13.0 ARCHAEOLOGY AND CULTURAL HERITAGE

13.1 Introduction

13.1.1 Background

This scoping study aims to provide an overall review of the archaeological assets on the North Marmara Motorway (including the 3rd Bridge over Bosphorus) Project route and proposed construction sites (Figure 13-1). The study was conducted pursuant to both legal requirements of the Republic of Turkey and the “Performance Standards of Social and Environmental Sustainability” of the International Finance Corporation (IFC) / World Bank Group (WBG). All studies are based on visual observations and literature review and do not cover marine archaeological sites and unknown or intangible cultural heritage. This archaeology section was prepared by REGIO Consultancy and Training Inc.

The study area extends covers the 3rd Bridge over the Bosphorus and Northern Marmara Motorway Project as shown in Figure 13-1. The project area is located at Northern side of Istanbul in a densely forest highland area starting from Mahmutbey on the European side and extends to Reşadiye in Asia. For the purposes of this study, the baseline survey area is defined along the route in a 200 m wide corridor.

Figure 13-1 North Marmara Motorway (including the 3rd Bridge over the Bosphorus) Project Route.

13.1.2 Study Limitations

The Northern Marmara Motorway mainly runs through the forestland known as Belgrad, Alemdag, Tasdelen, and Sultanciftligi Taslitepe Forests as shown in Figure 13-2. The area covered by the Istanbul province is very suitable for forest formations due its geographical, topographical and, climate characteristics and the soil type. In places where the project route does not crossing a forested areas, it
goes through areas heavily covered by shrubs (Figure 13.3). Because of the vegetation, it was not possible to conduct an intensive survey for observation of archaeological materials on the surface and identifying potential archaeological sites and their possible areas of expansion.

Figure 13-2 Forest and woodland areas on the route

Figure 13-3 Shrub Areas
In addition to forestland and shrubby zones, informal urbanisation due to fast population growth in Istanbul and the presence of a vast military zone negatively affected the scope of the study (Figure 13-4).

**Figure 13-4 Irregular Urbanization and Military Zones**

### 13.2 Project Scope

The project route, located in Istanbul’s outer northern metropolitan area, will pass through three main residential areas which are Başakşehir, Ümraniye, and Sultanbeyli. It will also cross fifteen villages; İşiklar, Odayeri, Gümüşdere, Uskumruköy, Demirci, Garipçe, Poyraz, Kaynarca, Alibahadır, Paşamandıra, Öğümce, Ishaklı, Reşadiye, Alemdağ, Paşaköy.

The project area has been zoned into four sub sections in order to facilitate design, planning and assessment of the corridor. Sections 1 and 2 of the project are located at the European side while the rest is in Asia. The sections are:

- **Section 1 - Mahmut Bey - Odayeri;** Relatively high population in Mahmutbey - Başakşehir region and dense forest area between Başakşehir and Odayeri.
- **Section 2 - Odayeri - Bridge;** Densely forests, the only residential area is Uskumruköy.
- **Section 3 - Bridge - Paşaköy;** Densely forests with a small residential population on semi-rural land.
- **Section 4 - Çamlık - Reşadiye;** Relatively high population in Alemdağ and urban forests.

### 13.3 Methods

This chapter starts with a reference to local and international standards and best practices followed during the studies. It then describes the methodology used and presents the findings of the desktop study and the field survey.

#### 13.3.1 Legal Regulations and Standards

In Turkey, movable and immovable cultural and natural assets are protected and should be conserved following the Law on Conservation of Cultural and Natural Assets numbered 2863, published in the Official Gazette numbered 18113 and dated July 23rd, 1983. According to this law, essential assets which are identified as cultural and natural heritage requiring legal protection are identified as follows:

- Natural and immovable assets dated from the 19th century and before;
- Any immovable cultural asset constructed after the end of 19th century but categorized as “an important asset which requires preservation” by the Ministry of Culture and Tourism;
• Immovable cultural assets located within identified Protection Sites. In the legislation, Protection Sites are defined as ancient sites and city ruins which reflect the main social, economic or architectural characteristics of their era. Protection Sites can also be locations where fundamental historical events took place or areas containing considerable natural or cultural assets having natural or cultural features requiring preservation;
• Structures, buildings or places that have witnessed significant historical events during the Turkish Independence War or the foundation of the Turkish Republic, regardless of time and registration; and
• All dwellings and buildings that have been used by Mustafa Kemal ATATURK without considering their time of construction or registration.

Within the scope of this law, the Ministry of Culture and Tourism is responsible to take decisions at the national level and to provide necessary legal actions in order to protect cultural and natural assets listed above. The Ministry also has power to make decisions regarding the use of land and project areas which have the potential to affect cultural or natural heritage. Generally, the implementation of the decisions and regulation determined by the Ministry are maintained by the local administrations. At the local level, Regional Boards for Conservation of Cultural and Natural Assets are responsible for registering and classifying the sites related to cultural and natural heritage, to inspect and make decisions about their use and to manage these sites located within their regional boundaries.

