



AYGM

HALKALI-ISPARTAKULE- CERKEZKOY RAILWAY LINE

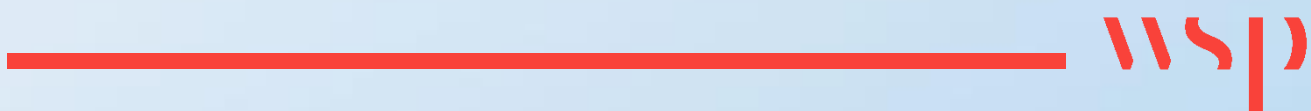
Environmental and Social Impact Assessment





9

CULTURAL HERITAGE



9 CULTURAL HERITAGE

9.1 INTRODUCTION

- 9.1.1. This chapter reports the findings of the assessment of the potential cultural heritage effects of the Project during the construction and operational phases. For both phases, the type, source and significance of potential effects are identified, and the measures that will be employed to minimise these described.

9.2 LEGISLATIVE FRAMEWORK, POLICY AND GUIDANCE

- 9.2.1. The cultural heritage assessment has taken account of the relevant legislative, policy and guidance framework. The relevant legislation, policies and guidance are summarised below.

NATIONAL LEGISLATION

- 9.2.2. The following national legislation is considered to be relevant to this assessment:

Environment Law No. 2872 (1983), amended by Law No. 5491¹²³

- 9.2.3. Environment Law No. 2872 (1983), amended by Law No. 5491 contains the key information regarding Environmental Impact Assessments and the requirements for the environmental disciplines to undertake the assessments.

Law No. 2863 (1983) on the Preservation of the Cultural and Natural Assets¹²⁴

- 9.2.4. Law No. 2863 (1983) on the Preservation of the Cultural and Natural Assets aims to provide information on the requirements for desk-based, non-invasive and invasive assessments. The purpose of the law is to determine the definitions of the necessary movable and immovable cultural and natural assets, to regulate the actions and activities to be carried out, and to determine the establishment and duties of the organisation that will take the necessary principles and implementation decisions in this regard. The scope of the document relates to the movable and immovable cultural and natural assets that are necessary to be protected and the duties and responsibilities of the legal persons involved. The law identifies the criteria for immovable cultural and natural assets, determination and registration alongside the potential mitigation requirements. This law has been taken into consideration for this assessment and should be for all other works.

- 9.2.5. In addition, all archaeological sites in Turkey need to be classified and protected according to their significant features¹²⁵. 3 main categories are determined relevant to archaeological sites as follows:

- 1st Degree Archaeological Sites: Areas requiring highest level of protection.

¹²³ Turkish Government (2017). Available at: <https://www.ecolex.org/details/legislation/law-no-5491-amending-the-environmental-law-no-2872-lex-faoc065097/> and <http://www.fao.org/faolex/results/details/en/c/LEX-FAOC065097> (Accessed 09/09/20).

¹²⁴ Turkish Government (2005). Available at: https://www.ecolex.org/details/legislation/law-on-the-protection-of-culture-and-natural-resources-lex-faoc043200/?q=Law+No.+2863+%281983%29+on+the+Preservation+of+the+Cultural+and+Natural+Assets&xcountry=Turkey&xdate_min=&xdate_max= (Accessed 09/09/20).

¹²⁵ Decision no. 658 of 5. 11. 1999 by Kültür ve Tabiat Varlıklarını Koruma Yüksek Kurulu (High Commission for the Preservation of Cultural and Natural Property).

- 2nd Degree Archaeological Sites: Areas requiring medium level of protection.
- 3rd Degree Archaeological Sites: Lowest level of protection area.

NATIONAL POLICY

Regional Plans

9.2.6. The Project is located within both the region of Istanbul and province of Tekirdag (within the region of Thrace). The 2014-2023 Istanbul Regional Plan identifies policies for the development of Istanbul. The following table outlines the strategies and objectives included within the Regional Plan which are considered relevant to this assessment due to. The Thrace Regional Plan 2014 to 2023 sets out 21 initiatives for the Thrace region, which includes Tekirdag province, and 2 other provinces. The relevant initiative for this assessment is set out in **Table 9-2**.

Table 9-1 - Summary of Istanbul Regional Plan: Priority Areas, Strategies and Objectives

Strategies	Objectives
Priority Area: Urban Image and Effective Publicity	
Strategy 3 – Preserving and using local resources and values to improve and publicise urban image, improving related infrastructure and services.	Objective 2 – Preserving the natural, historical, cultural heritage and other authentic values and using them effectively for publicity.
Priority Area: Sustainable Urban Development and Participatory Planning	
Strategy 1 – Ensuring sustainable urban development and smart growth, efficient use of space in the distribution of urban functions.	Objective 1 – Easing pressure caused by urban development on natural and cultural assets by ensuring observance of urban thresholds (Conservation Areas, Protected Areas, disaster risk areas, etc) in spatial development, and taking developments in these fields under control.
	Objective 8 – Carrying out environmental, social and economic impact analyses of projects, particularly macro projects, with regard to compliance with historical texture, social structure and environmental and urban identify, conducting risk analysis for those projects and perverting their potential negative effects.

Table 9-2 - Summary of Thrace Regional Plan: Relevant Initiatives

Initiative No.	Initiative
12	Thrace encompasses a multicultural geography, having been home to many civilisations, from Thracians to the Romans, Byzantines to the Ottomans. For this reason, it is possible to come across many tangible and intangible cultural heritage assets on the Region's lands at present. For these assets to be passed on to future generations and for them to be utilised for tourism purposes, an inventory check, along with restoration and promotional activities are required.

GUIDANCE

9.2.7. The following guidance is considered to be relevant to this assessment:

- Environmental Impact Assessment Directive 2014 (2014/52/EU)¹²⁶;
- EBRD – Environmental and Social Policy (2014)¹²⁷; and
- EBRD – Performance Requirement 8: Cultural Heritage (2014)¹²⁸.

9.3 ASSESSMENT METHODOLOGY

9.3.1. The baseline data has been obtained through a combination of a walkover survey undertaken by the Project Team (2nd July 2020 to the 5th July 2020), a socio-economic survey of the of Mukhtars (community leaders) of 22 settlements in the vicinity of the Project, consultation with The Ministry of Culture and Tourism and a desk-based review of the following:

- UNESCO Turkey World Heritage Site List¹²⁹;
- TAY Archaeological Settlements of Turkey Geographic Information System¹³⁰;
- The National EIA for the Project (2017)¹³¹;
- Open Street Map data;
- Sentinel 2A Satellite imagery (with the Normalised Archaeological Index (NAI)¹³² for identifying potential new sites applied to the imagery); and
- Google Earth imagery for identifying potential new sites, such as cropmarks or earthworks.

¹²⁶ Official Journal of the European Union, Directive 2014/52/EU. Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32014L0052> (Accessed 14/06/20).

¹²⁷ EBRD (2014). Environmental and Social Policy.

¹²⁸ EBRD (2014). Performance Requirement 8: Cultural Heritage.

¹²⁹ United Nations (2019). World Heritage List. Available at: <https://whc.unesco.org/en/list/> (Accessed 04/05/2020).

¹³⁰ TAY (2004). Archaeological Settlements of Turkey Geographic Information System. Available at <http://tayproject.org/giseng.html> (Accessed 04/05/2020).

¹³¹ Sweco Mühendislik Müşavirlik ve Tasarım Ltd. Şti.(2017). Halkalı – Kapıkule Railway Project EIA Report.

¹³² Sentinel 2A imagery covers 13 spectral bands (443–2190 nm). The NAI is defined as (Band 7 – Band 4) divided by (Band 7 + Band 4).

- 9.3.2. The information was initially collated and reviewed to understand the baseline condition and then used to provide an assessment of the potential effects of the Project on cultural heritage assets within the study area.
- 9.3.3. For the purpose of this assessment, a study area of 1km has been identified on either side of the expropriation corridor, as shown in **Figure 9-1**. It is considered that significant effects are unlikely to occur beyond this distance, due to the significance of effect decreasing as the distance from the Project increases. As such, it is considered that for this Project a 1km study area is sufficient to identify those receptors likely to be significantly affected by the Project, based on previous experience, the National EIA for the Project (2017)¹³¹, and professional judgement. Occasionally there is reference to cultural heritage assets beyond this study area, where appropriate, such as where such assets are particularly significant and/or where they contribute to current understanding of the cultural heritage within the area of the Project. Landscape and visual impacts on cultural heritage are included in **Chapter 10: Landscape and Visual**. Please note that Figure 9-3 of **Appendix O** shows all known heritage assets in the study area. However, only those assets potentially affected by the Project have been discussed in this impact assessment. Other assets have been scoped out.

