erode away over the winter months.

**7 Equipment-** The final part of this evaluation focuses on the lack of adequate equipment for correct archaeological excavation and preservation, both within the Visoko Valley and Bosnia and Herzegovina as a whole.

**Basic excavation tools-** In the majority of excavations within Western Europe, the four main tools used by the archaeologist for non-precise excavation work are the trowel, spade, shovel and mattock (however, it is worth noting that many commercial archaeological enterprises use a tool commonly known as a 'spovel' to perform the tasks of both spade and shovel for efficiency purposes).

In recent years, changes in manufacturing techniques have made the trowel traditionally used by archaeologists essentially obsolete. Newer-style riveted trowels (as commonly found in Bosnia) are unable to withstand the stresses placed upon them during excavations, and also tend to be more flexible, resulting in problems when a stable trowel is required. As a result of the continuing demand by archaeologists for the traditional 'drop-forged' trowel, several companies have developed specialist 'archaeological trowels', which are still manufactured using this technique. Unfortunately, these tools are

relatively expensive for a person living in Bosnia-Herzegovina, and their unavailability in shops here adds the extra expenses of mail order.

Shovels and spades within the Balkan region have evolved along a different typological route from those of Western Europe. Although this does not pose a particular hindrance in regards to shovels, the difference in spades can have severe implications upon excavations. As opposed to the flat-edged and faced spade commonly used in Western Europe, here in the Balkans this tool is tapered, with corrugations throughout the face. A further difference is the angle at which the head is attached to the handle. In Western Europe, the angle facilitates the ability to work on vertical faces, to ease in the recording of stratigraphic profiles. This angle is less pronounced in the Balkan spade, proving a further hindrance. The tapered nature of the head and corrugated face also make accurate cutting difficult. Furthermore, the taper, and the cutting motion it results in can potentially cause more damage to unseen artefacts still contained in the soil than that of a spade with a flat edge, which distributes pressure more evenly.

The Bosnian mattock also varies slightly in style. Here, it is one-bladed. In archaeological practise, it is common to use a double-bladed mattock, with one of these resembling an axe-head. This is useful both for scoring an approximate trench outline into the topsoil, and also for cutting through protruding roots. However, this typological difference is easily overcome by the presence of an axe in addition to the mattock on-site.

**Basic Recording Tools-** It is important that adequate tools for the recording of sondas, profiles, artefacts and samples are kept at every site. The appendix to this report contains an equipment list detailing items which must be present at all times on all sites being excavated by the Foundation in order to facilitate accurate recording of excavations. Workers upon each site will be trained how to use such equipment in order to record aspects of archaeological excavation to an acceptable standard. The reasons for, and applications of, each item are expanded on in *The Archaeological Park: Bosnian Pyramid of the Sun Foundation Archaeological Fieldwork Manual, First Edition*.

**Specialist equipment-** A level kit is urgently required to accurately record height changes between different sectors of the excavations on the plateau. This kit consists of a tripod, level head, and staff, and can accurately measure height variation from a fixed point. This has the added advantage of allowing comparisons between sediment deposits, in order to develop a further understanding of the geological events that have resulted in the burial of the sandstone slabs evident throughout much of the excavated area.

Pre-designed paper, suitable for planning the large areas that have been opened is also highly desirable. Current methodology involves the plotting of points in relation to a fixed location, and creating a plan 'off-site' from these. Having the correct planning paper (preferably A2 sized sheets) and drawing boards would help speed up this process, and allow the archaeologist to determine the accuracy of plans, and correct any mistakes instantaneously.

## **Appendix 1: Equipment List**

### **Basic Archaeological Kit (One per site)**

- Pencils- 2 X 4H & 2 X HB
- 2 X black biro pens
- Supply of Waterproof Paper Labels and nails
- Polyethylene finds/sample bags in a variety of sizes
- Permanent Markers- Black X 2
- Line level
- 6 inch nails- minimum 10
- String
- Photographic scales- both 1cm and 10cm
- 2 X 30m tapes
- 1.5m Tape measure
- Compass
- Notebook
- Plentiful supply of all recording sheets
- Tool Box
- File for completed sheets



