



# Impact Assessment for the Eurasia Tunnel Project Approach Road Realignment Near the Marble Tower

Non Technical Summary (NTS)

July 2016

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Document Title Impact Assessment for the Eurasia Tunnel  
Project Approach Road Realignment Near the  
Marble Tower  
Document short title Eurasia Tunnel Project Marble Tower Approach  
Road Realignment IA  
Status Non Technical Summary  
Date 07.28.2016  
Project Name Eurasia Tunnel Project Marble Tower Approach  
Road Realignment IA  
Project Number HA1621  
Client  
Reference HA1621

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## 1.0 INTRODUCTION

### 1.1 Eurasia Tunnel Project Marble Tower Approach Road Realignment

The Eurasia Tunnel Project consists of a 5.4 km road tunnel beneath the Bosphorus Strait, between the European and Asian shores of Istanbul, together with the widening of a total of 9.2 km of existing roads on both sides to form the approach roads to the tunnel. An Environmental and Social Impact Assessment (ESIA) was completed in 2011 and the ES impact mitigation measures that were identified are presently implemented by Avrasya Tüneli İşletme İnşaat ve Yatırım A.Ş. (ATAŞ - the Eurasia Tunnel Operation, Construction and Investment Inc. Co.) The approach roads to the Tunnel along the European shore are located in close proximity of the historical Marble Tower structure (Figure 1) which is part of the UNESCO Protected Heritage Site. The Tower is located near the beginning of the European Eurasia Tunnel approach roads and is presently significantly affected by the existing Kennedy Caddesi which was constructed in the 1960s. The originally planned Eurasia Tunnel approach road assessed in the 2011 ESIA, was going to isolate access to the Tower by leaving it located on a parcel of land between the east and westbound approach roads (Figure 2).



Figure 1: Existing Kennedy Caddesi Near Marble Tower Structure

The Historic Areas of Istanbul was inscribed on the UNESCO World Heritage List in 1985 and since its inscription, annual progress reports are presented to the UNESCO World Heritage Centre. The World Heritage Center and ICOMOS Joint Reactive Monitoring Mission Report in 2013 for Historic Areas of Istanbul (356) had the following assessment with respect to impacts from the Eurasia Tunnel Project:

- The Marble Tower should not, in any scenario, be left isolated in the central reservation of a road (Figure 2)
- The impact can be mitigated, most obviously by moving both carriageways south of the Marble Tower, involving a small amount of further reclamation (and creating a much more viable green space in the process)



Figure 2: Originally Planned Approach Roads (North-West Bound and South-East bound) near the Marble Tower

The Greater Municipality of Istanbul (IBB) agreed to adopt the assessment and recommendations made by the World Heritage Center and ICOMOS Joint Reactive Monitoring Mission with respect to the Marble Tower and agreed with ATAS to undertake the necessary land reclamation south of the Marble Tower to facilitate the change in alignment. This realization results in approximately 5,000 m<sup>2</sup> area of land reclamation along the existing Bosphorus seashore (see pink shaded area in Figure 3), construction of a realigned Kennedy Caddesi on this new land and decommissioning of the existing road between the Marble Tower and the city walls. The land reclamation and utility extension is undertaken by an IBB selected contractor and funded by IBB. The construction was planned and completed between December 2015 and March 2016. ATAS is responsible for constructing the realigned Kennedy Caddesi south of the Marble Tower. Responsibility for decommissioning of the existing Kennedy Caddesi north of the Marble Tower is yet to be determined between ATAS and IBB.

