

Roman Rural Site at St. Petkina Niva, North Macedonia. Archaeological and Geophysical Investigation

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ABSTRACT

A combination of surface survey, geophysical prospection and excavation was used to investigate a site dated to the Roman period in North Macedonia nearby the Ohrid Lake. The site is placed in the territory of Leskoec village, in an area locally known as St. Petkina Niva. The excavation uncovered stone foundations of a house, with stone destruction inside the house and likely a pavement on its outer side. At the ground level inside the house, just above the bedrock into which the foundations were dug, fragments of several storage vessels (dolia) were found, some *in situ*, some in fragments, scattered over the inner space. The dolia, as well as the accompanied material including various pottery classes, glass fragments, bone pin and few metals, might be dated from the 1st till 4th c. AD. The same chronology might be anticipated for the investigated house, which revealed only one construction phase. Due to the lack of diagnostic material the construction or habitation period of the house cannot be narrowed down.

KEYWORDS

North Macedonia; Ohrid Lake; Roman period; rural; settlement; geophysics; excavation.

INTRODUCTION

Since 2017 the Institute of Classical Archaeology at Charles University in Prague in cooperation with the Archaeological Museum of the Republic of North Macedonia has been conducting the *Frontier Studies* project to investigate proto-historic and ancient habitation developments in the region around Lake Ohrid in North Macedonia. The research work initially focused on the exploration and documentation of archaeological and epigraphic findings beyond the urban centre of Ohrid, the ancient *Lychnidos*, which have so far attracted relatively scant research attention (VERČÍK *et al.* 2019). In addition, the majority of the sites recorded in the local section of the gazetteer of archaeological sites of North Macedonia *Археолошка карта на република Македонија* were identified based on stray finds (AKM 1996). Systematic excavations, which could provide information on the topographical location, geomorphological settings, extent, internal structure, and chronology, have only rarely been conducted. As a result, there are several spatial and chronological interludes for the diachronic reconstruction of settlement development in the Ohrid region (VERČÍK *et al.* 2019, 47–48). Following the completion of the archaeological and epigraphic surveys of the surrounding area in spring 2019, the *Frontier Studies* will focus on the detailed investigation of selected geomorphological, climatic, and environmental phenomena and cultural-historical time horizons. The period in which the Ohrid region experienced an unprecedented flourishing thanks to its integration into the structures of the Roman world, symbolized by the *Via Egnatia* running through the area north of the lake, plays a significant role in this context (KERSCHBAUM – VERČÍK 2023, 71). Apart from this, however, there is very little archaeological evidence. Several Imperial and Late

Antique necropolises are known from excavations, such as the sites around the monastery of St. Naum and in the villages of Gorno and Dolno Lakočerej, Rečitsa and Volino (VERČÍK *et al.* 2019, tab. 2). However, hardly any systematic archaeological investigations have occurred outside the towns of Ohrid and Struga. The few exceptions are the two necropolises in Orovník (RISTESKI 1989) and Delagožda (BITRAKOVA-GROZDANOVA 1994), located on a terrace above the Struga Plain, near which *villa rusticae* were unearthed. Therefore, in 2021 and 2022, an archaeological, archaeobotanical and biomolecular investigation was conducted on a site identified by previous archaeological and geophysical surveys near the present-day village of Leskoec. In this report, we want to present the geophysical investigation, archaeological excavations, and the first results of the material studies.