ASSUMPTIONS AND LIMITATIONS

- 9.3.4. The following assumptions and limitations are applicable to this Chapter:
- The assessment represents the worst-case scenario, where information is unknown;
 - At a selection of cultural heritage assets, visited during the site walkover in July 2020, photography was not allowed for to protect the security of the asset, in accordance with national regulations¹³³, as such the assessment is based upon the written detailed observations; and
 - Observations at 1 of the survey areas were limited due to dense forest (Anastasius's Walls), as described in **Section 9.4**.



¹³³ Regulation on Taking the Videos and Photos, Making the Impressions and Copies of the Cultural Property in Museums and Units Affiliated to Museums as well as Archaeological Sites, 1984.

Path: \\uk.wspgroup.com\\central data\\Projects\\700699xx\\70069878 - IPPF - Turkey TCDD Halkali - Cerkezkoy High Speed Railway\\03 WIP\\GIS\\Mxd\\Figure 9-1 - Study Area.mxd



THIS DRAWING MAY BE USED ONLY FOR THE PURPOSE INTENDED AND ONLY WRITTEN DIMENSIONS SHALL BE USED

Legend

-  Buffer (1Km either side)
-  Proposed Railway Route



Note:

Drawing Status **FINAL**

Job Title:
HALKALI-ISPARTAKULE-CERKEZKOY RAILWAY LINE

Drawing Title
Figure 9-1 - Study Area

Scale at A4 **1:300,000**

Drawn DG		Originated DG		Date
Stage 1 check KM	Stage 2 check JW	DG	DG	19/03/2021

0

1.25

2.5

5

7.5

10

Km



Drawing Number **Figure 9-1**

9.4 BASELINE CONDITIONS

CHRONOLOGICAL SEQUENCE

9.4.1. The following archaeological sequence has been adopted to describe the cultural heritage assets. It is based on the sequence used by the TAY Archaeological Settlements of Turkey Project¹³⁰ and the chronology used by the Museum of Anatolian Civilisations¹³⁴. The date ranges are approximate:

- Palaeolithic / Epipalaeolithic Age (before 10,000 Before Christ (BC));
- Neolithic Age (10,000 – 5,000 BC);
- Chalcolithic Age (5,000 – 3,000 BC);
- Early Bronze Age (3,000 – 2,000 BC);
- Middle Bronze Age to Iron Age (2,000 – 333 BC);
- Hellenistic (333 – 30 BC);
- Roman (30 BC – 395 Anno Domini (AD));
- Byzantine (395 – 1453 AD);
- Ottoman Period (1453 – 1920 AD); and
- Republican Period (AD 1920 onwards).

HERITAGE OVERVIEW AND CONTEXT

9.4.2. A brief description of the chronology is provided below. It should be noted that the Project area lies in a region where there is expected to be a higher potential for assets dating from the Hellenistic, Roman and Byzantine periods than from earlier periods.

Palaeolithic / Epipalaeolithic Age (before 10,000 BC)

9.4.3. The Palaeolithic Age is usually divided into 3 periods, the Lower, Middle and Upper Palaeolithic. Humans lived by hunting and gathering during these periods and finds from these periods are generally restricted to stone tools. Important Palaeolithic cave sites include Karain Cave, in southern Anatolia, and Yarımburgaz Cave, located in the region of Istanbul, but outside the Study area¹³⁴.

9.4.4. A large assemblage of Upper Palaeolithic stone tools was found in association with animal bones in Yarımburgaz Cave, 1.5km north of Chainage 04+000¹³⁴.

Neolithic Age (10,000 – 5,000 BC)

9.4.5. The Neolithic Age is characterised by the development of agriculture and permanent settlements. South-eastern Turkey is part of the Fertile Crescent region, where agriculture was first developed. The ritual site of Göbekli Tepe, in South-eastern Anatolia, dates to the earliest part of the Neolithic Age. Göbekli Tepe was in use from 9,600 BC to 8,200 BC and consists of a number of circles with stone pillars, carved with depictions of animals and human figures¹³⁵.

¹³⁴ Museum of Anatolia Civilizations (1999). *Museum of Anatolian Civilisations Guidebook*.

¹³⁵ UNESCO World Heritage List entry for Göbekli Tepe. Online at <https://whc.unesco.org/en/list/1572/>. (Accessed 09/09/2020).

9.4.6. The most important Neolithic settlement site within Turkey is Çatalhöyük, in southern Anatolia. Çatalhöyük dates from 7,500 BC to 5,700 BC. The settlement consisted of many flat roof houses and probably had a population of between 5,000 and 7,000¹³⁶.

9.4.7. Agriculture expanded from the Fertile Crescent into south-eastern Europe, including the provinces of Istanbul and Terkidag, around 6,500 BC. However, no Neolithic sites are noted in the study area.

Chalcolithic Age (5,000 – 3,000 BC)

9.4.8. The Chalcolithic Age is characterised by the first use of copper. Important Chalcolithic sites in Turkey include Hacilar, Canhasan and Kurucay, which are located in Anatolia. During the Chalcolithic Age the provinces of Istanbul and Terkidag would probably have been influenced by Balkan and Aegean cultures rather than those of Anatolia¹³⁶.

9.4.9. No Chalcolithic sites are noted in the study area.

Early Bronze Age (3,000 – 2,000 BC)

9.4.10. Use of bronze started in Anatolia in the late 4th or early 3rd millennium. Bronze Age settlements were often surrounded by defensive walls. There was a growth in trade during this period which probably led to the emergence of powerful elites, as shown by a number of rich tomb burials. Important early Bronze Age sites in Anatolia include Alacahöyük and Horoztepe. Rectangular stone-built tombs were found with grave goods made of gold, silver and bronze¹³⁶.

9.4.11. No Early Bronze Age sites are noted in the study area.

Middle Bronze Age to Iron Age (2,000 – 333 BC)

9.4.12. This period in Turkey is characterised by the rise of successive empires, comprising the Assyrians, Hittites, Phrygians Lydians, Urartian, Lycian and finally the Persians. The geographic extent of the some of these empires was restricted to Anatolia¹³⁶.

9.4.13. For the majority of this period the study area was probably occupied by Thracian tribes¹³⁷. There are Middle Bronze Age remains noted at one site in the study area, Küçükçekmece 1st Degree Archaeological Site (See **Table 9-3**).

Hellenistic (333 – 30 BC)

9.4.14. Although the Hellenistic period in Turkey is dated to start in 333 BC, the study area would have had Greek influence from much earlier. The Greeks expanded settlements along the Sea of Marmara in the 7th century BC. The study area was in the hinterland of Byzantium, which was founded as Greek colony in 660 BC¹³⁸.

9.4.15. Remains from the Hellenistic period are recorded at 2 sites in the study area, Küçükçekmece 1st Degree Archaeological Site and Küçükçekmece 3rd Degree Archaeological Site (see **Table 9-3**).

¹³⁶ Museum of Anatolia Civilizations (1999). *Museum of Anatolian Civilisations Guidebook*.

¹³⁷ Taylor, T (2001), Thracians, Scythians and Dacians. In Cunliffe, B (Ed.) *The Oxford Illustrated History of Prehistoric Europe*. OUP

¹³⁸ Freeman C (1996) *Egypt, Greece and Rome: Civilizations of the Ancient Mediterranean*. OUP.

Roman (30 BC – 395 AD)

- 9.4.16. The former Hellenistic kingdoms of Anatolia became part of the Roman Republic in the 1st century BC. The province of *Thracia*, in which the Project area lies, was added to the Roman Empire during reign of Claudius (41AD – 54AD). In 324 AD, Constantine I chose Byzantium as the capital of the Roman Empire¹³⁹.
- 9.4.17. Roman remains are recorded at 2 sites in the study area, Küçükçekmece 1st Degree Archaeological Site and Küçükçekmece 3rd Degree Archaeological Site (see **Table 9-3**).

