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ARTICLE / ARAŞTIRMA

The Roots of Land Arrangement in the Pre-Pottery Neolithic Age – The Akarçay Tepe Plaque C (Nizip Old City)

Arazi Düzeninin Çanak Çömleksiz Neolitik (ÇÇN) Dönemdeki Kökeni – Akarçay Tepe Plaka C (Nizip Eski Kenti)

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ABSTRACT

As the representation of the initial typo-morphology of a human settlement, the Akarçay Tepe Plaque C (Nizip Plaque) belonging to the Pre-Pottery Neolithic (PPN) Age is known to be the proof of the presence of a conscious intervention to space and that land arrangement was registered with an artisanal product. In this context, this article aims to determine the Plaque C's location in today's city and settlement characteristic at the time of production by presenting its spatial features through the traces of the Plaque layout remaining in the existing landscape and urban texture. The other aim is to determine land application principles of that settlement period. To present land arrangement having the intention of defining property and recording in the form of a land model as a human behavior and a need for restructuring space since the PPN Age is the objective of the article. The article also targets to develop a rational PPN period settlement model on the basis of settlement design principles and within the context of the theory of urbanization. Based on the spatial analysis of the Plaque C, it is discussed that the traces of the Plaque are a heritage and a possession the preservation of which is a need. In line with this, the role of the disciplines of urban planning and urban archaeology is evaluated with a critical point of view. A multidisciplinary method was used for the research. A database was prepared by digitally processing the Plaque C layout onto the oldest settlement plan of Nizip, forming its digital elevation model, and topographic maps and superimposing the Plaque C layout with the existing land and the cadastral layout. The Plaque layout, design and dimensions were compared to the current urban texture. The Nizip settlement base maps of different periods, aerial photographs, urban implementation plans and cadastral plans are used in the analysis. The study is supported by a literature survey. The spatial traces determined from an archaeological artefact were checked on site by a field study conducted in 2018.

Keywords: Akarçay Tepe; urban archeology; urban planning; Pre-Pottery Neolithic Age; Nizip.

ÖZ

İlk insan yerleşme tipo-morfolojisini gösteren, Çanak Çömleksiz Neolitik (ÇÇN) Döneme ait Akarçay Tepe Plaka C (Nizip Plakası)'nin, mekana bilinçli bir müdahalenin varlığının ve artisanal bir ürünle arazi düzeninin kayıt altına alındığının ispatı olduğu bilinmektedir. Bu bağlamda; bu makale, Plaka C'nin mekansal özelliklerini ortaya koyarak bugünki kentsel konumunu ve dönemsel yerleşme niteliğini, Plaka arazi düzeninin mevcut peyzajda ve kentsel dokuda kalan izleri üzerinden belirlemeyi amaçlamaktadır. Dönem yerleşmesinin arazi aplikasyon ilkelerini tespit etmek bir diğer amaçtır. Mülkiyet oluşturmaya yönelik arazi düzenlemesi ve arazi modeli şeklindeki kaydının ÇÇN Dönem'den bu yana süregelen bir insan davranışı ve mekanı şekillendirme ihtiyacı olduğunu betimlemek makalenin hedefidir. Makale ayrıca, yerleşme tasarım ilkeleri kentleşme kuramı kapsamında rasyonel bir ÇÇN Dönem yerleşme modeli geliştirmeyi hedeflemektedir. Plaka C'nin mekansal analizinden hareketle, plakanın izlerinin bir miras ve varlık olduğu ve izlerin korunmasının gerekliliği tartışılmıştır. Bu bağlamda, kentsel planlama ve kentsel arkeoloji disiplinlerinin rolü eleştirel bakış açısıyla değerlendirilmiştir. Araştırmada; multidisipliner bir inceleme yöntemi kullanılmıştır. Plaka C'nin arazi düzeninin en eski Nizip yerleşme planına sayısal olarak işlenmesi, sayısal yükseklik modelinin ve topografya haritalarının oluşturulması ve Plaka C arazi düzeninin mevcut arazi yapısı ve kadastral düzenle örtüştürülmesi yoluyla bir veri tabanı hazırlanmıştır. Plaka arazi düzeni, tasarımı ve ölçüleri mevcut kentsel doku ile karşılaştırılmıştır. Analizlerde; Nizip yerleşmesinin çeşitli dönemlerine ait halihazır haritaları, hava fotoğrafları, imar planları ve kadastral planları kullanılmıştır. Çalışma, literatür taraması ile desteklenmiştir. Arkeolojik bir buluntudan hareket edilerek belirlenen mekansal izler, 2018 yılında yapılan arazi çalışmasıyla yerinde kontrol edilmiştir.

Anahtar sözcükler: Akarçay Tepe; Çanak Çömleksiz Neolitik Dönem; kentsel arkeoloji; kentsel planlama; Nizip.

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TMMOB Şehir Plancıları Odası

1. Introduction

Urban planning and urban archeology disciplines in order to understand different dimensions of human habitation with special reference to space, place and time integrate urban archaeological resources that are the records of humanity. Information provided by discipline studies enables reinterpretation and reorganization of archeological findings as a possession and a heritage in terms of their relation to the urban, urban life and urban theory. For this reason, in addition to the reinterpretation of an archeological artefact with an urban planning perspective, criteria should be developed for effective integration of this finding into current urban space.

The Akarçay Tepe Lined and Marked Limestone Plaques (Akarçay Tepe Plaques) (Arimura et al. 2000; Özbaşaran, Molist 2007; Özbaşaran, 2008; Bozbay, 2009) of the Pre-Pottery Neolithic (PPN) Age, are archeological artefacts that need to be considered in this context.

There is no consensus on dating the beginning of the Pre-Pottery Neolithic Age in the relevant discipline areas. Wikipedia divides PPN Age into groups A, B and C, and provides the time period of 10700–6400 BC for the Turkish Euphrates and Tigris areas (Wikipedia PPN, Neolithic, 24.01.2020). Güngördü (2015) references 10700–6200 BC as the time period for this Age. For Belfer-Cohen (1991) and Bar-Yosef (2002), the PPNA phase starts by 9800 BC. Öztan (2009) defines the start of this period as 10000 BC, while Yakar (2016) starts this period for Çayönü from 10200 BC and Halan Çemi from 10100 BC onwards. Rosenberg and Erim-Özdoğan (2016) define the Neolithic on the basis of architectural plans and classify the period as local round houses horizon as the Early Aceramic Neolithic (EA) and local rectilinear house horizon as the Mature Aceramic Neolithic (MA).

The Akarçay Tepe Plaques were found during the excavation of Akarçay Tepe Mound (Akarçay Mound, Cort Mound) (Algaze et al. 1994; Arimura et al. 2000:181; Özbaşaran, Molist 2006; Özbaşaran, Molist 2007) by excavation site director Prof. Dr. Mihriban Özbaşaran and her team. The Akarçay Tepe Mound, found in the Akarçay settlement of the province of Şanlıurfa in Turkey, is settled in the Lower Euphrates Basin (Çelik, 2008:13), on a hill with an altitude of 360 meters to the east of the River Euphrates (with a downward flow direction), to the west of the Akarçay Village and partly to the south of this village (Fig. 1).

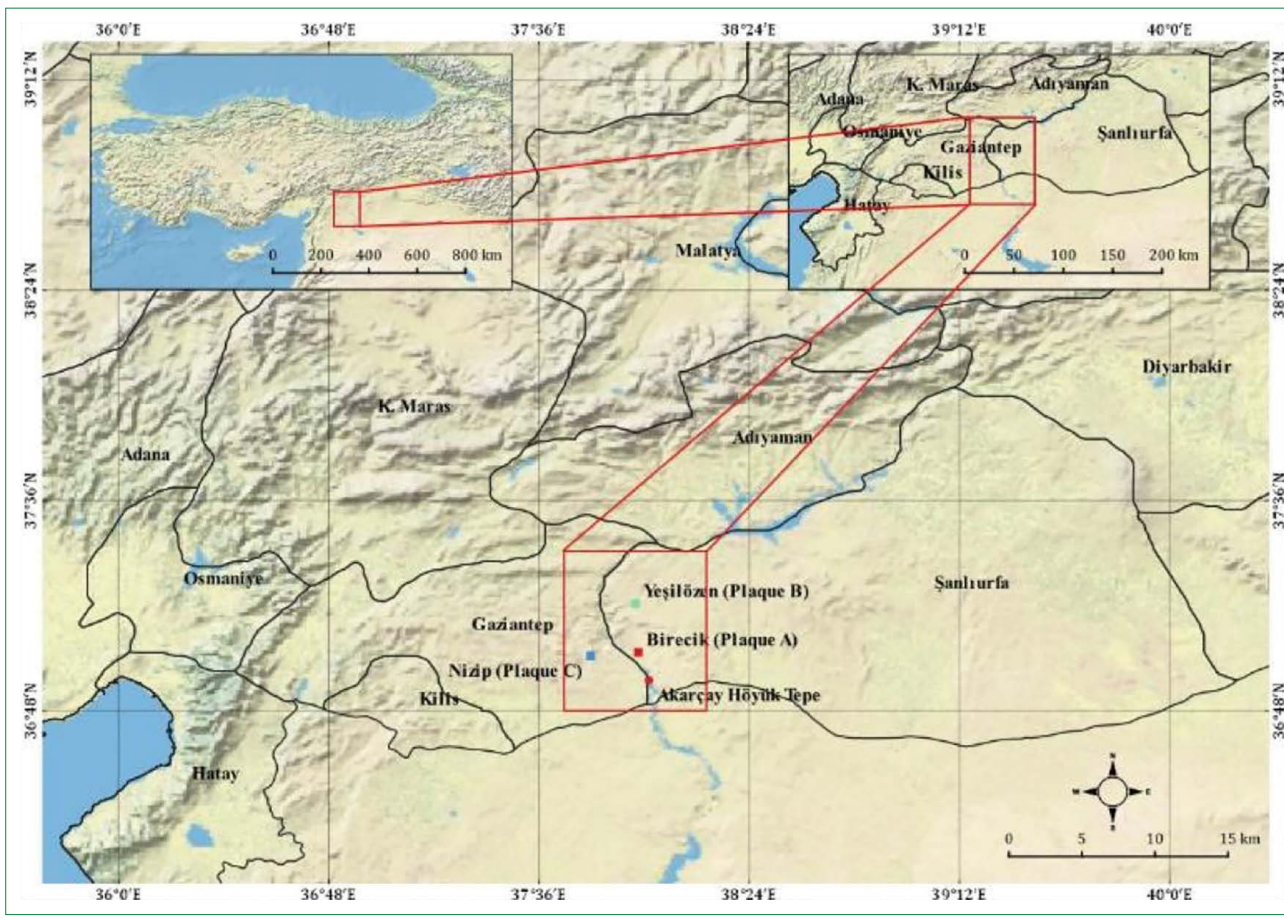

Figure 1. Location map of Akarçay and three Akarçay Tepe Plaques (Original, 2020).

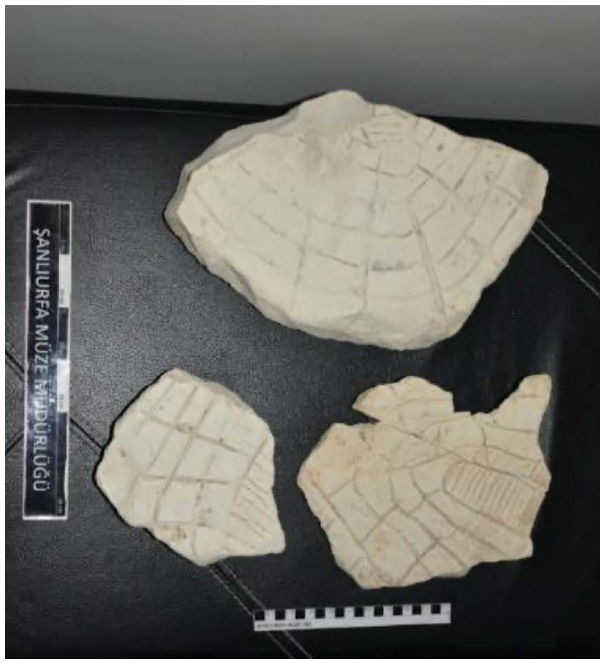

Figure 2. Three Akarçay Tepe Plaques: The Plaque A (centre), the Plaque B (left) and the Plaque C (right) (Photographed by the Şanlıurfa Museum, 2020).

The Mound has been inhabited continuously for 2,000 years (Balkan-Atlı and Özbaşaran TAÇDAM, 2002). By 14C dating, the first period of the site corresponds to V Beta 138584 8750±40 and the latest period is 138585 7280±50 (TAY Akarçay Tepe, 24.01.2020).

There are 295 pieces of limestone plaque (Bozbay, 2009:141), but only a few are on exhibition in the Şanlıurfa Archaeology Museum (Turkey). Of these, 99% were found in the Eastern Section of Akarçay Tepe, belonging to the Pre-Pottery Neolithic Age, and the remainder in soil used for filling in the late Pottery Neolithic Age settlement in the Western section (Özbaşaran, 2008:835; Bozbay, 2009: 142–143): The stones were retrieved from secondary use in eighth-level structures and fillings. Besides those found in soil, some had been used as building stones in stone walls and foundations (Özbaşaran, 2008:835).

Most (83%) of the plaques were discovered in the excavation plan square number 27 (27S, T, U, V) and particularly in the open area (corresponding to 27T and U). A single Plaque was found inside the structure, on the floor in building T among broken pieces of stone containers. No findings of this kind were encountered on the ninth or sixth levels (Özbaşaran, 2008: 835).