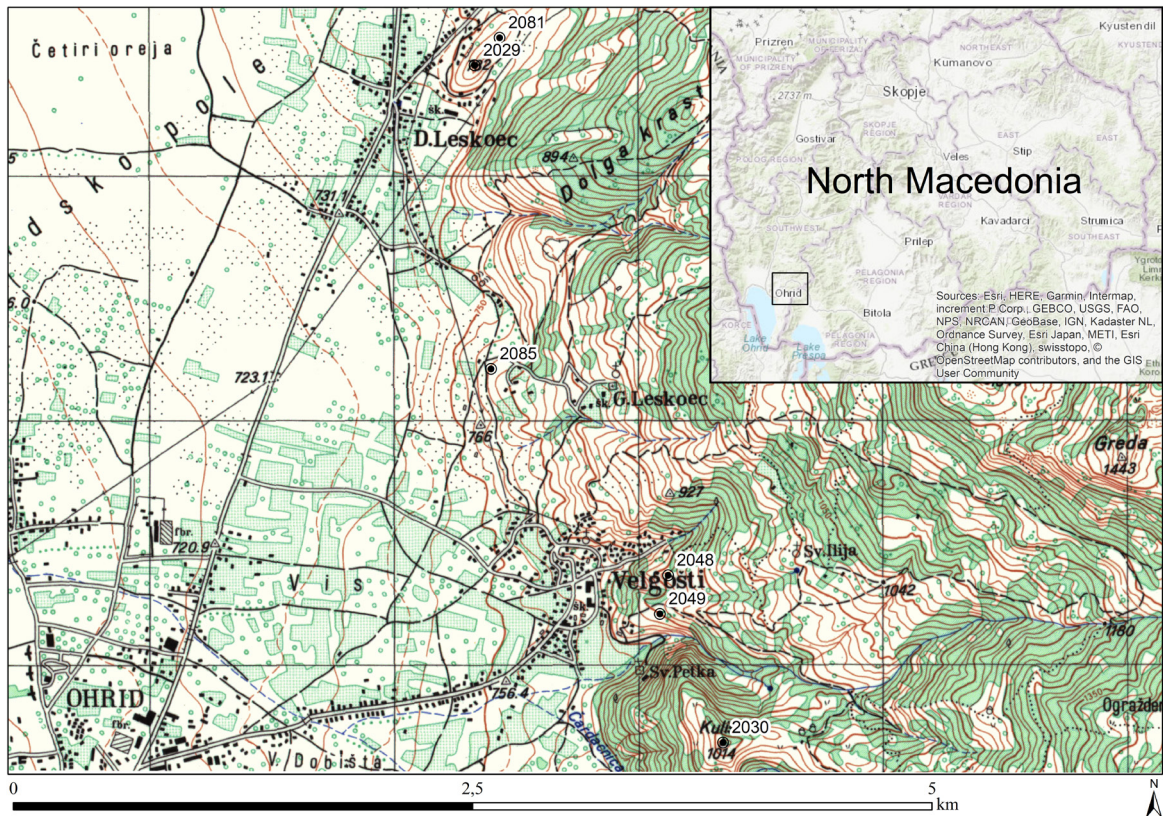


Fig. 1: Topographical map in a scale 1:25 000 with marked St. Petkina Niva (OH_ID 2085). The site is placed in an elevated position overlooking the Ohrid Valley. Map by P. Tušlová.

The investigated site lies in North Macedonia, about 4.5 km north-east of Ohrid, on a south-eastern edge of Leskoec village. It is placed on an elevated terrace above the Ohrid alluvial plain on a foothill of the northern promontory of the Galičica mountain range. In its direct vicinity we may find chapel of St. Petka and a church of St. Thomas the Apostle (**Fig. 2**).

The site is listed in a gazetteer of archaeological sites of North Macedonia as St. Petkina Niva, under the entry of the Leskoec village (AKM 1996, 249). In AKM it is described as Roman period necropolis where several graves were found during agricultural activities. One of the graves was supposed to contain two ceramic vessels and a bronze coin. The location of the site provided in AKM is, however, misleading, placing it 3 km north-east of the village, in a distance which either reaches over to another village (Kosel) or into heavily forested area in the mountains, where agricultural activities could not have taken place. The only possibility of

its association is with the chapel of St. Petka situated about 1.2 km south-east from the centre of the village, and nearby land, known locally as St. Petkina Niva (**Fig. 1**).

The site of St. Petkina Niva is located in cultivated fields, which are placed in a slope south of the mentioned chapel and the church. The field is divided in two by a dirt road, to a bigger – eastern – and a smaller – western – part. During surface survey in 2019, which was carried out within the frame of the project *Frontier Studies*, several sherds were found on the eastern part of the field. Despite being mostly heavily fragmented and undiagnostic, the pottery identified probable location of the site. The scatter was given identification no. OH_ID 2085 according to the projects numbering system. The preliminary chronology based on the survey was established into the range of the Late Hellenistic / Late Republican to Roman Imperial period (VERČÍK *et al.* 2019, 34, tab. 2).

In 2021 a geomagnetic prospection was conducted on the eastern half of the field (**Pl. 4/1-5**). It identified several features concentrated on its northern part, including stone structures. The following year, a small trench of 4×4 m was placed on the identified structure to assess its characteristics and chronology (**Fig. 2**).



Fig. 2: Field of St. Petkina Niva with marked 4×4 m trench excavated in 2022. The building at the north is the church of St. Thomas the Apostle, the chapel of St. Petkina Niva placed along the road is hidden under the trees. Map by P. Tušlová.

GEOPHYSICAL PROSPECTION

In 2021, a team from the Department of Archaeology and Museology at Masaryk University in Brno, Czech Republic, carried out a geophysical survey at the site.¹ The prospection focused on the eastern part of the field. Combination of magnetometry (MAG)² and ground-penetrating radar (GPR)³ was used. The field was prospected in August, when the vegetation was low and the field walkable. The GPR survey was conducted on 4526 sq m (**Pl. 4/1, 2**), while MAG on 6243 sq m (**Pl. 4/2, 3**); the two measurements overlapped (**Pl. 4/5**).

Several linear features were identified in the north-east, at the most elevated part of the surveyed field, close to the modern road. They can be interpreted as possible remains of walls surrounded by stone debris and several pit-like features. The GPR survey further showed that a strongly reflective inhomogeneous layer stretches towards the southeast. It is possible that, in addition to rubble, it is a bedrock rising closer to the surface (**Pl. 4/5**). In the central and southern parts of the investigated area, the magnetogram shows extensive and strongly magnetic surface anomalies that can be interpreted as probable pedological/geological structures (e.g. outcrops of magnetic rocks, see **Pl. 4/3**). Their presence prevented the identification of any other relevant anomalies that could be interpreted as potential archaeological structures.