Byzantine (395 –1453 AD)

- 9.4.18. Following the split of the Roman Empire in 395 AD, Constantinople (formerly Byzantium) became the capital of the Eastern Roman (Byzantine) Empire. Settlements and defensive walls were constructed within the Project area during the Byzantine Period.
- 9.4.19. A Byzantine settlement known as Bathonea (namely Küçükçekmece 1st Degree Archaeological Site and Küçükçekmece 3rd Degree Archaeological Site), and Anustasius's Walls, a defensive structure, are within the study area (see **Table 9-3**).

Ottoman Period (1453 – 1920 AD)

- 9.4.20. The Seljuk Turks arrived in Anatolia in the 11th century AD and following this conquered the territories of the Byzantine Empire. Constantinople was finally conquered by the Ottomans in 1453 AD.
- 9.4.21. Cultural heritage assets dating to the Ottoman period are recorded in the study area. These comprise 2 historic buildings and a bridge, namely Old Yoğurthane Building, Traditional House in Omerli and Kaleiçi Historical Bridge (see **Table 9-3**).

Republican Period (AD 1920 onwards)

- 9.4.22. After the First World War the Ottoman Empire collapsed and following the Turkish War of Independence the Republic of Turkey was founded in 1923.
- 9.4.23. The Early Republican Period saw the growth of rail infrastructure with train stations located throughout the Project alignment which are of historic significance, this includes Ispartakule Station, Kabakca (Çatalca) Station and Çayırdere Station (see **Table 9-3**).
- 9.4.24. During the 20th century military bunkers and other defensive structures were constructed within the study area. Structures dating to the Balkan War of 1912 and World War 2 have been recorded in the Project area, the Bahşayış Bastion and Protection Zone and Korugan Old Military Bunker respectively (see **Table 9-3**).

IDENTIFIED CULTURAL HERITAGE ASSETS

- 9.4.25. There are no cultural heritage assets of international importance on the UNESCO World Heritage Site List within the study area or in the near vicinity of the Project.

¹³⁹ Freeman C (1996). Egypt, Greece and Rome: Civilizations of the Ancient Mediterranean. OUP.

9.4.26. Known cultural heritage assets of significance, as defined by the Istanbul (No:1) Regional Board for the Protection of Cultural Assets¹⁴⁰ within the study area comprise 1st and 3rd Degree Archaeological sites that are afforded a level of protection described in **paragraph 9.2.5** along with historical structures. The assets comprise the following (along the route from east to west):

- Industrial railway buildings at Halkalı Mahallesi (855-ada-4-parcel);
- Küçükçekmece 1st Degree Archaeological Site (A Byzantine Settlement, Bathonea);
- Küçükçekmece 3rd Degree Archaeological Site (A Byzantine Settlement, Bathonea);
- Spradon 1st Degree Archaeological Site;
- Spradon 3rd Degree Archaeological Site;
- Old Yoğurthane Building (Historic Building);
- A section of the existing railway at Hoşdere Mahallesi, including Ispartakule Train Station and Surrounds (130-ada-1-parcel);
- A Byzantine Settlement (271_6-7-8 parcel);
- A fountain at Ömerli Mahallesi (254-parcel);
- Historical Civil Architecture Sample, Traditional House in Omerli (663-parcel);
- An example of registered civil architecture at Yeşilbayır Mahallesi (1464-parcel);
- An example of registered civil architecture at Yeşilbayır Mahallesi (1304-parcel);
- Korugan Old Military Bunker;
- Bahşayış Bastion and Protection Zone;
- A historical bridge at Ferhatpaşa Mahallesi (191-ada-5-parcel);
- Çatalca Station Buildings (Çatalca – Kaleiçi)
- Kaleiçi Historical Bridge (Çatalca – Kaleiçi);
- A section of the existing railway at İnçeğiz Mahallesi (879-parcel);
- A section of the existing railway at Kabakça Mahallesi, including Kabakca Station Buildings (Çatalca – Kabakça) (1005-parcel);
- Anastasius's Wall and Protection Zone;
- A section of the existing railway at Kurfallı Mahallesi (1956-parcel);
- Station buildings at Küçüksinekliköyü Mahallesi (138-parcel), and;
- A section of the existing and former railway at Çayırdere Mahallesi, including Çayırdere Station Building (705-parcel).

9.4.27. Thirteen of the assets listed above are located within, or in close proximity to, the expropriation corridor and are listed in **Table 9-3** and assessed in **Table 9-4**.

9.4.28. The Ministry of National Defence maintains a separate list of military bunkers and defensive ditches of historic interest, both extant and non-extant. There are 152 records of old military bunkers and four records of old military ditches from the 20th Century within the study area. The Korugan Old Military Bunker is the only asset from this list that is included on the Regional Board list (see **paragraph 9.4.26**). The reason for this is not known, it may be due the extent of the asset. None of the other military bunkers and defensive ditches are located within the expropriation corridor,

¹⁴⁰ Data contained in ArcGIS shapefiles, received 15/07/2020.

although it is possible that below ground elements of the Korugan Old Military Bunker extend into the expropriation corridor.

SITE WALKOVER AND DETAILS OF SELECTED CULTURAL HERITAGE ASSETS POTENTIALLY AFFECTED BY THE PROJECT

- 9.4.29. The aim of the site walkover was to determine the topography, the existing land use, the nature of the existing buildings surrounding the expropriation corridor, and to provide further information on areas of possible past ground disturbance and general historic environment potential.
- 9.4.30. Areas for the site walkover were targeted assets from the Regional Board list of assets within or in proximity to the expropriation corridor, alongside a review of potential cultural heritage assets identified using Google Earth satellite imagery.
- 9.4.31. **Table 9-3** includes 13 of the assets from the Regional Board list, 4 possible assets identified from Google Earth imagery and 1 possible asset identified during the household surveys (detailed in **Chapter 15: Social**). Distances are given to the expropriation corridor from each asset. Note that not all assets listed in **Table 9-3** will be affected by the Project. Only a small number will be impacted during the construction phase as set out in **Table 9-4. Paragraph 9.6.16** considers impacts during the operational phase on those assets listed in **Table 9-3**, where relevant.

Table 9-3 – Details of Cultural Heritage Assets Within or in Close Proximity to the Expropriation Corridor

Name	Chainage	Location	Details and Site Walkover Observations
Küçükçekmece 1st Degree Archaeological Site (A Byzantine Settlement, Bathonea)	3+350 – 5+000	The protected area of the 1st Degree Archaeological Site extends into and crosses the expropriation corridor in Küçükçekmece, shown in Figure 9-2 and 9-3 of Appendix O.	<p>This asset is a settlement dating to the Byzantine period, known as Bathonea. Ruins of the Byzantine settlement about 1.5-2km south of the expropriation corridor. Middle Bronze Age, Hellenistic and Roman remains are noted within the heritage asset.</p> <p>The protected area is a speculated area of potential for archaeological remains. Actual evidence of the port site of Bathonea lie some distance from the expropriation corridor. Excavations of the port site- have, part of the 1st Degree Archaeological Site been undertaken 1.6km south of the expropriation corridor. There is potential for below ground remains to extend into the Project alignment. The Project will be in a bored tunnel at this location approximately 40m–50m below ground level, below any archaeological deposits.</p> <p>No above ground heritage assets were observed. A few undated pottery shards</p>

Name	Chainage	Location	Details and Site Walkover Observations
			were observed on the surface, but this is not an unusual observation in such a setting.
Küçükçekmece 3rd Degree Archaeological Site (A Byzantine Settlement, Bathonea)	5+000 – 6+000	The protected area of the 3rd Degree Archaeological Site extends into the expropriation corridor in Küçükçekmece, shown in Figure 9-3 of Appendix O.	<p>This asset is a settlement dating to the Byzantine period, known as Bathonea. Ruins of the Byzantine settlement about 1.5-2km south of the expropriation corridor and include Hellenistic and Roman remains.</p> <p>The protected area is a speculated area of potential for archaeological remains. No above ground heritage assets or surface finds were observed. Whilst there is potential for remains to extend into the expropriation corridor there will be no archaeological impact because the Project will be in a bored tunnel at this location approximately 40m–50m below ground level, below any archaeological deposits.</p>
Hoşdere Mahallesi, including Ispartakule Station and Surrounds (130-ada-1-parcel)	9+400	10m to the west of the expropriation corridor, in Ispartakule, shown in Figure 9-3 of Appendix O.	<p>The main station building, and additional buildings were probably built in the Early Republican Period.</p> <p>The station is a registered historical building and was observed to be well preserved.</p>
Old Yoğurthane Building (Historic Building)	9+450	10m to the west of the expropriation corridor, in Ispartakule, shown in Figure 9-3 of Appendix O.	<p>Old Yoğurthane Building is a registered historical building, probably dating to the late Ottoman period.</p> <p>It was observed to be well preserved.</p>
Ömer Dede Tomb	17+200	Within the expropriation corridor, in Omerli, shown in Figure 9-5 of Appendix O.	A grave believed to date from the 20th century, identified during the household surveys (detailed in Chapter 15: Social). The grave was overgrown with no headstone.
Historical Civil Architecture Sample, Traditional House in Omerli (663-parcel)	17+460	The protection zone is partly within the expropriation corridor. The house is 30m to the south of the expropriation corridor, in Omerli, shown in	<p>The Omerli Traditional House is a registered historical building, dating to the late Ottoman period.</p> <p>The house is generally well preserved. The house consists of 2 floors which are the ground floor and upper floor</p>