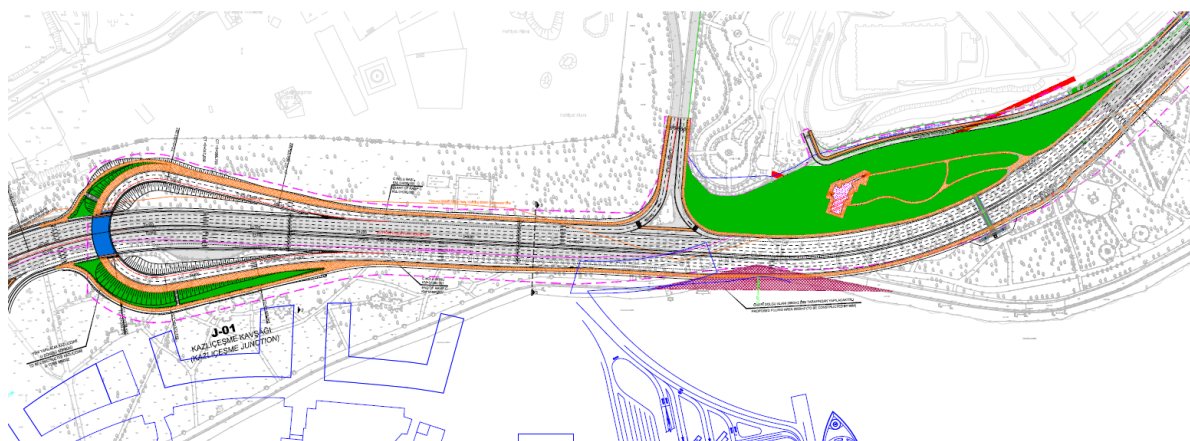


Figure 3: Realigned Approach Roads Near the Marble Tower

The approach roads will fall back into the originally planned Eurasia Tunnel approach roads east of the Marble tower. It should be noted that the existing Kennedy Caddesi north of the Marble Tower will be decommissioned which will create a traffic free area that will be integrated into the Coastal Park Zone near the seashore.

The 2011 ESIA study assessed the construction and operation of the approach roads along the European Shore near the Marble Tower without considering the seashore reclamation and changes induced by the southern diversion of the approach roads. Therefore, an impact assessment was conducted to identify and evaluate the significance of any different and/or additional impacts associated with the proposed road realignment and to determine whether any different and/or additional mitigations are warranted from those identified in the 2011 ESIA study and the results are summarized in this document.

## 2.0 SCOPING

The approach road realignment construction and operation must comply with Turkish environmental and social legislation and lenders environmental and social performance standards which include amongst other things, compliance with EU Directives on protection of the environment and the community. The road realignment project does not fall within Annex I and Annex II of the Turkish EIA regulation, or within the requirements of the EU EIA Directive. However, the project is required to comply with all of the remaining environmental and social regulatory framework requirements. Also, ATAŞ is obligated under the agreement with the Financial Intermediaries to assess and disclose any material changes to the existing Eurasia Tunnel Project that have the potential to result in environmental and social impacts that are different to those assessed and previously approved. The scoping for the Marble Tower Approach Road realignment identified the following potential impacts different to those previously assessed:

### **Positive impacts on community access/recreation, including**

- reuniting the Marble Tower with other historic structures;
- creating a more viable green space around the historic structures.

### **Adverse impacts on water environment and marine biodiversity**

- reclamation of 5,000 m<sup>2</sup> near the seashore;
- risks to the marine environment from intentional seashore filling and accidental discharges and spills during construction and operation;
- risks to marine biodiversity within the area of influence of the reclamation activity.

### **Adverse impacts on Historic Structures including:**

- physical damage to historic features such as the city walls;
- damage caused by vibration during construction or from traffic during operation.

### 3.0 SUMMARY OF IMPACT ASSESSMENT AND MITIGATION

#### 3.1 Positive Impacts on Land Use and Community access/recreation

The changes in land use and community access recreated are assessed to have an overall positive benefit over the changes that would have been brought by the original design and implementation of the Eurasia Tunnel approach near the Marble Tower. The envisioned land use following the decommissioning of the stretch of the Kennedy Caddesi will result in the following:

- The existing park area east of the Genç Osman Caddesi will be linked to the area where the Kennedy Caddesi will be decommissioned;
- A large area will be developed for community use north of the Marble Tower;
- Unhindered access to the Marble Tower will be provided from the north;
- An overpass will be built east of the Marble Tower linking the coastal park area with the area near the Marble Tower (Figure 3).

The mitigation measures reported in the 2011 ESIA report will still be valid for the area near the Marble Tower. Since the 2011 ESIA study, a Coastal Park Rehabilitation Plan has been developed between the IBB and ATAŞ. ATAŞ has indicated that the Plan will also apply to the area which will be gained following the decommissioning of the Kennedy Caddesi north of the Marble Tower. No change in the 2011 Environmental and Social Management Plan (ESMP) is therefore envisioned with the exception of ensuring that the Coastal Park Rehabilitation Plan is also implemented for the new land use areas and that an overpass be built East of the Marble Tower.

#### 3.2 Impacts on Water Environment

Considering the dimensions and the shape of the planned construction, it is expected that the reclamation will only cause slight change in the prevailing nearby coastal currents in the project site and it is not expected that the reclamation will impact on the hydrodynamic regime of the Bosphorus Strait. The impact on the coastal currents is assessed to be not significant.