Both geophysical methods, MAG and GPR, confirmed the linear features on the north to be remains of walls, placed about 30–40 cm below the terrain. Nevertheless, they also provided different ground plans, only with several walls overlapping. The situation in the rest of the field could not be evaluated due to the pedologically/geologically unfavourable conditions.

EXCAVATION

Based on the geomagnetic results a test trench was placed on a crossing of several walls, identified by both measurements, but especially visible on the GPR which have shown more coherent structure of a long house with a room in its south-eastern corner. The trench measured 4 × 4 m and it was placed to cover inner and outer space of the presumed house (**Fig. 3**).

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- 1 The data presented here were obtained and processed by Michal Vágner, David Šálka, and Jan Havelka.
 - 2 The magnetic survey of the site was carried out with a fluxgate magnetometer LEA MAX (Eastern Atlas) with 10 Ferex CON650 (FOERSTER) probes. The density of the magnetic measurements was 0.5 m on the X-axis and 0.1 m on the Y-axis (measurement direction). Measured data were collected with spatial information from the GNSS receiver and processed in LEAD2 software. Magnetograms (in units of nanotesla nT) were smoothed by averaging. To interpret and present the results ArcGIS Pro (ESRI) software was used.
 - 3 For GPR survey a multi-channel GPR Impulse Radar Raptor-45 was used, equipped with eight shielded antennas with a central frequency of 450 MHz. The spacing between the measurement lines has been set at 0.085 m. The density of measurement points on each profile was set to 0.1 m. The obtained data were processed in the GPR Slice software (Geophysical Archaeometry Laboratory/Screening Eagle Technologies, USA), where recommended filters (Time-Zero Removal, Background Removal, Bandpass filter, Hilbert Transform) were applied to either highlight or suppress the detected anomalies (structures) in different parts of the time slice. The resulting horizontal time/depth slices were exported in the form of a raster to ArcGIS Pro (ESRI), where they were georeferenced to the coordinates of the corners of the relevant polygon. The identified anomalies – potential archaeological structures – were subsequently interpreted, categorised, and digitised into a vector plan.

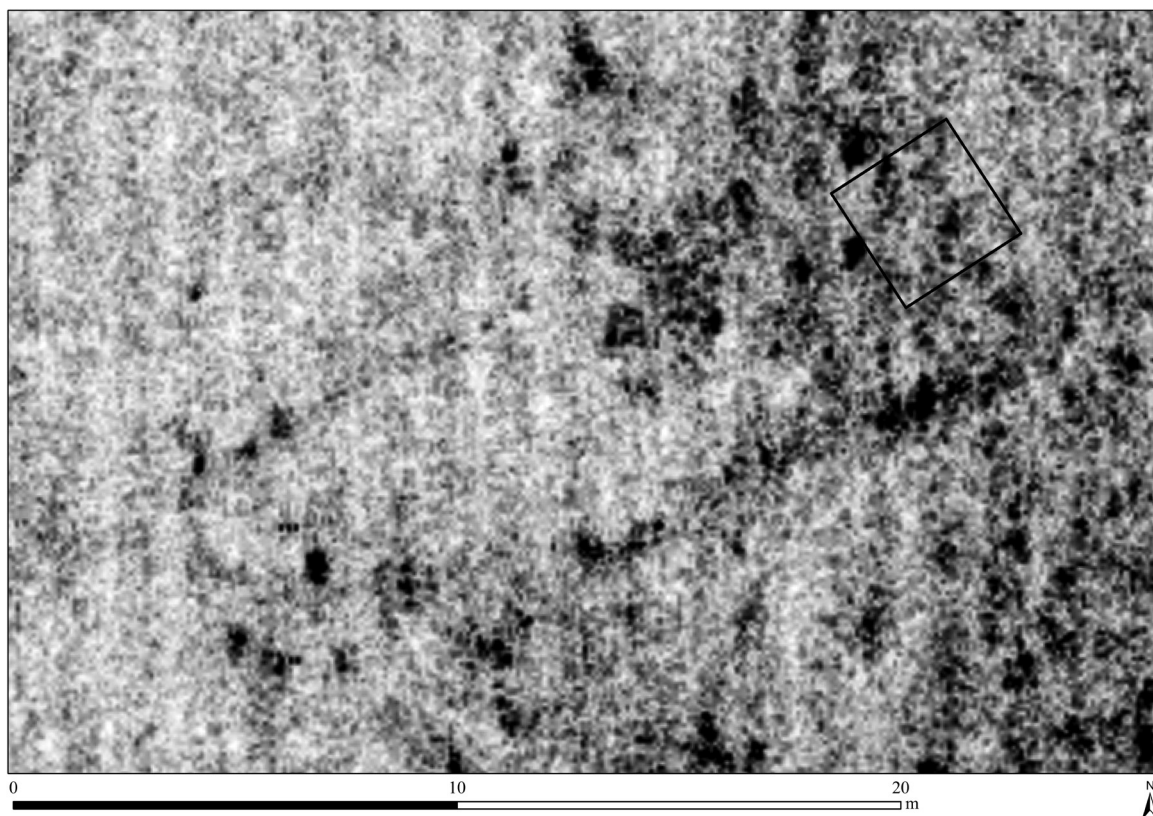


Fig. 3: Results of the GPR survey at the 40 cm depth with visible stone foundations and marked 4 × 4 m trench excavated in 2022. Map by P. Tušlová.