Name	Chainage	Location	Details and Site Walkover Observations
		Figure 9-5 of Appendix O.	with a courtyard. There is a water well in the courtyard which is still active. The upper floor of the building has been built with wood and the ground floor with stone.
A possible area of earthworks, noted on Google Earth	17+500	Within the expropriation corridor, in Omerli, shown in Figure 9-5 of Appendix O.	No cultural heritage assets were observed during the site walkover in this area.
Korugan Old Military Bunker	22+700	Adjacent to or possibly within the expropriation corridor (Bunker 2), 2.5km west of Yesilbayir, shown in Figure 9-6 of Appendix O.	The Korugan Old Military Bunker is a registered historical building, dating to World War 2. It was built as part of the Çakmak Line against the possible attack by the German Army. The concrete remains of the bunker were observed in a field 10m to the south of the expropriation corridor No other above ground remains were noted.
A possible historic quarry, noted on Google Earth	25+500 – 24+600	Within the expropriation corridor, 2.1km north-east of Bahşayış, shown in Figure 9-6 of Appendix O.	No cultural heritage assets were observed during the site walkover in this area.
A circular landscape feature, noted on Google Earth	25+500 – 24+600	Within the expropriation corridor, 1.9km north-east of Bahşayış, shown in Figure 9-6 of Appendix O.	No cultural heritage assets were observed during the site walkover in this area.
Bahşayış Bastion and Protection Zone	24+750 – 24+800	Partly within the expropriation corridor, 1.4km north-west of Bahşayış, shown in Figure 9-6 and 9-7 of Appendix O.	Bahşayış Bastion is thought to date from 1912 and the Balkan Wars. The above ground structures of the Bahşayış Bastion are located outside the Project alignment. A small section of the protection boundary of the Bahşayış Bastion, as defined by the Ministry of Culture and Tourism, does intersect with the Project alignment. No cultural heritage assets were observed in the area where the protection boundary intersects with the Project alignment. It is not known if

Name	Chainage	Location	Details and Site Walkover Observations
			<p>there are any underground structures within the Project alignment.</p> <p>A cut and cover tunnel will be constructed at this location.</p>
Çatalca Station Buildings	31+900	Within the expropriation corridor, 2km north-east of Çatalca, shown in Figure 9-8 of Appendix O.	<p>The main station building, and additional buildings were probably built in the Early Republican Period. The station is a registered historical building.</p> <p>The station buildings are in a good condition.</p>
Kaleiçi Historical Bridge (Çatalca – Kaleiçi)	32+300	The protection zone is immediately south-west of the expropriation corridor. The bridge is 50m south-west of the expropriation corridor, 2km north-east of Çatalca, shown in Figure 9-8 of Appendix O.	<p>The Kaleiçi Historical Bridge dates from the late Ottoman period and is a registered historical building.</p> <p>Only the foundations of the bridge have survived. A concrete platform was added to the upper part of the historical bridge foundation in order to use it as a road within the last 50 years. A viaduct has been built on the historical bridge within the last decade.</p>
General landscape area, noted on Google Earth	39+550 – 39+770	Within the expropriation corridor, 1.8km north-west of Incegiz, shown in Figure 9-10 of Appendix O.	<p>Two Byzantine sites have been recorded on the TAY Archaeological Settlements of Turkey Geographic Information System, located 2.9km to the south of the Project alignment (Chainage 41+000).</p> <p>No cultural heritage assets were observed during the site walkover in this area.</p>
İnceğiz Mahallesi 879-parcel	38+100 and 42+200 – 42+400	Two small areas within the expropriation corridor, shown in Figure 9-10 in Appendix O.	<p>A section of the existing railway line partly within the expropriation corridor. Not visited during the site walkover.</p>
Kabakça Mahallesi, including Kabakca Station Buildings (Çatalca –	44+500	20m north-east of the expropriation corridor, 1.5km south-west of Kabakca, shown in Figure 9-11 of Appendix O.	<p>The Kabakça Station Buildings were built in the early Republican period and are registered historical buildings.</p> <p>The station buildings have been restored and are in a good condition.</p>

Name	Chainage	Location	Details and Site Walkover Observations
Kabakça) (1005-parcel)			
Anastasius's Wall	53+300 – 53+400	Partly within the expropriation corridor, 2.8km north of Kurfalli, shown in Figure 9-13 of Appendix O.	<p>The Anastasius's Walls were built between 491-512 AD by the Byzantine Emperor Flavius Anastasius, between the Sea of Marmara and the Black Sea. Some sections of the walls have survived until the present day.</p> <p>Much, though not all, of area for the site walkover was covered by dense forest. The south eastern part of the site walkover area near the existing railway line are in the Protection Zone of Anastasius Walls. No above ground remains of the walls were observed in the Protection Zone or in the forest clearance in the north western part of the site walkover area (Chainage 54+200).</p>
Çayırdere Mahallesi 705-parcel, including Çayırdere Station Building	68+200	The protection zone is partly within the expropriation corridor. The station is 150m south of the expropriation corridor, 3km south-west of Çayırdere, shown in Figure 9-16 of Appendix O.	<p>The main station building was built in the Early Republican Period. The station is a registered historical building and is currently disused.</p> <p>The walls remain in good condition however there is no longer a roof to the structure.</p>

9.4.32. Detailed notes from the site walkover are provided in **Appendix P**.

POSSIBLE, PREVIOUSLY UNRECORDED ARCHAEOLOGICAL REMAINS

9.4.33. In addition to the heritage assets identified by this high-level appraisal, the Project has potential to impact on possible, previously unrecorded remains for all periods, which may be affected by the ground disturbance including preliminary site preparation (including temporary compounds and access) and during the construction phase.

9.4.34. Using data gathered for this assessment and professional judgement, a high-level qualitative estimate for the potential for remains from the archaeological periods can be identified:

- In addition to the known heritage assets, there is medium potential for possible, previously unrecorded cultural heritage assets relating to the Prehistoric periods (Palaeolithic to Iron Age) to be present. Any Prehistoric assets are likely to be of Medium or High sensitivity.

- In addition to the known heritage assets, there is medium potential for possible, previously unrecorded cultural heritage assets relating to the Hellenistic and Roman periods to be present. Any Hellenistic or Roman assets are likely to be of Medium or High sensitivity.
- In addition to the known heritage assets, there is medium potential for possible, previously unrecorded cultural heritage assets relating to the Ottoman period to be present. Any Ottoman assets are likely to be of Medium or High sensitivity.
- In addition to the known heritage assets, there is high potential for possible, previously unrecorded cultural heritage assets relating to the Republican period to be present. Any Republican assets are likely to be of Medium or High sensitivity.
- There is a high potential for 20th century military structures to be present. Such structures would be of Medium or High sensitivity.

INTANGIBLE CULTURAL HERITAGE

9.4.35. Intangible cultural heritage (ICH) is defined by the 2003 UNESCO convention¹⁴¹ as:

Intangible cultural heritage means the practices, representations, expressions, knowledge, skills - as well as the instruments, objects, artefacts and cultural spaces associated therewith - that communities, groups and, in some cases, individuals recognize as part of their cultural heritage. ICH is manifested inter alia in the following domains: (a) oral traditions and expressions, including language as a vehicle of the intangible cultural heritage; (b) performing arts; (c) social practices, rituals and festive events; (d) knowledge and practices concerning nature and the universe; (e) traditional craftsmanship.