According to the Law on Conservation of Cultural and Natural Assets numbered 2863, all the natural and cultural assets bearing the conditions requiring legal preservation are the property of the State. Therefore, regional boards have the power and the authority to provide necessary and legal measures for the conservation of sites and to approve or reject all activities such as construction, destruction, cut or excavation which are a potential threat to these sites located within their area of responsibility. In the current case, the Istanbul Regional Boards for Conservation of Cultural and Natural Assets are the only responsible bodies for taking decisions about the Northern Marmara Motorway Project.

In addition to the Law on Preservation of Cultural and Natural Assets, there are several Principle Decisions relevant to the protection and preservation of cultural and natural assets. First of all, the Principle Decision numbered 658 and dated November 5th, 1999 states that all archaeological sites need to be classified and protected according to their significant features. In this respect, three main categories were determined as the 1st, 2nd and 3rd degree for the archaeological as follows:

• 1st Degree Archaeological Sites: Highest Level of protection is needed. All kinds of construction, excavation, modification activities are prohibited within the site. Any project activities need to be approved by the Museum Administration and by the head of the excavation.
• 2nd Degree Archaeological Sites: Moderate level of protection is needed. All construction or excavation activities have to be approved by the Conservation Boards. Working standards regarding the basic maintenance on existing structures will be set by the Conservation Boards.
• 3rd Degree Archaeological sites: Low level of protection is needed. For construction activities, working standards will be determined based on the site features and the final decision will be taken by the Conversation Board. All necessary mitigation measures to protect the sites should be taken into consideration.

In addition to the above mentioned regulations, the following guidelines were taken into account during the study:
• International Finance Corporation-IFC, Performance Standard 8
• Department for Transport UK, Design Manual For Roads and Bridges Part 2 HA 208/07 Cultural Heritage
13.3.2 Methods used in the Archaeological Studies

The Archaeological Study conducted for the Motorway Project is composed of three phases.

a) Pre-Field Work Study (Desktop Study)

The archaeological publications on the area of interest were reviewed. Consequently, an academic background on the archaeological potential of the field was established. By establishing contacts with local museums and regional conservation boards, the list of formerly recorded areas of cultural assets were collected. In addition, previous reports on archaeological sites in the region were compiled and finally all known archaeological sites were located on the map. Desktop studies were completed before starting the archaeological field survey. Resources used during the desktop studies were:

- Academic Publications
- Historical maps
- Reports on previous Cultural Heritage Works and Field Survey Results
- Inventory Archives of the Ministry of Culture and Tourism.

b) Field Walking

Field walking was conducted on limited sections of the Northern Marmara Motorway route since the majority of the route is on forestland, shrubby areas or inhabited zones, where access was limited. A corridor of 200 m was surveyed. The field walking was conducted by two senior archaeologists having in-depth knowledge and experience on cultural heritage management in infrastructure construction projects. During the field walking, by taking into account the geological and archaeological characteristics of the region, visible archaeological traces on the surface (ceramic pieces, architectural remains and/or traces, tombs and/or their traces, mounds, tumuli, etc.) were observed, recorded and evaluated. The sections of the motorway studied by field walking is given in Table 13-1 below.

Table 13-1. Sections on the project route where field walking was conducted

<table>
<thead>
<tr>
<th>Sections</th>
<th>From</th>
<th>To</th>
<th>Field Walking Area (from kp. to kp.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Section 1</td>
<td>Mahmutbey</td>
<td>Odayeri</td>
<td>0+000-9+000</td>
</tr>
<tr>
<td>Section 2</td>
<td>Ihsaniye</td>
<td>Bridge</td>
<td>66+500-68+100, 78+000-78+500</td>
</tr>
<tr>
<td>Section 3</td>
<td>Bridge</td>
<td>Paşaköy</td>
<td>105+000-105+500, 107+000-107+500</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>103+000-103+200, 98+500-99+000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>96+000-96+500</td>
</tr>
<tr>
<td>Section 4</td>
<td>Reşadiye</td>
<td>Çamlık, Ümraniye</td>
<td>117+300-130+435</td>
</tr>
</tbody>
</table>

Total surveyed km. by “field walking” 26,430 km.

c) Extensive Survey

A great part of the survey completed towards the identification of the archaeological and tangible cultural heritage sites, was carried out by extensive survey and spot checks along the project route encompassing the 200 m wide impact zone. Extensive Survey method is used where field walking was not possible due to obstacles like flood plains, private properties, agricultural lands, thickets and bushes and forested areas. In order to inspect the presence of archaeological assets, the perimeter of these areas was surveyed to observe geographical indications and to determine the possibility of archaeological assets that might be visible on the surface. Desktop study data were taken into consideration during the extensive survey and spot checks along the project route.