The ten-day excavation was conducted in August 2022 on harvested field. The trench was placed in a gentle slope, at the height of 785 m.a.s.l., slightly below the highest peak of this specific hill. The 4 × 4 m trench was placed along the presumed wall, resulting in NW–SE orientation of the trench (**Fig. 3**), with elevation difference of 45 cm on the four metres, sloping from SW to NE. All finds, compound of roof tiles, pottery, glass fragments and small metal objects, were collected and documented, so were the soil samples, charcoals, animal bones and snails.

The topsoil [SU01] was about 10–20 cm thick, depending on the slope inclination, and it yielded fragmented pottery mixing Roman and recent sherds, several pieces of iron including a nail, a hook, and a shaped bronze plate (**Tab. 1: 2–4, 6, Fig. 8: 1–2, 4**). Below the topsoil appeared yellowish layer mixed up with gravel [SU02], it was of similar thickness as the topsoil (10–20 cm). Few pottery fragments, an undiagnostic fragment of a glass vessel, and an iron nail were found there (**Tab. 1: 1, 5, Fig. 8: 3**). Again, we can assume that Roman and more recent material was mixed in this layer.

The [SU02] was sitting on a stone layer. The stones were bigger and more massive on the SW part of the trench, while the NE part featured smaller-sized stones. The visual difference in the stone size and distribution was enhanced by a regular line of stones running across the trench, which turned out to be solid wall parallel to the edge of the trench, dividing it into two parts (**Fig. 4**).

Subsequent excavation fully uncovered the wall and disclosed – on the west along the north-western edge of the trench – another wall perpendicular to the first one and joining it. Both walls were made of dry laid rubble stones mixed up with soil containing some ceramic fragments. Bigger stones were used for the wall's edges, smaller ones were placed in its inner

part. Both walls were 55–60 cm wide and preserved to the height of about 60 cm, placed directly on the bedrock, which was slightly hewn to accommodate the foundation: about 5–12 cm in depth, and up to 10 cm in width around the walls (**Fig. 5**). The west-running wall ended shortly before the edge of the trench, possibly revealing the entrance into the structure – an 84 cm wide opening was captured within the trench. Signs of burning were found in this part of possible entrance, featuring high concentration of charcoal.

The wall running in the NE-SW direction divided the trench in two parts. The western one was filled by big-size stones [SU05] sitting on a soil layer [SU07], covering on its turn the bedrock, and probably suggesting it to be the indoor part of the house covered by destruction debris. The eastern part, with small size stones [SU03], placed on layer with very little finds [SU04], seems to be the outdoor part of the house, probably some outer pavement. They were both covered by the same two upper layers – brown topsoil [SU01] and the yellow gravel layer [SU02] paced directly over the stones (both [SU003] and [SU005]).