9.4.36. Turkey is a signatory to the 2003 UNESCO ICH convention and an active participant. There have been 18 entries submitted by Turkey to be placed on to the UNESCO Representative List of the Intangible Cultural Heritage of Humanity. As all have been submitted by Turkish state authorities (Ministry of Culture and Tourism), they are all considered to be of high significance. The contribution of ICH to the heritage significance of tangible heritage assets, where appropriate, has been considered. The 18 entries comprise:

- Traditional Turkish archery - practiced both on foot and on horseback. Traditional archery is being promoted by the Government and tournaments are being held across a number of Turkish provinces, including at the Archery Foundation in Istanbul;
- Heritage of Dede Qorqud/Korkyt Ata/Dede Korkut - epic culture, folk tales and music - this is practiced and sustained by the communities concerned on a variety of occasions, such as family events, national and international festivals. The practice is shared and listed jointly with Azerbaijan and Kazakhstan. It is most commonly practiced in Eastern and North Eastern provinces of Turkey, most notably in Malatya province;
- Whistled language - The whistled language is a method of communication that uses whistling to simulate and articulate words. The practice developed as a result of the steep mountains and rugged topography and is practiced in Turkey's Eastern Black Sea Region particularly in Giresun province;

¹⁴¹ UNESCO Intangible Cultural Heritage. Online at <https://ich.unesco.org/en/convention> (Accessed 18/11/2020).

- Spring celebration, Hidrellez - this takes place annually on the 6th May. To mark this occasion celebrations, take place at homes, on streets and in cultural spaces related to the element. The practice is shared and listed jointly with North Macedonia. Celebrations occur in provinces across the country, especially in the West and notably in Edirne;
- Traditional craftsmanship of Çini-making - handmade glazed tiles and ceramics featuring colourful motifs of plants, animals and geometric patterns, often found on facades of buildings and in homes throughout the country. The activity is transmitted through craftspersons with notably active training centres, workshops and Non-Government Organisations (NGOs) located in Kütahya, Iznik and İstanbul provinces;
- Nawrouz, Novruz, Nowrouz, Nowrouz, Nawrouz, Nauryz, Nooruz, Nowruz, Navruz, Nevruz, Nowruz, Navruz - New Year's Day, celebrated with festivals. The practice is celebrated internationally, and is shared and listed jointly with Afghanistan, Azerbaijan, India, Iran (Islamic Republic of), Iraq, Kazakhstan, Kyrgyzstan, Uzbekistan, Pakistan, Tajikistan, Turkmenistan as well as Turkey. As a cultural event celebrated throughout the country and is not site-specific;
- Flatbread making and sharing culture: Lavash, Katyrma, Jupka, Yufka - made in households in rural areas and traditional bakeries. The culture and sharing of flatbreads is shared and listed jointly with Azerbaijan, Iran (Islamic Republic of), Kazakhstan, Kyrgyzstan in addition to Turkey. In Turkey the practice occurs countrywide, and as such is not location specific;
- Ebru, Turkish art of marbling - the art of creating colourful patterns by sprinkling and brushing colour pigments onto a pan of oily water and then transferring the patterns to paper;
- Turkish coffee culture and tradition - practiced in homes and coffeehouses. Turkish coffee combines special preparation and brewing techniques with a rich communal traditional culture. Practiced throughout the country with no specific centres, specialist sites or concentrations;
- Mesir Macunu Festival - The Mesir Macunu festival of Manisa, Turkey, commemorates the recovery of Hafsa Sultan, mother of Suleiman the Magnificent, who was cured of a disease by the invention of a paste known as mesir macunu. This element is highly site specific and is practiced in Manisa province;
- Ceremonial Keşkek tradition - a traditional Turkish ceremonial dish prepared for wedding ceremonies, circumcisions and religious holidays. Women and men work together to cook wheat and meat called 'Keşkek' in huge cauldrons, then serve it to the guests. Keşkek tradition is widely practiced across Turkey though it is concentrated in rural areas and held closely by traditional village chefs;
- Kırkpınar oil wrestling festival - The Kırkpınar oil wrestling festival takes place in Edirne, Turkey. Thousands of people from different age groups, cultures and regions travel every year to see Pehlivan (wrestlers) fight for the Kırkpınar Golden Belt and the title of Chief Pehlivan. The tradition has strong transmission and community involvement in Edirne;
- Semah, Alevi- Bektaşî ritual - set of mystical and aesthetic body movements in rhythmic harmony. As bearers and practitioners of semah tradition, Alevi- Bektaşî communities exist across Turkey, but are concentrated in certain regions in Anatolia;
- Traditional Sohbet meetings - practice of community conversations. The communities consist exclusively of men above a certain age (typically 15 or 16), regardless of ethnicity, religion or status. Although known across Turkey, prominent centres and settings for organisations promoting the practice include Ankara, Şanlıurfa, Elazığ, Balıkesir, Van and Konya.
- Âşıklık (minstrelsy) tradition - performed by wandering poet-singers known as âşıks. Although widespread all across Turkey, some regions are particularly well known for the tradition. The

most renowned bearers of the tradition are from Kars, Erzurum, Artvin, Sivas, Kayseri, Gaziantep, Ardahan, Adana, Çorum, Kastamonu, Tokat and Kahramanmaraş;

- Karagöz - Karagöz is a form of shadow theatre where human, animal or object figures; known as "tasvir"s are held in front of a light source and cast their shadows on a camel or ox-hide screen. While Karagöz is widely known across Turkey, artists are more concentrated in cities such as Istanbul, Bursa, Ankara, Adana, Gaziantep and Izmir, where the audience potential is higher;
- Arts of the Meddah, public storytellers - Meddahlik was a Turkish theatre form performed by a single storyteller called a meddah and practised throughout Turkey and Turkish speaking countries. The practice is not location specific.
- Mevlevi Sema Ceremony - The Mevleviye is an ascetic Sufi order founded in 1273 in Konya, from where it gradually spread throughout the Ottoman Empire. Today, the Mevleviye can be found in many Turkish communities throughout the world, but the most active and famous centres of the order's activity are in Konya and Istanbul.

9.4.37. The socio-economic survey of the of Mukhtars (community leaders) of 22 settlements in the vicinity of the Project included two questions regarding intangible cultural heritage:

- *Do you or the community have a relationship to the expropriated area of this Project (e.g. significant emotional or cultural attachments)?*
- *Would any traditional knowledge, customs, institutions or practices ongoing in the community be affected by the Project (e.g. charcoal making, traditional decision-making structures, key events)?*

9.4.38. None of Mukhtars identified any significant emotional or cultural attachments to the expropriated area. Only one Mukhtar, that of Buyuk Sinekli, identified a traditional practice that could be affected: access to the forest for charcoal making. At present a level crossing to the north of Buyuk Sinekli is used to cross the existing railway to reach the forest (around chainage 58+700). The Mukhtar expressed that a crossing should still be available during the construction phase. As detailed in the 'Technical Specification for Construction Work' for the Project, with the which the Contractor must comply, the Contractor will ensure the construction works are planned to enable them to be delivered safely and, in a manner, which minimises congestion, road safety risks and disruption for all road users (this will include access to the forest for charcoal making). The **ESMP** also requires the preparation of a **Construction Traffic Management Plan**, with measures to minimise disruption to access during construction. The Project design includes underpasses and overpasses in proximity to the charcoal makers, to maintain access during operation. There are 3 underpasses (at chainages 56+226, 56+495 and 59+845) in Büyüksinekli and 7 underpasses (at chainages 62+008, 64+410, 64+935, 66+450, 67+065, 67+535, 68+170, 68+230, 69+012, 70+650 and 71+340) and 2 overpasses (at chainages 63+221, 63+830) in Çayırdere.

9.5 POTENTIAL IMPACTS AND EFFECTS

CONSTRUCTION PHASE

9.5.1. During the construction phase there is potential for impacts to below-ground heritage assets within the vicinity of the expropriation corridor. Such impacts would arise from proposed ground works associated with the construction phase, including preliminary site strip (including along temporary access roads and for temporary construction compounds), the excavation of cut and cover tunnels, and foundations of bridges and viaducts, and excavation for underpasses. There could also be impacts at the location of the 3 indicative construction compounds, and other works such as access roads, landscaping, utilities diversions and drainage. There are no known heritage assets in the

areas of the indicative construction compounds. There would be no impact from the construction of the twin bored tunnel on known heritage assets. The tunnel would begin at ground level at chainage 0+700 and reach a maximum depth of 54m below sea level under the proposed Kanal Istanbul before re-emerging into a cut and cover tunnel at chainage 6+678. It would be at a depth of 40m-50m below ground level in the area of the Küçükçekmece 1st Degree Archaeological Site and the Küçükçekmece 3rd Degree Archaeological Site, well below archaeological levels. Removal of heritage assets is final and impacts this finite resource. The magnitude of impact in almost all cases would be large adverse where known or possible remains are present. An appropriate mitigation strategy would aim to reduce or offset resulting adverse effects. No demolition of structures of known heritage value is proposed.