The Plaques under study have not been calibrated. However, according to Borrell (2010:122), the Akarçay Tepe Chiseled Stone Plaques belong to continuous layers dating from 7,580BC to 6,300BC. Moreover, Özbaşaran (2008) states that the motifs drawn on them have not been encountered among other findings and all these "marked limestone" pieces which are at least 9,000 years old are intended to express the same thing.

Following a series of correspondence, permission was obtained from the Şanlıurfa Museum on 2 May 2017 and from the excavation site director on 31 August 2017 to study and publish the three Plaques shown in Figure 2. The permission of the second author was obtained on 04 September 2018.

A research for determining the spatial dimension of the Plaques was conducted in 2017 on three pieces of the Akarçay Tepe Plaques with reference to current property lines, design principles and settlement patterns. As a result of this study, the geographical locations of the Plaques for which permission to examine was received and their locations in the settlements were determined by Eren (2018). It is found out that even though the Plaques for which permission of study was granted were found in Akarçay Tepe, they are related to specific sections of other urban areas in the Southeastern Anatolia Region. The Plaque A corresponded to a location in Birecik, the Plaque B (AT 02 261169 2) to a part of Yeşilözen, and the Plaque C (237) to an area of Nizip Old City (Eren, 2018, 2019) (Fig. 3).

When superimposed, the drawings on the Akarçay Tepe Plaques are compatible with presentation details of 1:1000 scale base maps (Eren, 2019).

The three Akarçay Tepe Plaques as archaeological artefacts provide us an opportunity to evaluate the PPN Age human settlements and agricultural areas of the region. They present the settlement typo-morphology of an early sedentary, food-producing community (Eren, 2019). The drawings on the Plaques indicate the water systematic, the patterns and borders (valley floors where slopes terminate or geographical thresholds) of the human settlement and agricultural areas at the time when they were made, and they signify how they relate to the topography. They represent a land arrangement systematic.

The Plaques were produced by a decision and conscious choice as a result of a social consensus rooted in targets for specific functions with certain aims and coverage. There is no sufficient proof on whether they were produced before or after settlement. Their production purpose may aim to describe the existing settlement layout after settlement or to identify property before habitation. The main assumption is that the Plaques resulted from a conscious spatial intervention during the process of the formation of pre-urban villages.

Borrell and Molist (2014) and Arimura and Suleiman (2015) have determined that the regions of Syria and the Levant,

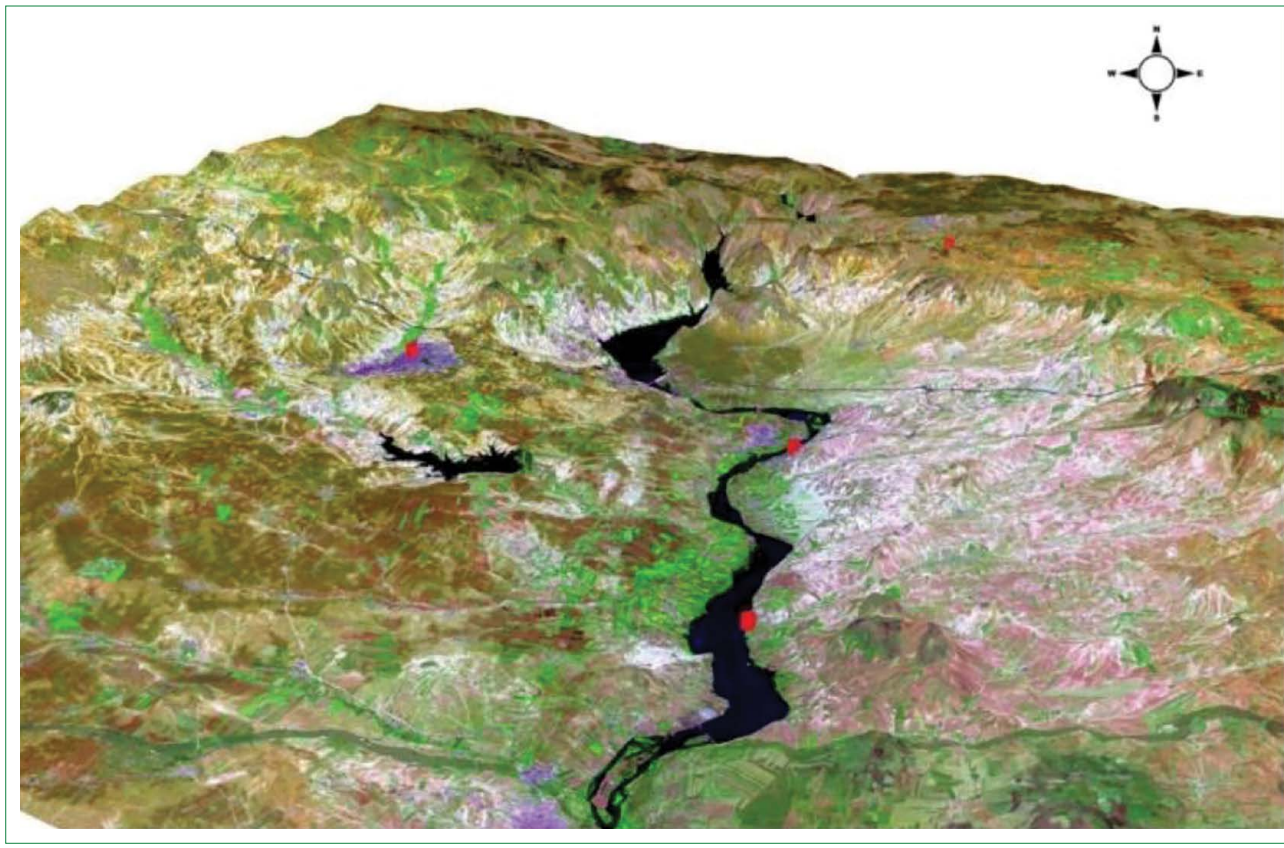

Figure 3. Digital elevation model (Showing locations of the three Akarçay Tepe Plaques and Akarçay with reference to the Euphrates River) (Original, 2020).

which are close to the Southeastern Anatolia Region, constituted a single regional entity in the Neolithic Age. When all the Plaques are situated, Akarçay Tepe can be a regional entity. There is no study conducted for the region that the plaques belong to questioning a regional entity in the PPN Age. Rosenberg et al. (1998:37) mention the Levantine influence visible at Euphrates sites in the Pre-Pottery Neolithic B (PPNB) period. Asouti (2006) determines main PPNA and PPNB settlements in the Levant Region and the Turkish Euphrates and Tigris areas, neglecting to point out Akarçay Tepe, Nizip, Birecik and Yeşilözen settlements.

There is also a wide range of studies on the architectural buildings of the region, their typologies and materials and their transformations through different layers (Brami et al. 2016; Karul, 2003; Kozlowski, Kempisty, 1990; Byrd, Banning, 1988; Schirmer, 1990; Bar-Yosef, Gopher 1998; Özbaşaran, Molist 2006; Kuijt, 2000; Eran, 1995; Watkins, 2018). Kramer (1982), Kuijt (2000) and Hole (2002) have made comparisons of several sites in terms of the sizes and periods of the settlements. Until now, no evaluations have also been made about design, macroform and general layout of settlements or geographical referencing. Studies concentrate on specific locations in the Southeastern Anatolia and the Levant Regions and uncover any finding leading to an analysis or evaluation in terms of urban planning except the grill plan (strip grid/ grid/ gridal plan) of settlements, agricultural areas or architecture of the period.

This study was structured by a series of questions: Within the scope of the disciplines of urban planning and urban archeology, what are the periodical settlement characteristics of the Akarçay Tepe Plaques and what are their correspondence in the existing land arrangement? With the statement that the examined Plaques are a source for forming property on land and defining land use and a display of land arrangement in a certain space, there appeared a need to work by aiming to answer the aforementioned questions from point of view of these disciplines. In this context, the subject of the study is determined as the Akarçay Tepe Plaque C (the Nizip Plaque) (Fig. 4).

This article with a multidisciplinary approach aims to explain urban and land arrangement and characteristics of the historical structure of a Southeastern Anatolian PPN Age human settlement on the basis of the Plaque C. The secondary aim is to determine the application principles of the Plaque onto the land. The fundamental objective here is

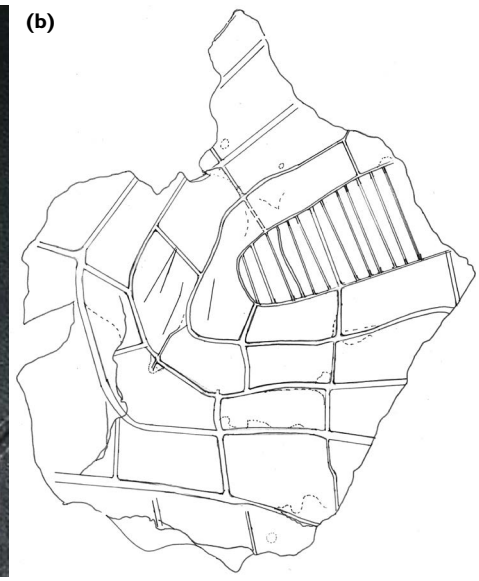

Figure 4. (a) The Plaque C (the Nizip Plaque) (237) (Photographed by the Şanlıurfa Museum, 2020). **(b)** The Plaque C Layout (Eren, 2018).

Figure 5. Examples of settlement area motifs: The Plaque A (left), the Plaque B (centre) and the Plaque C (right) (Eren, 2018).

to describe the spatial dimension of the Plaque C and land arrangement as a human need and form of human behavior that goes back to this age.

The article elaborates spatial characteristics and urban planning and design principles of agricultural and settlement areas referred to by the Plaque C layout (Fig. 4b). The line drawings on the Plaque C and the Plaque borders will be termed from here onwards as "Plaque layout". Measurements of the Plaque C layout divisions and design were compared with urban layout measurements and pattern, as well as topography.

The PPN settlement area and agricultural areas are distinguished from each other by the use of different motifs on the Plaque. On the Plaques, the thin vertical partitions (vertical grill/ strip grid) with a north-south direction were assessed by Eren (2018) as the symbol of the settlement areas. In addition to these three examined Plaques, the same settlement area detail is present on those Plaques that are on exhibition at the museum. However, the settlement area motifs on other Plaques have been damaged. For this reason, any attempt for a comprehensive evaluation based on the two other archaeological artefacts with missing settlement sections could lead to fallacious arguments (Fig. 5). The parallel, thick rectangular partitions (horizontal grid) on the sloped parts of the Plaque that provides dimensions and geometry traces to today's residential areas and road network were assumed to be the agricultural lots at the time the Plaque was produced.

This article concentrates on Plaque C, because the settlement motif is less damaged, the Plaque is measurable and comparable to the existing topography, and the Plaque layout includes efficient spatial references.

A further objective is to develop a PPN Age settlement model within the theory of urbanization. The methodology enables us to read the traces of the PPN Age settlement from the street pattern, macroform, topography of the landscape, the location selection criteria and the size of

Figure 6. Location of Nizip. The fault crack, the Nizip Brook, and her relation with the River Euphrates and the east plain (Source: Presented on Google Earth Pro 2018 by the authors, elevated view. Date: 22.01.2020).

the settlement without being constrained by contemporary architectural additions.

The second section of the article describes Nizip Old City, the area under study and examines the Plaque C. The third one details the research process and methodology, including the superimposition process. The fourth discusses the characteristics of the Nizip Pre-Pottery Neolithic Age settlement and the last section includes some concluding remarks with a critical evaluation.

2. The Study Area: Nizip Old City

Nizip (Nisibis) (37°00'35.69"N, 37°47'13.30"E) Old City area, the settlement to which the Plaque C layout refers, has been a strategic location historically and geographically. It is situated in the southeastern part of Turkey and in the Euphrates River Basin. Nizip is administratively dependent on Gaziantep, 37 kilometers away. To the east of Nizip, lies Şanlıurfa, to the north Yavuzeli, and to the West, Oğuzeli and Gaziantep (Başarkanoğlu, 2010:2). The settlement is located between the southeastern Taurus Mountains and the Arabian Massif (Yılmaz, 1990:3), at an altitude of 400–500 meters. Nizip sits in a valley formed by a fault crack. The land to the North, to the West and to the South of the settlement is undulating, while there is a plain to the East (Fig. 6).

Through the valley in which Nizip is situated, runs the Nizip Brook. The brook rises on Mount Kartal (1,496 meters), north of Gaziantep, and flows southwards through the district until it joins the River Euphrates. Gülkaya is the place where this valley opens up to the Euphrates, and from here, there is the possibility of a crossing to Akarçay Tepe. Nizip is 23 kilometers away from Akarçay Tepe as the crow flies.

Given the low level of technology in use at the time, due to the natural environment and the primitive living conditions and standards, walking on foot was the only possibility of travel. In order to reach Gaziantep from Akarçay Tepe one must have to pass through Nizip Old City. From Akarçay Tepe, the route leads directly through Gülkaya, Intepe, Hancağız, Kaleköy, Nahırtepe, Mağaracık, Nizip, Turlu, Altındağ, Battal, Yukarı Arıl and Bilek. In line with Nizip Old City, the geography creates a bottleneck in the Nizip Brook valley for travelers and traders (mainly obsidian, flint and perishable stuffs). The Plaque C spot controls this bottleneck, the passage between Akarçay Tepe and Gaziantep and the crossing of the Nizip Brook in east-west direction.