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Subject to restrictions imposed by the above mentioned conditions, the kilometre points of the section evaluated by using extensive survey method and spot checks are given in Table 13-2 below:

Table 13-2. Sections on the project route evaluated by extensive survey

<table>
<thead>
<tr>
<th>Sections</th>
<th>From</th>
<th>To</th>
<th>Extensive Survey Area (from kp. to kp.)</th>
<th>Spot Check Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Section 1</td>
<td>Mahmutbey</td>
<td>Odayeri</td>
<td>9+500-11+900</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>14+500-14+000</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>15+000-16+427</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>17+817-18+000</td>
<td>12+500</td>
</tr>
<tr>
<td>Section 2</td>
<td>İhsaniye</td>
<td>Bridge</td>
<td>83+800-84+500</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>74+000</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>74+700</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>75+500</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>77+360</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>79+000</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>84+800</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>85+650</td>
<td></td>
</tr>
<tr>
<td>Section 3</td>
<td>Bridge</td>
<td>Paşaköy</td>
<td>96+000-96+500</td>
<td>88+800</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>98+500-99+000</td>
<td>89+000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>103+000-103+200</td>
<td>90+100</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>107+000-107+500</td>
<td>91+650</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>105+000-105+500</td>
<td>93+600</td>
</tr>
<tr>
<td>Section 4</td>
<td>Reşadiye</td>
<td>Çamlık, Ümraniye</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**d) Prediction Model for Archaeological Potential**

The results have been used to inform the assessment of the potential impacts of the project on, as yet, unknown archaeology and to inform the development of mitigation plans for the Project. Therefore Annex I, describes a predictive model to assess the potential for discovery of archaeological findings during construction along the project route.

A comprehensive archaeological survey has not been carried out in this stage due to time constraints and physical and geographical limitations such as vast forestland on the project route and its impact zones. The model has therefore been developed as a defensible basis on which to prioritize future investigations and effort.

The model was developed using ESRI ArcGIS software for evaluating the project corridor and its impact area. Five parameters were taken into consideration during the modelling. These considered were: hydrology or proximity to water sources, slope of land, land classification (forest area, grassland, irrigated area etc.), proximity to ancient/rural roads and proximity to mountain bases. Each parameter were divided several sub-categories of information each with associated weighted values.

Positive weighted values have a positive influence on the assessment of potential while negative weighted values have a negative influence. For example, within the land classification, “forest area” category has an assigned value of −2, fruit grove areas have an assigned value of +2. The model assumes that modern environmental conditions are similar to ancient conditions.

After the description of parameters and sub-categories, the parameters (and associated sub-categories) were set to overlay one another. Where sub-categories from different parameters overlapped, the positive or negative weighted values were then summed together. In areas where many positive sub-categories overlapped, a very high-summed value was created. In areas where many negative sub-categories overlapped, a low-summed value was created.
In this model, the higher the summed value the more archaeological potential an area is considered to have; and the lower the summed value, the lower the archaeological potential. The predictive parameters, their sub-category and predictive weights corresponding to critical values are given in Table 13-3.

Table 13-3. Predictive parameters and the weights as used in the modelling study.

<table>
<thead>
<tr>
<th>Predictive Parameters</th>
<th>Predictive Sub-category</th>
<th>Critical Value</th>
<th>Predictive Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrology/ Proximity to Water</td>
<td>Stream Order 1</td>
<td>750 m</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Stream Order 2</td>
<td>1000 m</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Stream Order 3</td>
<td>1000 m</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Stream Order 4</td>
<td>1000 m</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Stream Order 5</td>
<td>1500 m</td>
<td>-1</td>
</tr>
<tr>
<td></td>
<td>Stream Order 6</td>
<td>1750 m</td>
<td>-2</td>
</tr>
<tr>
<td></td>
<td>Lake/Sea Order 7</td>
<td>2 km</td>
<td>3</td>
</tr>
<tr>
<td>Slope</td>
<td>Slope</td>
<td>0-10°</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10-90°</td>
<td>-5</td>
</tr>
<tr>
<td>Land Classification</td>
<td>Patch Agriculture</td>
<td>Yes</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Olive Grove</td>
<td>Yes</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Arable Non-Irrigated</td>
<td>Yes</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Arable Irrigated</td>
<td>Yes</td>
<td>-2</td>
</tr>
<tr>
<td></td>
<td>Forest Area</td>
<td>Yes</td>
<td>-2</td>
</tr>
<tr>
<td></td>
<td>Grasslands</td>
<td>Yes</td>
<td>-2</td>
</tr>
<tr>
<td></td>
<td>Barren Land</td>
<td>Yes</td>
<td>-2</td>
</tr>
<tr>
<td></td>
<td>Wetlands or Water</td>
<td>Yes</td>
<td>-4</td>
</tr>
<tr>
<td></td>
<td>Industry/Built Area</td>
<td>Yes</td>
<td>-4</td>
</tr>
<tr>
<td></td>
<td>City Area</td>
<td>Yes</td>
<td>-4</td>
</tr>
<tr>
<td></td>
<td>Proximity to wetlands</td>
<td>1 km</td>
<td>2</td>
</tr>
<tr>
<td>Proximity to Rural/Ancient Roads</td>
<td>Proximity to rural and or ancient roads</td>
<td>1 km</td>
<td>2</td>
</tr>
<tr>
<td>Proximity to Mountain Base</td>
<td>Proximity to mountain base</td>
<td>2 km</td>
<td>2</td>
</tr>
</tbody>
</table>