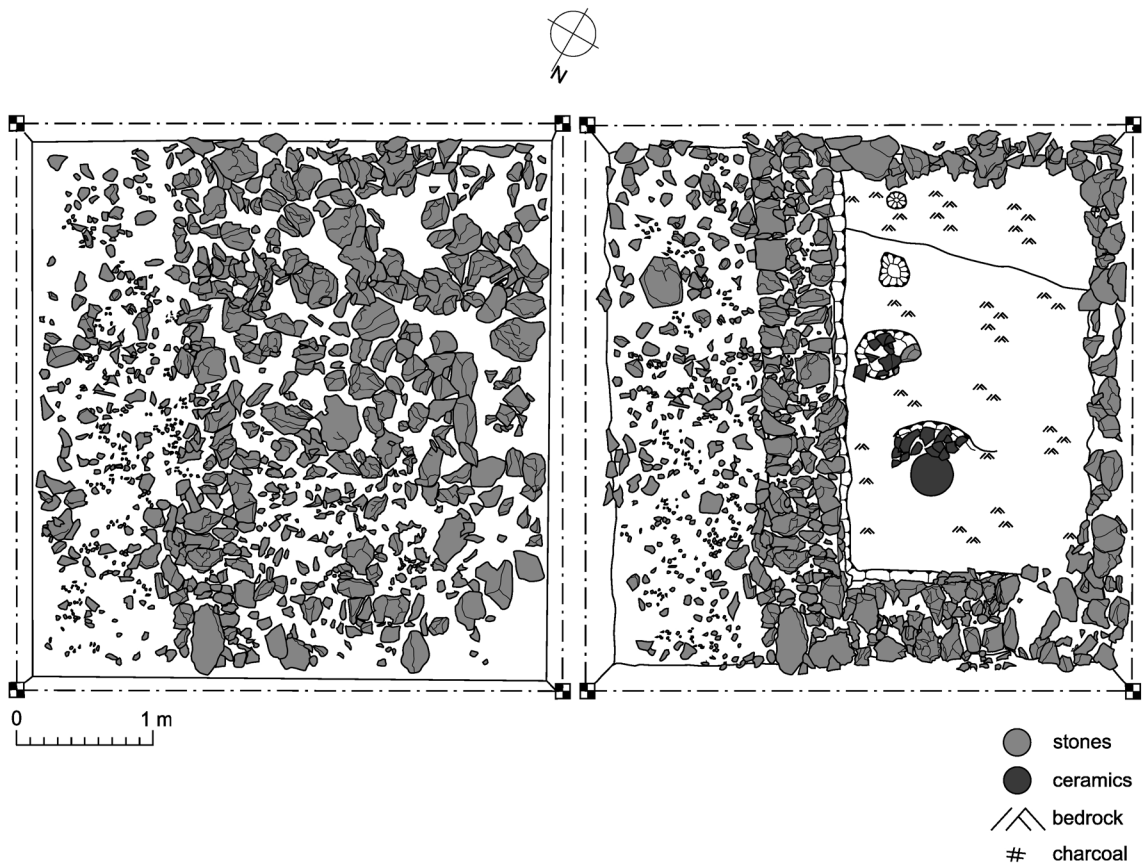


Fig. 4: The excavated trench in different levels of uncovering. On the left, after the removal of [SU01] and [SU02]. On the right – SW part: situation at the bedrock with one dolium base in situ and several scattered fragments on the south of it; NE part: deeper cleaning on the stones [SU03]. Digitalized by D. Mildová.

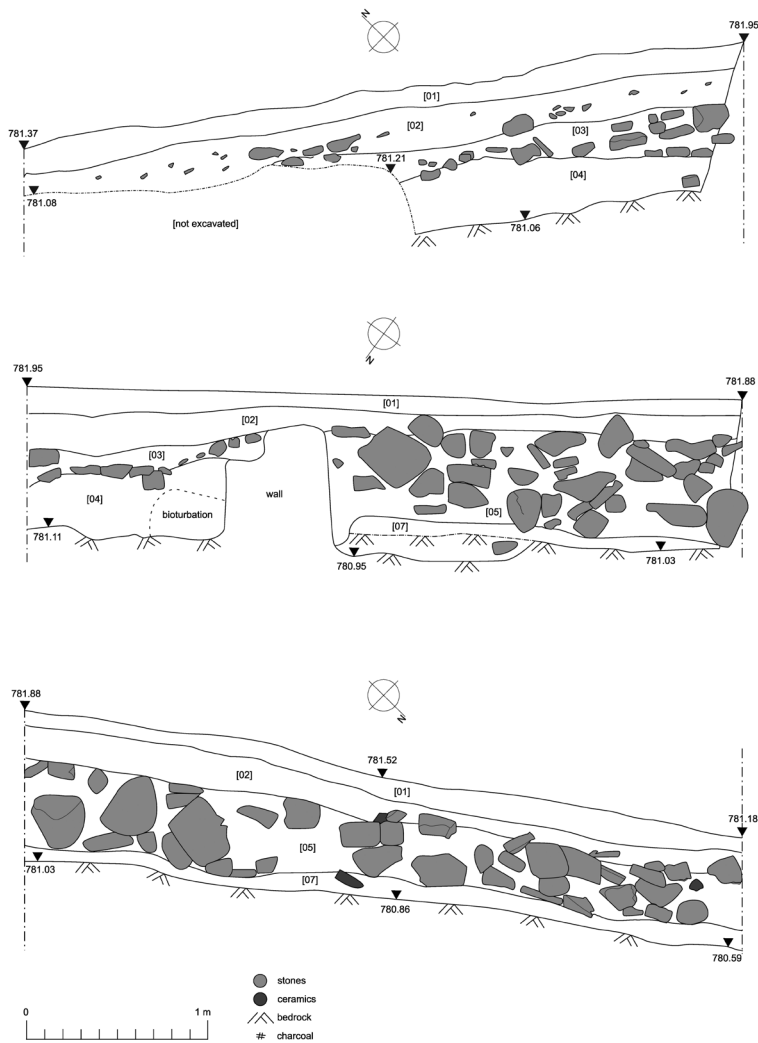


Fig. 6: Eastern, southern, and western sections of the excavated trench (from top to bottom). Drawn by N. Atanasoska Vrhel, digitalized by D. Mildová.

The base of another dolium, **Fig. 9: 5**, was found *in situ*, just north of the previous one, with lower part of the base still sunken into the bedrock (**Figs. 4 bellow** and **7**). Several body fragments of the same vessel were found collapsed inside the base together with some bigger pieces of roof tiles. The dolium preserved thick dark layer of organic matter inside the base, which was heavily burned, making the vessel very fragile when recovering it from the soil. From about 250 pottery fragments found in [SU07], several others were also coated with a blackish layer on their inside, either continuously or sparsely. These were mostly, though not exclusively, coarse ware sherds.