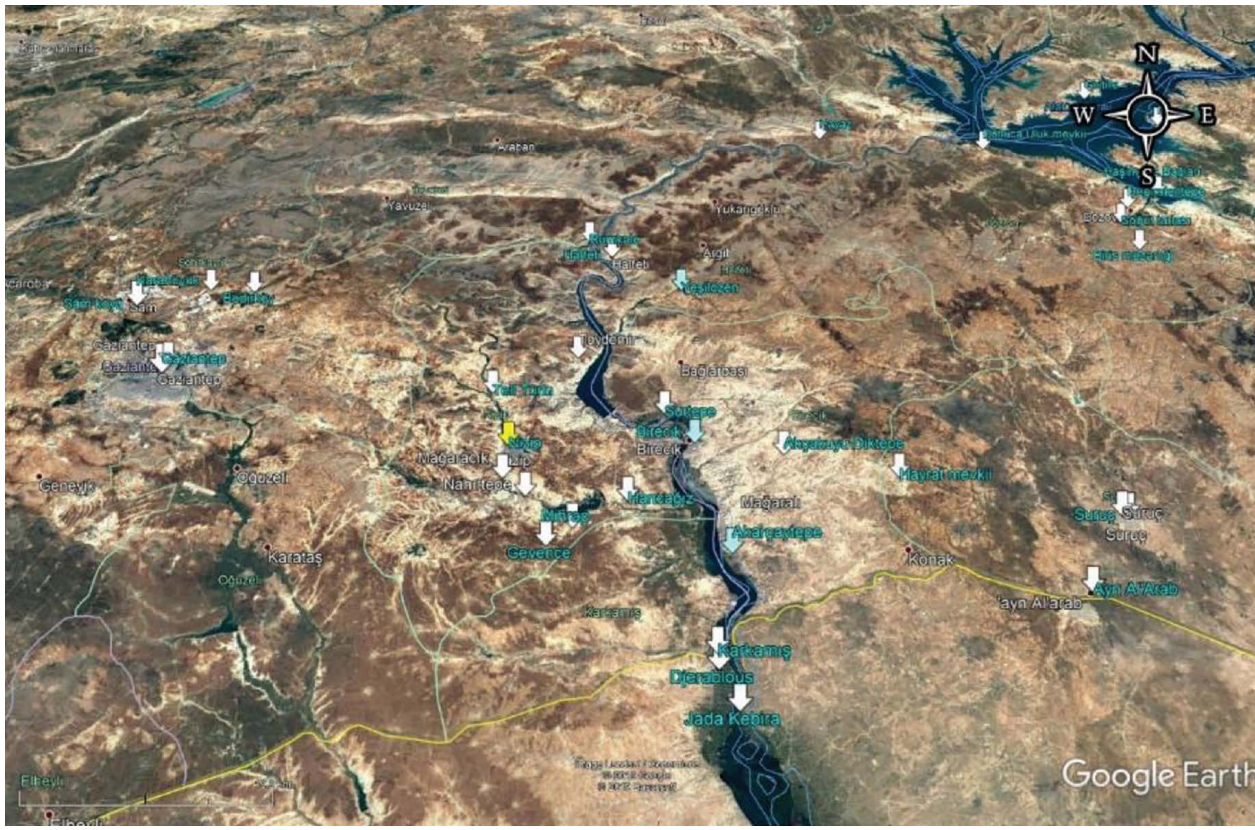

Figure 7. Major Paleolithic sites around Nizip and their relation to Plaque settlements (Source: Presented on Google Earth Pro 2018 by the authors, Eye distance 46,13 km. Date: 21.01.2020).

The Nizip Region is in the heart of the Fertile Crescent. Human culture of this region dates back to the Paleolithic Age and this region has been inhabited ever since then in the Lower Nizip and the Upper Nizip sections (Fig. 7) (TAY Aşağı Nizip Yöresi, Yukarı Nizip Yöresi, 11.11.2018). Nizip has been occupied by successive civilisations and experienced many invasions (Çetin, 2014).

All these historical references underline the geographical significance of the Levant-Nizip-Gaziantep route leading from the South to the North or the Northwest towards the Mediterranean and inner Anatolia (the Kızılırmak basin), as well as the West to the East route that crosses the River Euphrates near Akarçay Tepe before going on to Suruç, Şanlıurfa and Birecik. In short, for any force trying to control central Anatolia as well as Mesopotamia, and the Levant right up to the nineteenth century, the control of Nizip must have been essential (Fig. 8).

2.1. The Plaque C (The Nizip Plaque)

The Plaque C [the Nizip Plaque (237)] is made up of three broken limestone pieces that have been stuck together by archaeologists (Özbaşaran, 2008). It is darker in colour than other Plaques. The dimensions of the Plaque are 28.5x23 centimeters at the maximum and 17x15 centimeters at the minimum (Eren, 2018). The Plaque's depth is 6 centimeters. The distinctive feature of this Plaque is the residential area at the topmost point which is in the form of a hollow – a carved-out section with raised edges (Fig. 9). This hollow area at the top of the Plaque is protective, and here, there are land partitions in the form of narrow lots.

The Plaque C layout pertains to a low hill (Tepe, Coordinates: 37°00'35.69"N, 37°47'13.30"E) that is bordered by today's Pazar Sokak, Cumhuriyet Caddesi, Çay Sokak, Ziyaret Sokak, Değirmen Sokak and Hamam Sokak (Market Street, Republic Street, Spring Street, Visitation Street, Mill Street and Bath Street) (Fig. 10).

The area covered by the Plaque layout is located within the administrative boundaries of the Pazar Camii (Market Mosque) neighborhood (the hill and the northeast side of the hill), the Fevkani Mahallesi [The higher above neighborhood (northwest of the hill)] and the Saha Mahallesi [Area Neighborhood (south of the hill)] (Uygur, 2018). The western part of the hill (and also the Plaque area) is a second-degree archaeological site under decisions no. 3780 and no.1478 of the Adana

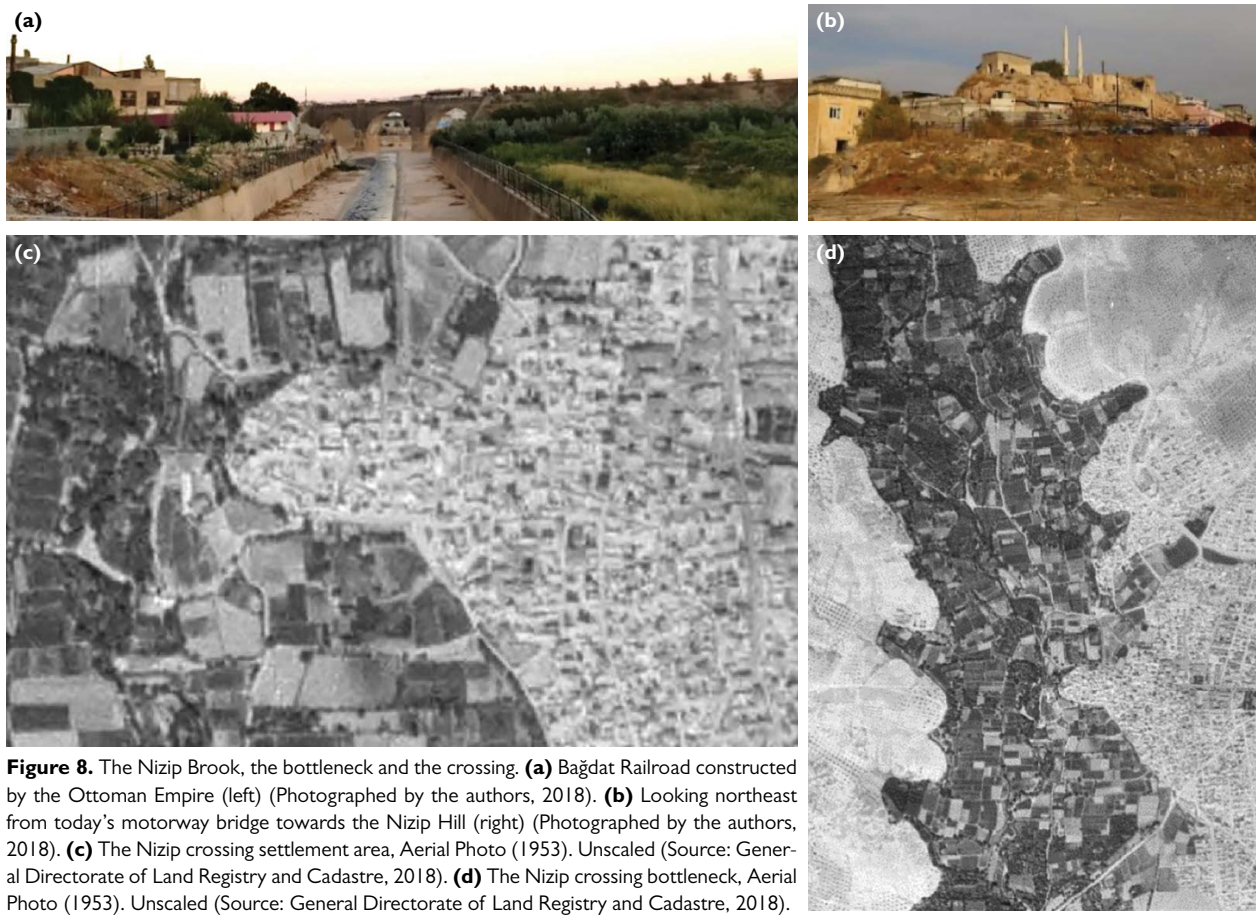

Figure 8. The Nizip Brook, the bottleneck and the crossing. **(a)** Bağdat Railroad constructed by the Ottoman Empire (left) (Photographed by the authors, 2018). **(b)** Looking northeast from today's motorway bridge towards the Nizip Hill (right) (Photographed by the authors, 2018). **(c)** The Nizip crossing settlement area, Aerial Photo (1953). Unscaled (Source: General Directorate of Land Registry and Cadastre, 2018). **(d)** The Nizip crossing bottleneck, Aerial Photo (1953). Unscaled (Source: General Directorate of Land Registry and Cadastre, 2018).

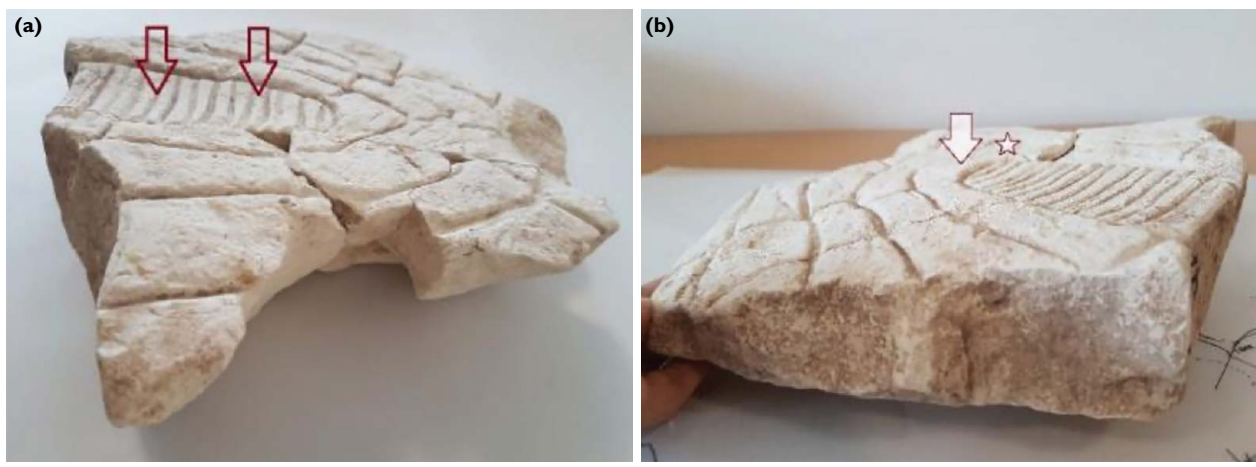

Figure 9. Location and topography of the Plaque C settlement area (Eren, 2018) **(a)** The hollow. **(b)** The hilltop (The arrow points the hilltop).

Regional Council for the Protection of Cultural and Natural Heritage dated 29.06.2000 (No: 3780) and 30.03.2006 (No: 1478), respectively (Fig. 11). The Tepe Neighborhood Second-Degree Archaeological Site Conservation Master Plan was approved in the year 2008. Revision works of this conservation master plan are still in process.

The sloped side parts of the Plaque C show resemblance to the slope shape and direction on land. Taking the hill altitude (495.32 meters) of the base map of 1975 as a basis, the slope in the northern direction is 13.6%, 15.6% in the western direction and that in the southern direction is 27%. The hollow part sits at the 490–491 meters altitude. Çoksolmaz (2011)

Figure 10. Situation of the Plaque C within the settlement of Nizip Old City. Unscaled (Original drawing on Google Earth Pro 2018, 2020).

states that Nevalı Çöri lies at the 490 meters altitude. Moreover, simple irrigation with agricultural purposes is technically possible from a stream which probably gave Çay Sokak (Spring Street) its name and existed at the time the Plaque was produced, and from the Nizip Brook. The thought of thick rectangular horizontal partitions as the motif symbolizing agricultural lots gains strength.

Peterson (1999) mentions year-long habitation in the Levant Region during the Epipaleolithic Era. Due to the shape of the Plaque C agricultural lots and settlement grill plan, year-long settlement of the PPN Nizip seems logical for us. While partition geometries and lot directions present the idea of the presence of a climate sensitive habitation approach at the settlement area in the period when the Plaque was produced, there is a need for further comparative studies on architectural building typologies of the period and settlement patterns. In other words, the evaluation of building typologies and shapes in the Plaque layout lots is the subject of another study.

In order to explain the traces of the ancient past that exist in the current urban pattern and to evaluate the characteristics of a PPN Age settlement, some information must first be given about the research process and superimposition method.