The reclaimed area will have the same construction method as the existing shoreline (i.e. large stone façade) and hence it will represent a continuity of the existing shoreline conditions. It was previously identified that up to 3 km<sup>2</sup> has been already reclaimed by the IBB over the years to develop the coastline along the Marmara Sea. The area reclaimed by the road embankment (0.005 km<sup>2</sup>) is a fraction of the reclaimed area and hence the impact of the reclaimed area can be considered to be negligible in view of the already reclaimed and continuing shoreline reclamation practice of the IBB. The changes in the coastal shoreline and morphology are assessed to be not significant.

Reclamation work will cause local and temporal re-suspension of sediments, causing increased turbidity. However, impacts are temporary and are not expected to result in circumstances that would have long lasting effects. Hence the potential impacts are considered to be not significant to minor.

### 3.3 Impacts on Marine Biodiversity

The coastline of the Sea of Marmara has undergone tremendous environmental degradation over the last decades, resulting mainly from rapid population growth, urbanization and industrialization. Coastal marine habitats of the Sea of Marmara are subjected to continuing human-induced pressures such as dredging, reclamation, industrial and sewage effluents, brine water discharge from desalination plants, and oil pollution.

Nevertheless, recent underwater (SCUBA) observations from a similar shallow-water nearshore location 6 km east of the project site, (Ahırkapı coast) indicate that the reclaimed area may be used by some threatened or endangered species of fish and marine mammals. These species include *Hippocampus guttulatus* (long-snouted seahorse), *Hippocampus hippocampus* (short-snouted seahorse), *Syngnathus acus* (greater pipefish), *Parablennius gattorugine* (tompot blenny), *Raja clavata* (thornback ray), and *Raja radula* (rough ray).

Reclamation work may have caused local destruction of the habitats of two endangered *Raja* species, and of *Syngnathus acus*, but they are mobile enough to move out of the construction area and the potential impacts will be negligible. The most significant impact might have been to the slow moving fish, seahorses. However, despite having patchy distribution, both seahorse species, which are considered to be widely distributed throughout the Mediterranean Sea are common in the Sea of Marmara. Both are seasonal breeders. Breeding season of *H. guttulatus* is from March to October, and that of *H. hippocampus* is from April to October. In the Sea of Marmara, reproductive seahorses, which are typically found as breeding pairs, are usually observed from late April to September, which is outside the reclamation time period. In addition, these species mature at younger ages, have rapid growth rates, and a short generation time, suggesting that they have reasonable potential to recover rapidly after effects of disturbance cease (e.g., exploitation, by-catch or habitat damage). It is therefore not likely that reclamation work associated with the road realignment will have caused any significant damage to the seahorse populations in the area.

Three species of marine mammals regularly found in the Sea of Marmara – *Delphinus delphis* (common dolphin), *Tursiops truncatus* (bottlenose dolphin), and *Phocoena phocoena* (harbour porpoise) (Öztürk & Öztürk, 1996<sup>1</sup>) – which frequently approach very close to shore, could be disturbed by noise generated by reclamation works in some degree. However, it is likely that mobile species intolerant of the noise such as some resident fish and transient marine mammals can move out of the affected area temporarily and quickly return once the noise ceases, and thus are unlikely to be significantly impacted.

Considering that the present shoreline is not natural, but was created by reclaiming land from the sea within the last 50 years, it is not likely that there are any seagrass meadows present within the

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<sup>1</sup> Öztürk, B. & Öztürk, A.A. (1996) On the biology of the Turkish straits system. In Briand, F. (ed.) *Dynamics of Mediterranean straits and channels*. *Bulletin de l'Institut océanographique*, n° spécial 17, Monaco, pp. 205–221.



impact zone of the reclamation project. It is therefore not expected that the current reclamation will cause any significant loss of seagrass.

Mussel beds and their associated biota may be damaged by reclamation work. However, the species *M. galloprovincialis* is widespread along the coasts of the Sea of Marmara and the loss will be a very small amount of the overall biota present in the region. The magnitude of the impact can be considered to be small. Likewise, based on observations made at Ahirkapi coast in shallow-waters (usually at about 2–5 m depth), a large number of active nests built by *Symphodus roissali* (five-spotted wrasse) have been observed between May and July in the last five years (H. Kabasakal, 2016, pers. comm., 30 April). This indicates that the area is used for spawning at least by *S. roissali*. However, since the construction period was between December and March and the site activities did not coincide with the spawning period, the impact on spawning activities are likely to be negligible.