The bedrock was reached at the depth of 90 cm in the deepest SW corner of the trench. It consisted of whitish (lime-)stone, except for the southern part of the trench, where the stone was softer, of reddish tint (**Fig. 7**). In this reddish part of the bedrock a post hole was found, placed about 36 cm west from the wall. It was 20 × 22 cm in diameter and its depth varied from 5 to 12 cm. Another two features identified as postholes were located in the whitish part of the bedrock. One was already mentioned above, containing remains of the dolium **Fig. 9: 3**



Fig. 7: Photo of the situation drawn on Fig. 4 left. The dolium sunken to the bedrock is barely visible. The reddish colouring of the bedrock can be seen near the southern wall. Photo P. Ardjanliev.

(d. 32 × 40 cm, depth 17 cm). Another one was possibly placed in between the two (d. 20 × 27 cm, depth 13 cm). These three features – regardless of their slightly different dimensions – are all aligned and parallel to the stone wall (**Fig. 5**).

THE EASTERN PART OF THE TRENCH

The eastern part of the trench was smaller, about 120 cm from the edge of the trench to the wall. Smaller-sized stones accumulated there, with occasional larger stones, mixed up with soil and variable material [SU03]. After excavating through the two upper layers [SU01] and [SU02], and cleaning on the top of the stone layer [SU03], we continued in a smaller area, cutting the 4 m trench in half (**Fig. 5**). The bedrock was again reached at 90 cm in the deepest SE corner of the trench, cutting through a layer [SU04], which was not detected in the western part. It is brownish in colour, containing charcoal, fragments of architectural ceramics, pebbles, and one iron hook (**Fig. 8:6**). The ca. 20 cm thick layer was sitting directly on the bedrock.

Exactly in the middle of the trench length we uncovered a pit, about 90 cm wide, and 40 cm deep, cut directly in the bedrock. The fill of the pit was similar in composition to the layer [SU04], but the soil contained even higher amount of charcoal and it was visibly sloping to-

Tab. 1: Overview of all small finds from St. Petkina Niva. Cf. Fig. 8.

SF n°	Fig. 8	SF #	SU	Material	Object	Object description	Object dimensions (mm)	Chronology
1	×	2085_Ex22_SF01	SU02	Glass	Vessel	Base?; green colour; two cut lines	H.22×l.15×w.2-3	Roman (1 st -4 th c. AD)
2	×	2085_Ex22_SF02	SU01	Iron	Piece	Unidentifiable	H.32×l.47×w.15; 105 g.	Modern
3	1	2085_Ex22_SF03	SU01	Iron	Hook	Complete	H.26×w.2-5	Modern?
4	2	2085_Ex22_SF04	SU01	Iron	Nail	Complete	Nail h.25×w.3-4; head 17×8×2	Modern? / Roman?
5	3	2085_Ex22_SF05	SU02	Iron	Nail	Head missing	Nail h.62×d.4; head 8×4	Modern
6	4	2085_Ex22_SF06	SU01	Bronze	Plate	Rounded shape	Outer diameter ca. 70, thick. 2	Roman (1 st -4 th c. AD)
7	7	2085_Ex22_SF07	SU05	Glass	Vessel	Base; green colour	Outer d. 40	Roman (1 st -4 th c. AD)
8	8	2085_Ex22_SF08	SU05	Glass	Vessel	Rim; translucent	D. ?, too small	Roman (1 st -4 th c. AD)
9	5	2085_Ex22_SF09	SU05	Iron	Nail	Complete; ring around the shaft	H.58; shaft 7×7; head d. 18×20	Roman (1 st -4 th c. AD)
10	9	2085_Ex22_SF10	SU06	Glass	Vessel	Base; translucent	Inner d. 50	Roman (1 st -4 th c. AD)
11	6	2085_Ex22_SF11	SU04	Iron	Hook		Max. dim. 37.5×29	Roman (1 st -4 th c. AD)
12	10	2085_Ex22_SF12	SU06	Bone	Pin	Broken; ancient break	H.43 mm; shaft d. 3×4	Roman (1 st -4 th c. AD)

wards the east. It was labelled [SU06] (**Fig. 5**). In addition to fragmented pottery, a ring base of a glass vessel (**Fig. 8: 9**) and half of a bone pin (**Fig. 8: 10**)⁴ were found in the fill. The ring base of light green colour likely belonged to a drinking vessel, either conical beaker or a small bowl.

CONCLUSION

The 2 × 4 m trench with the depth of almost 1 m yielded relatively small amount of find including altogether 12 small finds (fragments of glass vessels, iron nails, iron and bronze objects, and a bone pin: **Fig. 8**) and about 350 pottery fragments (selection of dolia in **Fig. 9**). The recovered material is of little chronological value and some finds from the upper two layers were very likely modern, such as the four metal objects (**Fig. 8: 1-3, Tab. 1**) and a few glazed pottery sherds. However, the material found in the lower layers yielded roof tiles, storage vessels, coarse cooking ware, red-slipped table ware, and glass fragments (**Fig. 8: 7-9**) dated to the Roman period.