3. Research Process and Superimposition

The study makes the assumption that the topography has not changed greatly since ancient times, and that the settlement pattern and macroform of the historical section of the city carry the marks of past eras. The principle of invariance of roads is also assumed to be valid. While there have been changes since ancient times in the basic spatial data pertaining to the region under study, it has been established on the basis of various arguments that these changes have not been so drastic so as to destroy the previous cadastral pattern or to alter the topography. Since several and older parts of earlier periods have been preserved unchanged, hereditary traces of land arrangement of the Plaque can be observed.

Some of the historical paths within Nizip's historical hill match the design on the Plaque C. Due to housing developments, lines shown on the Plaque layout have come to correspond to the edges or borders of rows of houses or gardens. As the areas depicted as agricultural areas are now occupied by roads, housing or other urban facilities, or are used for other urban purposes, not every boundary or street line on the Plaque corresponds to a present-day street or property line. Some of the paths indicated in the drawings on the Plaques were found to have disappeared due to the way the settlement pattern has developed.

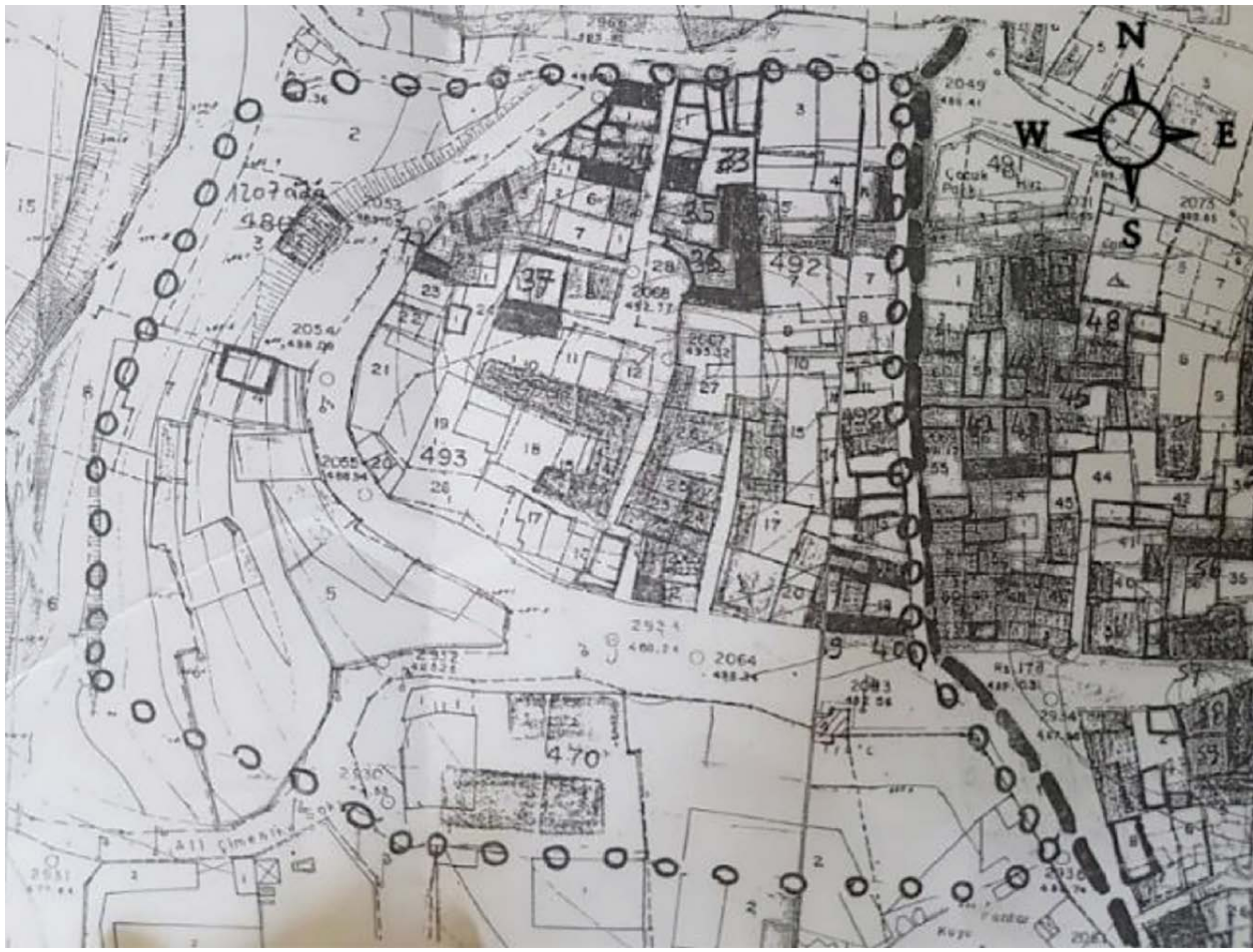

Figure 11. Tepe Mahallesi Höyüğü (Tepe Neighborhood Mound) (Reduced in scale) (Source: Nizip Municipality, 2018).

In order to find traces of the PPN Age settlement pattern, research was conducted to find the oldest available plans, base maps, cadastral maps, topographic maps and photographs of Nizip. The oldest plans and base maps were kept by the Bank of Provinces of Turkey. Recent maps, master and urban implementation plans and cadastral plans were obtained from the Nizip Municipality or the Nizip Directorate of Cadastre. Base maps were taken from the Bank of Provinces and the Nizip Municipality. Aerial photos were taken from the General Directorate of Land Registry and Cadastre. Information on the river basins and dry brooks and streams was requested from the 20th Regional Directorate of the State Hydraulic Works. Finally, superimposition was used as the design tool.

The 3-D map of the study area was obtained by superimposing the 7.6.4 (urban) band combination produced from Landsat 8 satellite images dated 27.05.2019 onto the Digital Elevation Model (DEM) map of the area by using the QGIS 3.10.2 program and remote sensing technology.

The settlement characteristics of the area represented on the Plaque C were studied by superimposing the Plaque layout on the urban pattern of the historical part of Nizip, which is best observed in the base map dated 24.12.1975. The historical area is covered by two sheets of the 1:1000 scale base map (sheets 30k3c and 30k3d). However, sheet 30k3c of this map was found to be missing, and there are no digital versions available. Since the old versions were destroyed after a new base map was drawn in 2008, it was impossible to obtain the missing sheet. The remaining single sheet (sheet 30k3d) was, however, used in the analysis of the area under study. The topography presented on the lost sheet of 30k3c was produced from the urban implementation revision plan sheet dated 1984.

As an initial step, the urban implementation plan revision of 1984 and the base map sheet of 1975 were compared with the base map of 2008 and the conservation urban implementation plan of 2008. The urban implementation plan revision of 1984 is the oldest spatial plan available showing the traditional and less damaged historical housing pattern, topography and the traces of macroform of the PPN settlement. Its clear plot divisions can be comparable to the Plaque C layout.

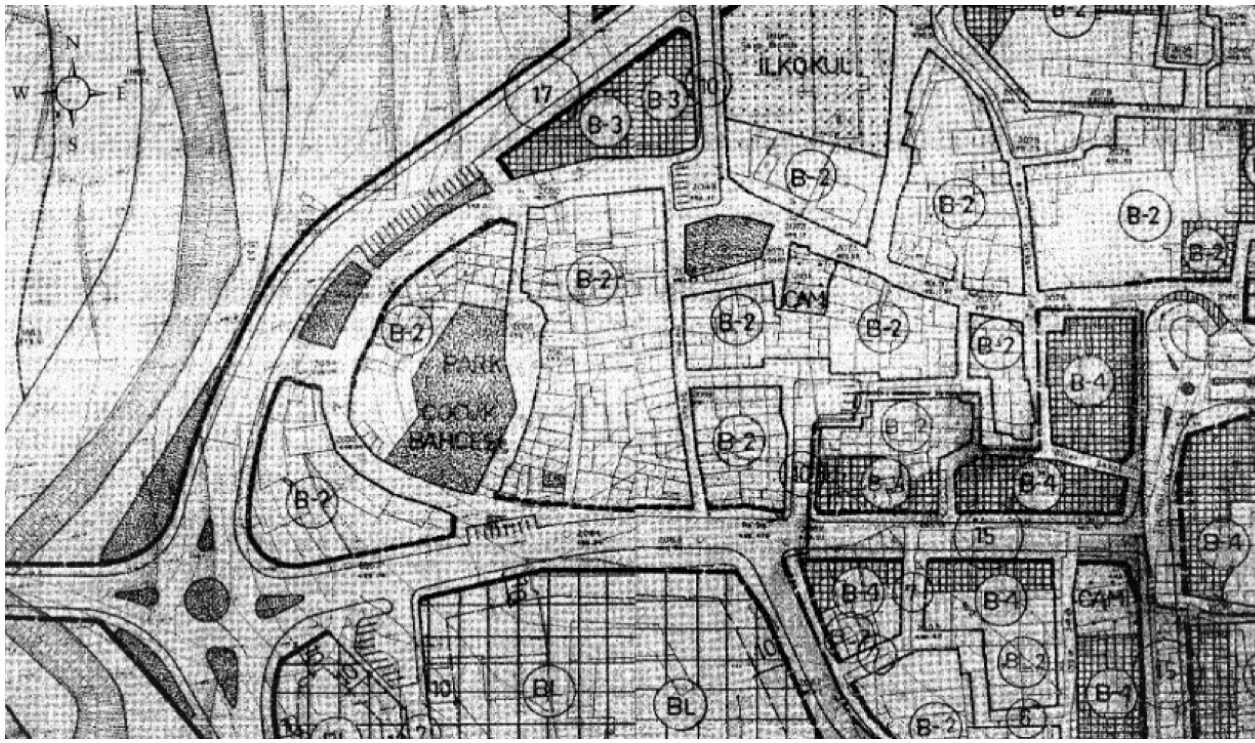

Figure 12. 1:1000 scale urban Implementation plan of 1984 (Reduced in scale) (Source: Bank of Provinces, 2018).

The plan was tendered by the Bank of Provinces and made by a private planning company in 1983. The plan was approved by the annulled Ministry of Public Works and Settlement in 20.01.1984. The 1:5000 scale master plan was approved by the annulled Ministry of Development and Settlement on 16.01.1981. The 1:1000 scale urban implementation plan revision (Fig. 12) of 1984 was prepared on the basis of the 1:1000 scale base map of 1975.

Both hand drawing and digital drawings are reproduced for finding the traces of the Plaque layout and proper situation of this on the existing urban pattern. Digital topographic maps had to be produced from the 1984 urban implementation plan for the topographic map of 1975 and from the base map of 2008 for the topographic map of 2008 in order to show the Plaque layout positioning relative to the hilltop and contour lines of the Nizip Old City. Maps were drawn first by hand and then prepared by using ArcMap 10.6.1.

Related sections of the urban implementation plan of Nizip (1984, 30k3d and 30k3c sheets) are drawn for the topographic map in tiff format and rectified using the ArcMap 10.3 software in order to superimpose on the coordinate system. A digital database was obtained by drawing the houses and contour curves of 1975 on the site onto the 1984 plan (Fig. 13). The structure of the land was obtained by forming TIN data, and the altitudes which the plaque attributes to the land were expressed on the map in this way. The third dimension of the built structures, however, was not shown on this map.

Besides the production of a digital topographic map, a preliminary study was conducted for the superimposition process by manual means. The settlement section of the Plaque C was drawn by hand on a transparency one-to-one. This was than overlaid on the urban implementation Plan of 1984 and base map of 1975 in order to find all the available traces on the land for definitive georeferencing and layout location (Fig. 13). The property lines defined in the cadastral plan of 1974 and urban implementation plan of 1984 and continuous in linear visuality were checked, and the measurements were compared. Location alternatives were also determined and questioned. The area where the macroform and the Plaque C layout intersect with the pattern of the urban implementation plan (1984) is selected as the exact location of the settlement.