13.4 Baseline Conditions

13.4.1 Historical Background of Istanbul

Istanbul is the largest city in Turkey, constituting the country's economic, cultural, and historical centre. With a population of approximately 13.6 million, the city forms one of the largest urban agglomerations in Europe and is among the largest cities in the world by population within city limits. Istanbul's vast area of 5,343 square kilometers (2,063 sq mi) is coterminous with Istanbul Province, of which the city is the administrative capital. Istanbul is a transcontinental city, straddling the Bosphorus - one of the world's busiest waterways - in northwestern Turkey, between the Sea of Marmara and the Black Sea to the north. Its commercial and historical centre lies in Europe, while a third of its population lives in Asia.

From the prehistoric period to ancient Byzantium (Byzantium)

The history of Istanbul goes back to 30,000 years ago. The first traces of human culture were discovered in the excavations carried out in Yarimbaz Cave on the banks of Kucukcekmece Lake. It is thought that Neolithic and Chalcolithic people had been living around the region. In the excavations made in various
periods, some instruments belonging to the Epi-paleolithic period were found within reach of Dudullu and a few instruments and materials belonging to the Middle and Upper Paleolithic Period have been found near Ağacı. It is estimated that starting from 5,000 B.C a concentrated settlement activity started in Çatalca, Dudullu, Ümraniye, Pendik, Davutpaşa, Kilyos and Ambarlı, led by Kadıköy Fikirtepe. One of the earliest known settlement dates to 6,700 BC, discovered in 2008, during the construction works of the Yenikapı subway station and the Marmaray tunnel at the historic peninsula on the European side.

Cape Moda in Chalcedon was the first location which the Greek settlers from Megara chose to colonize in 685 BC prior to colonizing Byzantium on the European side of the Bosphorus under the direction of King Byzas in 667 BC. Byzantium was established on the site of an ancient port settlement named Lygos, founded by Thracian tribes between the 13th and 11th centuries BC, along with the neighbouring Semistra of which Plinius had mentioned in his historical accounts. Only a few walls and substructures belonging to Lygos have survived to date, near the Seraglio Point (Turkish: Sarayburnu), where the famous Topkapı Palace now stands. During the period of Byzantium, the Acropolis used to stand where the Topkapı Palace stands today.

After siding with Pescennius Niger against the victorious Septimius Severus the city was besieged by Rome and suffered extensive damage in AD 196. Byzantium (the latinised form of the original Byzantion) was rebuilt by the Roman Emperor Septimius Severus and quickly regained its previous prosperity, being temporarily renamed Augusta Antonina by the emperor, in honour of his son.

**Late Roman period and the Eastern Roman (Byzantine) Empire**

The location of Byzantium attracted Constantine the Great in 324 after a prophetic dream was said to have identified the location of the city; but the true reason behind this prophecy was probably Constantine’s final victory over Liciniius at the Battle of Chrysopolis (Üsküdar) on the Bosphorus, on September 18, 324, which ended the civil war between the Roman Co-Emperors, and brought an end to the final vestiges of the Tetrarchy system, during which Nicomedia (present-day İzmit, 100 km east of Istanbul) was the most senior Roman capital city. Byzantium (now renamed as Nova Roma which eventually became Constantinopolis, i.e. The City of Constantine) was officially proclaimed the new capital of the Roman Empire in 330.

Following the death of Theodosius I in 395 and the permanent partition of the Roman Empire between his two sons, Constantinople became the capital of the Eastern Roman Empire. The combination of imperialism and location would play an important role as the crossing point between two continents (Europe and Asia), and later as a magnet for Africa and others as well, in terms of commerce, culture, diplomacy, and strategy. It was the centre of the Greek world and for most of the Byzantine period, the largest city in Europe.

Constantine’s conversion to Christianity in 312, had set the Roman Empire on the path to Christianization, and in 381, during the reign of Theodosius I, the official state religion of the Roman Empire became Christianity, which turned Constantinople into a thriving religious centre. After the end of his reign in 337, Constantine declared his three sons as joint heirs of the Roman Empire in a system of co-emperorship. Unfortunately, the sons couldn’t govern together peacefully and their war-ravaged rivalry split the empire on the north-south line along the Balkan Peninsula. The territory was officially split in 395 when Theodosius I (ruled, 379-395) died leaving his son Arcadius emperor of the eastern half of the empire and his other son Honorius emperor of the western half.