9.5.2. **Table 9-4** identifies those assets listed in **Table 9-3** which will experience a direct impact (physical removal / disturbance) during the construction phase. Assets which would not be impacted are also noted along with the reason why they would not be impacted.

Table 9-4 – Potential Direct Impacts on Known Cultural Heritage Assets During Construction Phase

Name	Sensitivity	Direct Impact
Küçükçekmece 1 st Degree Archaeological Site (A Byzantine Settlement, Bathonea)	High	The Project alignment passes through a bored tunnel, which would be well beneath archaeological levels, at this location. There would be no impact on this asset.
Küçükçekmece 3 rd Degree Archaeological Site (A Byzantine Settlement, Bathonea)	Low	The Project alignment passes through a bored tunnel, which would be beneath archaeological levels, at this location. There would be no impact on this asset.
Hoşdere Mahallesi, including Ispartakule Station and Surrounds (130-ada-1-parcel)	Low	The scope of works in the area of Ispartakule Station is 1 footbridge, 1 platform and 2 additional rail tracks. There would be no direct impacts on this asset from these works. A section of the existing railway line is within the expropriation corridor. If any historic railway infrastructure (such as signal boxes, bridges, water towers, engine sheds) is present within the expropriation corridor, it could be impacted.
Old Yoğurthane Building (Historic Building)	Low	Development is restricted to the existing track alignment. There would be no impact on this asset.
Ömer Dede Tomb	Medium	The grave is located near a proposed cut and cover tunnel entrance. There could be an impact from construction activities.

Name	Sensitivity	Direct Impact
Historical Civil Architecture Sample, Traditional House in Omerli (663-parcel)	Low	A cut and cover tunnel would be constructed at this location. The house is 30m south of the expropriation corridor. There could be impacts from construction activities, including movement of machinery.
A possible area of earthworks, noted on Google Earth	Negligible	No Cultural Heritage assets were identified during the site walkover. No impact.
Korugan Old Military Bunker	Low	The bunker is adjacent or possibly within the expropriation corridor. There could be impacts from construction activities including movement of machinery. There is the possibility of underground structures (Bunker 2) within the Project alignment that could be impacted by construction activities.
A possible historic quarry, noted on Google Earth	Negligible	No Cultural Heritage assets were identified during the site walkover. No impact.
A circular landscape feature, noted on Google Earth	Negligible	No Cultural Heritage assets were identified during the site walkover. No impact.
Bahşayış Bastion and Protection Zone	Low	The Protection Zone extends into expropriation corridor. A cut and cover tunnel would be constructed at this location. Excavations would remove any below-ground heritage assets within their footprint.
Çatalca Station Buildings	Low	The scope of works in the vicinity of the Station Buildings includes: 1 footbridge, 1 platform and 2 additional rail tracks. There would be no direct impacts on this asset from these works.
Kaleiçi Historical Bridge (Çatalca – Kaleiçi)	Low	The bridge is immediately south of the expropriation corridor. There could be impacts from construction activities, including movement of machinery.
General landscape area, noted on Google Earth	Negligible	No Cultural Heritage assets were identified during the site walkover. No impact.
İnceğiz Mahallesi 879-parcel	Low	A section of the existing railway line partly within the expropriation corridor. If any historic railway infrastructure (such as signal boxes, bridges, water towers, engine sheds) is present within the expropriation corridor it could be impacted.
Kabakça Mahallesi, including Kabakca Station Buildings	Low	A section of the existing railway line partly within the expropriation corridor. If any historic railway

Name	Sensitivity	Direct Impact
(Çatalca – Kabakça) (1005-parcel)		infrastructure (such as signal boxes, bridges, water towers, engine sheds) is present within the expropriation corridor it could be impacted. Kabakca Station Buildings are 20m north of the expropriation corridor. There would be no impact on these buildings.
Anastasuis's Wall	High	The Protection Zone extends into the expropriation corridor where a new track would be constructed. Excavations for the new track would remove any below-ground heritage assets within the footprint. There is the potential for a large adverse impact, within the area of excavation without mitigation. The total length of the Protection Zone is approximately 45km. The expropriation corridor covers 100-200m of the Protection Zone.
Çayırdere Mahallesi 705-parcel, including Çayırdere Station Building	Low	A section of the existing railway line partly within the expropriation corridor. If any historic railway infrastructure (such as signal boxes, bridges, water towers, engine sheds) is present within the expropriation corridor it could be impacted. Çayırdere Station Building is 150m south of the expropriation corridor. There would be no impact on this building.

- 9.5.3. In addition to the cultural heritage assets identified in **Table 9-6** above, the construction phase has the potential to have an impact on any possible, previously unrecorded archaeological remains that might be present. Effects on below-ground cultural heritage assets during the construction phase would be direct, permanent long-term **Moderate to Large Adverse (significant)** prior to appropriate mitigation.
- 9.5.4. During the construction phase there is potential for short-term and temporary effects from increased vibration from construction activities and the movement of machinery on above ground heritage assets, including:
- Kaleiçi Historical Bridge, of Low sensitivity.
 - Old Yogurthane Building, of Low sensitivity.
 - Çayırdere Station, of Low sensitivity.
 - Çatalca Station, of Low sensitivity.
 - Kabakça Station, of Low sensitivity.
 - Ispartakule Station, of Low sensitivity.
 - Ömerli Traditional House, of Low sensitivity.
 - Korugan Military Bunker, of Low sensitivity.
- 9.5.5. Given the temporary nature the magnitude of the impact would be **Slight Adverse**. This would result in an indirect, temporary, very short-term **Minor Adverse (not significant)** effect.

9.5.6. The potential for cosmetic damage due to ground vibration arising from the construction of the Project has been assessed in **Chapter 7: Noise and Vibration** in accordance with BS7385-2 'Evaluation and measurement for vibration in buildings. Guide to damage levels from groundborne vibration'. The assessment concludes that vibration thresholds for cosmetic damage advised in the standard are unlikely to be exceeded however vibration levels have the potential to be high at the above ground heritage assets along the expropriation corridor, including at:

- Ispartakule Train Station;
- Old Yoğurthane Building;
- Ömerli Traditional House;
- Korugan Military Bunker;
- Çatalca Station;
- Kaleiçi Historical Bridge;
- Kabakça Station Buildings; and
- Çayırdere Station Building.

9.5.7. The Project would result in **Neutral effects (not significant)** in respect of potential impacts on ICH, given the distance from the expropriation corridor:

- Traditional Turkish archery. No archery complexes will be expropriated due to the Project. Okcular Vakfi the most famous archery complex in Turkey and is located over 20km from Halkali Station (the closest point to Project);
- Heritage of Dede Qorqud/Korkyt Ata/Dede Korkut. This is most commonly practiced in Eastern and North Eastern Turkey and will be unaffected by the Project;
- Whistled language. This is practiced in Turkey's Eastern Black Sea Region and will be unaffected by the Project;
- Spring celebration, Hidrellez. Due to this distribution of communities and centres where celebrations focus, it is considered not to be affected by the Project;
- Traditional craftsmanship of Çini-making. No businesses of this nature will be expropriated due to the Project. The practice will not be impacted by the presence of the Project;
- Nawrouz, Novruz, Nowrouz, Nowrouz, Nawrouz, Nauryz, Nooruz, Nowruz, Navruz, Nevruz, Nowruz, Navruz. As a cultural event celebrated throughout the country, it is not site specific, and on this basis is considered to be unaffected by the Project;
- Flatbread making and sharing culture. No businesses of this nature will be expropriated due to the Project. The practice occurs countrywide and is not location specific, and on this basis is considered to be unaffected by the Project;
- Ebru, Turkish art of marbling. Most of masters of the tradition perform their art in Istanbul and the city is accepted as the centre of this activity. The activity will be possible irrespective of the presence of the Project, on this basis is considered to be unaffected by the Project;
- Turkish coffee culture and tradition. No businesses of this nature will be expropriated due to the Project. This is practiced throughout the country with no specific centres, specialist sites or concentrations, and will be unaffected by the Project;
- Mesir Macunu Festival. This element is highly site specific and is practiced in Manisa province and will not be affected by the Project;
- Ceremonial Keşkek tradition. There are no specific locations along the expropriation corridor where the tradition is notable, and on this basis is considered to be unaffected by the Project;
- Kırkpınar oil wrestling festival. The tradition has strong transmission and community involvement in Edirne and on this basis would not be affected by the Project;