Superimposition of the Plaque C layout and Nizip Base Map of 2008 was the other check. Traces of the Plaque layout were sought in the property ownership borders in this base map. Layout and urban pattern measurements, reference points, lot dimensions and street layout were compared. While superimposing, the lines that corresponded or having visual continuity were identified. Lines supporting visual

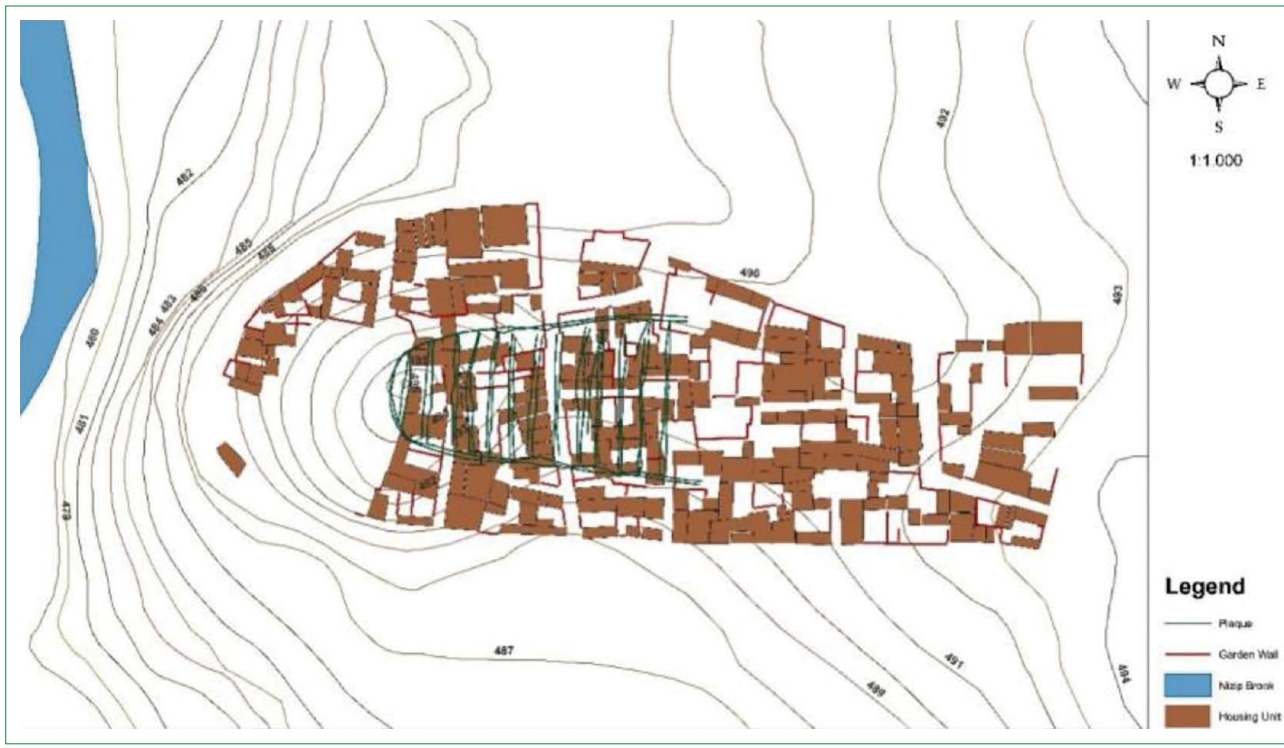

Figure 13. Superimposition of the Plaque C layout on topographic map of 1975 (Reproduced with reference to the base map of 1975 and the 1:1000 scale Nizip urban implementation plan of 1984, Reduced in scale) (Original 2019, created in ArcMap 10.6.1).

continuity were accepted as traces of land arrangement and order- the macroform, property lines and lot definitions on the Plaque C- the layout (Fig. 14). Plaque layout details were also checked (Fig. 15). Original Plaque layout measurements may have a partial margin of error of ±0.1 mm (Eren, 2018).

The cadastral map of 1974 and base map of 2008 are given in Figure 16. Another check was made on the basis of the base maps of 1975 and 2008 presented in Figure 17. This check is limited due to the missing sheet. The comparison of the two base maps shows the impairment of the previous urban texture clearly.

In addition, a literature search was conducted and a field research was carried out in October 2018. The traces identified through the superimposition of the Plaque layout onto the urban implementation plan of 1984 were checked in Nizip Old City in the field. The traces of the Plaque were also photographed and analysed.

As a result of face to face meetings, negotiations and exchange of sheets and documents conducted with the Nizip Municipality and of the inspection of the area in October 2018, it was ascertained that there had been some changes regarding the topography of the land, urban texture and the land use pattern after the 1975 base map was drawn. During the field search, it also became apparent that, with the exception of a few streets, the macroform and settlement pattern of the area shown on the 1975 base map no longer exist today. Urban decay and distortion have accelerated within the last three decades and several traces of the Plaques were erased irreversibly.

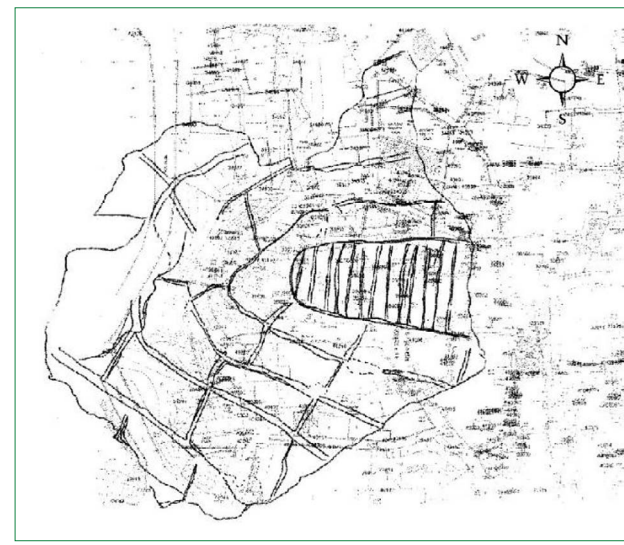

Figure 14. Superimposition. Unscaled (The Plaque C layout and the 1:1000 scale Nizip base map of 2008) (Original hand drawing, 2018).

Specifically, the topography of the hill has changed and several landfills were identified within the study area.

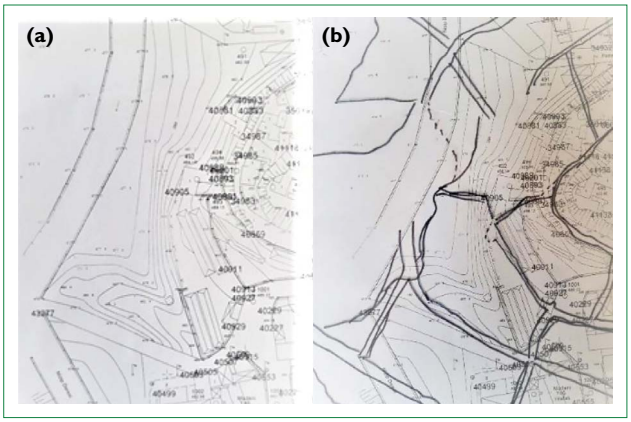

Figure 15. Superimposition – detail. Unscaled (Original hand drawing, 2018). **(a)** A topographic section (Base map of 2008). **(b)** The Plaque C layout superimposition detail refers to the presentation of probable flood affected area (See; also Fig. 11).

The western landfill (Fig. 17, 18) has started to crumble today. The disturbances in elements of the road system, texture and macroform of the town that showed traces of the Plaque layout were due mainly to the informal building activity which has occurred due to the poverty and migration that the town continues to face (Bilici, 2018) in addition to illegal excavations aiming to find archaeological artefacts. Public works and other activities conducted were also found to have damaged the historical texture.

The Plaque C layout was then applied to the drafted map. The first aspect of superimposition examined was topographic resemblance (Fig. 19). As the settlement is located on the Plaque (the 3-D model) on a carved-out surface, the topographic data matching this information were evaluated. The PPN settlement area is situated in the hollow ground (See; Fig. 9b) in the middle of the Plaque. To present the starting point of the hollow and the hollow itself, contours and sections of the 1975 and 2008 base maps were drawn (Fig. 20). The Plaque C slope and land slope were also calculated and compared.

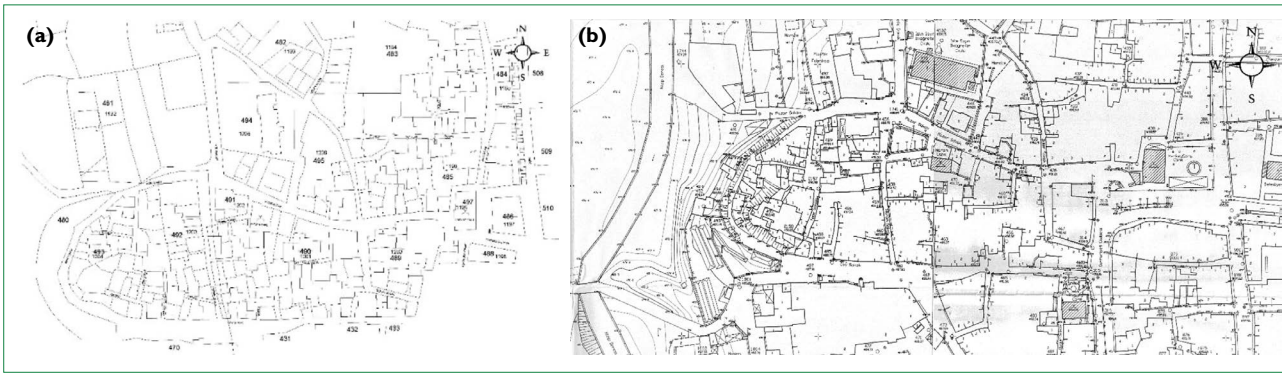

Figure 16. Nizip old city maps, unscaled (Source: Nizip Municipality, 2018). **(a)** (Reduced in scale) 1:1000 scale Cadastral Plan of 1974 (Redrawn by the authors from the original plan of 1974, 2020), **(b)** (Reduced in scale) 1:1000 scale Base Map of 2008.

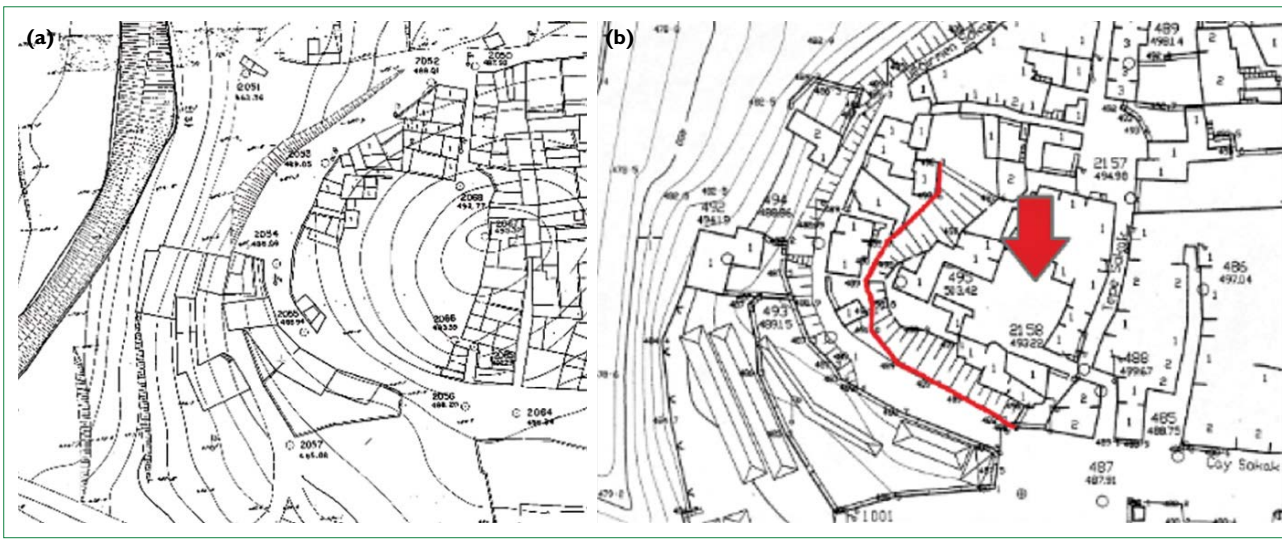

Figure 17. Landfill. Unscaled (Source: Bank of Provinces, 2018). **(a)** The hill section, 1:1000 scale the base map of 1975 (Sheet 30k3d). **(b)** Landfill: Artificial elevation apparent on the 1:1000 scale base map of 2008 (Drawn by the authors, 2019).

Figure 18. Landfill. The western side of the hill. Artificial elevation and the resulting subsidence (Photographed by the authors, 2018).

The second aspect examined was the vertical and horizontal lots of the settlement, and the third was the resemblance and overlap of the Plaque settlement layout. Factors addressed by the superimposition at this stage included:

- Variations in altitude, contour line directions,
- Empty spaces on both sides (North and South) in the dimensions of the Plaque streets, from the macroform periphery onwards,
- Streets, buildings and their sizes, and
- Facade lines of adjacent buildings and dimension of buildings.

During the superimposition process, several spatial references were identified:

- One-to-one coincidence of the vertical and horizontal lot border lines of the Plaque with the lot or property lines, streets and architectural buildings of the urban implementation plan of 1984,
- Successive continuity of small streets outside the apsidal macroform with some of the vertical streets of the Plaque, although this may not be apparent in the urban implementation plan of 1984 or today,
- Coincidence of small streets or distances or spaces figured out in the 1984 urban implementation plan with the street lines on the Plaque inside the settlement macroform, and
- As several parts of todays' circulation pattern collapses with the Plaque layout spider web-like thin parallel lines,

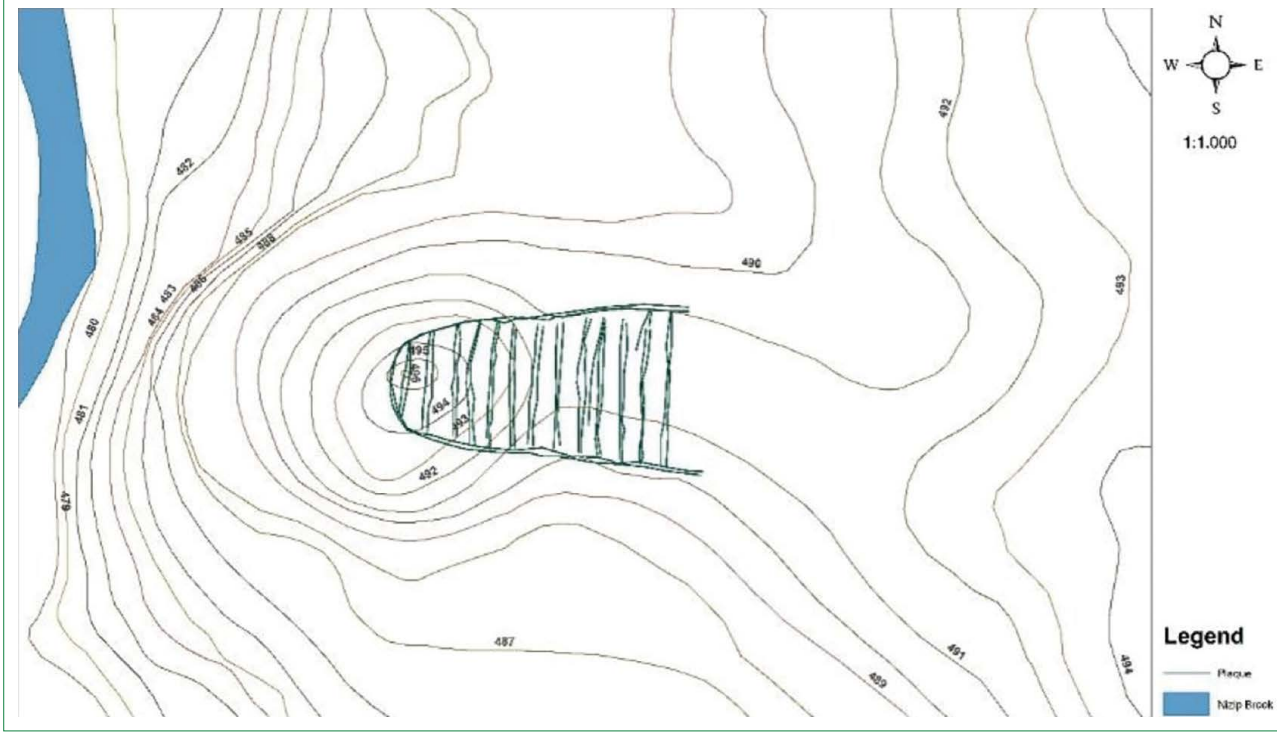

Figure 19. 1:1000 scale topography map of 1975 and situation of the Plaque C layout (Reduced in scale) (Original 2020, created in ArcMap 10.6.1).