### 3.4 Impacts on Cultural Heritage – archaeology, built heritage and landscape

Positive impacts from the road realignment will be as follows:

- Compliance with the assessment and mitigation proposals as given by the 2013 World Heritage Center and ICOMOS Joint Reactive Monitoring Mission Report;
- Improving people’s ability to appreciate the Marble Tower (and the sea wall which provides its context and setting) by providing greater access to the Marble Tower;
- Improving the physical connection between the remnants of the Theodosian walls and the Marble Tower following the decommissioning of the existing Kennedy Caddesi stretch north of the Marble Tower;
- Increasing the buffer zone around the Marble Tower from its present condition.

The overall significance of the potential impact is considered to be high from the construction process even though blasting and piling activities will not take place and the construction area is outside the buffer zone of the Marble Tower. A Due Diligence Report for Historical Structures has previously been prepared in order to record physical damage and damage related to vibration. It is recommended to identify whether damages to the Marble Tower occur related to the road realignment seashore reclamation construction by making a comparison with the results of the previous Due Diligence Report for Historical Structures following the completion of the construction stage.

Archeogeophysical surveys undertaken in support of the 2011 ESIA identified the foundations of the City Walls under the existing road and the decommissioning of the existing Kennedy Caddesi will occur within the area of known buried wall foundations. If ATAS undertakes the decommissioning, the risks of damage to the buried city walls during decommissioning will be managed by the following actions:

- Consult with protected area sponsors and managers, local communities and other key stakeholders (including the Municipality and UNESCO);
- Agree the decommissioning method and rehabilitation objectives for the existing Kennedy Caddesi with Istanbul Greater Metropolitan Municipality and, if relevant with the Protective Council;

- undertake decommissioning and rehabilitation works in accordance with a detailed method statement for the decommissioning activities and the measures to be put in place to prevent damage to the remains of the City Walls in the areas of known buried city walls. The method statement will comply with the requirements of IFC Performance Standard 8 and EBRD Performance Requirement 8 and as required by the Protective Councils, a government approved specialist will be appointed to advise on any finds. The method statement will be reviewed and agreed with relevant stakeholders (Istanbul Greater Metropolitan Municipality and, if relevant, with the Protective Council); prior to decommissioning works commencing.
- where the archaeogeophysical investigations have identified the potential for archaeological remains to exist, a government-approved qualified archaeologist (a representative of Preservation Council) shall be present on site to observe during site clearance and excavation of areas where there is potential for finds.
- in the event that archaeological remains are identified, a chance finds procedure will be implemented to ensure that such remains are properly recorded and removed to an appropriate museum or similar facility for study and long-term curation.
- comply with relevant national law on the protection of cultural heritage, including national law implementing the Convention on Protection of the World Cultural and Natural Heritage and other relevant international law.
- take actions to promote and enhance the conservation aims of the protected area.

If IBB undertake the decommissioning works, ATAŞ will provide İBB the archeogeophysical survey results and discuss the above mitigation measures with İBB for implementation during decommissioning.

With the implementation of the above mitigation measures, the impact on cultural heritage is assessed to be not significant.

#### 4.0 STAKEHOLDER ENGAGEMENT

The following stakeholder communication has been undertaken with respect to the road realignment project near the Marble Tower.

- During the approval process of the Eurasia Tunnel and Approach Project, the 4th Heritage Protection Council of the Ministry of Culture and Tourism indicated that the project should be revised to mitigate the isolation of the Marble Tower. IBB contacted ATAŞ and a revised project near the Marble Tower was submitted in 2015 to the 4th Protective Council which was subsequently approved.
- A site visit was conducted by UNESCO DMM in May 2015 where these developments were presented verbally by ATAŞ.
- These developments were reported in the 2016 development reports in writing and have been registered in the UNESCO web site: <http://whc.unesco.org/document/139928>.

- The design change was publicly disclosed via the following document: ([http://avrsyatuneli.com/Files/pdf/designdisclosure\\_tr.pdf](http://avrsyatuneli.com/Files/pdf/designdisclosure_tr.pdf) ). In addition the CSED-ESIA reading room documentation has been revised and these changes have been reflected in the construction sites as posters.