Only one construction phase of the building was uncovered in the trench, with both walls interconnected, built directly on the bedrock. The dolium, also sunken in the bedrock, suggests contemporaneity of the foundations and the use of the inner space. The finds suggest that the uncovered part of the house was build and used sometime during the 1st-4th c. AD. Unfortunately, the recovered material is of low diagnostic value and cannot provide us with more concrete information about the house chronology.

4 Second half of the bone pin was later found in the soil for flotation which was taken from the pit.

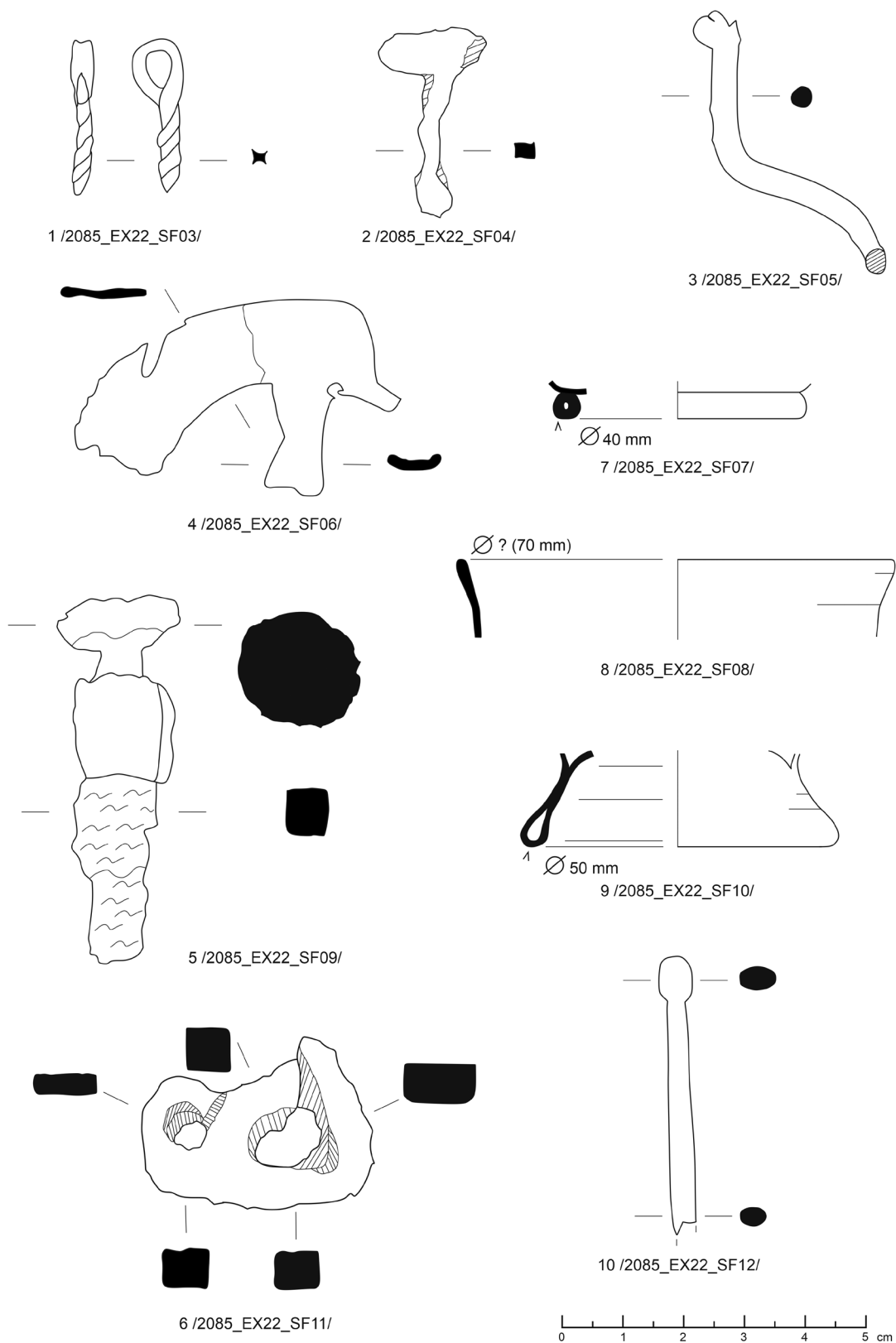
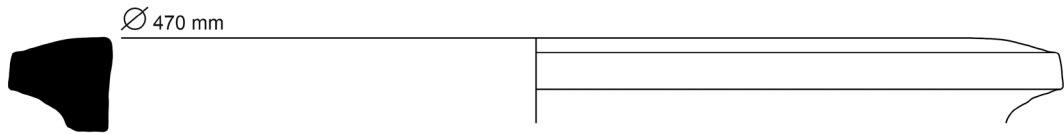
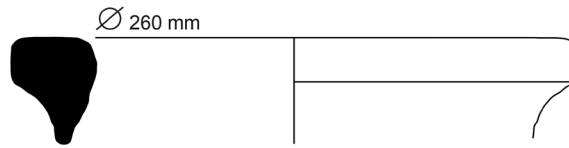