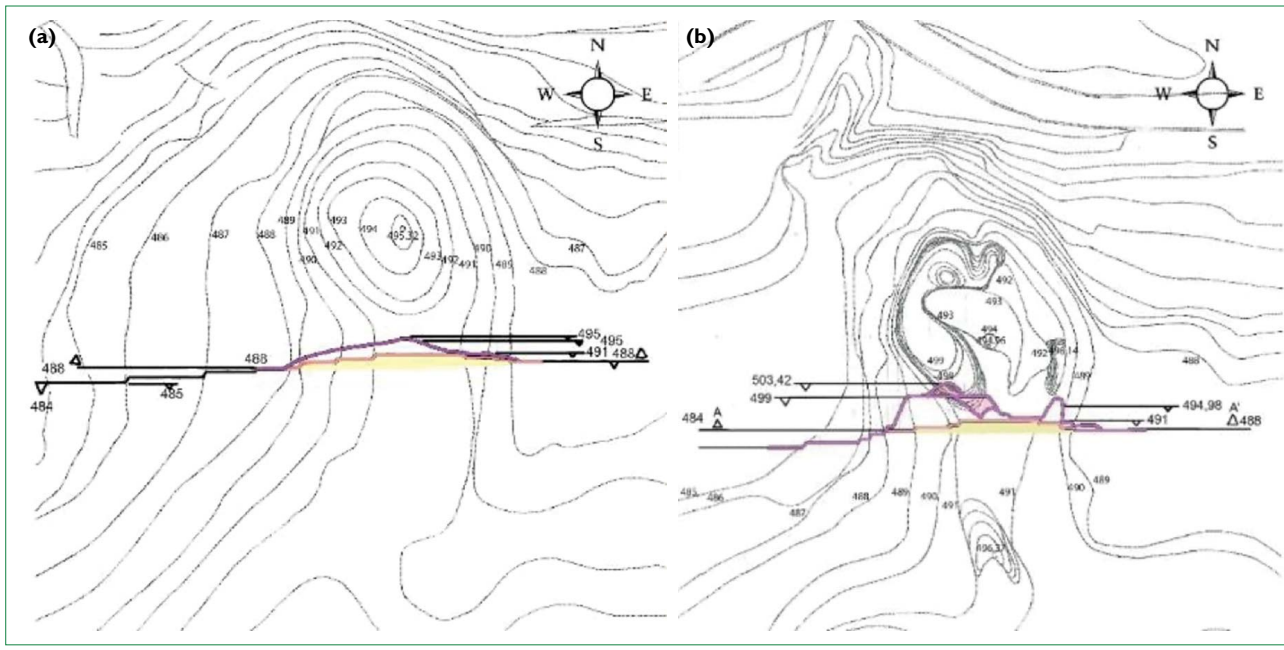

Figure 20. The Hollow and the platform section of the Plaque C settlement in 1975 and 2008. **(a)** The platform (between 490 meter and 491 meter contour lines) and section of the hill on the topographic map of 1975. Unscaled (North East line facing West) (Original, 2018). **(b)** The platform (between 490 meter and 491 meter contour lines) and AA' section of the hill on the topographic map of 2008. Unscaled (North East line facing West) (Original, 2018).

these lines are accepted as the circulation pattern of that time. Consistency of the circulation pattern on the Plaque C and the urban implementation plan of 1984 in terms of dimension, direction and distance.

In the following section, the characteristics of the Plaque C PPN Age human settlement will be evaluated with reference to the Plaque and the findings from its superimposition.

4. Characteristics of the Nizip Pre-Pottery Neolithic Settlement

The characteristics of the probable settlement layout shown on the Plaque C on the basis of superimposition can be defined with reference to urban planning and design principles and concepts:

4.1. Altitude, Direction and Location

The altitude and location of a settlement gives us clues about the criteria used to select its location. The Nizip Brook (altitude 474 meters) and Çay Sokak (Spring Street) constitute a geographical reference point for the choice of location as the settlement is on a hill ridge. Geographically, the hill is in the shape of a closed hand or bullet. The settlement is on the east of the Brook. As no altitude was specified on the drawing of the tablet, the altitude information was obtained via the Google Earth Pro software and contains approximate values. The altitude of the Plaque C layout in today's Nizip Old City varies from 495 to 490 meters in a West to East direction and from 489 to 491 meters in a South to North direction.

The Plaque C settlement layout reference point of application is the western hilltop [495.32 meter according to the 1975 base map (same point is 494.98 meter in the 2008 base map)]. Settlement is situated 2 meters below this point and expands towards the East where the hollow gets deeper. The height differences on the sides and from the hilltop must be for a certain purpose. It was found that there were house walls all along the line of the height differential, and these walls made it difficult to perceive the low surface on the inner side (Fig. 21).

As can be seen in Figures 13 and 20, the cartographer who prepared the base map of 1975 did not make precise measurements for the hollow and drew the contour lines only roughly. For this reason, the hollow existing today on site and below the houses is non-apparent on the 1975 base map. The topographical section shows only the 490–491 meters flat platform in which the settlement was positioned (See; Fig. 20).

In the case of the base map of 2008, some of the areas that lie within the yards of the houses making up the dense housing pattern were measured. Accordingly, the hollow, along with the platform on which the settlement is situated within the topography, can be traced on the section of this base map, as the artificial elevation was also established in this vicinity or by visual comparison of height measures written on the map.

Figure 21. Height differential and the Hollow **(a, b)** (2 m, 493.32 m) From the hilltop (Photographed by the authors standing on the hilltop at 495.32 meters, 2018). **(c)** From East to West (Photographed by the authors, 2018). **(d)** From East to West - Left side of the picture corresponds to the left side of the Plaque C when hold towards the west (Photographed by Eren, 2018).

It has to be assumed that the residents of the settlement engaged in agriculture on areas which they were able to clear or in natural clearings. The vegetation, the existence of open areas suitable for agriculture, proximity to sources of various raw materials, the settlements nearby and the strategic position of the site controlling transit transportation and trade routes or enabling protection may be assumed to have been the basic principles at work in the selection of the location of the settlement.

Another historical characteristic of the settlement is its proximity to fresh water sources (See; Karul (2017:8) for the relation of PPN settlements to water resources). The Plaque settlement is 130 meters away from the Nizip Brook. It should be noted that no round hole (well) is represented on the Plaque C in contrast to other Plaque presentations. In the period of the Ottoman Empire, Nizip was named 'Neyz Ab' by the local people, which means 'place of lots of water' in Arabic (Başarkanoğlu, 2010:4). Its close distance to the Brook and the small stream (dried, Spring Street of today) may be the reason of simple irrigation and nonexistence of presentation of wells on this Plaque.

Seasonal floods, erosion and wind direction could be the other criteria for the choice of location.

4.2. Macroform

The Plaque C has an apsidal (semi-elliptic, oval shaped) settlement macroform. The streets of the Plaque agricultural area are either in a vertical direction (Southeast-Northeast) or a horizontal direction (East-West) framing the settlement. In the settlement area, each lot is in the form of a building island. Today, this macroform can only be read from property boundaries or roads.

The Plaque settlement area macroform geometry begins in the flat area of the ridge and is distorted towards the northeast. The longer northern side curves outwards, while the southern side is straight. Karul's (2017:124) insistence that the siting of the settlement of Aktopraklık is determined by the form of the settlement rather than by individual buildings is also valid for Nizip.

There may be various reasons for an apsidal macroform: One reason could be the direction of the Sun's rays (apsidal precession). Seasons, days and hours can be measured by the Sun's movements on the settlement. In a similar vein, Vondrovsky (2018) analysed the Neolithic longhouse orientation and its relation to winter and summer solstice and equinox for the central Europe Linear Pottery Culture (5500–4950

BC). The part played by the equinox in the modelling and measurement of the Plaque grids falls outside the scope of this article. Additionally, detailed analysis of the relationship between apsidal precession and the apsidal macroform must be the subject of another study.

For us, the apsidal macroform of the settlement area presented on the Plaque C may be the result of a desire to take advantage of the highest accessibility and defining the borders of the useable area between mainly the same contour lines. In other words, the topographical contours and natural thresholds must have been the determining factor for the macroform, as the settlement macroform matches the lie of the land. The macroform traces of the two other Plaques referred to above do not indicate that the apsidal macroform was a common practice of the period.

Like the apsidal macroform, Eran (1995:47), as cites Yakar (1989, Fig. 2), defines an apsidal building typology and dates this structure to the beginning of the Bronze Age. Atakuman (2014:42), with reference to Schirmer (1990, Fig. 12), presents the "skull building" – a kind of apsidal architectural structure with a round end. It therefore seems unlikely to make any generalization for the relation of the macroform of a settlement to the architectural building typology.

There is a certain definition of enclosure on the Plaque layout settlement area. How the macroform is defined must be evaluated at this stage. The need for a protective structure along the macroform is a question mark. The open street approach which permits all inhabitants to pass freely makes it less likely that a fence was used along the macroform. If there was a fence, it must have been temporary in character. The technology of the period also makes it seem more logical that primitive fences (of bushes, bushes and stones, or wood) were used.

Karul (2017) identifies a system of ditches that surrounded the settlement at Aktopraklık and dates these ditches to 5,800–5,600 BC. A ditch system is an element of the defence systems of a later period. Iron Age palisade fortified Biskupin (Poland) has a similar settlement layout composed of vertical streets and long houses having a gridal plan and framed by an apsidal macroform (Wikipedia Biskupin, 24.01.2020). During the site analysis of Nizip Old City, no traces of a ditch or fortification were identified.

As is the case in the villages of Anatolia today, there may have been no fence around the outer borders of the settlement. However, there is no circular macroform defining a ring street typology in traditional Anatolian villages either. Houses in Nevalı Çöri have entrances from their long sides, and they face the Kantara Brook (Çoksolmaz, 2011:53–54).

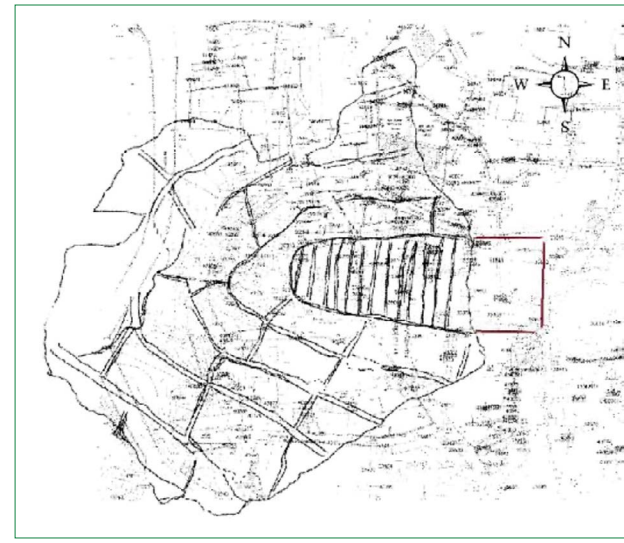

Figure 22. The hypothetical macroform of the PPNA Nizip settlement on 1:1000 scale base map of 2008 (Reduced in scale) (Original hand drawing, 2018).

There is no certain data to make a similar evaluation for Nizip. Settlement lots are positioned towards the Spring Street to the south of Nizip Old City. Due to the importance of accessing water from the shortest distance for living purposes, the presence of a pedestrian road surrounding the settlement and providing access and movement rather than a protective layer for defense is meaningful. In the case of the absence of a protection systematic, it can hypothetically be accepted that the settlement resided in a regional administrative integrity and was safe.

The continuity of the macroform is observable in the field corresponding to the missing part of the Plaque. The macroform can be completed by considering topography, building pattern, road lines and cadastral lot line alignment (Fig. 22). It can be clearly ascertained from the superposition of the Plaque C layout on the base map of 2008. If the topography is the determining factor for the settlement area, the macroform ends at the border where the slope rising towards the east starts.

The borders of the Plaque on the south side corresponds to curvilinear shape of the river bed. This is another proof of the sensitivity to geographical references during the Plaque production.

Although some clues were identified regarding the possible dimensions of the macroform at earlier periods of the settlement, the conduct of separate studies involving precise measurements on the ground is considered to be necessary to reach any reliable conclusions. The questions of how the macroform expanded or how it was transformed and comparisons with other settlement macroforms of the period

also remain for further study.