Throughout the fifth century, the western half of the Roman Empire lost most of its power through decline in political, economic and social situations, the last western emperor being deposed by Germanic mercenaries in AD 476. The eastern half, however, was flourishing. According to historians this flourishing Eastern Roman Empire was then classified as the Byzantine Empire to distinguish it from the Roman Empire. This empire was distinctly Greek in culture, and became the centre of Greek Orthodox Christianity.
after an earlier split with Rome, and was adorned with many magnificent churches, including Hagia Sophia, once the world's largest cathedral. The seat of the Patriarch of Constantinople, spiritual leader of the Eastern Orthodox Church, remains.

The most famous Byzantine emperor was Justinian (527-565). During his reign he extended the Byzantine Empire to its largest boundaries spreading from Palestine to the tip of Spain. His other achievements include the famous Hagia Sophia church and the organized law system called the Codex which was completed in 534. Overall, Justinian's reign was the greatest influence of the Byzantine Empire.

Starting in the 600's warfare kept Constantinople's power alternating between decline and progression. Connections with Europe slowly began to weaken between the seventh-eighth centuries when the Byzantine and Roman churches disagreed on various subjects. For example, the distinguishing gap placed between the two churches involved the use of icons in the church. Icons, being images of Christian holy personalities such as Jesus Christ, the Virgin Mary and the saints, to Byzantine Christians were more than representations they were believed to possess holy power that affected people's daily lives. While many Byzantines worshiped icons many others opposed them because they tested the authority of the emperor. Finally in 726, Emperor Leo III (ruled, 717-741) ordered all icons to be destroyed. The destruction of icons reorganized and reoriented the Byzantine rulers in imperial power. The fierce opposition to icons clashed with the pope's tolerance of images. The pope was unwilling to permit sacred images and icons to be destroyed and this caused eventual separation. Their separation caused hatred between the two churches and cooperation between the two was a struggle.
From around the 800s to 1200 Constantinople developed complex relationships with an emerging and later the largest and most advanced state of that time in Europe - Kiev Rus. Constantinople played a significant role in the Kiev Rus development, culture, and politics. Many of the Kiev Princes were married to daughters of the Byzantine Emperors, and because of this connection Eastern Europe became Orthodox, after it was Christianized by Vladimir the Great of Kiev. However these relationships were not always friendly. Constantinople was sacked several times over those 400 years by Kiev Princes, forcing Constantinople to sign increasingly favourable treaties with Kiev, the texts of which were preserved in the Primary Chronicle and other historical documents. However, the Byzantine rulers constantly manipulated Kiev, Poland, Bulgaria, and other European Nations of that time, against each other.

Around 1204 Constantinople began to decline in power. Following the failure of the Third Crusade, the subsequent Crusaders tried to capture the Holy City of Jerusalem in the Fourth Crusade; but this time their plan was to capture the Byzantine Empire as well. In 1204, Constantinople was captured and the treasures were ransacked. The Pope decried the sacking of Constantinople but ordered the crusaders to consolidate their gains in the city for a year. The crusaders chose Baldwin of Flanders to be the new Byzantine Emperor; he along with other princes and the Venetians divided the Empire amongst themselves; they never made it to Jerusalem. This new Latin Empire at Constantinople lasted until 1261, when the Byzantines under the command of Michael VIII Palaeologus recaptured the city and some outlying territory. After this period, Constantinople never regained its former glory. Rather than a thriving metropolis, Constantinople transformed into a collection of villages.

**The Ottoman Empire**

In 1453, Sultan Mehmed II "the Conqueror" entered Constantinople after a 53–day siege during which his cannon had torn a huge hole in the Walls of Theodosius II. Istanbul became the third capital of the Ottoman Empire. Suleiman the Magnificent's reign over the Ottoman Empire from 1520 to 1566 was a period of great artistic and architectural achievements. The famous architect Mimar Sinan designed many mosques and other grand buildings in the city, while Ottoman arts of ceramics and calligraphy also flourished. Many tekkes survive to this day; some in the form of mosques while others have become museums such as the Cerrahi Tekke and the Sünbül Efendi and Ramazan Efendi mosques and shrines in Fatih, the Galata Mevlevihanesi in Beyoğlu, the Yahya Efendi tekke in Beşiktaş, and the Bektaşi Tekke in Kadıköy, which now serves Alevi Muslims as a cemevi.
13.4.2 Archaeological Potential of the Project Area

The literature indicates that many historic aqueducts are located in the forest areas of Istanbul and they are covered by vegetation. A study reveals many architectural structures located in the region (see Figure 13-5).

Throughout the ages, geological formation of the region where Istanbul is located has been transformed into a plateau with smoothed topography. The valleys, plains and areas with gentle slopes are very suitable for settlements and therefore impose risks for the motorway project in terms of encountering archaeological sites during construction.