- Semah, Alevi- Bektaşî ritual. This is concentrated in certain regions of Anatolia and would not be affected by the Project;
- Traditional Sohbet meetings. There are no particular concentrations along the expropriation corridor this is considered to be unaffected by the Project;
- Âşıklık (minstrelsy) tradition. The most renowned bearers of the tradition are from areas beyond the expropriation corridor. It will be unaffected by the Project;
- Karagöz. The tradition is largely carried out in areas beyond the expropriation corridor. It will be unaffected by the Project;
- Arts of the Meddah, public storytellers. The practice is not location-specific this is considered to be unaffected by the Project; and
- Mevlevi Sema Ceremony. There is no particular focus along the expropriation corridor and on this basis considered to be unaffected by the Project.

OPERATIONAL PHASE

- 9.5.8. For buried cultural heritage assets, during the operational phase there would be **Neutral (not significant)** effects expected on the basis that once the Project has been completed, no further ground disturbance would occur and consequently there would be no additional impacts or resulting environmental effects. However, there is the possibility that operational maintenance activities may require intrusive below ground activity.

For above ground heritage assets, during the operational phase there would be **Neutral (not significant)** effects expected on the basis that once the Project has been completed there would be no further impacts from vibration due to construction traffic. Notably, the potential for cosmetic damage due to ground vibration arising from the operation of the Project has been assessed in **Chapter 7: Noise and Vibration** in accordance with BS7385-2 'Evaluation and measurement for vibration in buildings. Guide to damage levels from groundborne vibration' in the absence of any specific standards for historic buildings. The assessment concludes that vibration thresholds for cosmetic damage advised in the standard are unlikely to be exceeded at the above ground heritage assets along the expropriation corridor, including at:

- Ispartakule Train Station;
- Old Yoğurthane Building;
- Ömerli Traditional House;
- Korugan Military Bunker;
- Çatalca Station;
- Kaleiçi Historical Bridge;
- Kabakça Station Buildings; and
- Çayırdere Station Building.

- 9.5.9. No operational impacts on ICH have been identified, for the reasons set out in the construction phase.

9.6 MITIGATION AND ENHANCEMENT MEASURES

- 9.6.1. There is potential for significant partial effects on two heritage assets with possible impacts to two further assets (as described in **Table 9-4**). It will however be necessary for the Contractor to contact the Ministry of Culture and Tourism and inform them of the details of planned construction activities before commencement. If in the decision of the Ministry there is a statement requiring that construction activities be performed under the supervision of the Regional Directorate or the General

Directorate of Cultural Heritage and Museums, the Directorate must be notified before the commencement of construction activities for each construction area which requires supervision. Therefore, all decisions from the Ministry of Culture and Tourism should be reviewed before construction commences.

- 9.6.2. Furthermore, in accordance with PR8 a **Cultural Heritage Management Plan (CHMP)** and **Chance Finds Procedure** will be agreed with the Ministry of Culture and Tourism in advance of construction work. In the event that any heritage asset or chance find is encountered during construction, that may be within the scope of the applicable law, Law No. 2863 on the Preservation of the Cultural and Natural Assets, construction should be ceased, and the nearest Regional Directorate or General Directorate should be informed.

PRE-CONSTRUCTION

- 9.6.3. The **Environmental and Social Management Plan (ESMP)** includes a requirement for a **CHMP**, as recommended in PR8¹²⁸, which will cover the pre-construction and construction phases. The **CHMP** identifies a series of steps required to be undertaken, by the Contactor's heritage expertise, to mitigate identified adverse impacts on cultural heritage assets, in accordance with Turkish laws (outlined in Section 9.1).

CONSTRUCTION PHASE

Cultural Heritage Management Plan

- 9.6.4. The **CHMP** will include appropriate measures to mitigate adverse effects in accordance with national policy and EBRD requirements. The **CHMP** will be used to inform all the requirements, procedures, resources and skills and timeline needed to minimise adverse cultural heritage effects. The overall objective of the **CHMP** is to preserve and protect significant cultural heritage sites or artefacts from adverse effects associated with Project activities. The **CHMP** aims to minimise the chance of damage to heritage assets during construction and to present a methodology and procedure for adequately mitigating for 'chance finds' should they be discovered. The **CHMP** will outline the cultural heritage management principles and procedures to be followed during construction and operations in accordance with the Project's policies and national legal requirements.
- 9.6.5. The **CHMP** will set out the minimum mitigation requirements, and will include:
- A description of roles and responsibilities of AYGM and the Contractor, which will include the Contractor appointing a specialist with heritage expertise;
 - Once the engineering details are known there will be a procedure for a pre-construction walk-over to establish the baseline status of above ground cultural heritage assets prior to construction i.e. a rapid appraisal of their current condition, to confirm no changes to assets has occurred;
 - Actions and measures to manage risks and impacts to cultural heritage as identified in Section 9.6.10);
 - Identification of the need for a mitigation strategy to be prepared (outline mitigation strategy in **Table 9-5** below), including a Chance Finds Procedure detailing necessary steps to be taken should any culturally significant assets be found;
 - Identify the need for archaeological monitoring and verification that the mitigation strategy is being adhered to;
 - Identify the need for training of staff in regard to cultural heritage assets which might be encountered during the construction phase.

- Identify potential opportunities to enhance understanding and significance of heritage assets, including ICH, where this would be appropriate (e.g. heritage information boards).

9.6.6. Table 9-5 provides an outline of the mitigation strategy which will be included in the **CHMP**. The only asset of High significance that will be impacted is Anustasius's Walls. Below ground remains of a small section of the wall could be removed. All other assets are of Low significance. It is not anticipated that the impacts on these assets are significant enough to warrant preservation 'in situ' through changes to the design.

Table 9-5 - CHMP Outline Mitigation Strategy

Topic	Location	Requirement	Responsibility
On-site specialists	Bahşayış Bastion and Protection Zone (24+750 – 24+800)	Qualified archaeological specialists will be retained onsite during construction in the Protection Zone of Bahşayış Bastion to ensure that 'preservation by record' is undertaken through watching brief during the construction process.	Contractor
On-site specialists	Anustasius's Wall Protection Zone (53+300 – 53+400)	The Istanbul Regional Directorate of Protection of Cultural Heritage has stated that construction activities need to be conducted under the supervision of the Museum Directorate. Qualified archaeological specialists will be retained onsite during construction in the Protection Zone of Anustasius's Wall to ensure that 'preservation by record' is undertaken through watching brief during the construction process. The Regional or General Directorate will be formally consulted prior to construction to enable them to make arrangements for providing supervision.	Contractor
On-site specialists	Ömerli Traditional House (9+450)	Ömerli Traditional House is 30m south of the expropriation corridor. Measures would aim to ensure that construction activities, including movement of machinery, would not have an impact upon the building (e.g. measures to prevent accidental strike damage)	Contractor
On-site specialists	Korugan Old Military Bunker (22+700)	Korugan Old Military Bunker is adjacent to the expropriation corridor. Measures would aim to ensure that construction activities, including movement of machinery, would not have an impact upon the building (e.g. measures to prevent accidental strike damage)	Contractor