4.3. Settlement Layout and Land Use

Today, there are several types of traditional settlement layouts in the region. Among these, the motif of narrow streets situated in the direction permitted by the lie of the land and coming together in linear lots is the one that corresponds to the human settlements represented on the Plaques. This type of settlement still exists in the region, particularly in the older parts of towns and in settlements in rural areas with relatively little contact with the outside world. Kelekli, close to Nizip, is a good example for such a pattern.

The reference point of application for the Plaque settlement area is the hilltop.

The Plaque C settlement area is presented by a vertical grill plan. Vertical streets are the defining feature of this type of land arrangement. The thin rectangular linear lining of housing lots is divided by streets and framed by a street. This represents function and appearance. The edges of the lots begin at the contour line where the upward slope of the land reaches its highest level. The strips shown on the Plaque are of varying length, but they have edges or frontages similar in dimension or area. The widths of the frontages of the settlement lots on the Plaque C are as follows (in centimeters): 0.5–unknown, 0.6–0.4, 0.7–0.7, 0.3–0.4, 0.3–0.7, 0.4–0.7, 0.6–0.7, 0.4–0.7, 0.6–0.7, 0.4–0.5, 0.5–0.6 and 0.5–0.5 (Fig. 23).

The strips or lots are located side by side and structured as building islands like in Çayönü and Nevalı Çöri. The streets dividing the agricultural lots are oriented from the South to the North and are 2.8, 3.5, 4.0, 4.6 and 5.2 centimeters in length. The settlement area does not have a strict linear grill with every street at a perfect right-angle to every other street. A lot with a narrow frontage to the South may have a wide frontage to the North or vice versa. This may be related to a climate-sensitive planning approach, but this is also a matter for further analysis and field studies.

The strip grills may be the result of the macroform and the relationship between buildings or social actors. Atakuman (2014:42) states for Çayönü that the earliest and longest occupation span is in the PPNA tradition. This tradition encompasses the Round Building sub-phase and the Grill Building sub-phase. For Yakar (1991; 2016:67) and Rosenberg and Erim Özdoğan (2016:135), the PPNB tradition starts from the last phases of the Grill Building, and it continues as the Channel Building, Cobble Paved Building, Cell Building and the Large Room Building sub-phases. PPN settlements can be formed of pier houses, tholoi or buildings with a round plan and hollowed-out floor that are observed in the closer settlements in the region (See; Karul, 2017). For Fuensanta and Martin

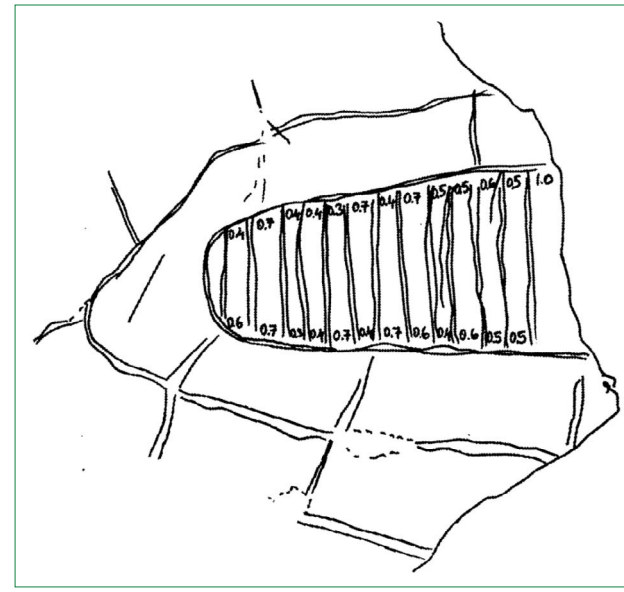

Figure 23. The Plaque C (Nizip) PPN settlement area grill plan measurements. Unscaled (Original hand drawing by the authors, 2020).

(2018:53), in terms of architectural structures, an early grill plan may be seen in the PPNA, and a late grill plan appeared in Çayönü and Dja'de (8400–8200 BC) in the early PPNB.

This study, although states architectural transformation from a broader perspective, does not include any data on the relationship of the architecture of the PPN with the urban pattern or its period of existence. Neither of the examined Plaques provide information about the number of housing units per lot, the architectural typology of the buildings or the form of property, the types of property and property arrangements. The building islands were formed by lots and streets of the Plaque. Today, most of the Plaque streets are defined by garden or building walls. Areas depicted as agricultural areas on the Plaque layout are now occupied by roads, housing or other urban facilities.

The earliest dated settled village sites like Hallan Çemi, Demirköy, Körtik Tepe and Çayönü are situated along Batman and Tigris Rivers and are characterized with curvilinear architectural structures (Rosenberg and Erim-Özdoğan, 2016:126–127, 132). The first corners were formed in the buildings in Nevalı Çöri, Gusir Höyük in the Tigris Basin (Karul, 2017:46) and Jerf El Ahmar in the Mid-Euphrates Basin in the latest phase of the PPNA. Furthermore, in the later period, the presence of independent structures parallel to each other with a long rectangular plan (mezzanines) is a known fact (Wikipedia, Nevalı Çöri, 02.02.2020).

Standardized rectangular house plan are common in Aşıklı Höyük, Canhasan III, Musular, Aceramic Hacılar, Suberde, Cafer Höyük and Çatalhöyük in the Central Anatolia Region

from the seventh millennium onwards (Fuensanta and Martin, 2018:52; Mellaart, 1975:96–98; Mellaart, 2003). This is exercised through the construction of buildings attached to existing buildings, and then the reconstruction of these buildings on the same spot (Hodder, 2003, 2006, 2016b) or rebuilding earlier structures (Wikipedia Aşıklı Höyük, 02.02.2020). Rectangular buildings are a consequence of a more advanced knowledge and skills of engineering.

The world's earliest agricultural proto-civilization Çatalhöyük, dating from the PPNB (east mound dating from 7400 BC) in the Central Anatolia is distinctive from other sites with the amount of art it contains (Hodder, 2016a:936). The site also proves the evolution of social organization and cultural practices in a sedentary life. Access to houses is from the roof and there are no streets, lanes or alleys (Mellaart, 1975:100). When the plan of Aşıklı Höyük (starting from 8200 BC) is analysed, a part of the settlement layout of the PPN age settlement having clustered neighborhoods presents the trace of an apsidal macroform the inside of which has traces of a grill plan formed by streets or building walls.

The tradition of strings of buildings in regular rows and settlements made up of these rows which is seen both at Çayönü (7200–7100 BC) (Hodder, 2017) and at Nevalı Çöri has been found to have persisted in the more advanced stages of the Neolithic Age Southeast Anatolian settlements such as Mezraa Teleilat Höyük [Karul (2017:48) citing Hauptmann, 2011: Fig. 6, Erim-Özdoğan, 2011a: Fig. 36, Özdoğan, 2011c) and Özdoğan (2013c)]. Buildings with corners may be considered to have a complementary relationship with the arrangement of lots of land in rows. This may also have a circulation, husbandry and storage purpose rather than an architectural one. For this reason, at this stage, it does not seem appropriate to make any final evaluation in the absence of more excavation works, measurements on the site and comparative analyses with excavation results.

The settlement area has its own surrounding territory upon which it depends for its continuity. The Plaque layout is projected on a formation to which agricultural lots have been added from the topmost point right down to the river below. As in the case of the settlement itself, the agricultural areas have a proportional pattern.

The existence of a grill plan may be related to the social stratification of space and society. According to Kuijt (2000:98), societies of this period could not create new leadership positions and speaks of the social sharing of social power (antiquated systems of shared social power). Karul (2017:3) notes that there is no stratified social structure in the Neolithic way of life. Biskupin, a late European Bronze Age settlement with a similar settlement layout and long house tradition, indicates no clues for social stratification (Wikipedia, Biskupin, 2020).

In a similar vein, Riehl et al. (2013) state that domestication of animals was the result of a process of cooperation. Decisions on how to arrange the agricultural lands could also be taken within a common understanding and by means of cooperation. Sacred structures such as those at the Göbeklitepe area are also known to have been constructed as a result of cooperation (Schmidt, 2002, 2007a and 2007b). However, it should be emphasized that the presence of a collaboration culture does not mean that there was no hierarchy or social stratification in that community. There is also no stratification reflected onto the spatial organization.

The opposite vein supporters like Özdoğan (1999) speaks about a stratified society with reference to craftsmenship. Güngördü (2015) states that the Neolithic way of life is a structured system in the Cappadocia region. Mellaart (1975) notes social strata for Çatalhöyük located in the Central Anatolia Region on the basis of rich burials. For Erdem (2006), from the middle of the PPNA onwards, some indications of emerging social stratification can be observed in Çayönü settlement pattern.

A comprehensive evaluation of the relationship between the Plaque C Neolithic settlement's land arrangement and social stratification alongside the periodical settlement findings is needed. Even if there was not any social stratification in the period when the Plaque C was produced, which is already under debate, it is meaningful in our opinion to talk about for the same settlement changing people-land, resource and product relations due to accelerating agricultural production and trade and changing settlement and land layout and property rights relative to the climate changes or leading to a stratification of settlements in a regional level as a result of one of these reasons. Additionally, even if there was no social stratification, there is no sufficient information to claim that every lot of land was allocated to the same land use or same person or family. Nevertheless, this issue is also a content of another article.

Although the lots of land shown on the Plaque differ in size, based on the fact that they have similar lengths, widths and areas, and that the same measurements are used repeatedly, there should be factors at that point to a measured and egalitarian settlement system. This may be the representation of allocation according to the number of family members. However, nothing is known about the way lots were distributed among or used by the residents of the settlement. However, the motifs on the Plaque C do not provide any information related to the state of the property rights of individuals or families with regard either to the settlement area or to the agricultural lands.

The current usage of the first half semicircular lot of land situated at the hilltop reference point of the settlement, and the structure of the land in question, as observed during the field studies, suggest that, at the time when the Plaques were made, the area was likely to have been used for purposes of

Figure 24. The Courtyard from the north to the south (Photographed and interpreted by the Authors, 2018). The arrow to the left indicates the hilltop and the first street. The arrow to the right (west) points to a landfill made after 1975, creating an artificial elevation on the southwest side. The white line is the contour line from which the macroform street begins. The star symbol points to where the macroform of the Plaque settlement begins and is shown in Figure 9b.

social cohesion, as indeed is the case today (Fig. 24). As this space including the Plaque street, corresponding to the first grill strip, is a strategic point having a control over the passage, might have also been used as a watch point. This is a sign of the existence and variability of different uses of land and suggests that not all of the Plaque C layout lots were used for housing, but that space was also determined by social needs.

4.4. Settlement Size and Dimensions

City size is a key dimension for urban analysis (Lawrence et al, 2016). For this reason, the settlement layout shown on the Plaque C was examined relative to the size of the settlement, its measurements and the use of the land. The settlement area shown on the Plaque C layout extends an average of 98 meters from East to West and 47 meters from North to South.

Kuijt (2000:80) stresses that, while the settlements of the Mesolithic period covered an area of about 2000 square meters, those of the PPN Age were about 10000 square meters. The Plaque C shows a residential area of about 4600 square meters (14 lots). The Plaques are broken and there is no fully reconstituted Plaque available for the analysis of the settlement area. Therefore; it is impossible to draw reliable conclusions not only about the exact borders or form of the settlement, but also about the settlement area, the size of the population and demographic structure of the settlement.

With the hypothetical macroform that will be established by completing the missing pieces of the Plaque (Fig. 22) based on the references from the cadastral plans and the field, the size of the settlement area can be put at about 6,800 square meters. For Fuensanta and Martin (2018:52), big sites during the PPNA range from 5 hectares (ha) (Jericho) to 9 ha (Göbeklitepe). Çayönü has a flat and oval shaped mound (160x350 meters) with a 3 ha settlement area and (having a hint of an apsidal macroform) Aşıklı höyük is 4.5 ha (Fuensanta and Martin, 2018:53–54).

Frank Hole (2002:195) states that the largest settlements of the PPNB measure 8–12 ha. Hole (2002:195–199) defines the PPN settlement of Bouqras (8,400–7,900BP) as 2.75 ha, with 850 inhabitants, Abu Hureyra (9,600–9,200BP) and Çayönü (8,700–10,300BP) is 2–3 ha. The Early PPNB and mid PPNB Ayanlar Höyük is 14 ha (Çelik, 2018:361). Çatalhöyük is 12.5 ha in size at the height of its occupation (Hodder, 2016a). In the light of the data above, the settlement area on Plaque C is 4–6.8 ha. Roughly speaking, Nizip is a medium-sized settlement with average characteristics during the PPNB Period. Despite its strategic crossroad location and role of control of trade over long distances, the dependence of the settlement on and its relation to farming and hunting areas are direct and intimate.

In order to calculate the population, the Plaques need to be reconstituted and the settlement needs to be compared with studies of other settlements of the period (as made by Kuijt, 2000 citing Kramer, 1982 and Watson, 1979). It is possible that different areas may be allocated to the same family for the production of different types of crop. Determining the size of the agricultural lot according to the family size could be another necessity.