The areas where the bridge pillars are to be constructed also carry a high potential in terms of historical assets. In the literature, many historical settlements are mentioned to exist in the area but they are yet to be discovered. Figure 13-4 above indicates the location of historical settlements identified by scientists which are located on the both banks of the Bosphorus.

Among those is the Zeus Ourios temple which is supposed to be located on one of the hilltops between Anadolu Kavağı and Poyrazköy. The temple was believed to have assisted sailors by providing favourable winds. Existence of a Kybele temple is also mentioned in the literature. An altar dedicated to Kybele was discovered in excavations at Yenikapi. Historical records indicate the existence of an ancient bridge built by Persian King Dareios I in 512 BC during his fight with Iskits. Its location is believed to be between Anadolu Feneri and Rumeli Feneri. Ancient resources also mention the existence of a religious region dedicated to the God Hermes in the area where Rumeli Hisari is currently located.

A stele with inscriptions dedication to the God of Air which also bears names Zeus Kinbelaios Brontaios was located in Haraçcı village near Eyüp. Discovery of another stele with inscriptions and reliefs dedicated to Zeus in the same location supports the existence of a religious area around Haraçcı village.
In light of the information given above, it is inevitable that historical or archaeological assets in Istanbul which has played a key role in history will be encountered. However, due to informal urbanisation and industrialisation it was not possible to construct an archaeological inventory of the region. The information at hand is restricted with accessible areas and the north of Istanbul province still needs to be studied.

13.5 Potential Impacts

Desktop studies constitute an important part of the study for the identification of potential archaeological and immovable cultural assets that are located within the project route and its impact area. During the desktop studies all known archaeological or immovable cultural assets so far identified within the vicinity of the project route were reviewed. As the result of the studies, 9 archaeological sites on the route and its impact zone or in the vicinity (not more than 15 km form the route axis) were identified in the inventory records of the Ministry of Culture and Tourism or as mentioned in scientific publications. The data collected in desktops studies are given in Appendix II.

Coincidence of the motorway project with extensive forestlands and densely vegetated areas makes it necessary to develop new strategies for mitigation. Due to reasons stated in Section 13.3.2, it is highly likely that architectural structures with historical value will be encountered during the construction activities within the sections located at the European side.

![Image 1](image1.jpg)
![Image 2](image2.jpg)

**Figure 13-7 Architectural structures observed during the field study**

On the Anatolian side, the existence of remains such as Bizansköy has been recorded. These settlements were established at distant locations which can be easily defended rather than on the trade routes and they are fully integrated with natural topography. Therefore, on the Anatolian side, it is also likely that archaeological sites which are not yet registered in the inventory of the Ministry of Culture and Tourism will be uncovered.

The pictures above which were taken during the field study away from the construction area supports the possibility of encountering unexpected historical sites during construction activities.
During the field walkover conducted on the section with total length of 26.430 km due to inconvenient field conditions, three important points were identified. Two of these potential archaeological sites have been identified on the project route and its impact area (Appendix II), and one was located about 1.5 km off the motorway route. The existence of archaeological assets on the forestland and shrub areas was evaluated by conducting extensive surveys and spot checks.

As mentioned above, a great percentage of the area was not suitable for field walking and the scientific documents at hand were not sufficient to make a conclusion. Therefore, “Archaeological Potential Modelling” was used for preliminary assessment of the area in question. The outcome of the modelling study constructed on 5 km blocks is presented in Appendix I.

The model is constructed over 5 km blocks which covers the construction corridor and its impact area and uses the average value of parameters mentioned in Table 13-3 above. In order to verify the outcomes of the model, field walking was conducted on the section between 77-82 km points which was indicated to carry “high potential”. Ceramic tiles belonging to Byzantine period and possible architectural remains were observed in Mandiratepe located in this section (Annex III) which supports the soundness of the model that has been constructed.

All data collected on the field were analysed on a GIS platform and the potential archaeological sites and their interaction with the construction corridor is presented below.
Figure 13-7 Archaeological Potential at Mandıratepe

Site Name: Mandıratepe
Location: Sanyer/Uskumruköy
KP: 78+500

Importance / Sensitivity of Archaeological Assets:

<table>
<thead>
<tr>
<th>Receptor Importance/ Sensitivity</th>
<th>Ranking</th>
<th>Explanations-Examples</th>
</tr>
</thead>
</table>
| Medium                           | C       | • Registered or unregistered assets that may regionally important or contribute to regional research objectives
|                                  |         | • Poor preservation and poor survival of contextual associations |

Ranking of Magnitude of Predicted Impacts on Archaeological Heritage Assets:

<table>
<thead>
<tr>
<th>Receptor Importance/ Sensitivity</th>
<th>Ranking</th>
<th>Explanations-Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minor</td>
<td>3</td>
<td>• Changes to key archaeological materials such that the asset is slightly altered (Guide: 10-30% surviving deposits damaged or destroyed)</td>
</tr>
</tbody>
</table>
Site Name: Garipçe