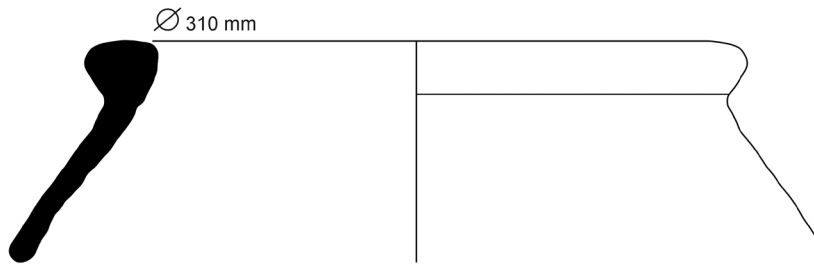
Fig. 8: The small finds. 1-3, 5-6 - iron nails and hooks; 4 - bronze plate; 7-9 - glass fragments; 10 - bone pin. Scale 1:1. Drawn by Marek Verčík and Petra Tušlová, digitalized by D. Mildová.



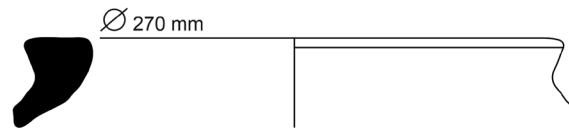
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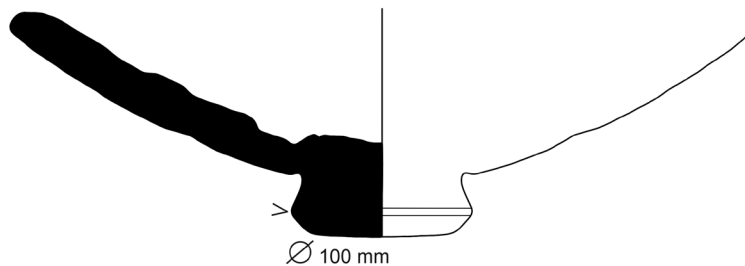
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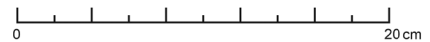


Fig. 9: Selection of dolia rims found in the trench. Base no. 5 was found *in situ*. Digitalized by M. Lelovič via Laser Aided Profiler.

The geophysics, conducted before the excavation, identified several features including stone structures. Both GPR and MAG showed several features concentrated around the same place, though neither yielded a complete or comprehensible ground plan. The GPR prospection showed the best results in the depth of 40 cm, where walls of 17 m (and more) long and 6 m wide house with a room of ca. 4×4 m attached on its south-eastern corner were clearly visible. However, the end at the western side of the house is blurry and as such inconclusive. Since the results of MAG showed random walls without any comprehensible arrangement, preference was given to GPR results when choosing place for the test trench placement. The trench was located so as to include the small room in the SE corner of the house together with the perimeter wall, and what seemed to be the inside and the outside of the structure (**Fig. 3**). The NW-SE running perimeter wall was captured perfectly in the trench, while the perpendicular wall of the room running in the SW-NE direction was expected to be in the middle of the trench, not on its edge. As such the whole situations seemed to be shifted by about one meter towards the SE. Nevertheless, all what was intended was captured in the trench including the room, the whole structure, and the supposed outer and inner space. The wall, indeed, started to be visible around the depth of 40 cm underground as suggested by GPR, with the stone fill of the house appearing already at the depth of about 25–30 cm underground (**Fig. 6**). The house foundations were placed directly on the bedrock – again, as predicted by GPR (**Pl. 4/2**). Combining the two measurements, we may expect more extensive complex of rooms or a whole homestead located at this northern part of the field.

Already during the surface survey several fragments of dolia were identified within the otherwise quite small density of finds. Enhanced by the amount of storage vessels found inside the structure, we may speculate this was agriculturally oriented building / homestead with storage capacities. The location of St. Petkina Niva, placed on elevated terrace overlooking the Ohrid alluvial plain, provides suitable land for growing different kinds of foodstuff without the threat of flooding (**Fig. 1**). Additionally, a natural spring rises just several metres east of the place. Assuming that the spring was there already during the Roman period, providing the site with a fresh water, it may have been the reason or one of the reasons why the site was established there.

The localisation of the Roman period necropolis in a place known as St. Petkina Niva was not confirmed. The whole field is about 150 m long and 90 m wide. Perhaps the necropolis was located elsewhere within the field, as the results of geophysics in its central and southern part were hindered by the pedological and/or geological conditions. We may also speculate that the graves were located even further from the investigated area.

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