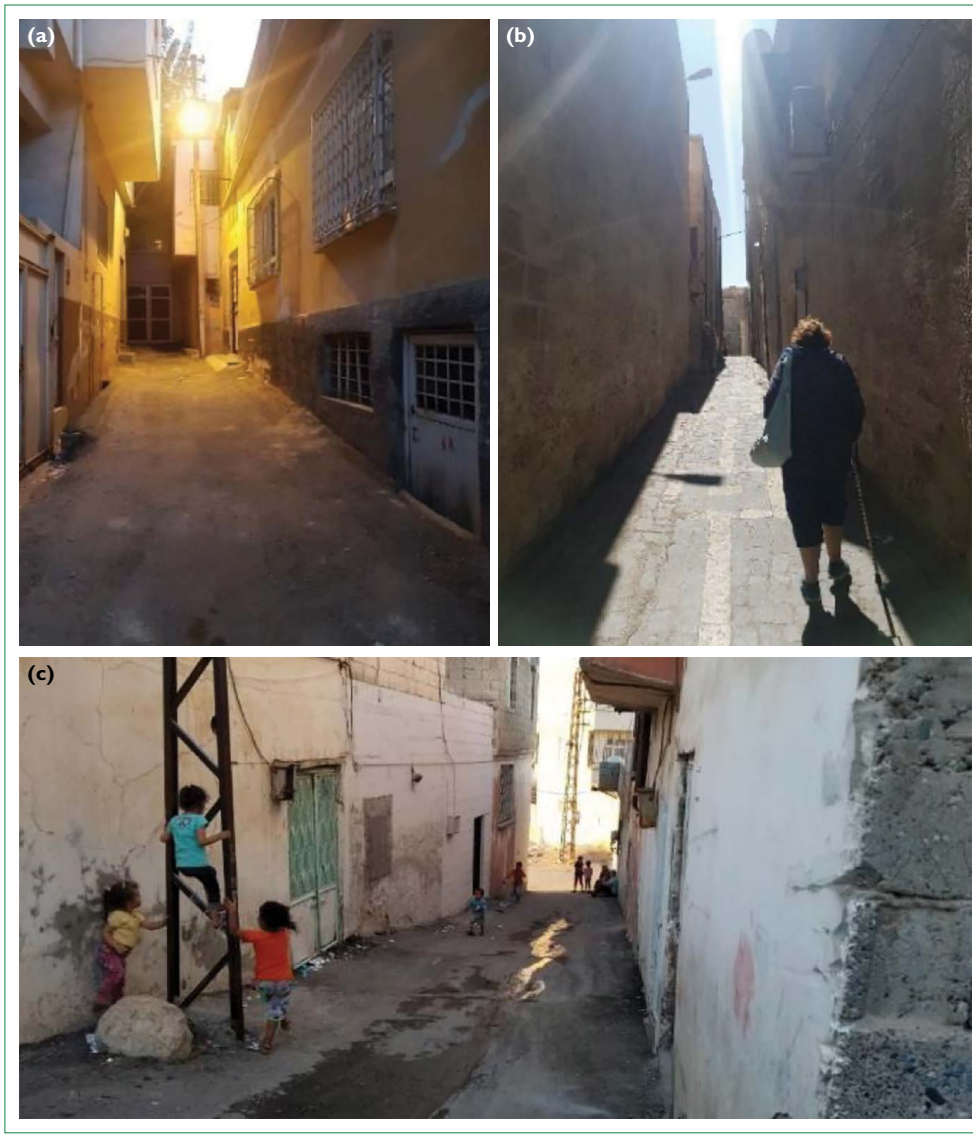

Figure 25. Street widths of the Plaque C area and Şanlıurfa (Photographed by the authors, 2018). **(a)** A street of the Plaque layout [An Unnamed Cul-de-sac to the east of Tepe Sokak (Hill Street)]. **(b)** Street width from the historical urban texture of Şanlıurfa (1344th Street). **(c)** Tepe Sokak (Hill Street heading North).

4.5. Street Layout

Each strip of the layout is separated from the next by a double line with a certain width. This corresponds with the street system of today when superimposed. The regular design feature is interpreted as 'the street'. The widths of the settlement streets shown on the Plaque C layout are generally 1, 2, 3 or 4 milimeters. The layout does not include any main axis. However, there is a hierarchy of dimension among the streets. Plaque main roads leading to other settlements (of today) are larger in size.

The streets of the Plaque settlement area are either 1 milimeters or 2 milimeters (Fig. 25). As the sizes of features shown on the Plaque closely correspond to the layout, it can be assumed that the streets of the settlement area are one or two-meters wide. This dimension is a traditional street measure in the region. It allows one to carry a load or a person with a pack animal. 1.60 meters is the horizontal dimension of a fully loaded, mature beast of burden (Hakim, 1986:21). This width also enables the inhabitants to defend the area easily. This width and the direction of the streets are also thought to have been selected for adjustment to the climate and ventilation.

Some of the paths indicated in the drawings on the Plaque C were found to have disappeared today due to the way the settlement pattern has developed. Some others shown on the Plaque have transformed into lot lines, the front lines of buildings or lines created by adjacent architectural buildings.

Figure 26. The Plaque C streets today (Photographed by the authors, 2018). **(a)** Tepe Sokak (Hill Street from the hilltop), **(b)** Pazar Sokak (Market Street – the northern horizontal macroform street of the Plaque C), **(c)** Çay Sokak (Spring Street- South horizontal macroform street of the Plaque C), **(d)** Hamam Sokak (Bath Street from north to south vista).

The others have conformity with the existing pattern. Today, a certain section of the property lines, 28 meters in length, gives the same street line (Tepe Sokak) measurement as the first agricultural area street on the Plaque (2.8 centimeters) (Fig. 26). The first Plaque settlement area street is the Tepe Sokak of today (See; Fig. 24).

The main entrance to the settlement shown on the Plaque is from the river or Çay Sokak (Spring Street) side. As the Plaque C is broken, the rationales of other possible entrances are hard to evaluate. The entrances are designed for the settler's easy reach to their agricultural lots, the Nizip Brook, and the (dried) spring (Çay Sokak). Today's Hamam Sokak (Bath Street) corresponds to the eighth and ninth streets of the Plaque settlement. The seventh street of the PPN settlement corresponds to the second main entrance from the South.

5. Conclusive Remarks

In this article, findings of the spatial dimension of the Plaque C (the Nizip Plaque) found at the Akarçay Tepe Mound on the foundation of the disciplines of urban planning and urban archaeology were presented. The Plaque features constitute systematic and dynamic spatial findings and make it possible to assess an archaeological artefact in the context of the city, urban life and urban theory.

There are other Plaque samples having similar drawings of the Plaque C and similar production technique. However, with this study, for the first time, the possibility of a spatial meaning, continuity and its recording have been confirmed with drawing on a Plaque belonging to the Neolithic Age. Design principles embodied in the Plaque could be listed as geographical references, topography, property lines, housing, agricultural production areas, wells and access.

As a result of superimposing the Plaque C layout with the existing cadastral pattern and road network, it was determined that the drawings on the Plaque provided traces of the land arrangement of the area known today as Nizip Old City a part of which is an archeological protection site. The Plaque C layout and its superimposition onto todays plans and maps have demonstrated that topography of a settlement and its paths and property lines may match a design which dates back to the PPN Age. For this reason, the Plaque C and other Plaques may be termed as what Hodder (2017) has stated as 'deliberate human enhancement' with reference to the tangled relations at the time they were produced.

The Plaque is a representation of simple irrigation agriculture, road systematic, settlement pattern, and trade control in a strategic geographical location. People have settled (in the riverine settlement of Nizip since the beginnings of the Pre-Pottery Neolithic Age. The settlement is located on one of the passages leading from the Euphrates Basin to other basins. Nizip is in a region with a concentration of Paleolithic settlements. Therefore; the finding of a PPN Age human settlement must not be unexpected.

In addition to typologies of architectural structures, burial techniques and good botanic databases (Kuijt and Finlayson, 2009:10969), the Akarçay Tepe Plaque C provides various clues and information about the spatial characteristics and location of the PPN Age human settlements in the Southeastern Anatolia Region. It describes the first typology-morphology of human settlements.

This topographically sensitive middle-sized early-sedentary settlement has a macroform, a grill plan of housing, grid plan of agricultural areas and water resources. The Plaque C settlement has streets being marked out and plots of land being allocated to different families or groups en masse for farming and housing. The

Plaque produced for this purpose is directly the proof of creation of a modified landscape (Hodder, 2017) through transformation from nature to land and lot and land use differentiation.

The Plaque C provides us with evidence of another kind: The design of the Plaque and the principles in question show strong similarities with the settlements represented on other artisanal Plaques. These Plaques produced by a measurement system unknown for today were stored in one place: Akarçay Tepe. It thus appears that there were differences of status among the settlements even in the PPN Age, and that this situation has prevailed ever since then. We can speak about a settlement scale. The Nizip settlement community obeys a settlement pattern and layout, and conforms to the urban design principles secured via Plaques gathered in Akarçay Tepe. This implies the importance of Akarçay Tepe as the centre of a regional unity of many small agrarian communities and village-like settlements. In other words, the presence of a middle sized PPN settlement- Nizip Old City -confirms the existence of a civilisation in southeastern Turkey in the PPN Age. In our view, the Nizip region needs to be examined in its own right with its relation to Akarçay Tepe and other period settlements with reference to geographical and urbanisation characteristics.

At this point, the production purpose of the Plaque gains importance. It is clear that there was a social need for the plaque to be produced. The existence of similar plaques imply that these are integrated with exchange relations and notions of property rights. Schubert (2019) claims that land organization systematic contains normative elements and seeks to control spatial development with social implications in order to set an order and to prevent chaos. This statement makes us think that the Plaque C was produced for the purpose of a solution to the problems that were the source of the need– the property rights. One of the main problem areas of today in this region is land ownership and its transfer.

The correspondence of the Plaque to a part of the city indicates that the solution to problems related to land and settlement required human dependence on Plaques, settlement dependence on plaques and human dependence on settlement layout. The grid and grill plan is functional and it makes it easier for the land order, land regime and settlement order to create, operate and sustain or humans to settle in an organized manner. This sort of plans also allows easy sharing, access and allocation of the land.

Fuensanta and Martin (2018) emphasize the growing individual ownership in the agricultural world of the PPNB period, which is the later period. Divisions of property are an indicator of a transition to a stratified society. However, at this point, there is no reliable data to allow us to make an assessment on the presence of a social stratification or property rights.

There is also no sufficient information on definition of the Plaque C as a plan. In other words, while it is clear that the Plaque layout is an arrangement of the period's settlement pattern, agricultural areas and roads, the timing of its purpose of production is open to discussion. It is possible to produce the Plaque after drawing lines on the land or to establish lines on the land compatible with the Plaque layout after it is being produced. As the community that produced the Plaque did not have the map-making technique we have today, it can be stated that they have created the Plaque in the form of a land model (or can be named as a 3D cadastral model).

Despite the aforementioned uncertainty, the Plaque C layout should be emphasized in terms of the objective of space formation. The divisions of land defined by the Plaque layout refer to the emergence of private property and private communal property and shaping of public spaces. The Plaque C, which is a spatial expression and an effort to visualize land arrangement, is the collective memory of its period.

The spatial dimensions of archaeological artefacts must also be studied by the disciplines of urban planning and urban archaeology as any artefact may provide inputs for spatial planning and relations of entanglement of the related period. For this reason, the Plaque C must be treated as a record generating new information. It may than contribute to "archaeology of urban life" as stressed by Bilgin (1996). In other words, on the basis of the spatial dimensions of the Plaque C from the urban planning point of view, urban archaeology must not only be needed in order to rescue excavations to have more and rapid information on the archaeological resources prior to any new development operation as Belge (2005) noted. Urban archaeology should be more than urban conservation, archaeological advice before planning or works and excavations to rescue archaeological possessions and heritage.

The Plaque C provides information about Nizip's past and adds to some little-known aspects to the history of this settlement and the region. As the Plaque contributes to our understanding of the 'historical timeline' (Alpan, 2005) of Nizip Old City, it is important for these and similar archeological findings to be preserved as resources and heritage for sustainable urban development in cities.

The spatial traces of the period of the Plaque C that allow the Plaque layout to superimpose with Nizip Old City are the own resource and heritage of Nizip and the Plaque C. Today, our understanding of preservation is restricted only to buildings and protected site areas and borders. Historical urban patterns (combinations of cadastral pattern, street pattern and architectural buildings) should be accepted as a cultural heritage and a possession. Definitions, principles and necessities regarding preservation should also be reflected on the relevant legislation.

When these inputs are not considered in a process that is shaped by the lack of legislation and inspection, protection borders will not overlap with archeological sites and planning processes will be more difficult and troublous. Shortcomings in area inspection or illegal excavations and housing will also make protection difficult. Historical textures will be disrupted and the traces of the past will be destroyed. The pressures of urbanization have generally destroyed the traces of the Plaque layout in the current settlement pattern or made them difficult to read in Nizip. Many traces of the past determined on the Nizip urban implementation plan of 1984 are no longer visible in the urban conservation plan of 2008. In other words, in the past 35 years, the clues provided by the Plaque C that has been traceable for 10,000 years from the present seem to have been damaged irreversibly.

Urban archaeology is considered as an interdisciplinary field of study that evaluates the material past of and the cultural stratification in cities and helps us understand the historical background of urban life (Belge, 2005). The role of urban planning and urban archaeology must be understood for protecting our common past. However, the critical issue for conservation plans is their role in maintaining a relationship between cultural values, urban patterns and development. Conservation plans should be prepared in a way to protect the historical urban pattern as a heritage and a possession. The sincerity and quality in the administrative approach, methods of conservation plan preparation and inspection of implementation must be reconstructed. Otherwise, the conservation plan approach just like in Turkey will continue to be superficial. Moreover, any study of an artefacts such as the Akarçay Tepe Plaque C by the discipline of city planning will be the reward Powell (1962) has mentioned.

At this stage, several questions come into mind: How will the traces of the past in our settlements be determined and, protected? And, by whom this must be realized in order to preserve the past of the city and pass these on to future generations?

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