Location: İstanbul/Kilyos-Garipçe

KP: 87+000

Importance / Sensitivity of Archaeological Assets:

<table>
<thead>
<tr>
<th>Receptor Importance/ Sensitivity</th>
<th>Ranking</th>
<th>Explanations-Examples</th>
</tr>
</thead>
</table>
| Medium                           | C       | • Registered or unregistered assets that may regionally be important or contribute to regional research objectives  
• Poor preservation and poor survival of contextual associations |

Ranking of Magnitude of Predicted Impacts on Archaeological Heritage Assets:

<table>
<thead>
<tr>
<th>Receptor Importance/ Sensitivity</th>
<th>Ranking</th>
<th>Explanations-Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Change</td>
<td>1</td>
<td>No material change to the site or feature</td>
</tr>
</tbody>
</table>
Figure 13-9 Archaeological Potential at Zirvetepı

<table>
<thead>
<tr>
<th>Receptor Importance/ Sensitivity</th>
<th>Ranking</th>
<th>Explanations-Examples</th>
</tr>
</thead>
</table>
| Medium                           | C       | • Registered or unregistered assets that may regionally be important or contribute to regional research objectives  
• Poor preservation and poor survival of contextual associations |

<table>
<thead>
<tr>
<th>Receptor Importance/ Sensitivity</th>
<th>Ranking</th>
<th>Explanations-Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Change</td>
<td>1</td>
<td>No material change to the site or feature</td>
</tr>
</tbody>
</table>
13.6 Mitigation Measures

The mitigation measures to be followed for the minimisation of impact on historical or cultural assets are presented for the two phases of the project.

13.6.1 Pre Construction Period

The protection of immovable cultural assets and their management are under the responsibility of Regional Boards for Conservation of Cultural and Natural Assets. There are 7 Boards responsible for the province of Istanbul (please see, Table 13-4).

Table 13-4. Regional Boards for Conservation of Cultural and Natural Assets in Istanbul and their areas of responsibility.

<table>
<thead>
<tr>
<th>No</th>
<th>Conservation Board</th>
<th>Districts of Responsibility</th>
<th>Related Districts in the Project Impact Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>İstanbul Regional Board for Conservation of Cultural and Natural Assets No I</td>
<td>Gaziosmanpaşa, Silivri, Avcılar, Çatalca, Büyükçekmece</td>
<td>Gaziosmanpaşa</td>
</tr>
<tr>
<td>2</td>
<td>İstanbul Regional Board for Conservation of Cultural and Natural Assets No II</td>
<td>Beyoğlu, Eyüp, Şişli, Kâğıthane</td>
<td>Eyüp</td>
</tr>
<tr>
<td>3</td>
<td>İstanbul Regional Board for Conservation of Cultural and Natural Assets No III</td>
<td>Beşiktaş, Sariyer,</td>
<td>Sariyer</td>
</tr>
<tr>
<td>4</td>
<td>İstanbul Regional Board for Conservation of Cultural and Natural Assets No IV</td>
<td>Eminönü, Fatih, Zeytinburnu</td>
<td>-</td>
</tr>
<tr>
<td>5</td>
<td>İstanbul Regional Board for Conservation of Cultural and Natural Assets No V</td>
<td>Kadiköy, Maltepe, Ümraniye, Çekmeköy, Sancaktepe, Pendik, Kartal, Sultanbeyli, Tuzla, Adalar</td>
<td>Sultanbeyli, Çekmeköy, Sancaktepe, Ümraniye.</td>
</tr>
<tr>
<td>6</td>
<td>İstanbul Regional Board for Conservation of Cultural and Natural Assets No VI</td>
<td>Şile, Beykoz, Uskudar</td>
<td>Beykoz</td>
</tr>
<tr>
<td>7</td>
<td>İstanbul Regional Board for Conservation of Cultural and Natural Assets No VII</td>
<td>Bağcılar, Bahçelievler, Bakırköy, Başakşehir, Bayrampaşa, Esenler, Güngören, Küçükçekmece</td>
<td>Başakşehir</td>
</tr>
</tbody>
</table>

During the preparation phase of the survey it was noticed that the Contractor had contacted Conservation Boards No II, III, IV and VI while it was not possible for them consult other Regional Boards.

**It is absolutely necessary to obtain official opinions of all Regional Boards responsible for the districts where the project route and its impact area cross.**

Additionally, many architectural structures and archaeological immovable assets on the project route and its impact areas might have remained under the earth or be covered by vegetation. Therefore, on the forestlands and shrub areas of the project zone a systematic field surveying should be carried out by experienced archaeological teams after the deforestation phase of the project route.