## Appendix 2: Grid Excavation Sheet

**Location /Lokacija:** \_\_\_\_\_

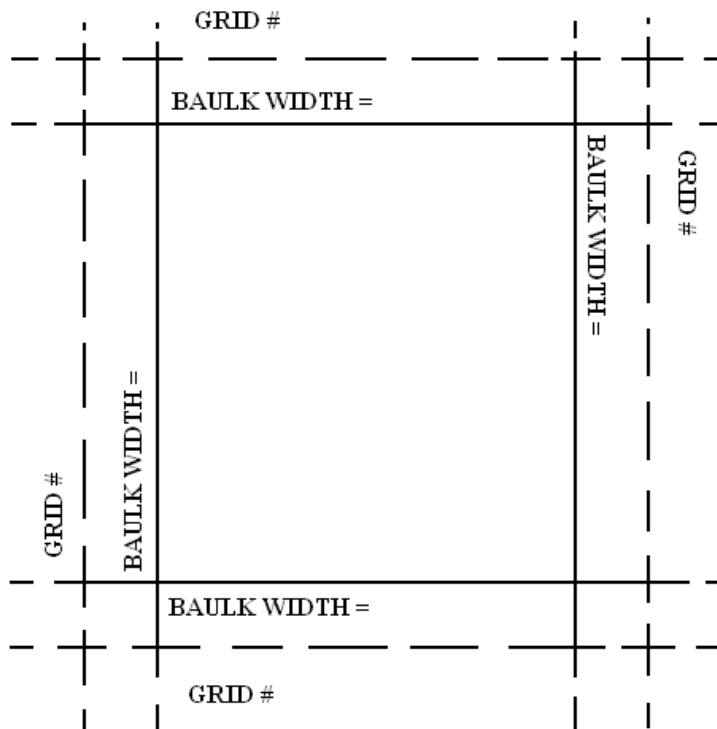
**Date/Datum :** \_\_\_\_\_

**Sonda/Sonda :** \_\_\_\_\_

**Sector (if applicable)/Sektor:** \_\_\_\_\_

**Grid #/ Broj Pravougaonik:** \_\_\_\_\_

**Dimensions/ Pravougaonik:** \_\_\_\_\_



**Photographs/ Fotografia:** \_\_\_\_\_

**Finds/ Artefakta:** \_\_\_\_\_

**Samples/ Uzorka:** \_\_\_\_\_

**Sections/ Profil:** \_\_\_\_\_

### Appendix 3: Profile Recording Sheet

**Location /Lokacija:** \_\_\_\_\_

**Date/Datum :** \_\_\_\_\_

**Sonda/Sonda :** \_\_\_\_\_

**Sector (if applicable)/Sektor:** \_\_\_\_\_

**Section #/Profil:** \_\_\_\_\_

**Profile Facing/Smjer profila:** \_\_\_\_\_

#### Photographs/Fotografije

Photographed (Y/N)/Fotografija(D/N): \_\_\_\_\_

Photograph Numbers/Broj fotografije: \_\_\_\_\_

#### Measurements/Mjere

Base Mark/Glavna tačka= \_\_\_\_\_

Point 1/Tačka 1= \_\_\_\_\_ m N/m Sj      \_\_\_\_\_ m W/m Z

Point 2/Tačka 2= \_\_\_\_\_ m N/m Sj      \_\_\_\_\_ m W/m Z

**Appendix 4:**

**SAMPLE RECORDING SHEET**

**Location/Lokacija:** \_\_\_\_\_

**Date/ Datum:** \_\_\_\_\_

**Sonda/ Sonda:** \_\_\_\_\_

**Sector (if applicable)/ Sektor:** \_\_\_\_\_

**Sample Number/ Broj Uzorka:** \_\_\_\_\_

Associated Base Mark/ Glavna Tačka: \_\_\_\_\_

Stratigraphic Layer/ Stratografski Sloj: \_\_\_\_\_

Photographs/ Fotografije: \_\_\_\_\_

Reason for Sample/Razlog Uzorka:

Suggestions for Storage and Analysis/  
Prijedlozi za mjesto skladišta i analize:

### Appendix 5: Sample Register

<b>Sample No broj uzorka uzetog</b>	<b>Location Lokacija</b>	<b>Date datum</b>	<b>Recorded By ko je zapisao</b>
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**Appendix 6: Level Register**

**Location  
Sheet #**

<b>Level #</b>	<b>Date</b>	<b>Sonda</b>	<b>Sector</b>	<b>Profile</b>	<b>Base-Mark</b>	<b>Variation in Height (M +/-)</b>
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