Topic	Location	Requirement	Responsibility
		Qualified archaeological specialists will be retained on-site due to the possibility of underground structures of the bunker within the Project alignment.	
Asset Buffer Zone	Hoşdere Mahallesi 130-ada-1-parcel (9+100 to 11+900)	A 10m buffer zone will be applied to this asset during the construction phase. If construction activities are to take place within the 10m buffer it will be necessary for the Contractor to contact the Ministry of Culture and Tourism and inform them of the details of planned construction activities before commencement.	Contractor
Asset Buffer Zone	İnceğiz Mahallesi 879-parcel (38+100, 42+200 to 42+400)	A 10m buffer zone will be applied to this asset during the construction phase. If construction activities are to take place within the 10m buffer it will be necessary for the Contractor to contact the Ministry of Culture and Tourism and inform them of the details of planned construction activities before commencement.	Contractor
Asset Buffer Zone	Kabakça Mahallesi 1005-parcel (43+000 to 45+200)	A 10m buffer zone will be applied to this asset during the construction phase. If construction activities are to take place within the 10m buffer it will be necessary for the Contractor to contact the Ministry of Culture and Tourism and inform them of the details of planned construction activities before commencement.	Contractor
Asset Buffer Zone	Çayırdere Mahallesi 705-parcel (68+900 to 69+100)	A 10m buffer zone will be applied to this asset during the construction phase. If construction activities are to take place within the 10m buffer it will be necessary for the Contractor to contact the Ministry of Culture and Tourism and inform them of the details of planned construction activities before commencement.	Contractor
Modern Grave Buffer Zone	Ömer Dede Tomb	A 10m buffer zone will be applied to this modern grave during the construction phase. If construction activities are to take place within the 10m buffer it will be necessary for the Contractor to contact both the Ministry of Culture and Tourism and the	Contractor

Topic	Location	Requirement	Responsibility
		Ministry of Family and Social Policies ¹⁴² and inform them of the details of planned construction activities before commencement.	
Pre-condition surveys and monitoring during construction of heritage assets sensitive to vibration	At assets specified	Assets sensitive to vibration: <ul style="list-style-type: none"> ■ Ispartakule Train Station (chainage 9+400); ■ Old Yoğurthane Building (chainage 9+450); ■ Ömerli Traditional House (chainage 17+460); ■ Korugan Military Bunker (chainage 22+700); ■ Çatalca Station (chainage 31+900); ■ Kaleiçi Historical Bridge (chainage 32+300); ■ Kabakça Station Buildings (chainage 32+700); and ■ Çayırdere Station Building (chainage 68+200). 	Contractor

9.6.7. There is potential for significant effects on the protection zones of two cultural heritage assets. A cut and cover tunnel is planned with protection zone of the Bahşayış Bastion, dating the early 20th century. Excavations for the tunnel would remove any below-ground heritage assets within their footprint. The route of the Project crosses the protection zone of Anustasius's Walls, dating to the Byzantine period. The Project would be constructed in the protection zone, and a small section of the below ground remains of the historic wall could be removed. The Contractor will be required to undertake 'preservation by record' is undertaken through watching brief during the construction process.

9.6.8. Two registered historical buildings are close to the expropriation corridor. Omerli Traditional House, dating to the late Ottoman period, and the Korugan Old Military Bunker, dating to World War 2. There are measures set out in the **CHMP** mitigation plan to ensure that construction activities, including movement of machinery, would not have an impact upon these assets (e.g. measures to prevent accidental strike damage). It is possible that underground structures of the Korugan Old Military Bunker extend into the expropriation corridor and could be impacted by construction activities.

¹⁴² Responsible for the maintenance and preservation of the memorials, tombs, graves and cemeteries in Turkey.

9.6.9. The Contractor will liaise with the Ministry of Culture and Tourism during the preparation of the **CHMP** and will send them the **CHMP** prior to the commencement of construction. Whilst unlikely, it is possible that the Ministry of Culture and Tourism will require additional mitigation requirements to those minimum requirements outlined in the **CHMP**.

9.6.10. Mitigation measures for the construction phase are as follows:

- Ensure that all construction staff and stakeholder activities are aware of the potential for identifying cultural remains as defined in the **CHMP**;
- Code of conduct, awareness raising, and training for workers and personnel involved during the construction phase, which will be described in the **CHMP**; and
- Implement monitoring and reporting requirements that must be adhered to during the construction phases.

Chance Find Procedure

9.6.11. A **Chance Find Procedure** will be set up to mitigate for potential chance finds during the construction phase. If a chance find is discovered the Contractor must stop works notify the AYGM, the Regional Directorate and the Ministry of Culture and Tourism and put a cordon around the chance find. The Contractor will not disturb any find until a designated and qualified heritage specialist has been contacted who can identify the find, record it and identify the importance. This full procedure should be documented prior to construction in the **CHMP**.

Construction in the area of Anastasius' Walls

9.6.12. The Istanbul Regional Directorate of Protection of Cultural Heritage stated that construction activities shall be conducted under the supervision of Museum Directorate at the sections where the Project passes close to Anastasius' Walls, as set out in the **ESMP**. The Contractor will formally consult with the Regional Directorate, at the earliest opportunity, prior to construction.

Ground Vibration

9.6.13. A noise and vibration monitoring programme will be undertaken at sensitive receptor locations, as set out in the **ESMP**. The purpose will be to ensure that the design limits, as set out in **Chapter 7: Noise and Vibration** are not exceeded.

9.6.14. General methods of vibration control include:

- The selection of low or non-vibratory piling equipment such as rotary or bored piling;
- Reducing the requirement for vibratory compaction and using static force compaction, such as smooth-wheeled or sheepfoot rollers; and
- No start up or shut-down of vibratory plant within 50m of receptors.
- Pre-condition surveys will be undertaken at heritage assets which are sensitive to vibration, these are as follows:
 - Ispartakule Train Station;
 - Old Yogurthane Building;
 - Ömerli Traditional House;
 - Korugan Military Bunker;
 - Çatalca Station;
 - Kaleiçi Historical Bridge;
 - Kabakça Station Buildings; and

- Çayirdere Station Building.

9.6.15. This will be undertaken by an independent surveyor to visually identify all existing signs of exterior damage, cracks (including size, type and direction) and settlement before construction takes place, it should include a written record and photographs. This will then provide a record of the existing situation, against which any change due to the construction activities can be monitored. During construction, monitoring surveys will be undertaken following construction activities that generate a high level of vibration at that location, crack gauges installed to enhance monitoring, if required, and / or construction methodologies refined to reduce vibration levels, if required. They will also be undertaken post construction, to identify any damage that needs to be rectified by the Contractor, in consultation with the asset owner and Regional Conservation Council or Ministry of Culture and Tourism, as appropriate.

OPERATIONAL PHASE

9.6.16. The Project is anticipated to have a Neutral (not significant) effect on cultural heritage during the operational phase of the Project, however there is the potential for operational maintenance activities to require intrusive below ground activity. To manage the risk of disturbance or damage to cultural heritage as a result of maintenance activities mitigation measures have been included in the ESMP.

9.6.17. Mitigation measures for the operational phase are as follows:

- TCDD Transport will ensure anyone undertaking maintenance activities are aware of the potential for identifying cultural remains when undertaking any intrusive below ground activity.
- In line with national legislation, TCDD Transport will require the maintenance contractor to establish a policy and procedure for managing any chance finds during maintenance activities.
- Mitigation in regard to noise and vibration during the Operational phase are discussed in **Chapter 7: Noise and Vibration**.

9.7 RESIDUAL EFFECTS

9.7.1. On the assumption that baseline conditions are corroborated during pre-construction walkovers, it is considered that the Project will not result in significant residual effects upon the above ground heritage assets. There is potential for up to **Moderate Adverse (significant)** residual effects upon potential below-ground heritage resources (if uncovered during works) until the below-ground construction works are completed. Residual effects upon above-ground heritage resources would be **Neutral (not significant)**.

9.7.2. Given that the effects associated with the operational phase are considered to be **Neutral (not significant)**, the residual effects will remain unchanged from those reported above.

SUMMARY

Table 9-6 - Summary of Potential Impacts, Effects and Mitigation (Cultural Heritage)

Topic	Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
Cultural Heritage	<p>There is potential for below-ground heritage assets to be affected during the construction phase.</p> <p>There is potential for above ground heritage assets to be affected during the construction and phase.</p>	Construction	Below-Ground Heritage Assets	Large Adverse (significant)	Implementation of: <ul style="list-style-type: none"> Chance Finds procedure; CHMP; and Archaeological supervision in the area of Anastasius's Walls. 	Up to Moderate Adverse (significant) - if any below ground heritage is found during the construction phase.
		Construction	Above Ground Heritage Assets	Slight Adverse (not significant)	Implementation of: <ul style="list-style-type: none"> CHMP; and ESMP (vibration monitoring programme). 	Neutral (not significant)
		Operation	Above and Below Ground Heritage Assets	Neutral (not significant)	Implementation of: <ul style="list-style-type: none"> ESMP. 	Neutral (not significant)