Depending on the outcomes of the survey, archaeological test trenches or salvage excavations may be necessary for further investigation or for conservation of archaeological assets. On the areas where the
thickness of the earth filling is high, it may be necessary to use archaeo-geophysical methods for identifying potential archaeological remains.

The field survey should cover all of the Construction Impact Area, which should not only be the motorway construction corridor and its surroundings, but also in and around the stone and sand quarries from where filling material will be provided, the areas where access roads will be built or modified etc., which are all defined as the construction impact area. Considering the archaeological potential of the region, the whole of the impact areas should be subject to detailed archaeological survey.

Furthermore, procedures should be developed for Building Archaeological Watching Brief Teams and Training should be delivered to all staff involved in construction activities. These are:

- All procedures describing how to preserve, record, extract, and move finding/s to the relevant museum, in case of encountering an archaeological finding during construction works (chance find) should be prepared by experienced archaeological experts.
- Independent Archaeological Watching Brief Teams that will work in harmony with the construction teams should be mobilized in order to minimize damage of construction works on cultural assets. These teams should definitely monitor all the physical construction works like excavation, cut and fill, earth removal and drilling.
- Before the start of the construction works, all construction teams should be trained about archaeological potential of the project and the surrounding area, obligations on preservation of cultural assets, and procedures to follow in case of encountering any objects.

13.6.2 During Construction

Archaeological Watching Brief Teams mobilized before the construction phase should monitor the works on a daily basis, by accompanying the construction machinery. Daily monitoring results should be reported on a template created specifically for the project and these reports should be provided to project executives on regular basis.

Archaeological Monitoring (Watching Brief) should be performed on potential zones throughout the project route and its surroundings by archaeologists, who should be affiliated to the consultant firm mandated by the project for the construction period or included in the project management team and subcontractors.

Where an archaeological find is made during construction works, the archaeological watching brief expert should have the power to stop the work following the procedures and facilitate all necessary works for preservation or unearthing, and transportation to the relevant museum. Depending on the request of the museum administration, it is important that all reporting studies would be realized by Archaeological Watching Brief Teams.

If there is information for archaeological potential in a specific area, briefings on the sensitivity of the subject pertinent to these sites shall be organized for all construction teams a few days before the construction work and the preparations necessary for construction activities should be done by using suitable equipment (toothless bucket machinery, etc). The daily fieldwork form, which must be prepared before the commencement of the construction works, monitoring report and other forms relevant to the documentation of the sensitive areas shall be filled in by expert archaeologist/s during all activities.

Moreover, during the archaeological monitoring works every expert field archaeologist shall carry out his/her duty in the field by using suitable equipment. Every expert field archaeologist shall as a minimum be equipped with one camera, measurement tools, scrapper, brush, hoe, etc. and the necessary report forms shall also be available for the initial registrations in case of finding archaeological evidences. Other facilities such as storage containers, packing, cleaning and preservation materials, secure storage as well as appropriate transportation should be provided.

The planned mitigation for cultural heritage impacts of the Motorway consists of several interrelated components:
- Appointment of an Archaeological Consultant Team to work with the Project team and the cultural heritage authorities to supervise implementation of the mitigation strategy during the next stages of the Project;
- Further investigation of known sites and areas of high and medium archaeological potential to support avoidance and minimization of impacts through detailed design development;
- Mitigation of impacts to known resources by avoiding or minimizing direct and indirect impacts during detailed project design;
- Operation of a Chance Find Programme to address construction phase heritage impacts in accordance with Turkish law and international norms and best practices.

### 13.7 Result and Recommendations

A field scoping study and field survey on the evaluation of archaeological were conducted in May 2013. The field walkover was undertaken in certain sections of the project route for a total of 26.43 km and three areas containing archaeological features were observed. In addition to these observations, registers of inventory of two Regional Boards (No II, III, IV and VI) were obtained while records of other Boards were not available during the study.

In addition to these observations, registers of inventory of two Regional Boards (No III and VI) were obtained while records of other Boards were not available during the study.

The literature and the inventory records of the Ministry of Culture and Tourism refer to many archaeological and historical sites in the regions where the construction activities will be carried out. Since it was not possible to walk the entire construction area in the time available, a predictive model was built and regions bearing archaeological potential were identified. The field walkover was conducted in limited sections as vegetation allowed, for the purpose of verification of the existence of historical sites in the areas, as indicated to be carrying archaeological potential by the predictive model. Two of the sites identified were within the construction corridor and its impact area while one other was about 1.5 km away from the project route.

Based on the findings described above, it is recommended that an intensive field survey is conducted after deforestation of the construction areas in coordination with the relevant Regional Boards of Conservation.

It is further recommended that, considering the archaeological potential of the region, it is imperative that all activities involving physical intervention should be conducted under the observation of experienced archaeologists.

It is strongly recommended that all these activities are be conducted in compliance with the Cultural Heritage Management Plan and Chance Find Procedures to be adopted by the constructor.
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